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Appendix I

WASC STANDARDS/CRITERIA FOR REVIEW CORRELATION MATRIX

(2008 Changes to CFRs addressed in Appendix III)

Standard and CFR	Addressed in EER by Essay Title and Subsection And/or External Reference
Standard One : Defining Institutional Purposes and Insuring Educational Objectives	
1.1 Formally approved, appropriate statements of purpose which clearly define its essential values and character	Introductory Essay, also http://www.csum.edu/About/Mission.asp
1.2 Clear objectives and indicators of achievement at institutional, program and course level	Essay One, "Process;" also, Appendix VII: Institution-Wide Assessment Council Portfolio
1.4 Institution publicly states its commitment to academic freedom for faculty, staff, and students	Academic Senate By-laws and Shared Governance Statement, http://www.csum.edu/academics/AcademicSenate/CMA_AcademicSenate.asp as well as The Collective Bargaining Agreement: http://www.calstate.edu/laborrel/contracts_html/cfa_contract/cfatoc.shtml
1.5 Institution demonstrates an appropriate response to the increasing diversity through policies and, educational and co-curricular programs	Appendix VII, Committee on Unity and Diversity; also, Essay Four, "Process"
1.8 Institution exhibits integrity in its operations, as demonstrated by the implementation of appropriate policies	Academic Senate By-laws and Shared Governance Statement, http://www.csum.edu/academics/AcademicSenate/CMA_AcademicSenate.asp as well as The Collective Bargaining Agreement: http://www.calstate.edu/laborrel/contracts_html/cfa_contract/cfatoc.shtml

Standard and CFR	Addressed in EER by Essay Title and Subsection And/or External Reference
Standard Two: Achieving Educational Objectives Through Core Functions	
2.2a Baccalaureate programs engage students in an integrated course of study to prepare them for work, citizenship and a fulfilling life	Essay 1: *Intellectual Learning*, "Process" Subsection on General Education Also, Appendix VII , Exhibit on IWAC
2.3 Institution's student learning outcomes are clearly stated at course, program, and institutional level	Essay 1: *Intellectual Learning*, "Process" Subsection on IW-SLOs and Program Review.
2.4 Institution's expectations for learning are developed and shared among its members.	Essay 1: *Intellectual Learning*, "Process" Subsection on Program Review, Appendix VII: Program Review Guide
2.5 Institution's academic programs involve student in learning and provide them with feedback about their performance	Essay 2: *Applied Technology*, "Process"
2.6 Institution demonstrates that its graduates consistently achieve its stated levels of attainment.	Essay 1: *Intellectual Learning*, "Action," Appendix VII: Graduation and Retention Plan
2.7 All programs offered by the institution are subject to systematic program review.	Essay 1: *Intellectual Learning*, "Process" Subsection on Program Review, Appendix VII: Program Review Guide
2.8 Institution actively values and promotes scholarship, creative activity, and curricular and instructional innovation.	Essay 1: *Intellectual Learning*, "Process" Subsection on Intellectual Environment.
2.9 Institution recognizes and promotes appropriate linkages among scholarship, student learning, and service	Essay 1: *Intellectual Learning*, "Process" Subsection on Intellectual Environment.
2.10 Institution collects and analyzes student data. It tracks achievement to support student success.	Essay 1: *Intellectual Learning*, "Assessment" Essay 2: *Applied Technology*, "Assessment" Essay 3: *Leadership Development*, "Assessment" Essay 4: *Global Awareness*, "Assessment"
Standard Three: Developing and Applying Resources and Organizational Structures to Ensure Sustainability	

Standard and CFR	Addressed in EER by Essay Title and Subsection And/or External Reference
3.4 Institution maintains appropriate faculty and staff development activities to improve teaching and student learning.	Essay 1: *Intellectual Learning*, "Assessment" Subsection on Center for Engagement, Teaching, and Learning
3.6 Institution holds information resources sufficient in scope and kind to support its academic offerings and the scholarship of its members	Essay 1: *Intellectual Learning*, "Process" Subsection on Campus Library
3.8 Institution's organizational structures are clear and consistent with its purposes.	Appendix VI: Organizational Charts
3.9 Institution has an independent governing board	http://www.calstate.edu/BOT/
3.10 Institution has a full-time chief executive officer	Appendix VI: Organizational Charts
3.11 Institution's faculty exercises effective academic leadership	Academic Senate By-laws and Shared Governance Statement, http://www.csum.edu/academics/AcademicSenate/CMA_AcademicSenate.asp as well as The Collective Bargaining Agreement: http://www.calstate.edu/laborrel/contracts_html/cfa_contract/cfatoc.shtml
Standard Four: Creating an Organization Committed to Learning and Improvement	
4.1 Institution periodically engages its constituencies in planning processes.	Essay 1: *Intellectual Learning*, "Assessment" Subsection on Presidential and Academic Senate Retreats
4.2 Planning processes define and align academic, personnel, fiscal, physical, and technological needs with the strategic objectives of the institution.	Appendix VII: Academic Master Plan
4.3 Planning processes are informed by defined and analyzed quantitative and qualitative data.	"Assessment" Sections of Every Essay: *"Intellectual Learning; Applied Technology; Leadership Development; Global Awareness*.
4.5 Institution has institutional research capacity	Introduction and Integrative Essays.
4.6 Leadership at all levels is committed to improvement based on results of inquiry, evaluation, and assessment.	"Assessment" Sections of Every Essay: *"Intellectual Learning; Applied Technology; Leadership Development; Global Awareness*.

Appendix II

WASC RECOMMENDATIONS FROM CAPACITY AND PREPARATORY REVIEW

	Recommendation from WASC CPR	Actions Taken	Where addressed in EER (or otherwise acknowledged, if applicable)
Diversity	1. Cal Maritime should consider and effectuate the curricular and pedagogical advantages of a more diverse faculty and student body. In particular, the campus needs to become a more welcoming environment without regard to race, gender, sexual orientation, socioeconomic status, or other factors associated with underrepresented minorities.	A WASC Subcommittee on Diversity was established shortly after the receipt of the CPR Review Recommendations. This Subcommittee was comprised of faculty, staff, and adminstrative personnel from Human Resources, Academic Affairs and Student Affairs. The Committee drafted a report calling for the creation of a permanent entity on campus, with specific charges, responsibilities, and authority. The results of the Committee's work can be found in Appendix VII A	See Appendix VII, Report of the Committee on Unity and Diversity.
	2. In view of Cal Maritime's modest progress with gender and underrepresented minority faculty diversity, the Team recommends that procedures be put in place to ensure that all faculty hiring decisions will be contingent on demonstrating that a suitably representative pool of qualified candidates has been recruited before the selection of the most qualified candidate.	Human Resources will be implementing the "eRecruit" tool in PeopleSoft by the beginning of the spring 2011 semester. This tool will allow applicants to apply online which should increase the numbers of applicants. We are also researching a number of recruitment sources within diverse communities. This should also attract more applicants, and in particular, more diverse applicants. HR is also in consultation with the Academic Dean and other academic administrators for the development of a faculty recruitment process that reaches out more broadly to under-represented groups. There are as well selection training programs in place to ensure the selection committees are aware of and sensitive to groups which are traditionally under-represented in the application process.	See Appendix VII, Report of the Committee on Unity and Diversity.
	3. Cal Maritime should re-examine the Leadership Development Program with a view toward incorporating the diverse perspectives and strategies of its increasingly gender, culturally, and	The co-chair of the Committee on Unity and Diversity is the student President of the Associated Students of CMA. (ASCMA). During orientation, students are instructed on the importance of creating and maintaining a tolerant atmosphere. The Corps, too, has a tradition of honoring and promoting students regardless of	See Essay 3, "Action" Section; also, Appendix VIII

	Recommendation from WASC CPR	Actions Taken	Where addressed in EER (or otherwise acknowledged, if applicable)
	racially diverse student body and future work environment.	gender and/or racial identification. In fact, within the Corps in the past two years, women and under-represented minorities have filled leadership posts at a percentage rate higher than the student body as a whole.	
Student Life	4. The small size of the campus, and of its classes, means that students are well known by everyone – there are good student-faculty relationships. However, the Team recommends that the quality of campus life for the students should be addressed before growing a larger student body. This includes both facilities (such as for dining) and the relative shortage of support staff.	The campus has continually monitored the quality of campus life through the use of National Student Satisfaction Evaluations (NSSE), and has also subscribed to Educational Benchmarking, Inc. (EBI), for the acquisition and analysis of student life data. The results of these surveys will inform any decision to grow a larger student body. All actions devoted to growing the student body are carefully informed by multiple campus constituencies, including Admissions and Finance, and these actions are aligned with the Academic Master Plan and the Facilities Master Plan. In the example of dining, programs such as the lunch service "grab'n'go" have helped alleviate congestion while plans for a new dining hall are implemented.	NSSE data is available for internal institutional review at http://nsse.iub.edu/ EBI data is available for international institutional review at http://www.webebi.com/ The quality of student life is addressed in Essay 3, "Leadership," subsection "Process"
Shared Governance/ Internal Communications	5. Cal Maritime should consider additional campus-wide communication strategies. Also valuable would be improved processes of mutual dialogue with students, faculty, and alumni about important campus issues.	After months of research and planning, Cal Maritime will unveil a completely re-designed web-site. The new site's prime focus is on marketing the institution to prospective students and their families. Departments have been asked to update the material used in their sections of the web with a greater focus on marketing the institution to key prospective audiences. Features of the site will include individual videos of 5-7 minutes each, with department heads and faculty providing specific information about each of our six majors. Also in the works are additional brief videos which use cadets to provide direct answers to many of the common questions prospects ask about what makes Cal Maritime Cal Maritime. Overall, the website is much better organized, with a better search mechanism, more attractive graphically, and designed to get visitors an accurate understanding of the institution, its courses, its people and programs.	www.csum.edu

	Recommendation from WASC CPR	Actions Taken	Where addressed in EER (or otherwise acknowledged, if applicable)
		Internal to the new website is the Cal Maritime portal (or "Porthole" in our nautical lexicon) which brings together in one frame many of the resources needed and used by faculty and staff on a regular basis, including the academic deliverary platform Moodle, Peoplesoft databases for student records, and R25, the campus calendar of events. Additionally, in 2010 Cal Maritime hired its first permanent and dedicated webmaster to assist with the maintenance of the new site.	
	6. The processes, criteria, and procedures for considering new integrations, or reformulations, of existing departments and programs, need to be clearly articulated and implemented. There are also challenges to be addressed regarding the different roles of academic faculty and licensed faculty from industry. Finally, the distinction between "shore" and "float" opportunities for students and their future careers needs to be explored further.	Policies governing the formulation and dissolution of academic programs fall under the purview of the Academic Senate. New criteria for the Retention, Tenure, and Promotion of Maritime Vocational Instructors have been written and approved as part of RTP Policy 526. Finally, the Career Center has hired two assistant directors, each of which is independently dedicated to ship and shore opportunities. These two positions coincide with two separate career fairs offered each year: one for license track graduates and one for non-license track.	See Essay One, "Actions" for explanation and rationale of reformulation of departments and programs into the ABS School of Maritime Policy and Management. See also Appendix VII, Exhibit X for the Academic Master Plan. Academic Policies are located at http://www.csum.edu/academics/AcademicSenate/CMA_AcademicSenate.asp Career Center information is located at http://www.csum.edu/CareerCenter/
	7. The Team is unclear on the relationship between the advisory boards of the whole institution and that of the Extended Learning division. Care should be taken to avoid duplication or conflicting interests.	It was recognized that the multiple advisory boards with very similar names was confusing to external viewers. In conjunction with a review of all Councils, Boards, Committees, and Task Forces on campus, a new naming system with some re-organized was implemented. A memo with definitions, committee descriptions, purposes, and compositions has been drafted.	Currently, the memo on "California Maritime Academy Councils, Boards, Committees and Task Forces" currently resides in the office of the Provost.

	Recommendation from WASC CPR	Actions Taken	Where addressed in EER (or otherwise acknowledged, if applicable)
		"The President's Advisory Board" has been renamed "The President's Advisory Council" whose purpose is to share information across divisions and to identity emerging issues. "The External Advisory Board," formerly called "The Industry Advisory Board, " exists to assess changing business needs, recommend enhancements, resources, and other courses of action that support the standards of excellence for the institution. "The Extended Learning Advisory Board" is organized to support and provide guidance to the Dean of Extended Learning for the development and operation of the extended learning programs offered by the Academy.	This memo will be uploaded to the new website upon its completion.
Leadership	8. The Corps' primary leadership outcomes should be integrated into Cal Maritime's full academic assessment plan.	The Institution-Wide Student Learning Outcomes (IW-SLOs) contain a number of SLOs that indirectly and indirectly speak to leadership development as this is part of our mission. Most specifically, IW-SLO-H: Leadership, Teamwork, and Personal Development; IW-SLO-I: Professional Conduct; and IW-SLO-J: Ethical Awareness.	See Essay 3, Leadership Development, specifically the section "Process"; Also, Appendix VII: IWAC Portfolio
	9. Cal Maritime should conduct a campus level study to identify the factors that prevent Cadets from achieving behavioral outcomes such as those related to formation, uniforms, and personal conduct.	A campus-level study is being conducted in the Fall of 2010. Results will be made public after the submission of this EER, but should be available by the time of the EER visit in March	See Leadership Development Essay, sections on "Assessment" and "Action"
	10. Cal Maritime should review the Leadership Development Program with a view towards incorporating elements of the Gold Standard Program into the basic leadership curriculum so that a larger percentage of Cadets can develop a broader understanding of leadership theory.	The Gold Standard Program, upon reflection and after evaluation, was suspended for several reasons: the percentage of cadets capable of developing a broader understanding of leadership theory under the auspices of this program was too small. The cost of the program was incommensurate with its value to a select few. After suspension, deliberations are in place to supplant to Gold Standard Program	See Essay 3, Leadership Development, Section on "Action"

	Recommendation from WASC CPR	Actions Taken	Where addressed in EER (or otherwise acknowledged, if applicable)
	11. The leadership learning community, which will be offered to freshman who will live on the ship for one semester, should be viewed as a pilot. Cal Maritime should be prepared to use the data collected during the next academic year to review the program, and make changes for improvement as necessary.	Surveys given to first-year students living on the ship have been conducted by NSSE and by Educational Benchmarking, Inc. This data is currently being analyzed. An additional assessment tool has been administered in the Fall of 2010, but the results have not been collected prior to the submission of this required data exhibit.	See Essay 3, Leadership Development, Section on "Action"
Assessment	12. Cal Maritime must create a culture of evidence through the effective assessment of data and to facilitate institutional decision-making. Cal Maritime should address issues of attrition and graduation, by gathering better information about why students leave early or stay on successfully. Such evidence could guide future decisions about recruitment, orientation, advising, and program requirements.	This has been one of the primary objectives of Cal Maritime since the Institutional Proposal was submitted in February of 2007. A series of actions have been taken, including the creation of the position of Registrar to help with institutional research and the creation and approval of the Graduation and Retention Plan.	Besides the showcasing of a culture of evidence inherent in each essay of the EER, the Graduation and Retention Plan is contained in Appendix VII, Section
Communications	13. Cal Maritime should implement marketing strategies to more accurately reflect the student experience, the strengths of the curriculum, and the mission of the institution. There is much more of a Cal Maritime story that needs to be told – to prospective students, potential faculty, government agencies, CSU, the general public, etc. This extends to the physical campus, including the entrance, as well as Cal Maritime's print and online resources.	Over the past couple of years, a greater emphasis has been placed on giving prospective students and families a clear picture of what it means to attend Cal Maritime. Initial elements of this work have included the design and publication of a new campus "Viewbook" with greater use of graphics and a more detailed background on the institution in general and majors in particular. Moreover, the development and implementation of Cal Maritime's new website (discussed in more detail under the response to recommendation #5) was done explicitly with marketing strategies in mind.	See www.csum.edu/CURRENTS See also http://www.csum.edu/News/

	Recommendation from WASC CPR	Actions Taken	Where addressed in EER (or otherwise acknowledged, if applicable)
		Steps have also been taken, within continual budget limitations, to enhance both the look of and the guides to the campus. • The campus gate area has been modernized with new graphics and plantings. • The campus drive to the campus has been improved with better landscaping and lighting • A new and improved campus map is now up to date and contains more information about key buildings and features on campus. Note however, that plans to construct a new and badly needed Physical Education and Survival Training Center on land outside the present campus gate have been stalled by budget strictures, leaving that property unsightly, but with no real resources to beautify and fence it in the interim. In the area of publications, Cal Maritime is committed to producing at least one self-titled issue ("Cal Maritime") of its campus magazine per year and hope to do two in the current fiscal year. The magazine itself enjoys strong support from alumni as evidenced in a nearly five-fold growth in alumni news and notes in each issue. Internally, we have used an electronic newsletter called *CURRENTS* which is distributed to faculty, staff, students and to interested alumni and posted on our website. *CURRENTS CURRENTS* is about to be converted to a "News and Events" section of our new website, allowing material to be posted on a more timely basis and with greater ease.	

	Recommendation from WASC CPR	Actions Taken	Where addressed in EER (or otherwise acknowledged, if applicable)
	14. Given the charge of community involvement and outreach within CSU in general (Cal State Monterey Bay is a prime example), Cal Maritime should investigate recruitment opportunities, community development and public service within Vallejo and the extended Bay Area, with attention to scholarships and other financial aid for students of need.	The community engagement office is actively involved in many local community development projects. While the Office of Admissions also works as a key piece in recruitment opportunities, the Early Assessment Program-EAP Coordinator (outreach) has identified schools and students within our service area to help determine deficiencies in college prep. Exhibits of community involvement is as follows: 1. Local Community Engagement & Service Learning Credit for community non-profits 2. Admissions & EAP classroom and administrative outreach to local high schools 3. College fairs, Preview Days, etc. 4. PIQE (Parent Institute for Quality Education)- CSU and local parents collaboration/outreach The office of Financial Aid, too, reaches out to the greater Vallejo area with information on aid available for admission to CMA.	See Appendix VII, Also,see http://www.csum.edu/academics/cetl/index.asp for community outreach information.
	15. The Team believes that the two "cultures" of a maritime academy and a state university are still not as clearly integrated as they need to be. More work needs to be done to establish the unique educational objectives of the "new Cal Maritime" and to clearly link all of the relevant curriculum and student experiences to these outcomes.	Cal Maritime has been a campus of the CSU for fifteen years, and most, but not all, of the current administration and faculty has been hired under the "new" Cal Maritime structure. We are also, however, taking great care to maintain our maritime traditions and uphold our status as a "specialized" institution. The IW-SLOs, as a document which marries the discipline specific outcomes of various majors (including those of licensed maritime field) to more universal outcomes, acts as a bridge	Integrative Essay, Appendix VII, IWAC Portfolio

	Recommendation from WASC CPR	Actions Taken	Where addressed in EER (or otherwise acknowledged, if applicable)
Global Studies	16. Globalism, or internationalism, is not just defined by place; it is also defined by how one thinks one's place in the world. Greater care should be taken to embed cultural awareness into the curriculum.	As should be apparent by the transition from the 2002 WASC "Triad" Report to the 2010 WASC EER which emphasis the four compass points, Global Awareness has been elevated to an equal footing with those other objectives of the institution's mission	See Essay 4; for the more specific concern of cultural awareness and the curriculum, see "Process" section of Essay 4
	17. With the exception of the Global Studies major, in which some graduating students are pursuing careers in the Peace Corps, faculty and students alike cite gainful employment as the primary marker of a successful educational experience. Little thought seems to be given to the education of the whole person as a citizen of the world. In spite of the leadership qualities gained by the students through their cadet training, and their generational focus on collaboration and community, the team recommends that greater attention be paid to education, as opposed to training, in the Cal Maritime curriculum and student experience.	Upon consideration of this recommendation, the terms of the equation could be reversed: it is not necessarily that gainful employment is the primary marker of a successful educational experience, but rather that the holistic Cal Maritime educational experience leads to a strong record of job placement. Attention has always been paid to education, and this has only deepened in recent years. See, in particular, in the advances made in the General Education Program as detailed in Essay 1.	See "Process" section of Essay 1; See Process section of "Global Awareness" Essay
Educational Effectiveness	18. The Cal Maritime Educational Effectiveness Self Study must include text describing in detail how the plans and actions comply with the WASC Standards and CFRs, as well as a thorough review of Cal Maritime's overall institutional and academic assessment strategy.	The Introduction of the EER provides an explanation of the WASC Standards and CFRs covered in the Report; The overall institutional and assessment strategies are covered in Essay One.	See Appendix 1 for the EER/CFR matrix

Appendix III

TABLES TO ADDRESS 2008 CHANGES TO CFR

Supplemental Table A to Address 2008 Changes to the CFR						
	Revised Criteria for Review	**Self-Assessment Questions**	**We Do This Well** **Objectives are well-developed and sustained**	**Needs Refinement** **Objectives are developed or emergent, but additional work is needed**	**Needs further attention** **An action plan is in place or is in development**	**Evidence for this finding and corresponding acknowledgement in the EER Review if applicable**
1.2	The institution develops indicators for the achievement of its purposes and educational objectives at the institutional, program, and course levels.	Does the institution have educational objectives at all three levels indicated in the CFR (institution, program, and course)? Have goals or expectations for achievement of these objectives been established? Where are these objectives and indicators published?		X		See IL Essay, Subsection "Process" http://www.csum.edu/assessment
1.2	The institution has a system of measuring student achievement, in terms of retention, completion, and student learning.	Does the institution have a systematic process for measuring student achievement? Does this system or process include analysis of data on retention and completion? Does it include processes for summative assessment of student learning?	X			See Appendix VII.B; Campus Policy on Graduation and Retention
1.2	The institution makes public data on student achievement at the institutional and degree level, in a manner determined by the institution.	Does the institution publish data on retention and graduation rates? Student learning outcomes? Where?		X		SLOs published at www.csum.edu/assessment; IPEDs data located at http://nces.ed.gov/collegenavigator/?id=111188#retgrad

1.9	The institution is committed to honest and open communication with the Accrediting Commission, to informing the Commission promptly of any matter that could materially affect the accreditation status of the institution	Does the institution keep WASC informed about important changes? Is there a process and assigned responsibility for ensuring that this reporting is done?	X			Accreditation Liaison Officer hold corresponding title of WASC Coordinator
2.2b	GUIDELINE: Institutions offering graduate-level programs demonstrate sufficient resources and structures to sustain these programs and create a graduate-level academic culture.	If applicable: Are master's and doctoral programs adequately supported with the full array of resources expected for graduate-level study, including qualified faculty with appropriate workload levels, support for advising and theses/ dissertations, library and research? Is there a "culture" that is expected for graduate study, e.g., scholarly and intellectual engagement among faculty and students?	N/A			Recent WASC Approval for MS in Transportation and Engineering Management. Complete Substantive Change Application available on LiveText.com
2.3	The institution's student learning outcomes and expectations for student attainment are clearly stated at the course, program and, as appropriate, institutional level.	Have student learning outcomes been established for courses and programs? Have standards been established for the attainment of these SLOs? If appropriate to the institution, have institution-wide outcomes been established, e.g., for all undergraduate degrees? Where are outcomes and expectations for attainment found?	X			See "Process" section of Essay 1.
2.7	All programs offered by the institution are subject to systematic program review. The program review process includes analyses of the achievement of the program's learning objectives and outcomes, program retention and completion, and, where appropriate, results of licensing examination and placement and evidence from external constituencies such as employers and professional organizations.	Is there a regular cycle of program review that includes assessment of student learning and analyses of retention and completion? Is program review conducted on schedule and as intended? Does it also include, where relevant to the discipline, results of licensing and placement? Where are completed program reviews maintained? (Also note new requirements on reporting on the effectiveness of program review in the EER report. See Table B.)		X		See "Process" section of Essay One. Program Reviews are scheduled, but many still are awaiting Program Review

2.8	GUIDELINE: Where appropriate, the institution includes in its policies for faculty promotion and tenure recognition of scholarship related to teaching, learning, assessment, and co-curricular learning.	How do policies and practices on promotion and tenure address scholarship that relates to teaching and learning? Is this kind of scholarship valued and encouraged by the institution?	X			Academic Senate Policy 526 http://www.csum.edu/academics/AcademicSenate/policies/Policy%20526%20-%20RTP.pdf; Faculty Handbook, Working Personal Action File Dividers.
2.10	The institution collects and analyzes student data disaggregated by demographic categories and areas of study. It tracks achievement, satisfaction, and campus climate to support student success.	Does the institution have a system for collecting and analyzing data about students? Are data on retention, graduation, time to completion, and other measures of student achievement, analyzed in disaggregated form by various categories so that the institution can understand how different groups of students are performing and are experiencing their education? Is the institution surveying students and analyzing the resulting data on satisfaction and climate? What are the results? How are they used?		X		Newly-created Office of the Registrar funded and staffed in October, 2010; Exit surveys and alumni tracking; EBI Inc. and NSSE data; Graduation and Retention Plan (See Appendix VII). Departmental Program Reviews (see Appendix VII)
2.11	Consistent with its purposes, the institution develops and assesses its co-curricular programs.	Does the institution have student support services that are appropriate to its mission, its programs, and the needs of the students it serves? Are these programs regularly assessed to determine their effectiveness? By whom and how often? How are results of assessment used.		X		Many, but not all, co-curricular programs are assessed regularly. The Office of Student Affairs uses data from NSSE and EBI to determine

3.2	GUIDELINE: The institution systematically engages full-time non-tenure track, adjunct, and part-time faculty in such processes as assessment, program review, and faculty development.	Does the institution include adjunct, part-time, and non-tenure-track full-time faculty members in academic processes that affect student learning? What are the relevant institutional policies and practices that address their roles in the academic life of the institution? How are they involved in assessing student work? In carrying out program-level assessment? In conducting program review? Are they provided professional development to improve teaching and learning?	X			Academic Senate Constitution and By-Laws http://www.csum.edu/academics/AcademicSenate/policies/500-Constitution_&_By-laws.pdf outline roles and opportunities for non-tenure track, adjunct and part-time faculty. These policies are aligned with the CFA's Collective Bargaining Agreement's regulations regarding work load issues.
3.3	Faculty and staff recruitment, orientation, workload, incentive, and evaluation practices are aligned with institutional purposes and educational objectives.	Are new faculty members provided with appropriate orientation?	X			All new faculty, including non-tenure track, adjunct and part-time, engage in a two-day orientation and receive a faculty handbook.
3.4	GUIDELINE: The institution provides training and support for faculty members teaching by means of technology-mediated instruction.	If online or other modes of distance education are used to deliver programs and courses or to enhance or replace face-to-face instruction, are faculty members provided with training? Are they provided with technology support? How? When? How often? What does this consist of? Is it effective?	X			CMA has a full-time Educational Technologist to facilitate technology-mediated instruction. The campus has frequent series of instructional related workshops provided by CETL

3.5	The institution has a history of financial stability, unqualified independent financial audits and has resources sufficient to ensure long-term viability…. If an institution has an accumulated deficit, it has realistic plans to eliminate the deficit.	Is the institution operating within its operating revenues and budgets? Is there an accumulated deficit or a pattern of operating deficits? If so, what are plans to address deficits? What are the trends? How soon will any accumulated deficits be eliminated? Are annual independent financial audits conducted? Have the audits and related management letters identified any practices or patterns that need to be addressed? If so, how and when are these areas being addressed? Is the institution financially sustainable now and for the future?	X			Audits are conducted on a regular basis using GAAP rules. In additions we are audited to federal funding guidelines (A-133 Audit) and our procedures and internal controls are reviewed by a FISMA audit. Audit reports are available as PDF files from the controller. Some audits are campus specific and some are CSU–wide with little detail per campus.
3.6	The institution holds, or provides access to, information resources sufficient in scope, quality, currency, and kind to support its academic offerings and the scholarship of its members. These information resources, services and facilities are consistent with the institution's educational objectives and are aligned with student learning outcomes.	Are information resources and related support and facilities aligned with the educational objectives? Aligned with student learning outcomes? Do they support and enhance student learning? How?	X			Students and faculty report to liaisons in the Library that students are routinely able to complete course successfully using physical and electronic library resources. Questions in NSSE and EBI surveys also cover library capacity and efficacy.

3.8	GUIDELINE: The institution establishes clear roles, responsibilities, and lines of authority, which are reflected in an organization chart.	Does the institution have clear job descriptions? Lines of reporting and responsibility? Is there an organizational chart that reflects the structure of the organization? Is this structure well understood within the institution?	X			See EER Appendix VI: Organizational Charts
3.9	GUIDELINE: The governing body regularly engages in self-review and training to enhance its effectiveness.	Does the governing board engage in orientation, self-assessment, and development? Is this work designed to enhance the functioning of the board? When and how is it done? Is there any evidence of its value or impact?	X			http://www.calstate.edu/bot/
3.10	The institution has a full-time chief executive officer and a chief financial officer whose primary or full-time responsibility is to the institution. In addition, the institution has a sufficient number of other qualified administrators to provide effective educational leadership and management	Does the institution have a full-time CEO/president/chancellor? Does the institution have a full-time CFO? How is the administration of the institution organized? Are there a sufficient number of qualified administrators to ensure that the institution is operated effectively? Is the leadership effective? Is the institution well managed? How do you know?	X			See EER Appendix VI: Organizational Charts CEO/President is evaluated by CSU Chancellor's Office and the BOT. Academic Senate Policy on the Review of Administrator Effectiveness in draft form
3.11	GUIDELINE: The institution clearly defines the governance roles, rights, and responsibilities of the faculty.	Does the institution have a charter or other document that sets forth the roles, rights and responsibilities of the faculty? Is the faculty role clear? Is the faculty vested with sufficient authority over academic programs and policies?	X			Academic Senate Constitution and By-Laws http://www.csum.edu/academics/AcademicSenate/policies/500-Constitution_&_By-laws.pdf

4.4	The institution employs a deliberate set of quality assurance processes at each level of institutional functioning, including new curriculum and program approval processes, periodic program review, ongoing evaluation, and data collection. These processes include assessing effectiveness, tracking results over time, using comparative data from external sources, and improving structures, processes, curricula, and pedagogy.	What are the institution's quality assurance processes? Do they exist at the institutional level and at other administrative levels? Does the institution have clear, published policies in the areas designated? Are they understood and followed? Do quality assurance processes assess not only capacity but effectiveness? If so, how? Are data, findings and results tracked over time to ascertain trends? Has the institution and units within it established benchmarks based on comparable institutions' performance? Are the results of the quality assurance processes used to make improvements? How does this work?		X		See Appendix VII on Program Review, especially Conduit for Program Review and Calendar for Program Review. Other Quality Assurrance Processes in place, but feedback loops are still being addressed. www.csum.edu/assessment
4.5	The institution has institutional research capacity consistent with its purposes and objectives. Institutional research addresses strategic data needs, is disseminated in a timely manner, and is incorporated in institutional review and decision-making processes. Included in the institutional research function is the collection of appropriate data to support the assessment of student learning. Periodic reviews are conducted to ensure the effectiveness of the research function and the suitability and usefulness of data.	What is the capacity of the institution to conduct institutional research? How is IR conducted and by whom? Is there a description of this function that is published or widely understood at the institution? Is the IR function adequately resourced to meet the needs of the institution? What data are collected and analyzed? To whom are they disseminated and how often? Is there a "culture of evidence," i.e., is evidence used in making decisions and improvements? How is the IR function used to support the assessment of student learning assessment processes? Is the IR function evaluated periodically? Are new data collected and analyzed when needed?			X	Newly-created Office of the Registrar funded and staffed in October, 2010 with IR responsibilities. The "culture of evidence is dramatically improved, but the sustainability of IR capacities needs to be tested.

TABLE B: ADDRESSING 2008 REQUIREMENTS OF THE INSTITUIONAL REVIEW PROCESS FOR THE EER		
New Required Coverage	Questions for Discussion and Analysis	Evidence to be Analyzed or Drawn Upon
STUDENT SUCCESS		
Further development of student success efforts. Based on the findings of the institution and the team at the CPR review, the institution will be expected to further its analysis of student success, deepening its analysis of its own and comparative data on graduation and retention rates, year-to-year attrition, campus climate surveys, etc.	How have we deepened our analysis and understanding of retention and graduation since the CPR? Did we act on plans that arose from the CPR? What is our assessment of our progress in promoting student success? What does our analysis of year-to-year retention and graduation data show? How do these data compare with other institutions? What do results from campus climate surveys or other inquiries into its educational effectiveness tell us? What more should we be doing to improve retention and graduation rates, time to graduation, and other indicators?	See "Graduation and Retention Plan" in Appendix VII, with evidence showing we have the highest retention and graduation rates in the CSU. We also measure against cohort institutions, and this data is available at www.calstate.edu New program of mid-term evaluations and letters of acknowledgement of under-performing students implemented. Orientation for advisors in 2010 includes overview of Graduation and Retention Plan Graduation and Retention Plan includes an Action Plan that is reviewed periodically.

PROGRAM REVIEW		
An analysis of the effectiveness of the Program Review Process. Institutions should analyze the effectiveness of the program review process, including its emphasis on the achievement of the program's learning outcomes. It is expected that the process will be sufficiently embedded for the institution and the team to sample current program review reports (self-studies, external review reports) to assess the impact of the program review process and alignment with the institution's quality improvement efforts and academic planning and budgeting.	Does the program review process meet the expectations reflected in the WASC Rubric for Assessing the Integration of Student Learning Assessment into Program Reviews? Are all academic and co-curricular programs subject to program review? Is program review conducted in a timely manner and in keeping with good practice? Is program review used to assess program effectiveness and student learning at the program level? Is it used to improve program effectiveness? Is it used to align resources with needs? How is program review articulated with the budgeting process? Is the program review process itself reviewed on a systematic basis? Are recent program reviews available to the WASC visit team?	The Program Review Guide (See Appendix VII) is modeled on the WASC Guide to Good Practices in Program Review. All Academic and Co-Curricular programs are subject to Program Review, however not all programs have undergone review yet. The revised Program Review Guide, under the auspices of the Academic Curriculum Committee is very new. Recent Program Reviews will be made available to the WASC visiting team upon request
SUSTAINABILITY OF ASSESSMENT PLANS		
A plan, methods, and schedule for assessment of learning outcomes beyond the Educational Effectiveness Review.	What is the plan for ongoing attention to educational effectiveness at the institution? Has a plan been developed that will cover the next seven to ten years? What next steps should be taken to ensure that systems and processes for evaluating effectiveness are sustained into the future and embedded into the culture and practices of the institution? Are the effectiveness plans integrated into the institution's strategic and operational plans and budgets? How will the systems for evaluating educational effectiveness been funded into the future? What areas have been identified as needing improvement or change? Have targets, goals or milestones been set? What is the timeline for activities and progress? When and how often will results be reviewed and by whom?	The Institution-Wide Assessment Council has been established and charged with assessing the Institution-Wide Student Learning Outcomes. Outcomes are directly related to institution's mission, as should be evident by the EER in its entirety. See especially Essay 1 on Intellectual Learning, subsection on "Process" and also Appendix VII: IWAC Portfolio

Appendix IV

APPENDIX IV (A): INVENTORY OF EDUCATIONAL EFFECTIVENESS INDICATORS (7.1)

CATEGORY	Have formal learning outcomes been developed?	Where are these learning outcomes published?	What data/evidence is used to determine that graduates have achieved stated outcomes for the degree?	Who interprets the evidence? What is the process?	How are the findings used?	Date of last program review for this degree program	Date of next Program Review
INTITUTIONAL LEVEL							
General Education Program	Learning Outcomes exist on the level of the Program of Culture and Communication and the Dept of Math and Science.	C/C and M/S P-SLOs are published on departmental webpages and in departmental literature	Embedded and direct assessment tools include the CLA, GWE, the IWAC rubrics, and additional assorted tools	The General Education Program Committee, with Representatives from Program of C/C and Department of M/S	Findings are used to improve particular course components, particularly those in C/C and M/S		2011-2012
PROGRAM LEVEL							
DEGREE-GRANTING PROGRAMS							
Global Studies and Maritime Affairs (BA)	Yes	Program Website	Course Assessment and Capstone Projects	Program Faculty	Recommendations for program improvement are forwarded via Curriculum Change Requests to the Senate Curriculum Committee and Administration, as appropriate.	N/A	2010-2011

CATEGORY	Have formal learning outcomes been developed?	Where are these learning outcomes published?	What data/evidence is used to determine that graduates have achieved stated outcomes for the degree?	Who interprets the evidence? What is the process?	How are the findings used?	Date of last program review for this degree program	Date of next Program Review
Business Administration: International Business Logistics (BA)	Yes	Program Website	Course Assessment and Capstone Projects	Program Faculty	Recommendations for program improvement are forwarded via Curriculum Change Requests to the Senate Curriculum Committee and Administration, as appropriate.	N/A	2010-2011
Facilities Engineering Technology (BS)	Yes	Program Assessment Plan	Association of Facility Engineers (AFE) Certified Plant Engineer In-Training (CPE-IT) examination, industry surveys, locally generated rubrics for watch team performance and technical reports and capstone projects	The faculty of the Engineering Technology Department collects and evaluates data/evidence associated with each student learning outcome according to Marine Engineering Technology and Facilities Engineering Technology Program Assessment Plans.	Recommendations for program improvement are forwarded via Curriculum Change Requests to the Senate Curriculum Committee and Administration, as appropriate.	CMA Program Review; 2007 ABET Review, 2006 with interim Report; 2010	

CATEGORY	Have formal learning outcomes been developed?	Where are these learning outcomes published?	What data/evidence is used to determine that graduates have achieved stated outcomes for the degree?	Who interprets the evidence? What is the process?	How are the findings used?	Date of last program review for this degree program	Date of next Program Review
Marine Engineering Technology (BS)	Yes	Program Assessment Plan	US Coast Guard license examination for Third Assistant Engineer, assessment of marine engineering competencies according to the international Standards of Training, Certification and Watchkeeping (STCW) for Seafarers, industry surveys, locally generated rubrics for watch team performance and technical reports and capstone projects	The faculty of the Engineering Technology Department collects and evaluates data/evidence associated with each student learning outcome according to Marine Engineering Technology and Facilities Engineering Technology Program Assessment Plans.	Recommendations for program improvement are forwarded via Curriculum Change Requests to the Senate Curriculum Committee and Administration, as appropriate.	CMA Program Review; 2007 ABET Review, 2006 with interim Report; 2010 STCW Audit, 2010	
Mechanical Engineering (BS)	Yes	Catalog, Program Website	Assessment of Student Work Student Evaluations Instructor Evaluations Senior Exit Surveys Employer Surveys Alumni Surveys	Department Faculty Rubric-Based Assessment of Course Outcomes Mapped to Program Outcomes Annual Faculty Retreat to review evidence, identify issues and propose changes.	Modifications to courses/curriculum	2014-15	

CATEGORY	Have formal learning outcomes been developed?	Where are these learning outcomes published?	What data/evidence is used to determine that graduates have achieved stated outcomes for the degree?	Who interprets the evidence? What is the process?	How are the findings used?	Date of last program review for this degree program	Date of next Program Review
Marine Transportation (BS)	Yes	Program Assessment Plan/ Academic Program Review	USCG License examination for Second Mate/ Officer-in-Charge of a Navigational Watch Assessments of competencies according to the international Standards of Training, Certification and Watchkeeping (STCW) Rubrics for SIM classes? Watchstanding?	The Marine Transportation department faculty-internal USCG/Marad-external Industry Advisory Board-external	Modification/changes to courses/curriculum are submitted to the Curriculum Committee for analysis and vetting. The Academic Senate Committee's approval is then forwarded to the Provost for final approval and then given to the Dean for implementation.	Program Review 2009-2010 STCW Audit 2010	Program Review Next STCW audit 2015 with a mid cycle review in late 2012.
PROGRAM LEVEL (Non-Degree)							
Culture and Communications	Yes	Catalog, Program Website	Writing Portfolios Student Evaluations Graduate Writing Exam/Graduate Writing Assessment Review	The faculty of the Program in Culture and Communications	Findings are used to strengthen particular courses; findings help with benchmarking for writing proficiency		

CATEGORY	Have formal learning outcomes been developed?	Where are these learning outcomes published?	What data/evidence is used to determine that graduates have achieved stated outcomes for the degree?	Who interprets the evidence? What is the process?	How are the findings used?	Date of last program review for this degree program	Date of next Program Review
Math and Sciences	Yes	Program website	Student Evaluations Assessment Review	The faculty in the Department of Math and Sciences	To improve the program's foundational coursework		2011
Marine Operations	Yes	No where yet	Observation of student performance; analyses of written work, quizzes, and tests.	The Maritime Operations Faculty interprets the evidence. Maritime Operations Faculty collect the data thru observation, project quality, and practical performance then make adjustments in the way the material is delivered to the students.	Finding are used in a variety of ways. Individual faculty may tweak their delivery of course material based on their interpretation of the findings. New course material may also be developed if deemed necessary.	Participation in STCW review inn 2009-2010.	2011-2012 Next STCW audit 2015 with a mid cycle review in late 2012.
Information Fluency	Yes	Webpage, course syllabi	iSkills test (former instrument); SAILS test (current instrument)	Coordinator of IF Program	Modifications to courses/curriculum		
Naval Science	Yes; Directed by Naval Education Training Command (https://www.netc.navy.mil)	https://www.netc.navy.mil/netc/nrotc/cig.aspx	Students testing is based on the learning objectives	Individual Instructors by the grading of exams, quizzes, and written assignments	Student grading is used to determine eligibility for placement in the US Navy upon graduation		

CATEGORY	Have formal learning outcomes been developed?	Where are these learning outcomes published?	What data/evidence is used to determine that graduates have achieved stated outcomes for the degree?	Who interprets the evidence? What is the process?	How are the findings used?	Date of last program review for this degree program	Date of next Program Review
Center for Engagement, Teaching and Learning (Faculty Development)	NO	No learning outcomes have been established for the Faculty Development duties of the CETL as it deals with faculty rather than student learning.	The evidence gathered is primarily tracking information used to document the use of funds for appropriate programming in the area of faculty development.	The Director of the CETL interprets data in collaboration with the Director of Faculty Affairs for appropriate use of funds.	The Director of the CETL uses data for planning and estimating future programming and costs as well as attendance rates.	No program review process is in place.	
Service Learning	YES	Learning Outcomes are published on the Service Learning Agreements that are completed by students after completion of service hours. This report is made available to the CE office and participating CMA faculty member.	Evidence is collected by the Community Engagement Coordinator. The Coordinator is responsible for contacting all Volunteer Sites and Site Directors for direct feedback on students' performance and desired vs. achieved outcomes.	Completion of hours and service objectives are validated by the Community Engagement Coordinator in collaboration with Volunteer Site Directors and CMA faculty desired learning results.	Outcomes and findings are put together in a Year End Report that is made available by the Coordinator to the Director of CETL and the CSU Chancellor's Office Director of Community Engagement. CSU funding to the department is dependent on annual reports.	2009-2010	

CATEGORY	Have formal learning outcomes been developed?	Where are these learning outcomes published?	What data/evidence is used to determine that graduates have achieved stated outcomes for the degree?	Who interprets the evidence? What is the process?	How are the findings used?	Date of last program review for this degree program	Date of next Program Review
Tutoring Center	No	Learning Outcomes have not been developed as this center offers supplemental scaffolding to normal classes. Not individual classes, assignments or activities are created through the Center.	Data collected by the center are used to identify attendance patterns and subject interests/needs to provide metrics for staffing and funding annual reports.	The Director for the Center evaluates the data collected for internal tracking.	Data are used for funding and staffing planning. No external entities review the data collection results.	No program review process is in place.	
Early Assessment Program (EAP)	Yes	CSU EAP Results & Outcomes per high school is listed on CSU website.	Learning outcomes per local high school and graduating seniors are compared with local visits and dissemination of information by each campus EAP Coordinator.	CSU Chancellor's Office interprets data for CMA and local high schools. Cal Maritime is responsible for all local high schools in Solano County.	Findings aid in increasing funded workshops to local high school teachers, showing data to high school principals, administration, and parents. Finding also aid in increasing Early Start program initiatives that are aimed at increasing passing rates for CSU freshman placement tests.	2010-2011	

Appendix IV

APPENDIX IV(B): INVENTORY OF CONCURRENT ACCREDITATION AND KEY PERFORMANCE INDICATORS (8)

(1) Name of accredited or certificated program	(2) Professional, special, state or programmatic accreditation agency for this program	(3) Date of most recent accreditation action by agency	(4) Summary ("bullet points") of key issues for continuing institutional attention identified in agency action letter or report	(5) One performance indicator accepted by the agency; selected by program	(6) For one indicator, provide 3 years' trend data. Use link to cell for graph if desired.
Business Administration/ International Business and Logistics	IACBE	2003 (Reaccreditation scheduled for 2013)	Needs improvement in Principle 5.0: Scholarly and Professional Activities	Increased scholarship from BA/IBL faculty; greater connection with profession	See attached table 8.1BA/IBL
Facilities Engineering Technology	Technology Accreditation Commission (TAC) of ABET.	August 14, 2009 – Accredited to September 30, 2011. Interim Report Required by July 1, 2010. (Attached Interim Report was submitted in June 2010)	Program weakness regarding assessment and evaluation. The program must provide evidence that all program objectives and outcomes are being assessed and evaluated, and that the results of the assessment are bing used to further improve and develop the program.	Certified Plan Engineer in Training administered by AFE	First attempt pass rate (goal = 70%): 2007 = 61%; 2008 = 69% 3009 = 68%

Marine Engineering Technology	Technology Accreditation Commission (TAC) of ABET.	August 14, 2009 – Accredited to September 30, 2011. Interim Report Required by July 1, 2010. (Attached Interim Report was submitted in June 2010)	Program weakness regarding assessment and evaluation. The program must provide evidence that all program objectives and outcomes are being assessed and evaluated, and that the results of the assessment are bing used to further improve and develop the program.	Third Assistant Engineer License examination administered by USCG	First attempt pass rate (goal = 70%): 2007 = 25%; 2008 = 24% 3009 = 64%
Marine Transportation, Marine Engineering Technology	STCW	2010	Recommendations from the 2010 STCW Audit include: CMA continue the migration toward electronic record and documentation processes CMA continue consolidating all documented procedures and policies into a standard process manual. CMA ensure any curriculum changes are submitted to the Joint CG/MARAD Maritime Academy Review Committee for evaluation and approval. CMA expand their continuous improvement processes to reflect existing regulatory requirements.	Graduates of the Marine Transportation program are required to pass the U.S. Coast Guard licensing examination for the Second Mate and Officer in Charge of the Navigational Watch examination.	See attached Table 8.2 (STWC) "Pass Rates for 2nd Mate and OIC of the Navigational Watch Exam Rates"
Mechanical Engineering	Engineering Accreditation Commission (EAC) of ABET	2009	Assessment of program outcomes is qualitative and lacks uniformity and consistency.	Senior survey on program outcomes	See attached table four charts 8.3 ME

Appendix IV(B): Data Exhibit 8
Figure 8.1
Business Administration: Curriculum in International Business and Logistics
Key Performance Indicators

	Professional Associations	Publications (Last 3 years)	Papers Presented (Last 3 Years)	Conference Attendance (Last 3 Years)
Dr. Khalid Bachkar Assistant Professor Logistics and Supply Chain Management Hired 2010		Enyinda Chris, Briggs Charles, and Bachkar Khalid. (2009). "Applying Analytic Hierarchy Process Framework for Assessing Risk in Pharmaceutical Supply Chain Outsourcing." The Journal of Business and Accounting, Volume 16 Number 1. Enyinda Chris, Bachkar Khalid, and Tolliver Denver. (2010). "A decision Support System for Supplier Selection in a Chemical Supply Chain: A case Study Leveraging Analytic Hierarchy Process Model, to appear. Enyinda Chris and Bachkar Khalid. (2010). "Pharmaceutical Marketing Supply Chain Risk Management: An Application of AHP-Based Sensitivity Analysis". Society for Marketing Advances Proceedings, to appear. Bachkar Khalid, Koo Won, and Enyinda Chris. (2010). "Leveraging AHP to Manage the Security Risk in the Global Container Supply Chain", submitted to Decision Sciences.	"Logistical Challenges and Competitiveness of Moroccan Ports: A case of Casablanca and Tangier-Med Ports." International Academy of African Business and Development, May 2008, University of Florida, Gainesville, Florida. "Managing Risk in Pharmaceutical Global Supply Chain Outsourcing: Applying Analytic Hierarchy Process Model." American Society of Business and Behavioral Sciences, 16th Annual Meeting February 2009, Las Vegas "A decision Support System for Supplier Selection in a Chemical Supply Chain: A case Study Leveraging Analytic Hierarchy Process Model". The 20th Annual North American Research and Teaching Symposium on Purchasing and Supply Chain Management, March 11-12, Tempe, Arizona.	International Academy of African Business and Development, May 2008, University of Florida, Gainesville, Florida. American Society of Business and Behavioral Sciences, 16th Annual Meeting February 2009, Las Vegas International Transport Economics Conference, University of Minnesota, Minneapolis (June 14- 16, 2009). The 20th Annual North American Research and Teaching Symposium on Purchasing and Supply Chain Management, March 11-12, Tempe, Arizona. International Symposium on Logistics Poly-disciplinary University, May 05-06 , El Jadida, Morocco. Transportation Research Board. "Planning and Performance Measurement for All Modes", Minneapolis (July 11-13, 2010)

	Professional Associations	Publications (Last 3 years)	Papers Presented (Last 3 Years)	Conference Attendance (Last 3 Years)
			"Managing Security Risk in the Global Container Supply Chain". Logistics: Key to competitiveness. State and perspectives. International Symposium on Logistics Poly-disciplinary University, May 05-06 , El Jadida, Morocco.	
Dr. Christopher Clott Associate Professor International Business Hired 2008	NAFSA, 2007-2008	Where Do We Go From? The Next Phase of Globalization, The India Economy Review; February 2009 "The Knowledge Worker Revisited", Strategic Innovators, Planman Media (India) September, 2008 "An Uncertain Future: A Preliminary Study of Offshore Outsourcing from the Manager's Perspective", Management Research News, v.30, no.7 & 8, Summer 2007. "Implementation of Environmental Scanning and Change at the Functional Level: An Examination of Offshore Outsourcing in the Financial Services Industry", i-Manager Journal of International Management, March, 2007.	"Current Issues in International Transportation & Logistics Affecting the Bay Area", East Bay Center for International Trade & Development, March, 2009 "The Shape of Things to Come: Private Investment in Maritime Port Infrastructure" Proceedings, METRANS: National Urban Freight Conference, Long Beach, CA. October, 2009. "What now? The skill sets necessary for the next generation of maritime industry professionals" Proceedings, Conference on Education and Pedagogy in Maritime Institutions-Massachusetts Maritime Academy, Buzzards Bay, MA. April 2009.	National Urban Freight Conference, Long Beach, CA. October, 2009 Trans-Pacific Conference, Los Angeles, CA. March 2009 NAFSA National Conference, Minneapolis, MN. June 2007
Dr. Bruce Hartman Lecturer Strategic and Quantitative	INFORMS, Institute for Operations Research and Management Science	Dror, Moshe, Bruce C. Hartman, and Wei Chang. (2010). "The Cost Allocation Dilemma in Inventory Consolidation." submitted to IIE Transactions on Scheduling and Logistics.	"Reducing Correlation: Some methods and applications", Ephibian Series Speaker, MIS Department, University of Arizona, December 4, 2009, Tucson, AZ	

	Professional Associations	Publications (Last 3 years)	Papers Presented (Last 3 Years)	Conference Attendance (Last 3 Years)
Management Hired 2005	ASTL, American Society for Transportation and Logistics IAME, International Association of Maritime Economists	Dror, Moshe, and Bruce C. Hartman. (2010). "Survey of Cooperative Inventory Games and Extensions." Journal of Operational Research Society, doi: 10.1057/jors.2010.65. Bruce C. Hartman. (2007). "Cost Allocation in Inventory Consolidation." Proceedings of the BPS Conference, Mumbai, India. November, 2007.	"Peer Assessment of Student Talks in Micro", Conference on Teaching with Technology, San Francisco State University, May 8, 2010, San Francisco, CA. Session Chair, Conference on Behavioral and Algorithmic Game Theory, May 14-17, Newport Beach, CA.	
Dr. Nipoli Kamdar Associate Professor Economics Hired 2010	American Economic Association			Annual Meeting of the American Economic Association, January 2009, San Francisco, CA. Basic Skills Initiative Regional Conference, November 2009, San Ramon, CA. 14th Annual TCC Online Conference, April 2010.
Mr. Robert Neumann Lecturer Business Ethics and Leadership Hired 2006	ASTD American Society for Training and Development NAFSA National Association of Foreign Student Advisors (recently joined)			

	Professional Associations	Publications (Last 3 years)	Papers Presented (Last 3 Years)	Conference Attendance (Last 3 Years)
Mr. Harry Portolos Lecturer Accounting and Finance Hired 2006	International Federation of Technical Analysts Technical Securities Analyst's Association National Association of Securities Dealers			TSAA Conference, January 2010 TSAA Conference, November 2009 TSAA Conference, July 2008 (Speaker) IFTA Conf. Oct. 7, 2009 American Association of Professional Technical Analysts; April 2008

Appendix IV(B): Data Exhibit 8

Figure 8. 2 Marine Transportation
Key Performance Indicators

Figure 3.4 2nd Mate and OIC of the Navigational Watch Exam Results						
Year	**Exams**	**Passed in First Attempt**		**Retests Required**		
		#	%	1	2	All
2002	38	20	53	N/A	N/A	N/A
2003	55	14	26	31	15	28
2004	58	21	37	N/A	N/A	N/A
2005	62	24	39	18	15	29
2006	73	33	45	32	20	4
2007	48	26	54	31	12	2
2008	56	24	43	39	11	7
2009	55	19	35	43	13	9
2010	76	32	42	27	15	19

Appendix IV(B): Data Exhibit 8 Inventory of Concurrent Accreditation and Key Performance Indicators Figure 8.3 Mechanical Engineering

Fig. 3.6a: Senior Class Assessment of ME Program Outcomes:
"How Satisfied are you with the Education that you Received, in Regard to the Following Skill Sets?"

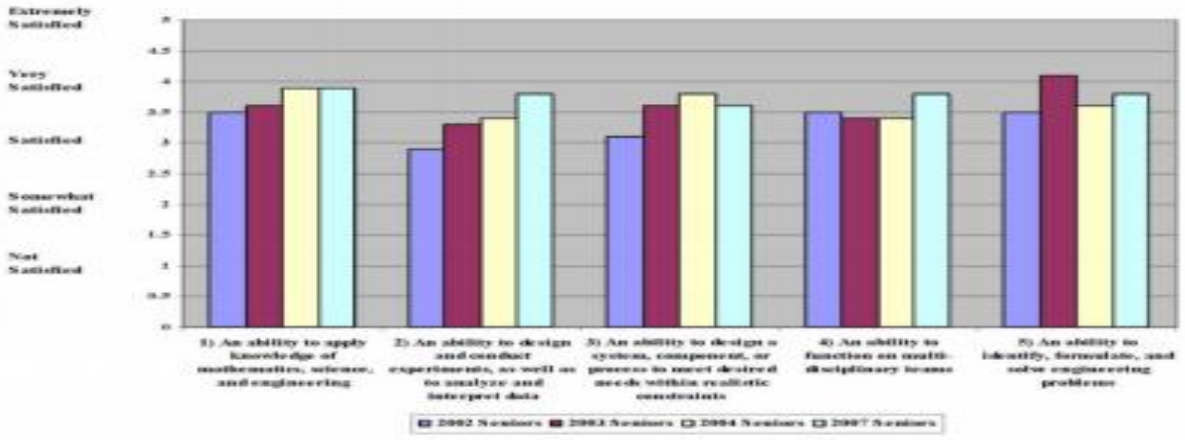


Fig. 3.6b: Senior Class Assessment of ME Program Outcomes:
"How Satisfied are you with the Education that you Received, in Regard to the Following Skill Sets?"

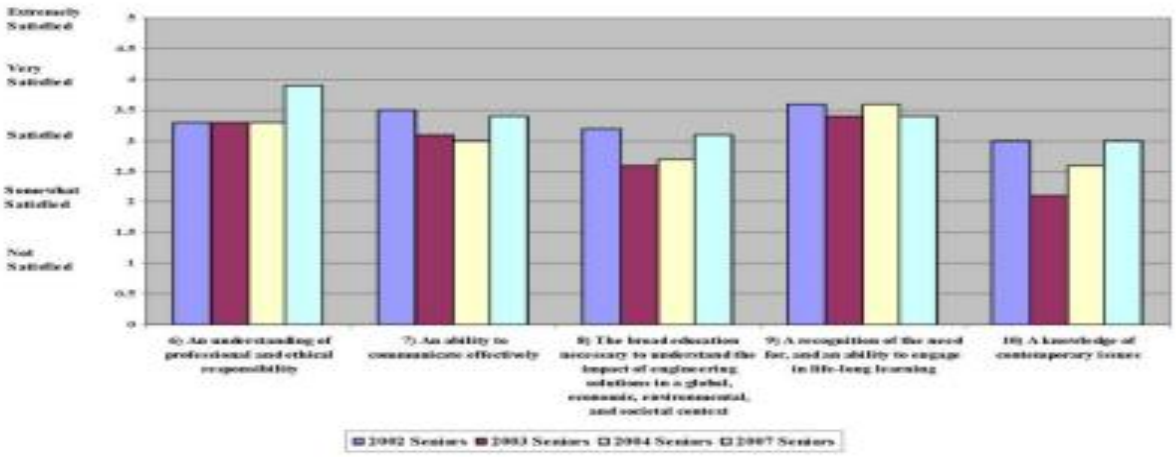
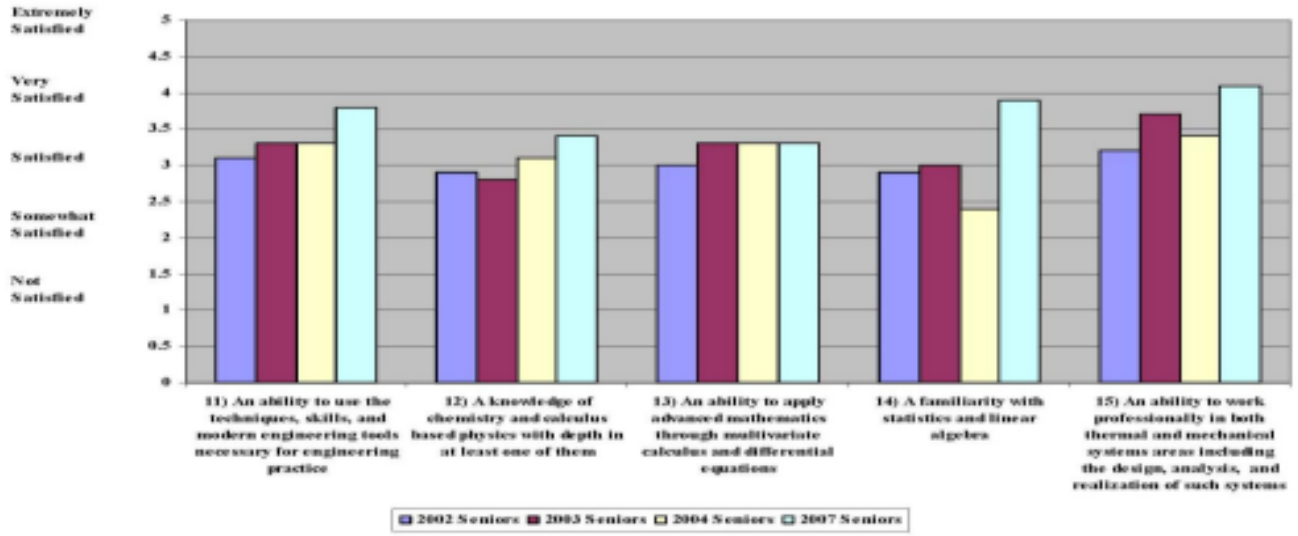
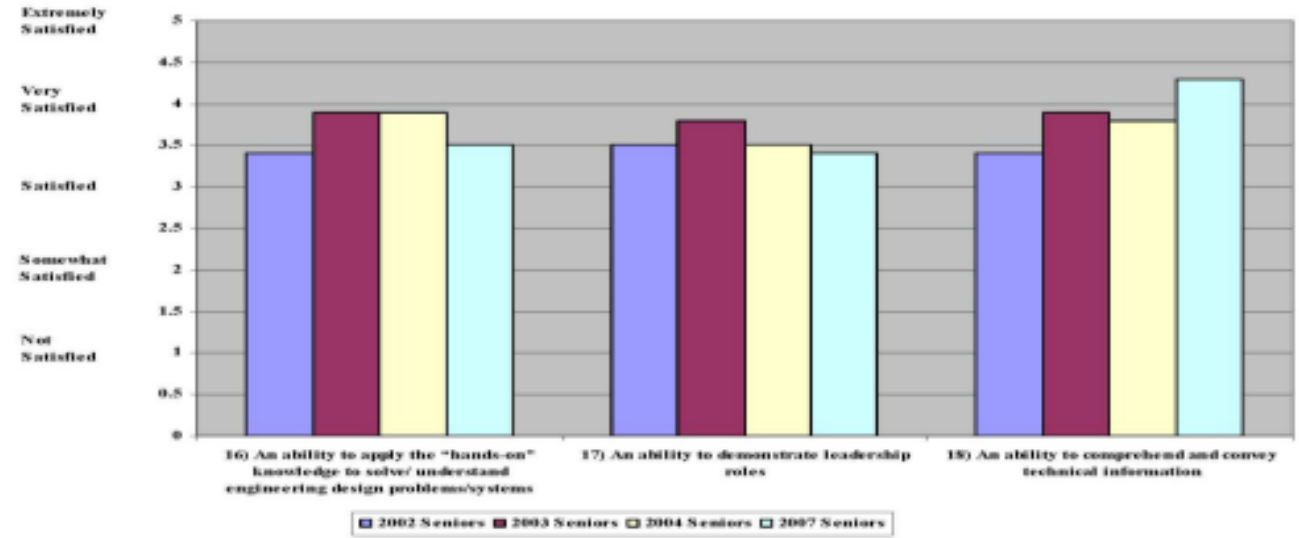


Fig. 3.6c: Senior Class Assessment of ME Program Outcomes:
"How Satisfied are you with the Education that you Received, in Regard to the Following Skill Sets?"





WASC/ACSCU SUMMARY DATA

Institution: ____The California Maritime Academy_____ **Year Founded:** ___1929_____

President/CEO: __Dr. William B. Eisenhardt, RASM USMS_____ **Date:** _12/01/10_____

Calendar Plan: X Semester □ Quarter □ Trimester □ Other_____

Approved Degree-Granting Levels: □ Associate X Bachelors X Masters □ Research Doctorate □ Professional Doctorate and other

Sponsorship and Control:

□ Independent
□ Independent, with affiliation _____
□ Religiously affiliated _____
X California State University
□ University of California
□ University of Hawaii
□ Public
□ Proprietary

FOR UNDERGRADUATE PROGRAMS:

Last Reported IPEDS Data for Enrollment by Ethnicity and Gender. Use IPEDS definitions for students.
IPEDS data reported as of (date) _10/01/2009_____

Table 1

Enrollment by Category	Total FTE of Students*	Total Headcount of Students	Non-Resident Alien Headcount	Black, Non-Hispanic Headcount	Am Indian/ Alaska Native Headcount	Asian / Pacific Islander Headcount	Hispanic/ Latino Headcount	White/Non-Hispanic Headcount	Ethnicity Unknown Headcount	Total Male Headcount	Total Female Headcount
Undergraduate	1030	898	12	28	9	90	78	548	133	719	179
Non-degree	0	0	0	0	0	0	0	0	0	0	0
Total	1030	898	12	28	9	90	78	548	133	719	179

* If institution has used a formula other than FTE = FT + (PT/3), please indicate how calculated FTE: _____

WASC/ACSCU SUMMARY DATA

Institution: The California Maritime Academy

IPEDS Data for 6-Year Cohort Graduation Rate, Last 3 Years, by Ethnicity and Gender:

Please indicate if the data provided in tables below is for: **X freshmen only (use Table 2)**
□ freshmen and transfer students combined (use Tables 2 *and* 3)

Table 2

Freshman Cohort Year (Entering Fall)	Overall Graduation Percentage	Non-Resident Alien %	Black, Non-Hispanic %	Am Indian/ Alaska Native %	Asian / Pacific Islander %	Hispanic/ Latino %	White/Non-Hispanic %	Ethnicity Unknown %	Male %	Female %
2003___	69%	0%	50%	50%	29%	50%	70%	74%	85%	15%
20____										
20____										
3-Year Averages:	69%	0%	50%	50%	29%	50%	70%	74%	85%	15%

If institution tracks freshman and transfer graduation rates separately please provide last 3 years data for 6-Year cohort *transfer* graduation rate by ethnicity and gender:

Table 3

Transfer Cohort Year (Entering Fall)	Overall Graduation Percentage	Non-Resident Alien %	Black, Non-Hispanic %	Am Indian/ Alaska Native %	Asian / Pacific Islander %	Hispanic %	White/Non Hispanic %	Ethnicity Unknown %	Male %	Female %
20____										
20____										
20____										
3-Year Averages:										

WASC/ACSCU SUMMARY DATA

Institution: The California Maritime Academy

FOR GRADUATE PROGRAMS:

Last Reported IPEDS Data for Enrollment in each program level by Ethnicity and Gender. Use IPEDS definitions for students.
IPEDS data reported as of (date) _____

Table 4

Enrollment by Category	Total FTE of Students*	Total Headcount of Students	Non-Resident Alien Headcount	Black, Non-Hispanic Headcount	Am Indian/ Alaska Native Headcount	Asian / Pacific Islander Headcount	Hispanic/ Latino Headcount	White/Non-Hispanic Headcount	Ethnicity Unknown Headcount	Total Male Headcount	Total Female Headcount
Masters											
Research Doctorate											
Professional (Masters & Doctorate											
Total											

IPEDS Data for Cohort Graduation Rate, Last 3 Years, by Ethnicity and Gender:

Table 5

Cohort Year	Graduation Percentage (all programs)	Non-Resident Alien %	Black, Non-Hispanic %	Am Indian/ Alaska Native %	Asian / Pacific Islander %	Hispanic/ Latino %	White/Non-Hispanic %	Ethnicity Unknown %	Male %	Female %
20____										
20____										
20____										
3-Year Averages:										

Current Faculty: **Total FTE** of faculty 68 as of 12/01/10 (date)

Full-time faculty headcount: 62 % Non-Caucasian 19.3 % Male 79.0 % Female 21.0

Part-time faculty headcount: 25 % Non Caucasian 16 % Male 76.0 % Female 24.0

FTE Student-to-FTE Faculty Ratio: 15.15

WASC/ACSCU SUMMARY DATA

Institution: The California Maritime Academy

Finances:

A. Annual Tuition Rate: Undergraduate Resident Tuition: $4,335 Undergraduate Non-Resident Tuition: $11,160

Graduate Resident Tuition: N/A Graduate Non-Resident Tuition: N/A

B. Total Annual Operating Budget: $29,516,800

C. Percentage from tuition and fees: 19.9%

D. Operating deficit(s) for past 3 years: $0 (FY2007); $0 (FY2008); $0 (FY2009)

E. Current Accumulated Deficit: $0

F. Endowment: $2,268,000

Governing Board: A. Size: 25 B. Meetings a year: 7

Off-Campus Locations: A. Number: 0 B. Total Enrollment: 0

Distance Education Programs: (50% or more of program/degree requirements are offered via any technology-mediated delivery system):

A. Number: 0 B. Total Enrollment: 0

rev 052207

California Maritime Academy College Portrait

California Maritime Academy
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707-654-1330
http://www.csum.edu

Cal Maritime, a specialized campus of the California State University, providing education in the maritime and transportation related fields including Maritime Policy and Management and Business Administration - International Business and Logistics.

Located in Vallejo, California, The California Maritime Academy (Cal Maritime) is a unique and specialized campus of The California State University that offers students bachelor's degrees in business administration, facilities engineering technology, global studies and maritime affairs, marine engineering technology, marine transportation, and mechanical engineering. Cal Maritime is one of only seven degree-granting maritime academies in the United States — and the only one on the West Coast. A specialized education combining classroom instruction, experiential learning, and professional development prepare students for successful careers in international business and logistics, maritime policy, engineering, technology, or in the maritime and transportation industries. International travel, training, and experiences — including a two-month international training cruise onboard the Training Ship GOLDEN BEAR — prepare students in fields that are increasingly global in nature.

The Cal Maritime Community

The city of Vallejo and the surrounding area offer residents a unique combination of bedroom community, suburban quietude, waterfront paradise, and foothill vistas.

Cal Maritime is a primarily residential campus with approximately 850 full-time students. Those students who do not live on campus, live in the nearby community. Academic support includes the Center for Engagement, Teaching and Learning providing a tutoring and writing center, resources for students with disabilities, and the Center for Community Engagement, among other services. The library is open daily and every weekday evening. The Career Center provides information about employment, internships and workshops on job search skills.

Carnegie Classification of Institutional Characteristics

Basic Type
Baccalaureate Colleges--Diverse Fields

Size and Setting
Small four-year, highly residential

Enrollment Profile
Exclusively undergraduate four-year

Undergraduate Profile
Full-time four-year, more selective, lower transfer-in

Undergraduate Instructional Program
Professions focus, no graduate coexistence

Graduate Instructional Program
Not Applicable

NOTE: Institutional classifications based on the Carnegie 2005 edition.

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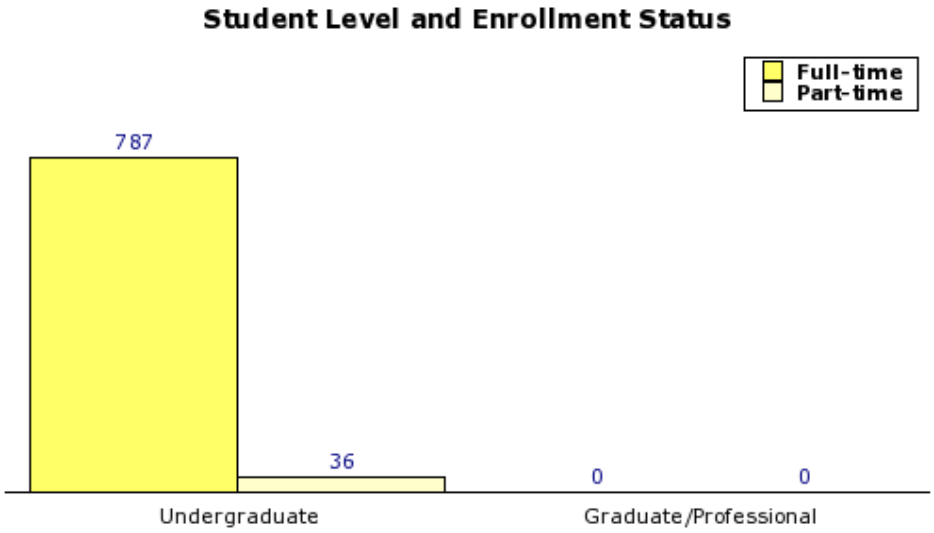
Student Characteristics (Fall 2009)



Total Students	823

Undergraduate Profile

Total Undergraduate Students	823	
Gender		
Women	118	14%
Men	705	86%
Gender Not Reported	823	100%
Race/Ethnicity		
International	8	1%
Race/Ethnicity Not Reported	80	10%
African American / Black	21	3%
American Indian / Alaskan Native	7	1%
Asian / Pacific Islander	81	10%
Hispanic	93	11%
White	533	65%

Geographic Distribution (Degree-Seeking)	
California	82%
Other US States & Territories	16%
Other Countries	2%
Age (Degree-Seeking)	
Average Age	22
Percent of Undergraduates Age 25 or Older	17%

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Undergraduate Success and Progress Rate

Data for graph not yet available

A four-year success and progress rate means that of students starting in Fall either graduated or are still enrolled at a higher education institution four years later.

Counts for the Fall entering class shown in the graph above.

0 First-Time, Full-Time Students
0 Full-Time Transfer Students

Retention of Fall 2008 First-Time, Full-time Students

First-time students in Fall 2008 that returned for their second year: 76%

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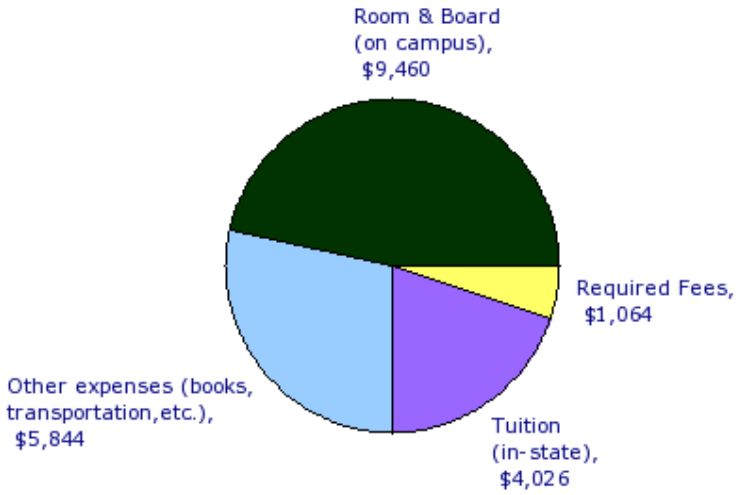
College Portrait of Undergraduate Education
Voluntary System of Accountability

Costs of Attendance and Financial Aid

Typical Undergraduate Costs per Year without Financial Aid (Full-Time, In-State Students)



Total Typical Cost of Attendance: $20,394

The cost for attendance to Cal Maritime is updated annually in January and is adjusted as changes are instituted by the CSU Board of Trustees and federal regulations during the remainder of the year.

The cost to attend California Maritime Academy varies based on the individual circumstances of students and may be reduced through grants and scholarships.

Financial Aid Awarded to Undergraduates

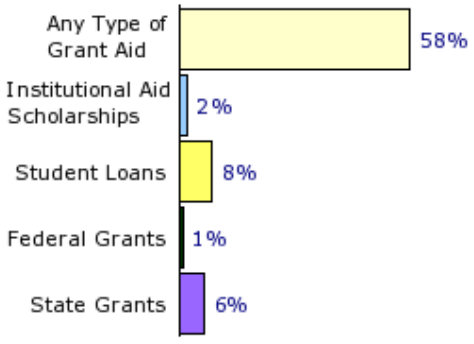
Annual Need-Based Scholarships & Grants

• 61% of 2008-09 full-time undergraduates received need-based grants or scholarships; the average award for the year was $6,829

Annual Need-Based Loans

• 48% of 2008-09 full-time undergraduates received need-based work-study and/or loans (not including parent loans); the average loan for the year was $8,053

Percent of 2007-08 First-Time Students Receiving Each Type of Financial Aid



NOTE: Students may receive aid from more than one source.

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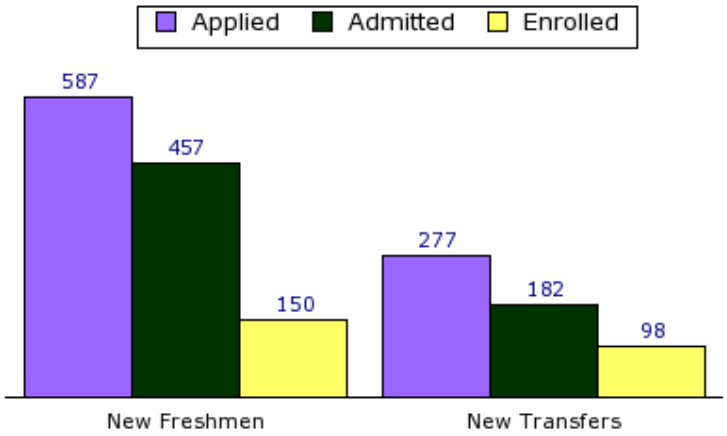
Undergraduate Admissions



Academic Preparation of New Freshmen

Test(s) Required for Admission: SAT or ACT recommended

Middle 50% of Test Score Range	ACT	SAT
Composite	20 - 26	
Math	19 - 28	470 - 610
English	17 - 24	
Critical Reading		450 - 580

50% of admitted students have test scores within the ranges listed, 25% have scores above, and 25% have scores below.

\

High School Background
Percent in top of graduating class Data Not Available
Average High School GPA Data Not Available

Study At CMA

Classroom Environment	
Students per Faculty	12 to 1
Undergraduate classes with fewer than 30 students	82%
Undergraduate classes with fewer than 50 students	98%

Full-Time Instructional Faculty	
Total Faculty	66
% Women	18%
% from Minority Groups	18%
% with Highest Degree in Field	17%

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Student Housing

90% of new freshmen live on campus
75% of all undergraduates live on campus

Campus Safety

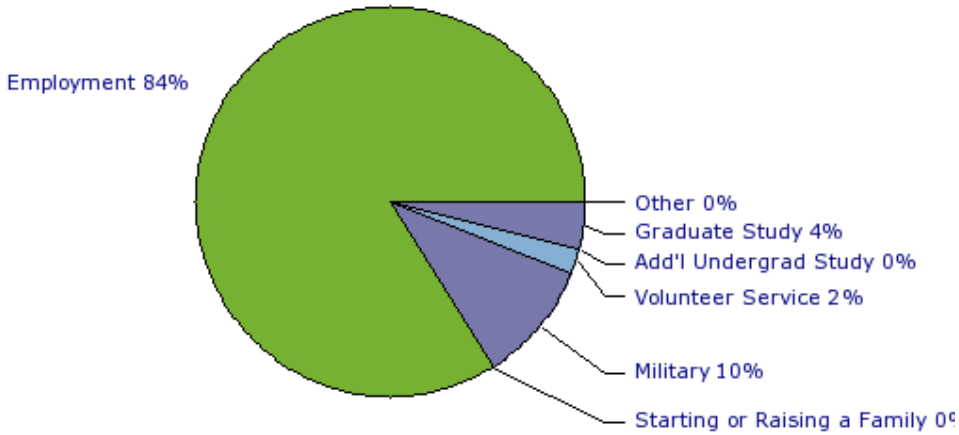
The California Maritime Academy Public Safety Department provides 24 hours a day protection for the campus community. The California Maritime Academy Public Safety Department staff has one sworn fully vested police officer who is also the Chief of Police and Director of Public Safety. There is a security officer on campus 24 hours a day, 7 days per week. Public Safety personnel are unarmed. They conduct foot, bicycle and vehicle patrols on campus, to include interior patrols of the campus residence halls. They are the first responders to campus emergencies.

Degrees and Areas of Study

Degrees awarded at California Maritime Academy in 2008-09	
Bachelor's	158
Total	158

Areas of study with the largest number of bachelors degrees awarded in 2008-09	
Marine Transportation	39%
International Relations and Affairs	19%
Mechanical Engineering	16%
Mechanical Engineering Related Technologies/Technicians	13%
Business Administration, Management and Operations	10%

Future Plans of Bachelor's Degree Recipients



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Student Experiences and Perceptions

Institutions participating in the VSA program measure student involvement on campus using one of four national surveys. Results from the one survey are reported for a common set of questions selected as part of VSA. Following are the selected results from the National Survey of Student Engagement (NSSE). The questions have been grouped together in categories that are known to contribute to student learning and development. The results reported below are based on the responses of seniors who participated in the survey.

Group Learning Experiences

98% percent of seniors worked with classmates on assignments outside of class.
72% of seniors tutored or taught other students
27% of seniors spent at least 6 hours per week participating in co-curricular activities such as student organizations and intramural sports

Active Learning Experiences

77% of seniors spent at least 6 hours per week preparing for class
4% of seniors worked on a research project with a faculty member
6% of seniors participated in an internship, practicum, or field experience
41% of seniors participated in community service or volunteer work
2% of seniors participated in study abroad
89% of seniors made at least one class presentation last year

Institutional Commitment to Student Learning and Success

81% of seniors believe this institution provides support for student success
65% of seniors rated the quality of academic advising at this institution as good or excellent
61% of seniors reported that this institution provided help in coping with work, family and other non-academic responsibilities
77% of seniors reported working harder than they thought they could to meet an instructor's standards or expectations

Student Interaction with Campus Faculty and Staff

40% of seniors believed that the campus staff were helpful, considerate, or flexible
68% of seniors believed that faculty are available, helpful, or sympathetic
79% of seniors reported that faculty members provided prompt feedback on their academic performance
63% of seniors discussed readings or ideas with faculty members outside of class

Experiences with Diverse Groups of People and Ideas

51% of seniors reported that they often tried to understand someone else's point of view
61% of seniors reported their experience at this institution contributed to their understanding people of other racial and ethnic backgrounds
47% of seniors often had serious conversations with students of a different race or ethnicity

Student Satisfaction

68% of seniors would attend this institution if they started over again
69% of seniors rated their entire educational experience as good or excellent
71% of seniors reported that other students were friendly or supportive

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Student Learning Assessment at California Maritime Academy

All colleges and universities use multiple approaches to measure student learning. Many of these are specific to particular disciplines, many are coordinated with accrediting agencies, and many are based on outcomes after students have graduated.

Student Learning is assessed at both the class level and at the program level. Student Learning Outcomes have been developed for all degree programs and all classes. The engineering and engineering technology have established both Program Objectives and Program Learning outcomes. These are available at: www.csum.edu/academics/majors/ME/Assessment.asp and www.csum.edu/academics/majors/MET/. Student Learning competencies for license track programs conform with the international requirement of the Standards for Training, Certification and Watchkeeping (STCW) of the International Maritime Organization. A description of STCW can be found at: www.csum.edu/WASC/Program_Review/Index.asp

Pilot Project to Measure Core Learning Outcomes

Colleges and universities participating in the College Portrait measure the typical improvement in students' abilities to think, reason, and write using one of three tests. This is part of a pilot project to better understand and compare what students learn between their freshman and senior years at different colleges and universities.

Results from the Collegiate Learning Assessment

The Collegiate Learning Assessment (CLA) measures critical thinking, analytic reasoning, problem solving, and written communication using a performance task and an analytic writing task. The scores from the tasks are reported separately below.

Performance Task Results for First-time, Full-time Students

The increase in learning on the performance task is what would be expected at an institution with students of similar academic abilities.

Freshman Score: 1031
Senior Score: 1124
CLA score range: 400 to no maximum score.

Average SAT scores for tested students
Freshman Score: 1090
Senior Score: 1069

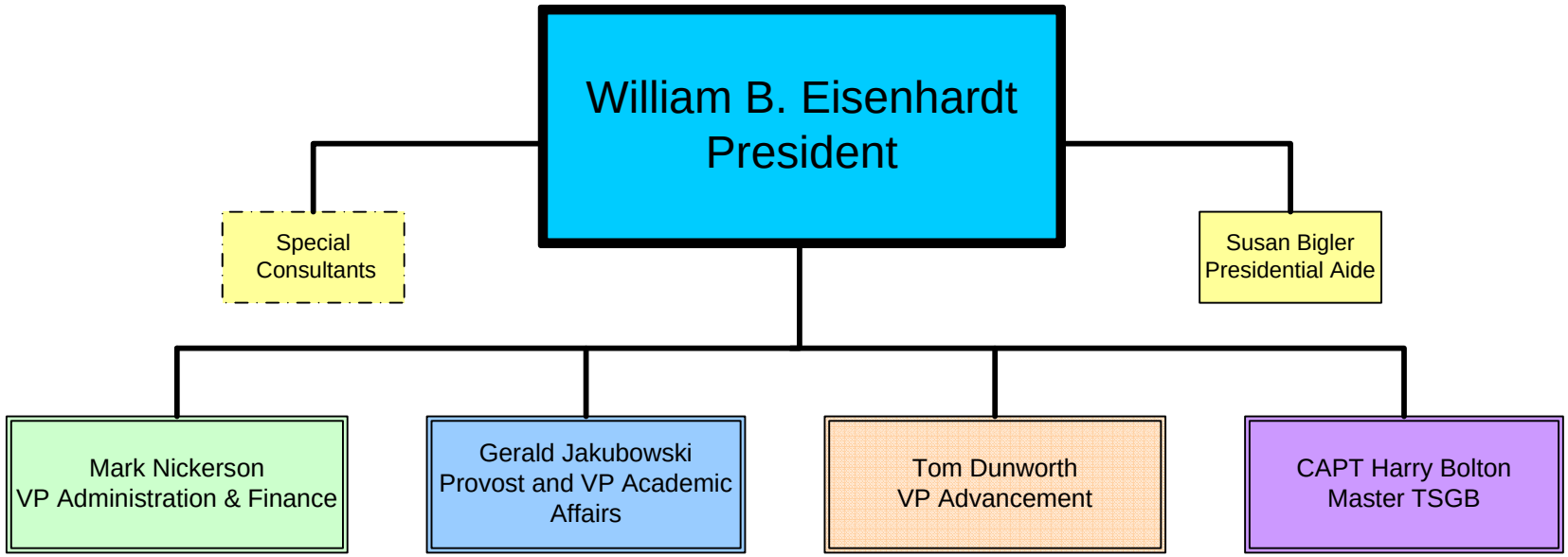
Analytic Writing Task Results for First-time, Full-time Students

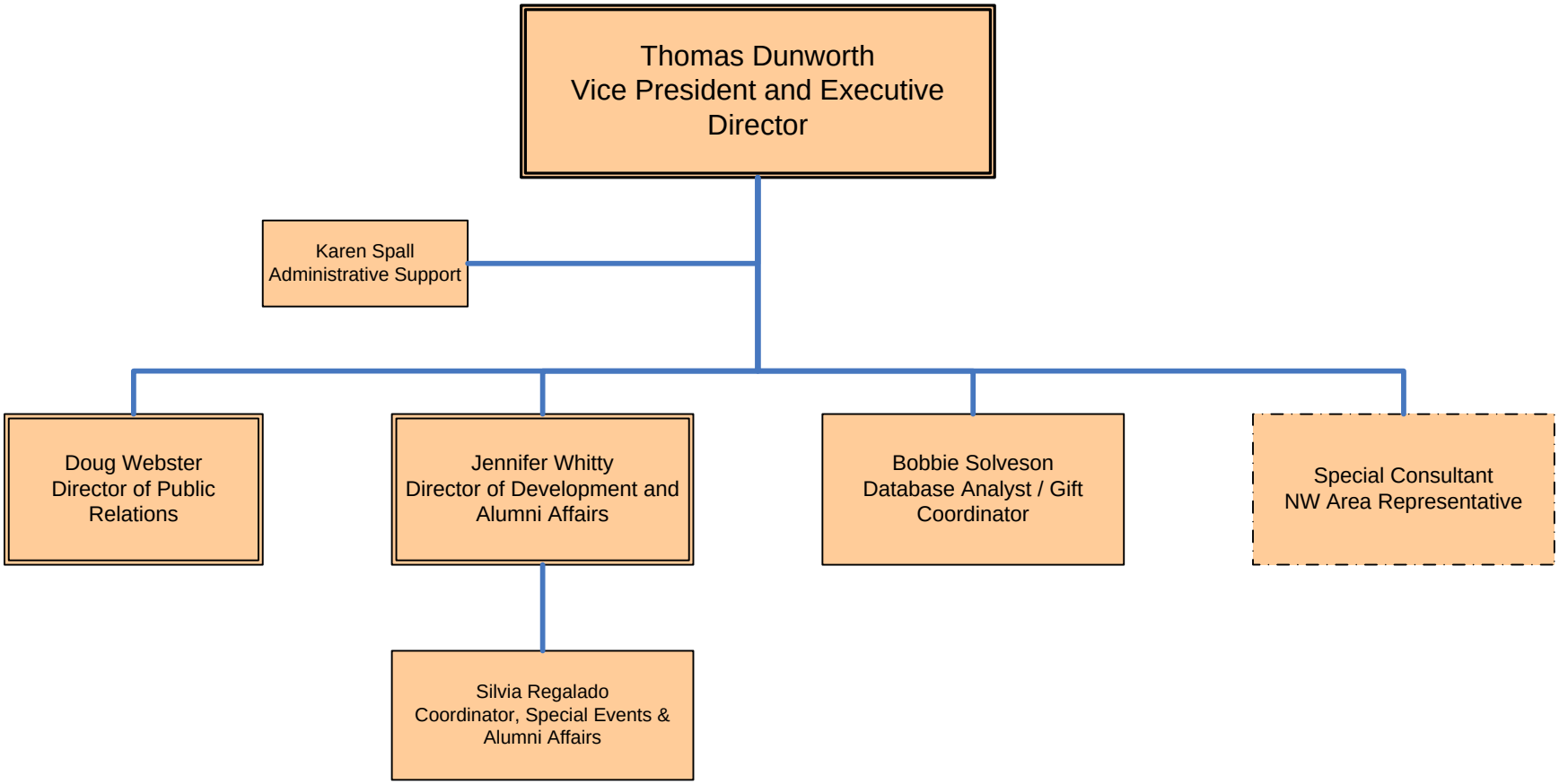
The increase in learning on the analytic writing task is below what would be expected at an institution with students of similar academic abilities.

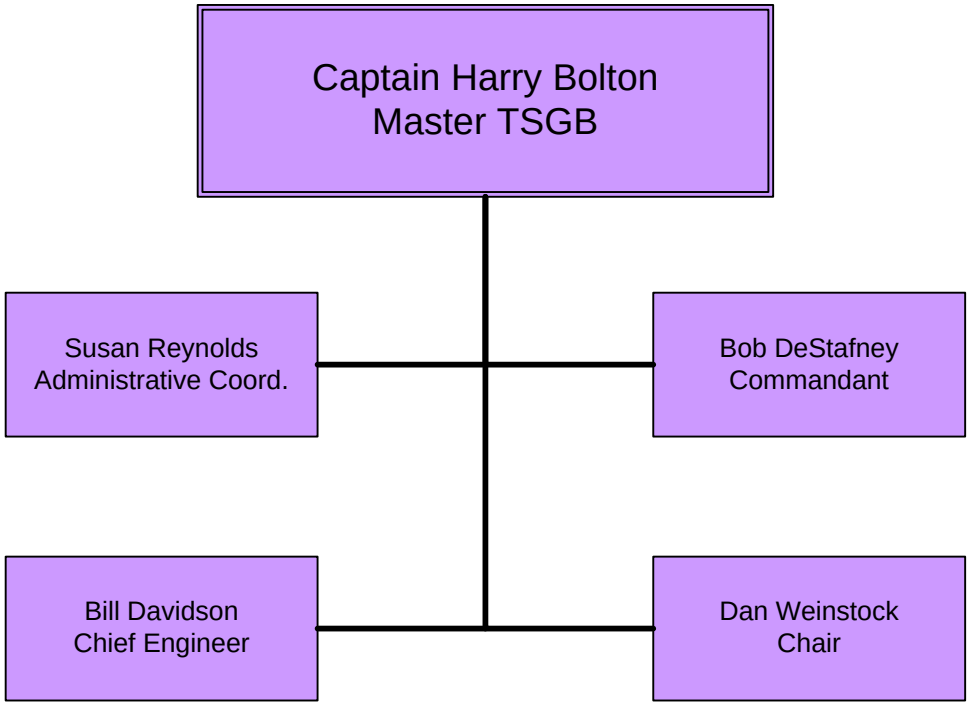
Freshman Score: 1098
Senior Score: 1124
CLA score range: 400 to no maximum score.

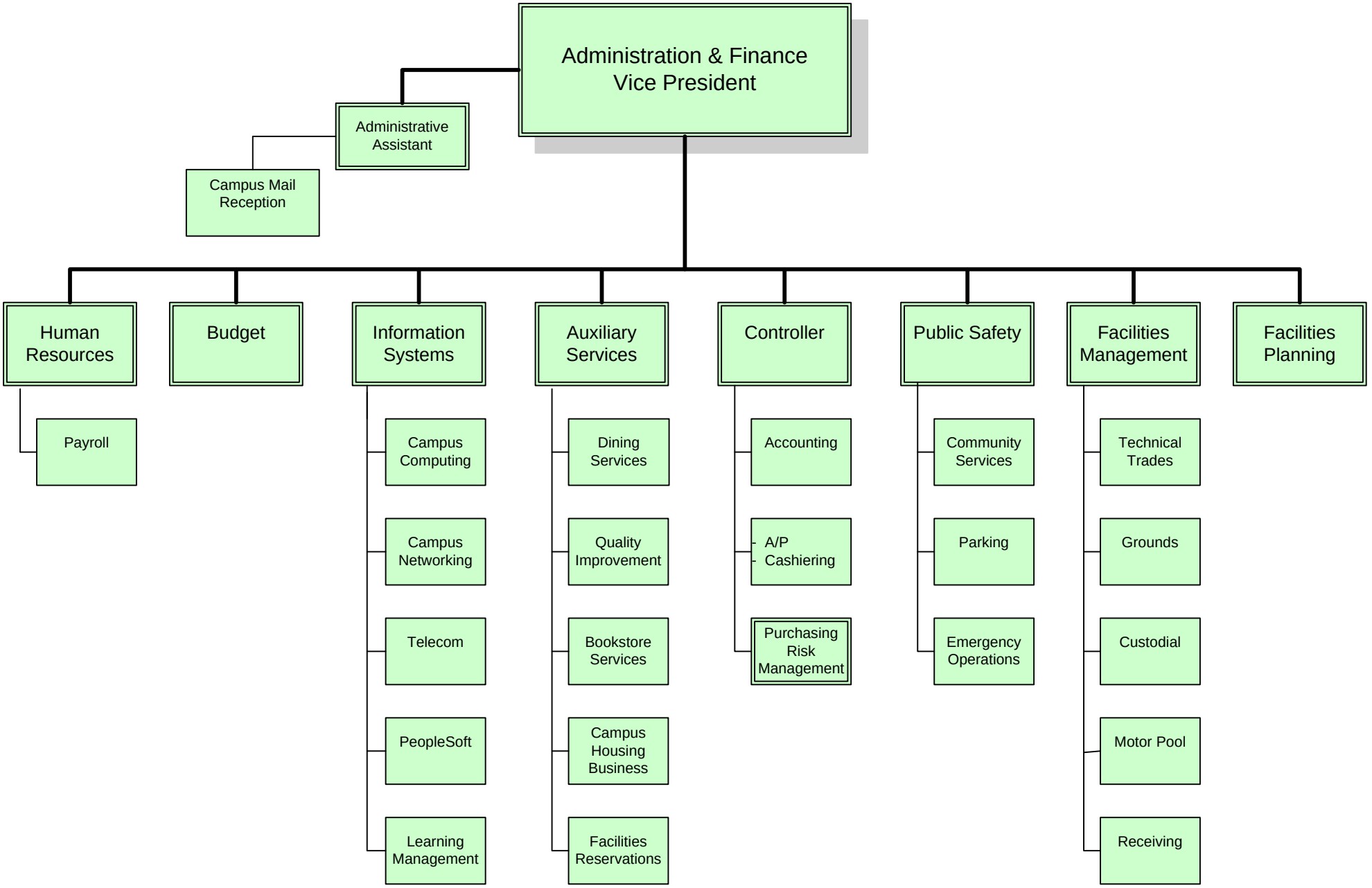
Average SAT scores for tested students
Freshman Score: 1090
Senior Score: 1069

CALIFORNIA MARITIME ACADEMY



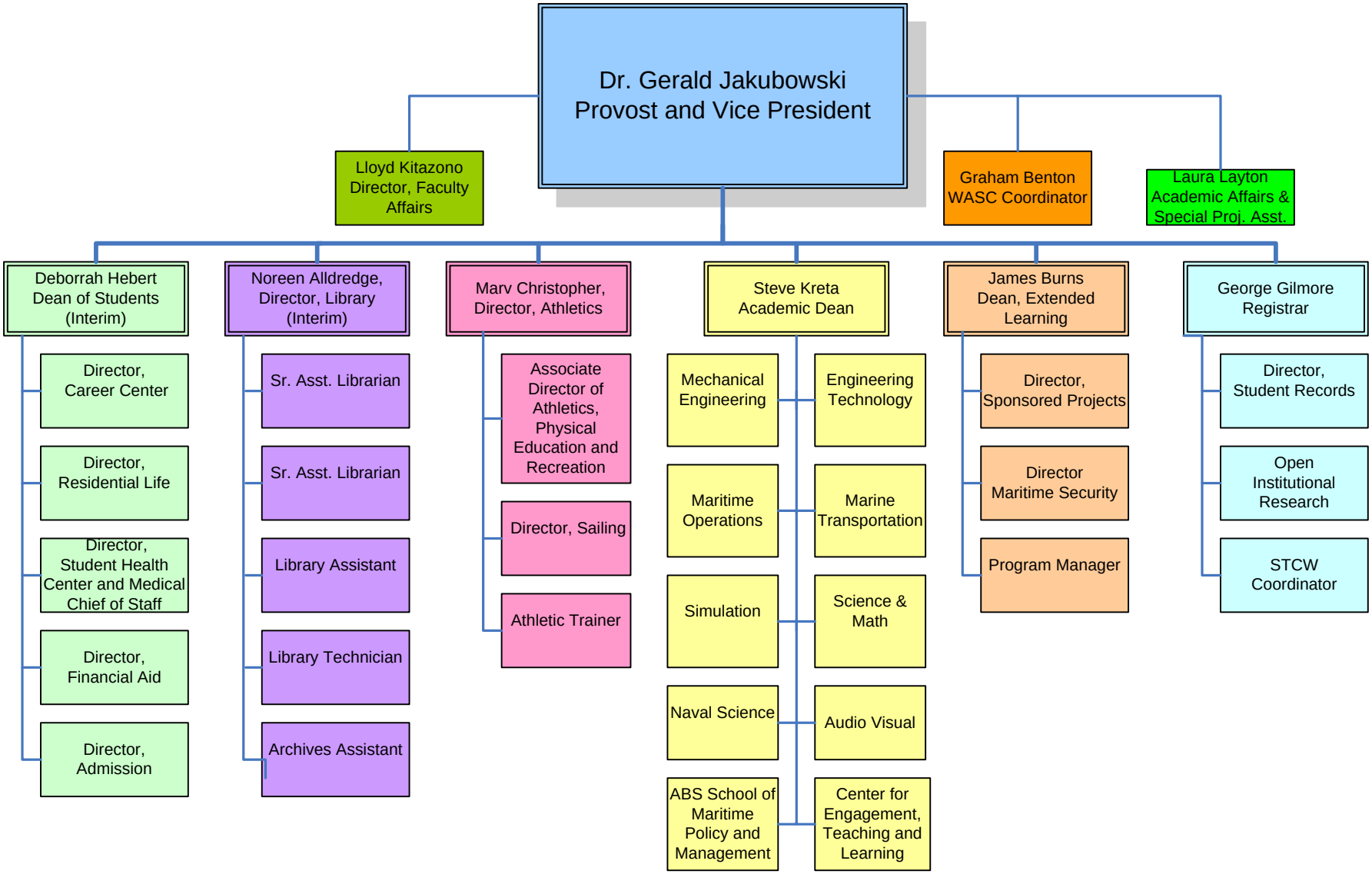

Thomas Dunworth
Vice President and Executive Director
Karen Spall
Administrative Support
Doug Webster
Director of Public Relations
Jennifer Whitty
Director of Development and Alumni Affairs
Bobbie Solveson
Database Analyst / Gift Coordinator
Special Consultant
NW Area Representative
Silvia Regalado
Coordinator, Special Events & Alumni Affairs


Captain Harry Bolton
Master TSGB
Susan Reynolds
Administrative Coord.
Bob DeStafney
Commandant
Bill Davidson
Chief Engineer
Dan Weinstock
Chair

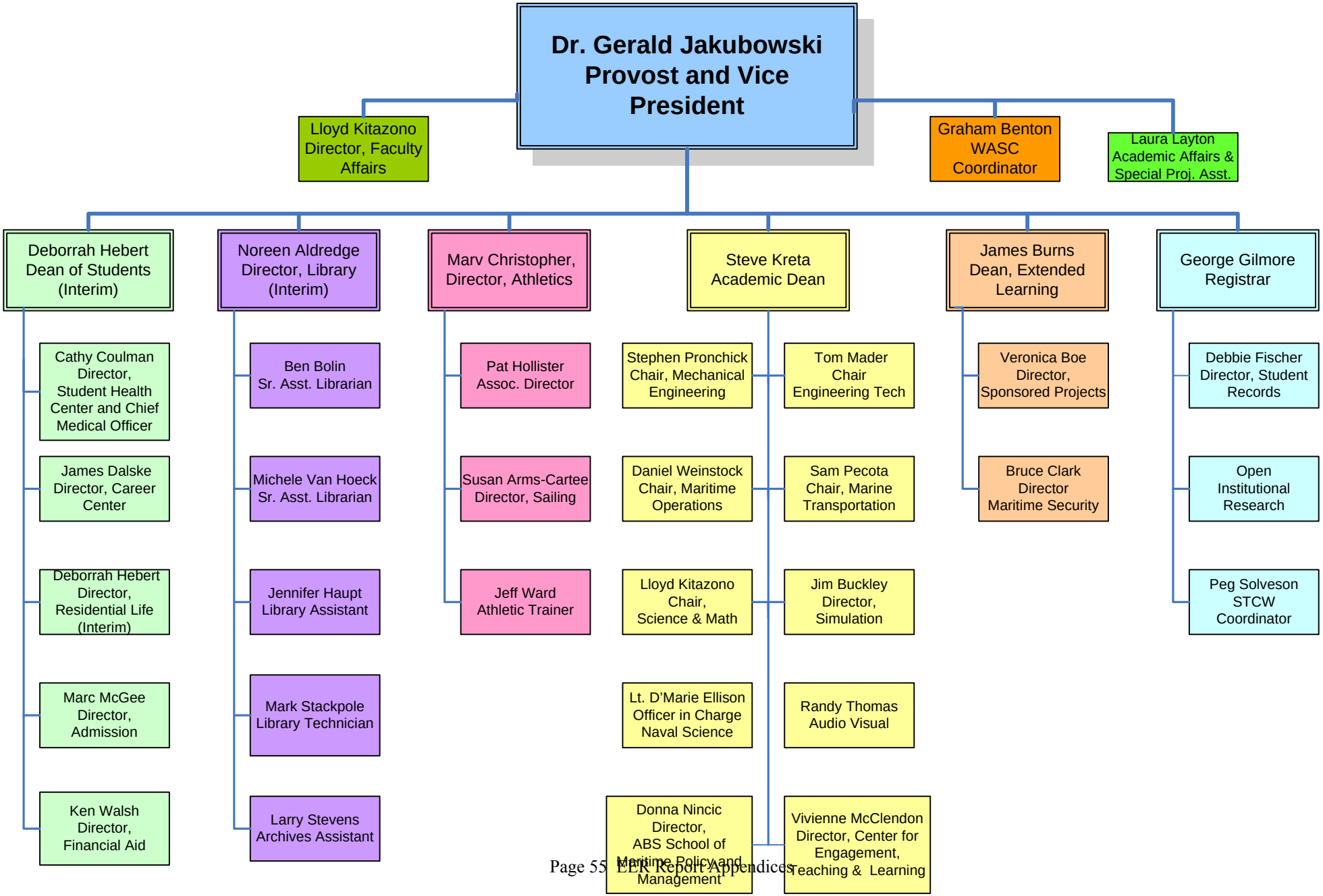

Administration & Finance
Vice President
Administrative Assistant
Campus Mail Reception
Human Resources
Payroll
Budget
Information Systems
Campus Computing
Campus Networking
Telecom
PeopleSoft
Learning Management
Auxiliary Services
Dining Services
Quality Improvement
Bookstore Services
Campus Housing Business
Facilities Reservations
Controller
Accounting
- A/P
- Cashiering
Purchasing Risk Management
Public Safety
Community Services
Parking
Emergency Operations
Facilities Management
Technical Trades
Grounds
Custodial
Motor Pool
Receiving
Facilities Planning

Provost and Vice President
Academic Affairs

2010/2011
Updated 9/01/2010



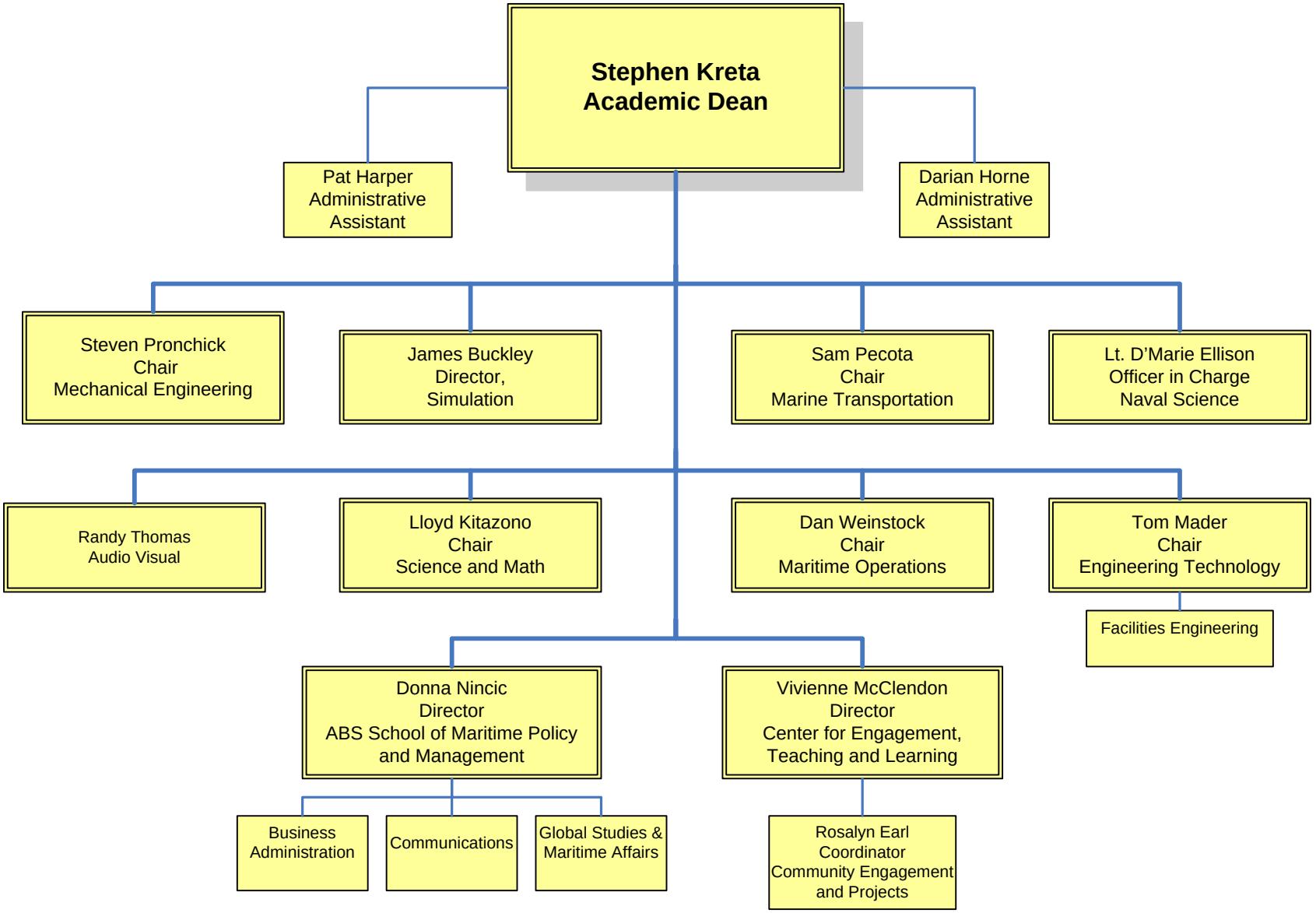
Provost and Vice President
Academic Affairs
2010/2011
Updated 9/01/2010



Academic Dean

2010/2011

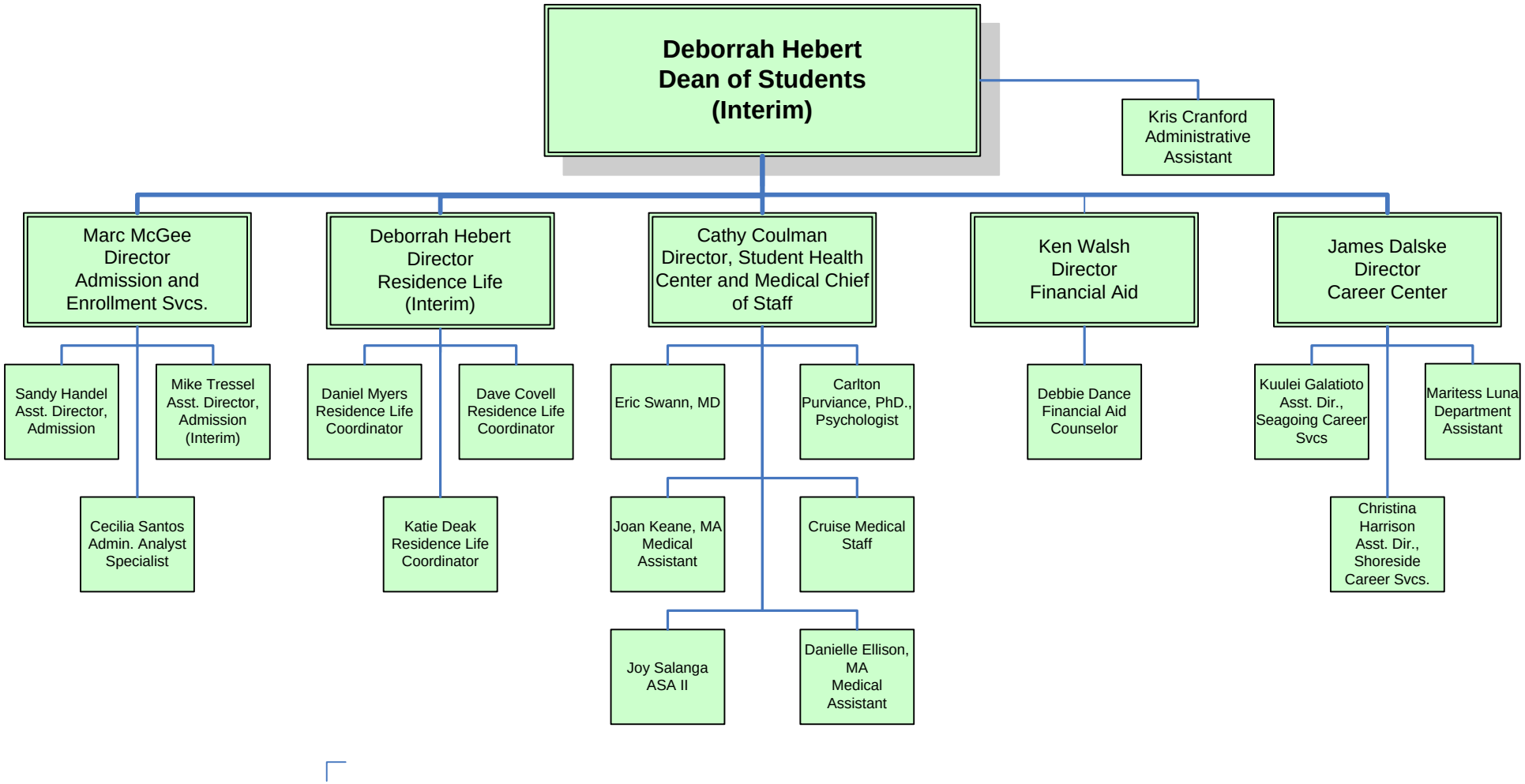
Updated 11/22/2010



Dean of Students

2010/2011

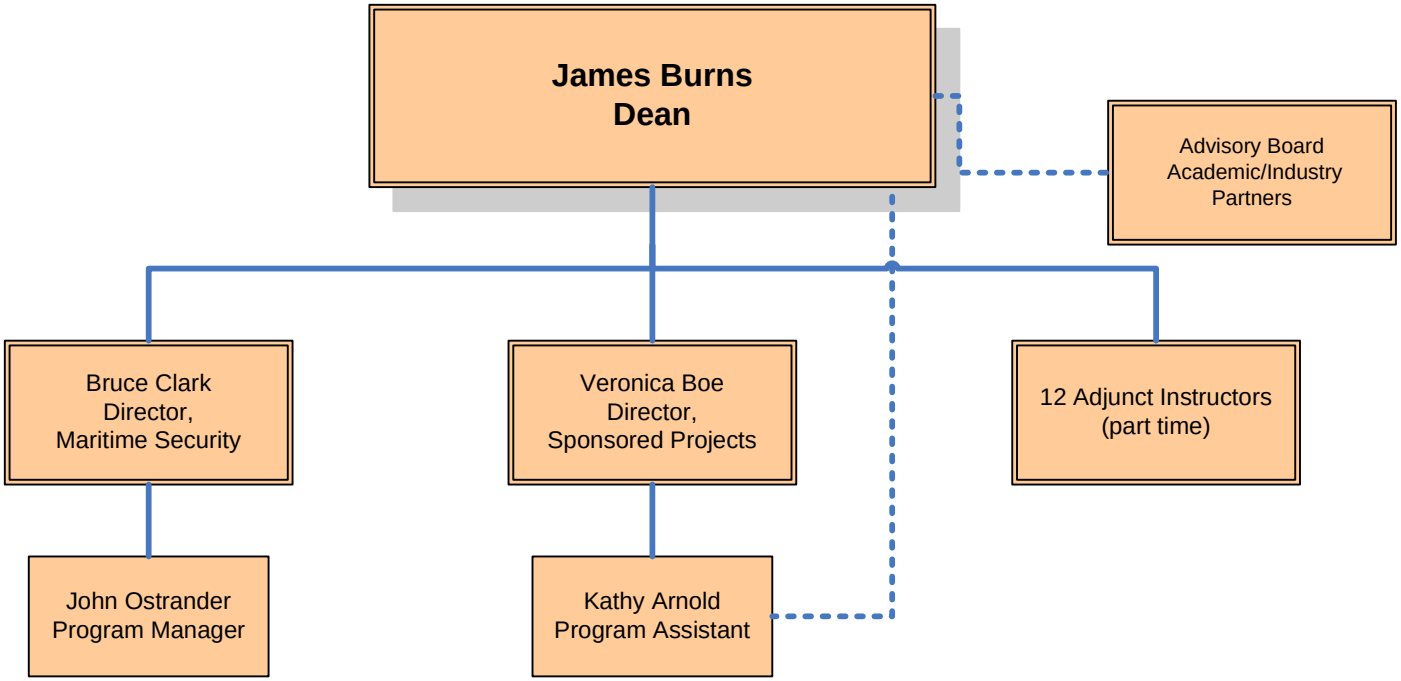
11/22/2010



Extended Learning

2010/2011

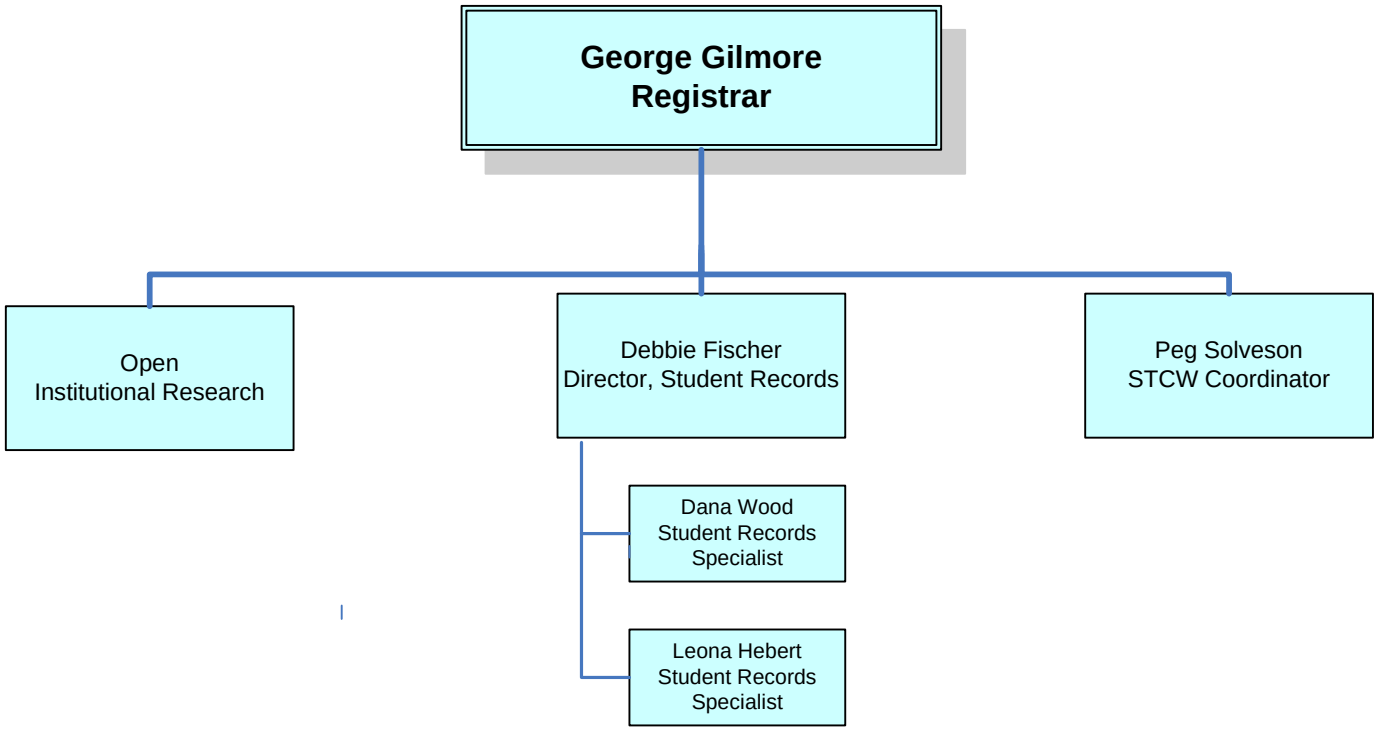
11/22/2010



Registrar

2010/2011

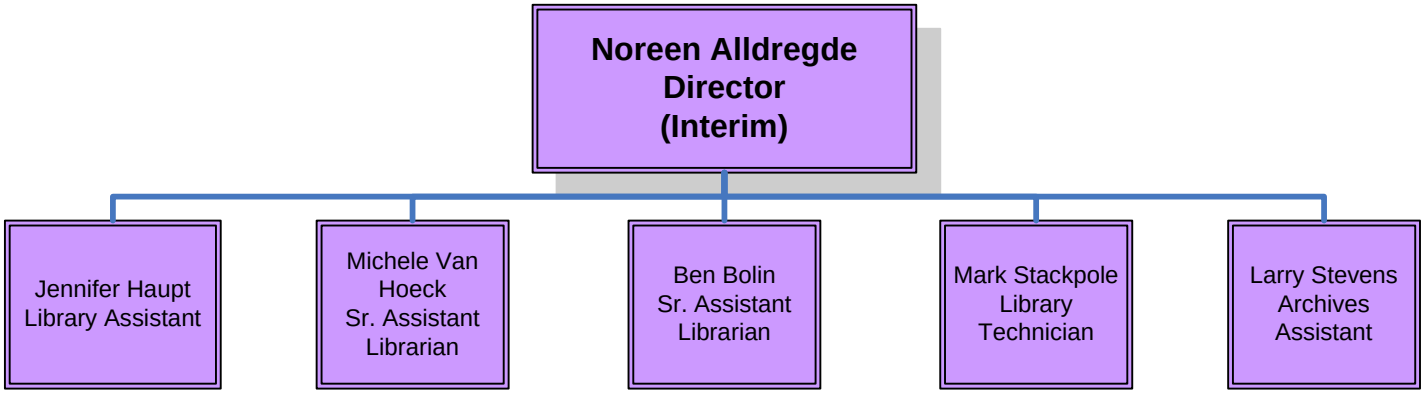
11/22/2010



Library

2010/2011

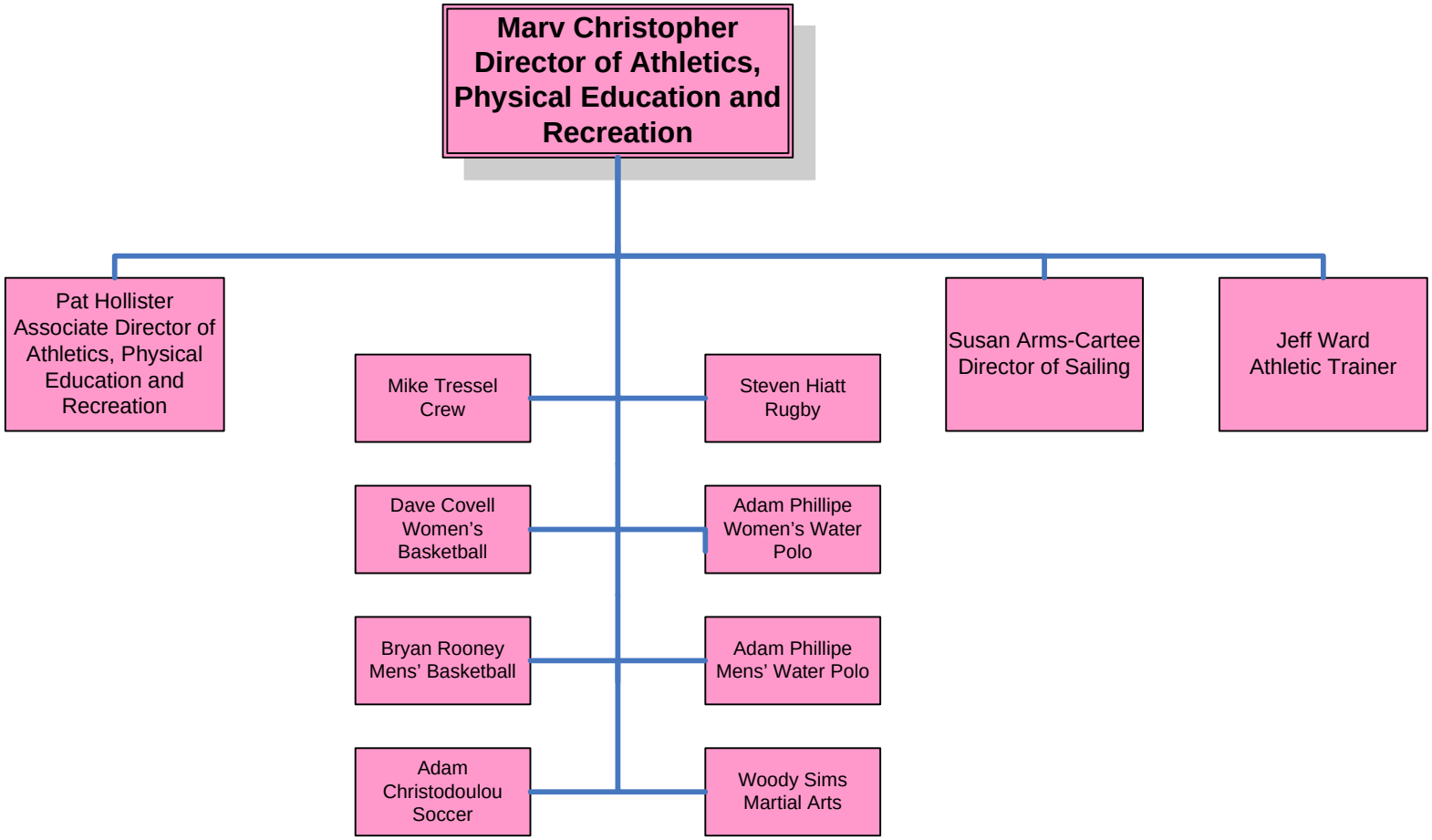
Updated 9/01/2010



Athletics

2010/2011

Updated 0/01/2010



APPENDIX VII

Key Affiliated Documents

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The California Maritime Academy
Academic Master Plan

PREPARED BY ACADEMIC MASTER PLAN STEERING COMMITTEE, MARCH 2009

Provost, Dr. Herman Lujan, Co-Chair
Academic Senate Chair, Dr. Graham Benton, Co-Chair
Academic Dean, Steve Kreta
Dean of Instructional Support, Paul Jackson
Executive Assistant to Academic Affairs, Laura Layton
Library Director, Carl Phillips
Director of the Center for Engagement, Teaching and Learning, Dr. Vivienne McClendon
S.T.C.W Coordinator, Peg Solveson
Engineering Technology Department Chair, Tom Mader
Maritime Operations Department Chair, Dan Weinstock
Sciences &Mathematics Department Chair, Lloyd Kitazono
Information Fluency Program Coordinator, Mindy Drake
Student Representative, Joseph Mahach

Accepted by Academic Senate Executive Committee, September 10, 2009

Approved by California Maritime Academy President, William B. Eisenhardt, November 2, 2009

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I. VISION STATEMENT

Cal Maritime's vision provides a compelling conceptual image of the future we will create for this institution. This statement describes how we will build Cal Maritime in the years to come:

> *The California Maritime Academy will be a leading educational institution, recognized for excellence in the business, engineering, operations, and policy of the transportation and related industries of the Pacific Rim and beyond.*

We will maintain our commitment to quality instruction, research, and service in maritime education. From this foundation we will develop further to become a leader in engineering, science, and technology for the transportation industry. We believe our strength as an institution lies in maintaining focused areas of excellence, as distinguished from engaging in programmatic proliferation which our resource base cannot support.

II. MISSION STATEMENT

The mission for Cal Maritime defines our purposes as an organization. Our educational community subscribes to the following statement of what we will do. Our mission is to:

- *Provide each student with a college education combining intellectual learning, applied technology, leadership development, and global awareness.*
- *Provide the highest quality licensed officers and other personnel for the merchant marine and national maritime industries.*
- *Provide continuing education opportunities for those in the transportation and related industries.*
- *Be an information and technology resource center for the transportation and related industries.*

III. BELIEFS AND VALUES

The California Maritime Academy is defined, in part, by the system of beliefs that make us unique as an institution of higher education. They are:

- Experiential Learning
- Ethics Development, both Personal and Professional
- Small Residential Campus Environment
- Student Centered Learning
- Professional Orientation
- Having a Niche to Focus on in Higher Education
- Campus Civility and Collegiality
- Diverse Living/Learning Community

Values influence how we make and carry out decisions, and how we interact with our internal and external constituencies. At Cal Maritime they are:

- Dedication
- Honor
- Integrity
- Respect
- Responsibility
- Trust

IV. THE ACADEMIC MASTER PLAN PLANNING PROCESS

In the fall of 2008, an Academic Master Planning Template Committee comprised of faculty members and campus administrators produced a document which identified several critical issues related to the ongoing development of academics at Cal Maritime. These critical issues included the need to: explore online technology and support services for teaching and learning; review academic expectations related to students' required cruise experiences; examine the current structure, membership and purpose of the Corps of Cadets; consider the nature and function of potential new academic programs at the undergraduate and graduate levels of study; evaluate the quality of student life; and revisit the organization of current academic programs.

In the spring of 2009, an Academic Master Plan Steering Committee was formed to create the Academic Master Plan, based upon the guidance and recommendations provided by the Template Committee. In undertaking this process, the Steering Committee hosted a series of open discussion sessions organized around the critical issues provided in the template document. Additionally, subcommittees were formed to consider the feedback elicited from these discussion sessions as well as recent faculty retreats and workshops, and to develop sets of corresponding goals and objectives that reflected the institution's vision for future growth and development.

Moreover, the development of this Academic Master Plan coincided with the California State University's *Access to Excellence* strategic plan and its accompanying Accountability Plan adopted by the CUS Board of Trustees. Specifically, among the suggested institution-level "commitments" to achieve these "Access to Excellence" goals, many dovetail neatly within our own institutional objectives, including, but not limited to:

- A Commitment to Invest in Faculty Excellence.
- A Commitment to Enhance Student Opportunities for 'Active Learning.'
- A Commitment to Enhance Opportunities for Global Awareness.
- A Commitment to act on the CSU's responsibility to meet post-baccalaureate needs, including those of working professionals.

The goals and objectives provided in this document are based upon the following assumptions of past, current, and projected enrollment growth of the California Maritime Academy over the next five years.

A. The Past, Current, and Projected Enrollment Growth

Current Enrollment

Since the development of the last strategic plan in 2002, campus enrollment has grown to a current headcount of approximately 850 residential and non-residential students. Due to the unique nature of Cal Maritime and the large number of credits required for graduation, "headcount" translates into a higher number of "full-time equivalents (FTEs)" than what typically occurs at other academic institutions. Therefore, the headcount of 850 students is equivalent to approximately 1050 FTEs. (See Appendix B for an explanation of unit degree issues at CMA.) Due to state funding limitations, CSU has directed Cal Maritime to maintain its enrollment for FY 09-10 at existing levels and it is anticipated that this level enrollment will remain through FY 10-11.

Future Enrollment

Cal Maritime recognizes that all funding models indicate it is more cost effective to have enrollments in the 1500 to 2000 FTE range. Therefore, once state funding allows, we will strive to grow toward the following targets, which include both residential and non-residential students:

Year	Headcount (Undergrad/Grad)	FTE
2011-12	900/0	1100
2012-13	950/25	1200
2013-14	1000/50	1300

The projected increase in enrollments will require additional facilities, since existing classrooms are currently utilized to the maximum extent possible. In addition, long range projections to meet the 1500 to 2000 FTE enrollment range will require the development of continuing education and extended learning opportunities as well as the development of graduate programs and a corresponding increase in graduate student enrollments. Furthermore, it must be acknowledged that these growth projections may change due to the current economic conditions of the State of California and possible measures taken by the California State University to mitigate budgetary crises.

V. THE ACADEMIC MASTER PLAN

The Academic Master Plan of The California Maritime Academy is intended to provide an institutional guide for the future growth, creation and development of academic programs and support services which contribute to the identity and reputation of our institution. It expresses the collective visions of campus faculty, staff, and administrators involved in academic programs, and will be used to help achieve the goals of the institution's Strategic Plan and to justify the acquisition of resources needed for faculty, administration, staff as well as the construction or modification of campus facilities to support physical training, library services, student services, classrooms, laboratories, residence halls and other academic needs. The Academic Master Plan is intended to focus on development goals over the next several years, but with a view toward the year 2029, the centennial of the Academy.

The Academic Master Plan includes goals, objectives and desired outcomes organized under the following five areas: A. Regional Accreditation; B. Academic Programs and Curricular Development; C. Library Services and Instructional Technologies Support; D. Training Cruise, Corps of Cadets and Co-Curricular Activities; and E. Envisioned Organizational Structure.

A. Regional Accreditation

The California Maritime Academy is accredited by the Western Association of Schools and Colleges. In 2008, the WASC Commission adapted several changes to the Standards of Accreditation and to the Institutional Review Process, and the California Maritime Academy, in its Academic Master Planning Process, acknowledges the existing Standards and their revisions, and is committed to the strengthening of its academic programs that such Standards address.

Specifically, Cal Maritime will develop and refine indicators for the achievement of its purposes and educational objectives at the institutional, program, and course levels. Cal Maritime will develop and improve a system of measuring student achievement in terms of retention, completion and student learning, and the institution shall make public data on student achievement at the institutional and degree levels.

As noted previously in the Academic Master Plan, Cal Maritime is also dedicated to the California State University's *Access to Excellence* Strategic Plan, and close attention will be paid to Commitment 4: Improvement of Public Accountability for Learning Results.

Goal RA-1: Develop a more comprehensive and accurate institution-wide assessment program.

- **Objective 1:** In accordance with WASC Standards and CSU Accountability Standards, the California Maritime Academy will establish student learning outcomes for all programs. In addition, all course syllabi will contain applicable program outcomes with an indication of how these are met in the course.
- **Objective 2:** Each Department shall determine a process for ensuring that outcomes are established, published in syllabi, and used to provide an assessment plan for continuous improvement of the curriculum.

- **Objective 3:** In accordance with WASC Standards and CSU Accountability Standards, Cal Maritime will require that all courses considered for adoption or revision must contain an assessment plan for embedded improvement.
- **Objective 4:** Cal Maritime faculty, individually and departmentally, will continue to develop instruments for measuring teaching effectiveness and improving course-based learning outcomes.
- **Objective 5:** Cal Maritime will form and maintain campus committees dedicated to the integration of assessment practices across the curriculum.

Outcome: The institution will have a more sophisticated sense of its educational strengths and weaknesses and will be able to more quickly and effectively improve its programs.

Goal RA-2: Advance on "The Development of Public Accountability for Learning Outcomes" Initiatives.

- **Objective 1:** Cal Maritime will coordinate data collection for the Voluntary System of Accountability, the CSU College Portrait and other organizations for national and international distribution.
- **Objective 2:** Cal Maritime will coordinate review of learning results from Collegiate Learning Assessment (CLA), from FIPSE-sponsored projects, and other national institutions that publicize institutional data.
- **Objective 3:** Cal Maritime will form and maintain committees on campus dedicated to Public Accountability for Learning Outcomes.

Outcome: Cal Maritime will have a more visible presence in various data collection agencies and will also have a deeper sense of its place among peer institutions.

B. Academic Programs and Curricular Development

Cal Maritime seeks to become a maritime university that provides education, training, experience and expertise in all things maritime. As such, we will explore the vastness of the word "maritime" and the expressions we use such as "maritime related fields." As our understanding of maritime education expands, we will also endeavor to recruit faculty and other experts who can address the important maritime issues that our society is confronting today and will certainly face in the future. The development of new academic programs and changes to existing programs at Cal Maritime will be done in a manner which supports our commitment to address these important issues.

The overall growth issue of the campus directly affects new program development as well as additional options in existing programs such as minors and electives. What is important is that Cal Maritime look to the future in all faculty hiring areas, and ensure our new colleagues can help move us in these areas in which we seek expertise. The areas in which we will look for new or additional faculty expertise, both at the practitioner and policy levels, for growth and development of new and existing programs are:

- Energy: renewable, sustainable, green, efficient
- Environment: marine, coastal, atmospheric, fisheries
- Transportation: economics, trade, inter-modal
- Business: international, supply chain, logistics, port and terminal management
- Policy: maritime security, crisis/humanitarian relief, geographic, political

It is important that Cal Maritime students of all disciplines be able to obtain employment after graduation and progress professionally in their chosen fields. To this end, the Academy must strive to provide academic programs that both serve students' educational needs and fulfill the professional expectations of industry. Also, the content of academic programs must remain relevant and up-to-date with the increasing utilization of advanced technologies.

The California State University system requires that academic departments conduct periodic self-studies. These periodic self-studies will serve as the basis of this continuous improvement process on the Cal Maritime campus. The results of such studies will help define and justify new directions departments wish to pursue within the next five years and beyond.

However, before embarking on the development of new majors, adequate research must be undertaken to ensure we are developing new programs that are the most desirable to our students and employers. Thorough needs assessments must be conducted to fully comprehend the effect new programs may have on the campus environment, and the breadth of physical and academic resources required for the development of quality programs that serve students' needs.

In general, each department will be asked to explore new programs it foresees developing during the next five years. As with existing programs, these new programs must be justified as contributing to the mission of the institution and the needs of constituents. It is likely that the number of new programs proposed will exceed the capacity of the institution and, therefore, prioritization of new programs must be established.

Additionally, departments will be encouraged to collaborate on developing programs of an interdisciplinary nature. The links between business, science, technology and policy are apparent in the professional world, yet academic institutions have appeared reluctant in the past to create classes that illustrate these connections and to bridge departmental divides. Our educational system, professional workforce and society may be seeing the consequences of ignoring these connections. The creation of interdisciplinary and interdepartmental connections across the curricula will not only enrich students' educational experiences, but will improve cost effectiveness through resource sharing.

Finally, while the licensed programs at Cal Maritime have been designed to provide excellent technical and professional training aimed toward the development of good mariners, the ability for licensed officers to transfer their skills to shore-side opportunities has not yet been clearly established in all programs. Engineering Technology graduates seem to have more employment opportunities shore-side following graduation than do their Marine Transportation classmates. This is an important aspect that will be considered, whether through looking at the revision of existing programs or the introduction of new ones. It is important not to create additional programs that merely overlap or unnecessarily compete with existing programs.

Goal AP-1: Ensure that existing programs continue to serve students and their professions, and remain relevant and up-to-date with the increasing utilization of advanced technologies.

- **Objective 1:** Require all departments to initiate an internal assessment program, involving input from various constituencies within, and external to, their department to determine the validity and effectiveness of their programs, and to recommend and justify directions of growth and improvement, based on outcomes assessments.
- **Objective 2:** Utilize departmental reviews required through the CSU system as a tool to help academic departments determine the most efficient number of students their program can accept. These reviews must be based on the projected allocation of resources such as the training ship and vessels, simulators, labs and the practical aspects of hiring appropriate faculty part-time or full-time.
- **Objective 3:** Utilize departmental reviews required through the CSU system to determine the necessity, potential efficacy and desirability of program growth and to prioritize the development of new and existing initiatives.
- **Objective 4:** Utilize departmental reviews required through the CSU system to encourage academic programs designed specifically for the education and training of licensed officers to

carefully consider the opportunities that their graduates have to pursue shore-side careers if a career at sea is not readily available or short lived.

Outcome 1: Cal Maritime's existing academic programs become increasingly adaptable to shifting expectations of technology and industry, and demonstrate efficacy through a culture of evidence.

Goal AP-2: Develop the ABS School of Maritime Policy and Management in accordance with the intent of the ABS gift to include offering degree programs in the following areas: Global Studies and Maritime Affairs (GSMA); International Business and Logistics (IBL); and, perhaps, Culture and Communications.

Goal AP-2A: ABS Curricular Development

- **Objective 1**: Develop a robust set of student learning outcomes common to students majoring and completing minors in ABS programs, and taking courses within the school; develop program and school assessment plans for these outcomes.
- **Objective 2**: Examine the Law, GSMA and Business Administration minors to see if they best meet the needs of our students; adjust as appropriate; develop new minors as appropriate.
- **Objective 3**: Work with Marine Transportation, Mechanical Engineering, and Engineering Technology to embed more business, policy and culture and communications classes into their degrees (either as minors, joint majors or as required/elective course offerings).
- **Objective 4**: Maintain and strengthen the program in Culture and Communication in its mission to provide breadth and depth to the ABS programs, and as it supports Cal Maritime's commitment to intellectual learning.
- **Objective 5**: Conduct program reviews for the GSMA (2009-2010) and IBL (2010-2011) degrees.

Outcome 1: ABS curricular offerings in Global Studies and Maritime Affairs; International Business and Logistics; and Culture and Communications meet the needs of all students, and not just those in ABS degree programs.

Goal AP-2B: ABS Program Growth

- **Objective 1**: Expand student intake in GSMA and IBL programs (currently 35-40/year; increase to 60+/year), as well as quality of students in each program.
- **Objective 2**: Determine student attrition rates in GSMA and IBL (exact numbers as well as reasons for attrition); reduce attrition in programs.
- **Objective 3**: Expand the IBL faculty. Currently, there is only one tenure-track faculty member in IBL; need to hire both from industry and from academia, particularly in the core areas of: Logistics and Supply Chain Management, International Trade and Economics, Humanitarian Logistics, Accounting and Finance.
- **Objective 4**: Expand the GSMA faculty, particularly in Environmental and Energy policy (currently no GSMA faculty teach full-time for the GSMA degree; all are on release time or teach for other programs).
- **Objective 5**: Renovate the former Radar Building into the ABS Building for classroom use.
- **Objective 6**: Develop Master's degree program in Transportation and Engineering Management with the Departments of Marine Transportation and Engineering Technology.
- **Objective 7**: Develop and expand the ABS School of Policy and management Advisory Group, particularly in maritime policy as well as international business and logistics.

Outcome 1: The quality of ABS programs is improved and graduates are ready to meet future challenges in the careers of their choice.

Goal AP-2C: Develop and Deepen ABS Interdisciplinary Emphasis

- **Objective 1**: Embed ethics throughout the IBL and GSMA majors; work with other majors to improve the study of ethics.
- **Objective 2**: Embed social responsibility throughout degree and course offerings (for example, a course in humanitarian logistics, expanded Community Service Learning (CSL) opportunities).
- **Objective 3**: Embed and expand written and oral communications throughout all programs, particularly writing within the disciplines.
- **Objective 4**: Increase cross-cultural emphasis within the ABS programs, and in other degree offerings.
- **Objective 5**: Develop opportunities for IBL and GSMA students to acquire both hands-on education using Cal Maritime's simulation capabilities and a deeper appreciation of the Marine Transportation and Marine Engineering Technology majors.
- **Objective 6**: Explore the cruise experience with the goal of providing ABS students with more time in port.

Outcome 1: ABS students are provided with a deeper and meaningful well-rounded education.

Goal AP-2D: Develop ABS Internship and Career Development Opportunities

- **Objective 1**: Track student experiences in internships; develop new internship opportunities to meet student needs (environmental and international opportunities in particular; more exclusively maritime and transportation opportunities for IBL students).
- **Objective 2**: Track student job and graduate school placement records; assess graduates three to five years after graduation.

Outcome 1: ABS students have been provided the education and experience necessary to succeed in either their professional careers or pursuing graduate studies.

Goal AP-3: Develop academic minors to offer students opportunities beyond their major course of study.

- **Objective 1:** Explore a reduction of required units (see section on 120 units) to allow students more flexibility in choosing courses.
- **Objective 2:** Review existing minors and determine their viability.
- **Objective 3:** Design new minor programs that would be perceived as useful to existing majors and attract student interest**.**
- **Objective 4:** Conduct needs assessments to ensure that any additional facilities, equipment, and library resources are identified and provided when developing new academic minors.

Outcome 1: Students are increasingly motivated to pursue minor degrees and experience a broadening of horizons as a result of completing a minor.

Goal AP-4: Develop new elective courses which provide students additional fields of academic discovery to complement existing coursework and provide faculty increased opportunities for research and scholarship.

- **Objective 1:** Determine student and faculty interest for electives within major programs and within general academic areas such as the sciences and humanities.
- **Objective 2:** Design and implement courses that show promise for student and faculty enrichment and attracting appropriate enrollments.

- **Objective 3:** Conduct needs assessments to ensure that any additional facilities, equipment, library resources are identified and provided when developing new elective courses.

Outcome 1: Students have increased flexibility to explore new fields of study through elective courses.

Outcome 2: Faculty are provided increased opportunities to maintain currency and develop innovative instruction practices through the development and delivery of new course content.

Outcome 3: Students have more opportunities to personalize the content of their educational experience and increased flexibility to create course schedules as a result of having additional electives from which to choose.

Goal AP-5: Review the existing curricula that currently exceed 120 units and implement the best resulting options to reduce students' unit load without compromising the integrity of academic programs.

- **Objective 1:** Conduct formal reviews within majors that currently require more than 120 units for graduation (Engineering Technology, Mechanical Engineering, and Marine Transportation) with the goal of identifying opportunities for lowering existing unit requirements without sacrificing the integrity of the existing programs.
- **Objective 2:** Consider options specific to each degree program which may lower existing unit requirements without sacrificing the integrity of the existing program. This may include moving some STCW requirements out of academic classes to a competency verification system, for example on cruise.
- **Objective 3:** Ensure that the results of programmatic unit-reductions are meeting the intent of Cal Maritime's general education experience, and are not sacrificing the integrity of existing academic program objectives.
- **Objective 4:** Ensure that the results of programmatic unit-reductions do not compromise the institutional principles of increasing retention, throughput, academic excellence, and reduction in time to graduation.
- **Objective 5:** Review institutional proposals for new programs to ensure that whenever possible, they do not exceed the 120-unit goal of the CSU.

Outcome 1: Students and faculty will benefit from the adjustments required to reach or close the gap to 120 units.

Outcome 2: The Academy will have enhanced its reputation with the CSU.

Goal AP-6: Explore the potential of developing a new degree program in Marine Transportation Management and implement it, if viable.

- **Objective 1:** Identify the market for, and requirements of, a Marine Transportation Management degree to increase employment opportunities for graduating students.
- **Objective 2:** Consider developing program options for graduates with a degree in Marine Transportation who may be interested in a short sea-going career followed by a career shore-side.
- **Objective 3:** Consider the feasibility of developing a hybrid degree program between the departments of Marine Transportation and Maritime Policy and Management that would allow for an unlicensed option for students who desire shore-side employment in ports and terminals.
- **Objective 4:** Consider the potential of offering this new Marine Transportation Management program in an online environment.

- **Objective 5:** Conduct a needs assessment to ensure that required resources are identified and provided for, including facilities, equipment, technology, academic training, and library resources.

Outcome 1: The Academy will determine the viability of creating a degree program in Marine Transportation Management and assess the level of campus support for its development.

Goal AP-7: Explore the potential of developing a new interdisciplinary bachelor's degree program in Renewable Energy and implement it, if viable.

- **Objective 1:** Determine the market for, and requirements of, a bachelor's degree in renewable energy to increase employment opportunities for graduating students.
- **Objective 2:** Identify courses currently being taught where content could be revised to accommodate the requirements of a renewable energy major.
- **Objective 3:** Develop additional courses that could both fulfill the requirements of the major and provide additional elective courses for students not majoring in renewable energy.
- **Objective 4:** Consider the potential of offering this new Renewable Energy program in an online environment.
- **Objective 5:** Consider the potential of collaborating with other academic institutions in offering coursework or providing training facilities core to this new program.
- **Objective 6:** Conduct a needs assessment to ensure that required resources are identified and provided for, including facilities, equipment, technology, academic training, and library resources.

Outcome 1: The Academy will determine the viability of creating a bachelor's degree program in Renewable Energy and assess the level of campus support for its development.

Goal AP-8: Explore the potential of developing a new bachelor's degree program in Coastal and Environmental Science and implement it, if viable.

- **Objective 1:** Determine the market for and requirements of a bachelor's degree in Coastal and Environmental Science to increase employment opportunities for graduating students.
- **Objective 2:** Identify courses currently being taught where content could be revised to accommodate the requirements of a coastal and environmental major.
- **Objective 3:** Develop additional courses that could both fulfill the requirements of the major and provide additional elective courses for students not majoring in coastal and environmental science.
- **Objective 4:** Consider the potential of collaborating with other academic institutions in offering coursework or providing training facilities core to this new program and include ways in which our simulation facilities and equipment could be used for this purpose.
- **Objective 5:** Consider the potential of offering for this new Coastal and Environmental Science program in an online environment.
- **Objective 6:** Conduct a needs assessment to ensure that required resources are identified and provided for, including facilities, equipment, technology, academic training, and library resources.

Outcome 1: The Academy will determine the viability of creating a bachelor's degree program in Coastal and Environmental Science and assess the level of campus support for its development**.**

Goal AP-9: Explore the ways and means to address capacity issues on the campus with the goal of moving forward with the Bachelor of Science degree program in Science and Mathematics – Teacher Preparation, which is currently part of the CSU Master Plan.

- **Objective 1:** Work with faculty and administration to determine, specifically, the capacity issues that must be addressed to allow for the influx of students expected from this degree offering.
- **Objective 2:** Consider both the potential and challenges of offering courses for this major online.
- **Objective 3:** Conduct a needs assessment to ensure that required resources are identified and provided for, including facilities, equipment, technology, academic training, and library resources.

Outcome 1: The Academy will determine, based upon resolution of capacity issues, the optimum time to submit the formal request for authorization to offer a bachelor's degree program in Sciences and Mathematics – Teacher Preparation to the Office of the Chancellor, CSU.

Goal AP-10: Complete the development and implement the plans underway for a Master's of Science degree in Engineering and Transportation Management.

- **Objective 1:** Proceed on the plan to offer this 30-unit degree fully online with an optional onsite component.
- **Objective 2:** Proceed with the plans that the degree will allow students to concentrate in one of the following three areas: Transportation, Engineering Management, or Crisis/Relief Chain Management**.**
- **Objective 3:** Conduct a needs assessment to ensure that required resources are identified and provided for, including facilities, equipment, technology, academic training, and library resources.
- **Objective 4:** Implement the program beginning fall 2010.

Outcome 1: Cal Maritime will expand its course offerings and academic programs to include a Master's of Science degree in Engineering and Transportation Management.

Goal AP-11: Increase the number of course offerings through the Office of Sponsored Projects and Extended Learning.

- **Objective 1:** Identify single courses, certification programs, initial courses of graduate degrees, and other offerings (e.g., Electronic Chart Display Information System, Bridge Resource Management, courses in maritime management of at-sea personnel) that could be of potential benefit to the maritime industry and the Academy, as well as to the general interest of adult learners within the surrounding community (e.g., courses not directly related to the maritime industry).
- **Objective 2:** Make decisions about implementing such offerings by working closely with the Industry Advisory Board, the Extended Learning Advisory Board, members of the faculty from all departments, the simulation department, and others as needed.
- **Objective 3:** Conduct needs assessments particular to the development of new course or program offerings to ensure that required resources are identified and provided for, including facilities, equipment, technology, academic training, and library resources.

Outcome 1: Industry and the Academy will benefit greatly from additional offerings from the Office of Sponsored Projects and Extended Learning.

C. Library Services and Instructional Technologies Support

It is important to enhance our teaching, learning, and study environments. As enrollments increase, additional programs and majors are developed, and teaching methods evolve, our library services and other academic support services must keep pace and lead where appropriate. In addition, the trend among faculties in higher education is a movement away from a top-down mode of lectures and textbooks and

increasingly involving students in discussion and discovery. Much of this kind of learning occurs outside the classroom through active learning experiences, resource based instruction, and problem solving teams.

As we move forward, it will be important to build the best possible library collections and provide top-notch library services in the most efficacious manner to accommodate our students and faculty. In addition, it is important for the library to evolve into an athenaeum that provides quality learning spaces such as quiet study areas and student conference rooms equipped with flexible furniture and learning technology to facilitate teaching and learning.

While our library services continue to play a central role in advancing the research and discovery skills of our students and faculty, our library facility should become a learning center that provides a variety of academic resources and other support services that students and faculty most need outside the classroom while in study or research mode. For example, these offerings should include tutoring services, a writing center, disability services, and academic computing services.

Academic computing services should support general academic computer use, but should also lead in providing new online teaching and e-learning tools. Online technology has become an increasingly valuable way of delivering and augmenting teaching and learning in higher education. Online technologies and e-learning tools can increase flexibility, improve access, augment face-to-face classroom instruction, and generally increase quality in our educational endeavors. While an e-portfolio system will allow students to maintain a cohesive collection of their increasing achievements through the years, providing evidence to employers and Cal Maritime itself of measurable learning outcomes. Our academic departments and programs will benefit greatly from the application of teaching and learning technologies that are up to date, flexible, and ADA compliant.

Properly conceived and developed, our library and academic support services will inspire even more energy and support to intellectual learning and teaching at Cal Maritime. Libraries have tremendous symbolic value demonstrating the esteem with which a community holds its intellectual life. Students in particular are more likely to respect and engage the life of the mind and be encouraged to be independent lifelong learners when top-notch learning services and study facilities are made available.

Goal SS-1: The Library will maintain and improve upon its user-centered approach to delivering library services and position itself at the intellectual crossroads of the campus community.

- **Objective 1:** Extend library services in the fullest possible way to the online teaching/learning environment.
- **Objective 2**: Promote the need for a new Library facility that brings together a variety of teaching, learning, and research resources and services that together serve students and faculty better than being apart.
- **Objective 3:** Enhance the physical facilities of the Library and other learning spaces on campus until a new facility is constructed.
- **Objective 4:** Maximize the use of computing and other information technologies to deliver superior library services.
- **Objective 5:** Ensure that faculty and students have the necessary research and reference materials available to support an information rich learning environment.
- **Objective 6:** Create digital databases of faculty and student research and scholarly activities, campus history materials, and other resources that would add value to the Academy.
- **Objective 7:** Enhance library holdings to better serve departmental research needs and to enhance teaching and learning innovation across the curriculum.
- **Objective 8:** Stay abreast and actively participate in CSU Libraries services initiatives – particularly those that are most likely to benefit Cal Maritime students and faculty.

Outcome 1: The majority of students and faculty surveyed will believe that the Library inspires study and research because of its physical spaces and resources and that the Library delivers excellent, state-of-the-art, useful services both physically and online.

Goal SS-2: The Library will expand its Information Fluency Program to ensure that all Cal Maritime students are able to navigate and effectively use the vast amount of information available.

- **Objective 1:** Develop courses similar to LIB 100 and have them integrated into the curricula as required courses for each major without increasing the total number of credit hours.
- **Objective 2:** Create curriculum maps to guide the development of embedded information resource based assignments.
- **Objective 3:** Assist the faculty in developing assignments that make use of information resources.
- **Objective 4:** Offer faculty development opportunities to facilitate increased use of research and information resources in the curriculum.
- **Objective 5:** Utilize assessment instruments to regularly gauge student learning in information fluency.

Outcome 1: Students will achieve at least a 75% pass rate before graduation on an assessment instrument approved by the faculty.

Goal SS-3: Create professional development opportunities for faculty and staff to learn and explore the possibilities of offering courses via online learning.

- **Objective 1:** Make online learning an area of emphasis within our faculty development program.
- **Objective 2:** Create a series of workshops, forums, and other faculty development opportunities to promote the use of technology in teaching and learning.
- **Objective 3**: Provide faculty incentives for the development of online courses and programs.
- **Objective 4:** Provide release time for key faculty to master new software and provide training and mentoring in technological areas, as well as pedagogical aspects of online learning, to other instructors.
- **Objective 5:** Ensure that faculty members are aware of, and receive commensurate credit for, the development of online courses – particularly in "Basic Areas of Evaluation" through the RTP process.

Outcome 1: The faculty and academic staff at Cal Maritime become conversant and comfortable with discussing and developing online learning opportunities.

Goal SS-4: Provide online courses of high quality (similar or higher quality than current classroom instruction) that have the benefit of reducing the pressure on classroom spaces and increasing access to instruction.

- **Objective 1**: Create an instructional technology committee to investigate and develop online course offerings to include faculty from all academic departments, Library, IT, SPEL, CETL and a member of curriculum committee.
- **Objective 2:** Carefully consider which courses: lend themselves pedagogically to online teaching/learning, be converted to alleviate classroom pressures, and/or be converted to increase access.
- **Objective 3:** Determine what courses to offer fully online or hybrid to include both new courses and current courses that could be converted.

- **Objective 4:** Develop a process/flowchart for the rationale and approval process of converting online courses and developing new online courses.
- **Objective 5:** Ensure that all online courses have an assessment mechanism to evaluate their effectiveness.

Outcome 1: Students will be able to take a selection of online courses from all academic departments.

Outcome 2: Faculty will understand why and how they should develop online courses.

Goal SS-5: Provide online degree and certificate programs where the demand is sufficient to make them financially attractive.

- **Objective 1:** The M.S. in Transportation and Engineering Management team will develop plans for the program.
- **Objective 2:** Sponsored Projects and Extended Learning will work with industry and Cal Maritime faculty to explore and develop relevant course and certificate opportunities.
- **Objective 3:** Sponsored Projects and Extended Learning will explore and create courses of general interest to adult learners within the surrounding community and not directly related to the maritime industry.

Outcome 1: Cal Maritime degree and certificate programs are in demand and self-sustaining.

Goal SS-6: Implement an e-portfolio system for the Academy with each academic department contributing and embedding its use to ensure a culture of evidence and provide students visible evidence of academic achievement.

- **Objective 1:** Identify key/gateway courses for the collection, assessment and evaluation of data.
- **Objective 2:** Provide faculty training using e-portfolios.
- **Objective 3:** Investigate methods for using assessment data to improve departmental course offerings and programs.
- **Objective 4:** Develop professional e-portfolio templates across all academic departments.
- **Objective 5:** Embed e-portfolio use across the curriculum.

Outcome 1: The Academy and academic departments are able to draw upon data collected in the e-portfolio to ensure regular programmatic improvement.

Outcome 2: Students are able to draw upon information collected in the e-portfolio to track learning development and enhance their personal and career goals.

Outcome 3: Students will reflect upon learning development critically, understanding the connection between program learning outcomes and personal success.

D. Training Cruise, Corps of Cadets, and Co-Curricular Activities

Since its inception as the California Nautical School in 1929, Cal Maritime has offered students a unique educational experience, combining leadership development and practical shipboard training with academic pursuits to prepare them for careers in the maritime industry. Essential to the leadership training program at Cal Maritime is the Corps of Cadets, an entity to which every undergraduate student belongs. Through participation in the Corps, cadets develop self-discipline, self-esteem, and character helping them to succeed in their chosen careers.

Additionally, the Training Ship Golden Bear serves as an important platform on which cadets apply technological skills introduced in the classroom and leadership skills acquired from their work assignments and responsibilities with the Corps of Cadets. All undergraduate students participate in at least one summer cruise, regardless of their academic major.

Goal CC-1: Strengthen the Leadership Development Department with a clear vision of its role at the Academy and appropriate staffing.

- **Objective 1:** Provide valued leadership training to all students.
- **Objective 2:** All students understand the rationale for wearing the naval officer uniform, regardless of their academic major. They take pride in the Corps, and the professional development opportunity it affords.
- **Objective 3:** Increase participation in leadership development training and Corps leadership.
- **Objective 4:** Develop more incentives for students to assume leadership roles, such as providing academic credit for student participation in related trainings.
- **Objective 5:** Explore options for integrating Corps officers, the ASCMA board and Residential Life staff into a more coherent student leadership organization.

Outcome 1: An effective leadership development program, enabling every graduate to succeed in their chose profession, whether at sea or ashore.

Goal CC-2: Expand community engagement opportunities.

- **Objective 1:** Increase institutionalization of community engagement with a variety of strategies such as projects embedded into the classroom curriculum.

Outcome 1: An enhancement in the quality of instruction, intellectual retention, and community investment among the faculty and students at Cal Maritime as well as influencing policy and social change in our surrounding community.

Goal CC-3: Increase opportunities for all majors to learn more about the world around them.

- **Objective 1**: Modify the cruise experience for GSMA and IBL students that would allow students in these majors to spend more time in port and less time at sea in order to more fully experience other cultures and traditions.
- **Objective 2:** Develop cruise itineraries that will afford opportunities for more relevant, meaningful visits and presentations ashore.
- **Objective 3:** Expand study abroad opportunities through CSU International Programs and foreign exchanges with other maritime academies.

Outcome 1: Increased global awareness for all majors.

Goal CC-4: Improve the capacity of the Training Ship Golden Bear to deliver high-quality merchant marine training programs.

- **Objective 1**: Consider additional, shorter-term cruise opportunities to reduce the number of students aboard the Training Ship.
- **Objective 2:** Authorize construction of the training bridge.

Outcome 1: An effective sea training program.

Goal CC-5: Provide facilities and services that enhance the quality of residential student life.

- **Objective 1**: Increase the capacity of study areas on campus and aboard the Training Ship.
- **Objective 2:** Increase the capacity and improve the quality of campus dining facilities, including alternative venues and community kitchens.
- **Objective 3:** Increase the capacity of campus athletic facilities.

Outcome 1: Residential life that attracts students and fosters *esprit de corps*.

Appendix A - University Strategic Goals

2003 University Strategic Plan

The following university-wide goals represent ongoing initiatives established in the campus' 2003 Strategic Plan:

1. Advance Cal Maritime in a technological world
2. Diversify the curriculum
3. Encourage and support the faculty in their teaching, scholarship, creative activities and service
4. Expand research, training, and education serving industry and government
5. Invest in our people
6. Establish strong, mutually beneficial relationships with external constituencies
7. Maximize utilization of our resources and facilities
8. Enroll increased numbers of California high school students, as well as qualified out-of-state and international students, while developing a more representative student body based on gender and ethnicity.
9. Foster a supportive living, learning, and working environment

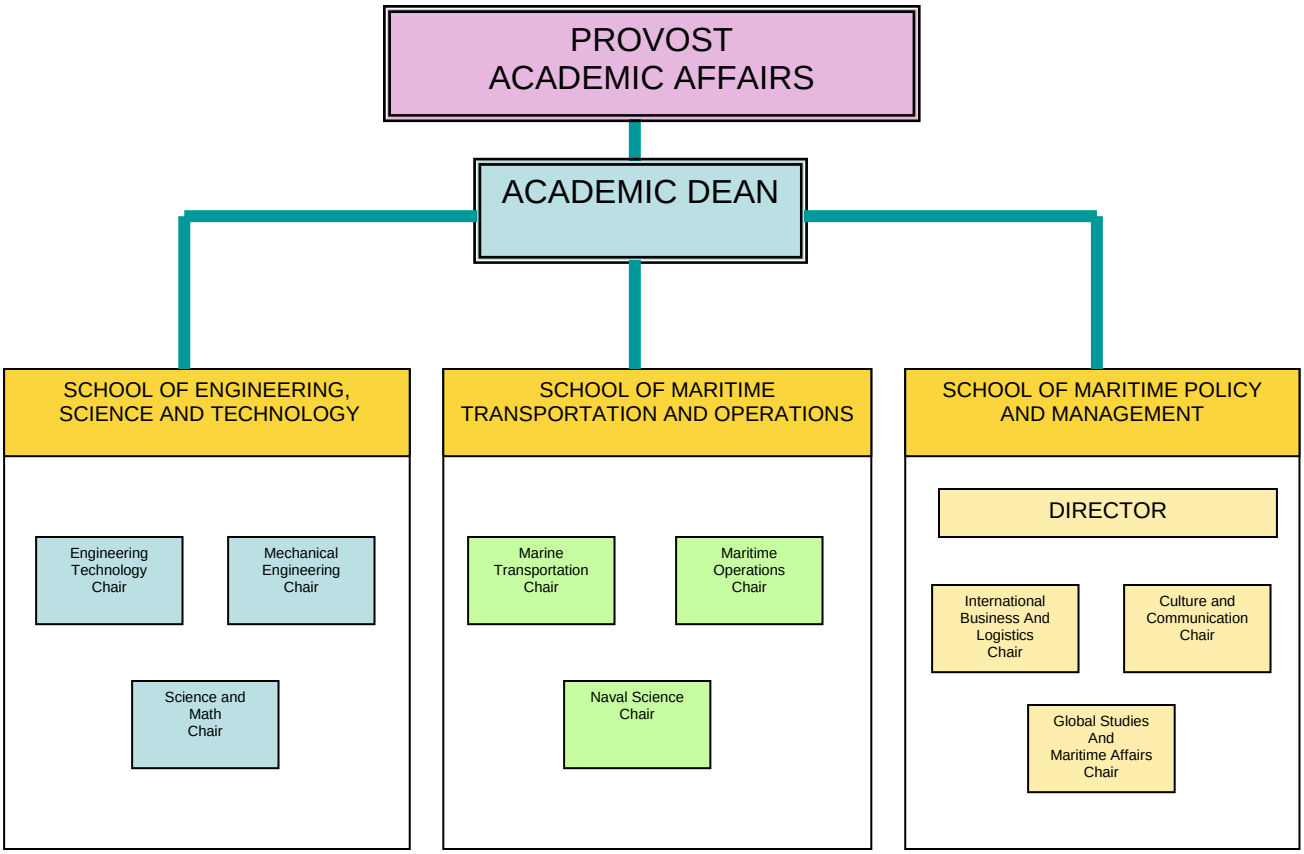
Appendix B - Envisioned Organizational Structure

As Cal Maritime continues to grow physically and academically, we also begin to evolve as an educational institution and to embrace the vision of becoming a maritime university. This evolution will eventually lead Cal Maritime to a point when the current structure of academic departments and degree-granting programs no longer adequately serve the expanded interests and needs of its population. In anticipation of continued growth and the development of desired academic initiatives identified previously in this document, attention was given to various options for revising the current structure of academic programs. Among these options is a three-school model, detailed below, which was borne out of continued and involved discussion among various campus constituencies.

In the spring semester of 2009, the Academy received a gift from the American Bureau of Shipping to establish a new School of Maritime Policy and Management, which would house the academic programs of Global Studies and Maritime Affairs, International Business Logistics and the division of Culture and Communication. The establishment of this new school will solidify the already-strong connections between these assorted disciplines while further encouraging resource-sharing and the propagation of new intellectual and educational avenues for students and faculty.

The proposed three-school model diagramed in this section suggests an organizational scheme in which other academic majors are similarly clustered by discipline, purpose and vision into three schools or units, each of which serve the evolving interdisciplinary needs of students and faculty. While the School of Maritime Policy and Management has already been formed to include a director position, the administrative structure of alternate schools has yet to be determined. Indeed, each school or unit would be expected to conceive an institutional structure which best suits the evolving needs of its programs as well as the university at large.

We define this envisioned organizational structure in this section as a maritime university containing multiple schools offering multiple degrees at both the graduate and undergraduate levels, with an expertise in all things maritime, and a community that supports and encourages participation in strong, diverse, and active extracurricular activities.



At stake in any document which intends to programmatically lay out future designs and developments, there are many fundamental issues which may not be foreseen, and many that are foreseen, but are not addressed because the processes which would address them have not yet been implemented. Any reorganization of academic departments and structures, however, shall be made with the broadest participation of the entire academic community, including faculty, staff, and administration.

Proposals for the formation of or changes to an academic unit, including such units as a Department, School, Program or College shall be developed with faculty and administrators in concert with the Academic Senate and shall be compliant with the Collective Bargaining Agreement, state and federal laws and regulations, CSU Chancellor's Office Executive Orders and policies, etc.

Considerations would also include curricular issues, academic impact (including impact to current STCW, WASC, ABET and any other third-party accreditation) approvals or certifications. In addition, any re-organization or proposal of a new program shall include a fiscal and budgetary impact proposal, and consider as well impact to: student affairs and student life, Academic Senate membership, and standing committee compositions.

Goal OS-1: Determine the viability and institutional support for transitioning to a three-school model in which academic programs are clustered by discipline, purpose and vision, to become part of a maritime university.

- **Objective 1:** Thoroughly evaluate all potential effects of embracing an alternate organizational scheme for academic affairs in order to anticipate any associated faculty workload and retention issues.
- **Objective 2:** Determine the level of faculty and administrative support for the proposed three-school organizational structure as opposed to any alternate proposed structures.
- **Objective 3:** Provide opportunities for new schools to evaluate their own understanding of blended academic purpose and needs for their respective students.
- **Objective 4:** Ensure that new schools would participate in developing mechanisms to determine how those in administrational roles appropriate to their reorganized structure are selected, and that this process involves input from a variety of campus constituencies.
- **Objective 5:** Ensure that new schools understand that there will be a natural, uneven development towards their objectives – some schools will be actualized before others.
- **Objective 6:** *The School of Maritime Transportation and Operations* will ensure that they are dedicated to issues of marine transportation, shipboard and port operations, military science, maritime safety, professionalism and licensure. The school is focused on operations and is particularly strong in areas that make our global degrees relevant in today's marketplace, including navigation, safety, simulation, environmental protection, leadership, and vessel and port security issues.
- **Objective 7:** *The School of Engineering, Science, and Technology* will ensure that they are dedicated to understanding and advancing issues in engineering, technology and the sciences, especially with respect to energy and the maritime environment.
- **Objective 8:** *The ABS School of Maritime Policy and Management* will ensure that it is dedicated to issues of global maritime policy, international business and logistics, and ethics and communications for students in the Global Studies and Maritime Affairs (GSMA) and International Business and Logistics (IBL) degree programs and in Cal Maritime's other majors; that it will seek curricular and faculty growth in the areas of maritime energy and environmental policy, logistics and supply chain management, international trade and economics, humanitarian logistics, and accounting and finance; and will develop a classroom building for the School.

Outcome 1: The organizational scheme of academic programs on the Cal Maritime campus is reconceived to promote greater communication and to increase in the sharing of talents, ideas, and resources within thematically linked disciplines.

Appendix C - 120 Unit Degree Issues

History

The CSU is, and has been, encouraging campuses to review curricular requirements for graduation for programs with an eye on reducing these requirements to 120 units. While initially, engineering programs were not being as aggressively looked at, there has been a recent request from the Chancellor's Office that the Engineering Deans look at ways to effectively reduce programs to 120 units also.

At Cal Maritime, we have brought both our GSMA and our IBL programs to the 120 unit requirement, and plan to stay there. At the same time we have made a commitment that at every opportunity for program review, we will look for ways to reduce units while not negatively affecting the academic programs. In light of the most recent request to the Presidents that Engineering programs look at this again, we have created a committee consisting of the Academic Dean, the Dean of Instructional Services, and the Chairs of not only ME, and ET, but also of our other greater than 120 unit program - MT. The purpose of this committee has been to review and identify the rationale for the request, and to look at ways we might share best practices in this effort that would ensure consistency where appropriate and share available resources. We also have added the challenge of reviewing our General Education program in this review process with an eye toward meeting the spirit of the Title V General Education requirements.

We have been encouraged in our efforts by at least two additional events. One is the most recent ABET review of the ME program which has recommended the inclusion if possible of more of today's global issues into the curriculum - a recommendation with which we all agree. The second is the development of the campus Academic Master Plan Template which encouraged high unit majors to review curriculums for opportunities to move in the direction of 120 units.

Rationale for 120 Unit Majors

As best as we can determine, the significant rationale for the CSU to encourage 120 unit majors is to reduce time to graduation, students in the pipeline, cost per student to deliver the program, and costs to the students, while increasing the overall graduation rate. While few would suggest that these are not noble in and of themselves, one must also consider the ramifications of any unit reduction in the light of Cal Maritime's realities. These realities include relatively high graduation rates, high job placement rates, and amongst the shortest time to graduation in the system. These realities also include our unique mission, federal and international standards for licensing, shipboard experiences as well as for programmatic requirements for accreditation of Engineering and Technology majors. Then of course there is also the significant effect that a reduction in units in any of these three majors will have a tangible affect on FTES overall, therefore on our funding mechanism.

Process

Our review process for all three majors was similar. We separated the curriculum into those courses required for the major, those required to meet GE, those required for the license, and those that meet our specialized mission even without the license such as cruises, co-ops and experiential learning. In the review of GE courses, with help from the department of MPM, we looked at how close in a strict interpretation of the rules we were to meeting the intent of the GE experience. Conversations of how to close this gap are on-going.

The results of this exercise have been interesting, and we will look at them one at a time, as well as discuss any changes that have been made or proposed to the Curriculum Committee since the beginning of this review.

Engineering Technology

Engineering Technology offers two majors with a BS degree. While changes for one typically affect the other, this paper looks primarily at the MET major. The ET faculty has been working diligently with their colleagues in Maritime Operations as well as Mechanical Engineering. In the last several months, they have implemented several unit reductions that were common to the ME programs as well. Without getting into too much detail, one change revolved around moving a Diesel Engineering course from cruise to the academic year, and combining it with the Diesel Simulation course effecting an overall unit reduction of 1 unit. Unfortunately, while this reduced the academic load overall, it did increase an already heavy ME load in one semester, which is not necessarily consistent with the intention of the CSU unit reduction exercise.

Additionally, working with the same colleagues as well as representatives from the Student Life and Leadership Development departments, several courses in the freshmen year were combined, and will be taught in conjunction with the Freshman Experience of students living on the ship. The student life on the ship including watches will provide opportunities for learning and tracing shipboard systems that will enhance what is being done in the classroom, so less time will be required in the classroom. This was an overall reduction of two units, for both the ME and the ET students.

The ET department is looking at more opportunities for reduction, including beginning the math sequence at Calculus rather than at Algebra and Trigonometry, but we are still awaiting data on the math level of our incoming students to determine the significance of such a change.

The current ET degree as proposed includes 161 units for graduation. The cruise courses consist of 24 units, and those classes clearly needed for cruise preparation or licensing/experiential learning such as the plant operations, welding, and shipboard medical consist of another 17 units.

The bottom line was if we were to give an Engineering Technology degree that stripped away the cruise and ancillary or associated coursework, the ET degree can be considered as a stand-alone 120 unit degree.

Mechanical Engineering

The ME program currently has three options ranging from 166 to 185 units. All three are aggressive programs yet those students who persist are rewarded by a tremendous academic and practical experience. Several changes are under consideration for these programs, including the freshman experience induced unit reduction explained above.

One revision under consideration is the reclassification of two of the "options" – namely the ME Mechanical Engineering option (166 units), and the ME Certified Engineer-in-Training option (181 units). The new program will remove the 15 unit differential as "required" courses of the CPE-IT option and separate them as a minor, and call the ME option the base ME program degree from which future consideration of units reductions may take place. The removal of the 15 units and creation of a minor will allow the students to pursue the degree, and only pursue the minor if they feel they can handle the extra unit load. If at any time it is too difficult for them, they can simply stop taking courses toward the minor and continue on the base ME program track. We will be looking to how the USCG Licensed option (185 units) might also be looked at as a minor or an added on option rather than a "requirement" for a particular degree track.

In looking at the largest option in a similar manner to ET, by removing from the unit count, cruise and associated units (24 and 17 units as above), as well as those courses due to Cal Maritime's unique nature as a power and operations program, but not normally taught in ME programs such as Boilers, Turbines, and Naval Architecture (14 units) the total units for the ME degree would be 128 units. This is a consistent number with the expectations of an ABET accredited program.

The challenge here will be to include more of the GE courses required without increasing the units and without negatively affecting the solid engineering content of the program. Opportunities do exist and are being reviewed that include increasing the number option classes and decreasing the associated courses required by each stem in the program, and looking at some combination of the management and stem design courses as they are integrated with a three-semester design sequence.

Marine Transportation

The Marine Transportation (MT) department is currently undertaking a complete and formal program review. Part of this review process is looking at opportunities for a new program or an adapted program for MT graduates who are looking more at opportunities in the shore-side arena than at sea. If these students can be identified early enough, units required for licensing might be removed from the curriculum, and partially replaced with courses geared toward management opportunities. Not only could this reduce the units to graduation for this major, but by virtue of being less one on one intensive and individually competence based, could reduce teaching requirements of the MT program freeing up opportunities for an expansion of elective offerings.

MT is also looking at a more science based option for its students. Any such revisions to the curriculum will be scrutinized using the objectives of moving in a direction of 120 units rather than an increase in units for its new programs.

Additionally, MT faculty should be encouraged to continue to work with colleagues in Maritime Operations (MO) to look for opportunities to take competencies or courses that might be better suited as cruise training rather than semester coursework should such options become available.

Across All Majors

Additional opportunities across majors exist that will continue to be reviewed as a result of the initial work of this committee and the direction of the Academic Master Plan. Ideas such as combining the math/science and introductory engineering courses such that a reduction of units - coupled with an increase in understanding of concepts - will be reviewed and experimented with if found feasible. Faculty will explore concepts such as writing across the curriculum that may lead to better writing and communications skills ensuring that the students are better prepared for meeting the Graduate Writing Assessment without additional coursework. Continued opportunities for bringing life issues possibly best explored from the social sciences or humanities into the curriculum to support major coursework will be explored in areas of energy, the environment and ethics. Topics such as management, team building and leadership will be better fleshed out in courses requiring or assessing these skill sets for possible better integration into existing courses in the major.

Conclusions

The 120 unit committee is committed to the concepts of effective and efficient use of pedagogical methodology leading to the possible reduction of units for Engineering, Engineering Technology and Marine Transportation majors. In the November 5, 2008 letter to the Presidents on this issue, Gary Reichard writes that in addition to the CSU Engineering Dean's efforts on recruitment, retention and resources:

> *"I encourage the Provosts and faculty to address the second challenge – that of program re-design and unit reduction – as a broad curriculum review effort that might include redesigning long established program requirements and courses, integrating new pedagogical models, shifting program focus to student learning outcomes and intentional learning, and integrating general education learning across the undergraduate experience."*

It is consistent with these words that the 120 unit committee representing the chairs of the three departments and the Academic Dean, working with the Chairs of programs representing courses in general education,

commit to the principles of increasing retention, throughput, academic excellence and reduction in time to graduation of our engineering and technical majors.


CALIFORNIA MARITIME ACADEMY
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1929
THE CALIFORNIA STATE UNIVERSITY

Introduction –
Cal Maritime supports the CSU initiative to improve graduation rates. In this effort, we will maintain the highest level of academic standards in all our programs and the highest level of conduct in our Corps of Cadets. Consequently, we will propose and implement policies to improve graduation rates that are consistent with maintaining the highest level of educational and professional excellence without lowering standards or sacrificing quality.

Goal -
To increase CMA freshman graduation rate 6% from 53.5% to 59.5% by 2015 and to close the achievement gap for underrepresented students by half from 13% to 6.5%.

The Delivery Team -

Team Leader: Gerald Jakubowski, Provost and Vice President for Academic Affairs

Executive Team:
William Eisenhardt, President
Gerald Jakubowski, Provost and Vice President for Academic Affairs
Mark Nickerson, Vice President for Administration and Finance
Tom Dunworth, Executive Director CMA Foundation

Leadership Team:
Steve Kreta, Academic Dean – Leadership Team Chair
Josie Alexander, Dean of Students
Vivienne McClendon, Interim Dean of Instructional Support
Donna Nincic, Director and Chair of ABS School of Maritime Policy and Management

Support Team:
Steve Kreta, Academic Dean – Support Team Chair
Josie Alexander, Dean of Students
Vivienne McClendon, Interim Dean of Instructional Support
Donna Nincic, Director and Chair of ABS School of Maritime Policy and Management
Lloyd Kitazono, Director Faculty Affairs and Chair Science and Math
Graham Benton, WASC Coordinator
Carl Phillips, Director Library
Marv Christopher, Director Athletics
Veronica Boe, Director Sponsored Projects and Extended Learning
Steven Browne, Chair Academic Senate
Marc McGee, Director Admissions
Ken Walsh, Director Financial Aid
Debbie Fisher, Director Student Records
Tom Mader, Chair Engineering Technology
Steve Pronchick, Chair Mechanical Engineering
Sam Pecota, Chair Marine Transportation
Dan Weinstock, Chair Maritime Operations
Jim Buckley, Associate Dean
Bob DeStafney, Commandant
Harry Bolton, Captain Training Ship
John Coyle, First Assistant Engineer
Ken Toet, Controller
Laura Layton, Executive Assistant – Academic Affairs

General Areas for Increasing Graduation Rates and Narrowing Gaps
and
Their Level of Impact by Year (Zero, Low, Medium or High)

	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Admissions	L	L	L	L	L	L
Academics	0	0	L	L	M	M
Early Warning	0	L	M	H	H	H
Advising	0	L	L	M	M	H
Mentoring	0	L	L	M	M	M
Tutoring	L	L	M	M	M	M
Engaged Students	0	L	L	M	M	H
Cultural Barriers	0	M	M	M	M	M
Early Opportunities Program	H	H	H	H	H	H
Athletics	0	L	L	M	M	M
Corps of Cadets Code of Conduct	L	L	M	M	H	H

Targets for Increasing Graduation Rates - Full-time Freshmen and URM Full-time Freshmen

Annual Goals

By taking specific actions in the above listed areas, retention rates will improve thus improving graduation rates and reducing the gap between Underrepresented Minorities (URM) and Non-Underrepresented Minorities (Non-URM).

The annual goals for achieving the overall goals are shown below in the matrix. The percentages shown indicate improvements from one year to the next. For example, the retention rate will increase 0.5% from 2009-10 to 2010-11 and another 1% from 2010-11 to 2011-12, etc.

	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	Overall
Retention	0%	0.5%	1%	1%	1.5%	2%	6%
Graduation Rate	0%	0%	0%	1.5%	2%	2.5%	6%
Closing the Achievement Gap	0%	0%	0%	2%	2.5%	3%	7.5% (13% to 6.5%)

Targets for Increasing Graduation Rates - Transfer Students

Because of the unique programs offered by Cal Maritime Academy that lead to licensure, virtually all transfer students interested in licensed programs begin as freshmen, regardless of the number of transfer credits they bring. A number of transfer students enter our non-licensed programs; depending on the number of units transferred in, they will spend anywhere between two to three and a half years at Cal Maritime. Therefore, Cal Maritime will not set targets for increasing graduation rates among transfer students. Nevertheless, by taking specific actions in the areas listed previously, the retention and graduation rates of transfer students will improve.

Key Actions within General Areas to Increase Graduation Rates and Narrow Gaps

Admissions

- Improve method for screening and admitting students
- Let students know what they're getting into before matriculating
- Encourage readmission of students who have been disqualified
- Encourage students that need remedial work in math to take remedial work and to utilize CSU sponsored ALEKS during the summer prior to starting at CMA
- Encourage students that need remedial work in English to take remedial work during the summer prior to starting at CMA

Academics

- Reduce number of courses required for graduation where possible
- Schedule trailer courses; offer required course more often than once per year
- Offer more sections of courses
- Develop "Honors Program"
- Utilize block registration for first-year students
- Encourage and advise disqualified students about remediation opportunities

Early Warning

- Provide list of freshmen needing remediation in math or English to academic advisors and department chairs
- Develop early identification of at-risk students
- Encourage faculty to post grades on Moodle for students to know their standing
- Establish mid-term deficiency grading system and inform students with grade problems

Advising

- Enhance, expand and improve advising provided to students
- Hold advising workshop for faculty
- All students go through annual audit review to assure being on-track for graduation
- Develop Peer Advising System – juniors and seniors advising freshmen
- Reduce number of advisees that some faculty advisors have

Mentoring

- Enhance, expand and improve mentoring provided by students to students
- Establish Faculty Mentoring Program (faculty mentoring students)

Tutoring

- Enhance, expand and improve tutoring provided to students
- Expand number of hours and subjects where tutoring is provided
- Organize peer tutoring sessions (students tutoring students)
- Organize study groups
- Require mandatory study sessions for students with grade problems

Key Actions within General Areas to Increase Graduation Rates and Narrow Gaps (continued)

Engaged Students

- Provide opportunities for students to become more engaged in campus life beyond academics
- Reduce and eventually eliminate evening classes thus providing more time for students to study and/or participate in student life activities including joining student clubs, intramurals, and intercollegiate activities
- Provide more time for students to reflect
- Explore possibilities of assigning student housing by affinity groups
- Explore student housing around learning communities

Cultural Barriers

- Eliminate barriers that prevent students from asking for help
- Eliminate barriers that prevent students with disabilities from receiving additional help/time

Early Opportunities Program (EOP)

- Establish Early Opportunities Program that provides an intensive summer bridge program for first generation college students (CMA is only CSU School not to offer this program)

Athletics

- Analyze statistics regarding recruited versus non-recruited student-athletes
- Encourage/require tutoring and advising of athletes
- Ensure academic and Corps issues are understood and paramount among student athletes, particularly during recruitment

Corps of Cadets Code of Conduct

- Establish transparency of Corps expectations
- Establish student buy-in of the Corps of Cadets
- Establish consistency in the enforcement of the Student Code of Conduct
- Train campus community to assist with encouraging (not necessarily penalizing) proper conduct
- Establish early warning system for students in trouble
- Get alcohol use/abuse under control; provide dry alternatives
- Review and enforce drug policy
- Review and enforce disqualification and readmission of students for disciplinary actions

Timeline and Responsible Leaders for Implementing Action Items
and
Their Relative Difficulty of Implementation (Easy, Medium, or Difficult)

	EASE	YEAR	PRIMARY LEADER(S)	SECONDARY LEADER(S)	BARRIERS
ADMISSIONS					
Improve method for screening and admitting students	E	2009-10	McGee		Expectation to meet FTE
Let students know what they're getting into before matriculating	E	2009-10	McGee/ DeStafney		
Encourage readmission of students who have been disqualified	E	2009-10	Kreta	Fischer	
Encourage students that need remedial work in math to take remedial work and to utilize CSU sponsored ALEKS during the summer prior to starting at CMA	M	2009-10	Kitazono	McClendon	
Encourage students that need remedial work in English to take remedial work during the summer prior to starting at CMA	M	2009-10	McClendon/ Benton		
ACADEMICS					
Reduce number of courses required for graduation where possible	D	2012-13	Kreta/ Dept Chairs		Licensure/ accreditation standards
Schedule trailer courses; offer required course more often than once per year	D	2012-13	Kreta/ Dept Chairs		Space/ Funding
Offer more sections of courses	D	2012-13	Kreta/ Dept Chairs		Space/ Funding
Develop Honors Program	M	2010-11	Kreta		
Utilize block registration for first-year students	M	2011-12	Kreta	Pecota/ Fischer	
EARLY WARNING					
Provide list of freshmen needing remediation in math or English to advisors and dept chairs	E	2011-12	McGee/ Fischer		
Develop early identification of at-risk students	M	2010-11	Kreta/Nincic/ McClendon/ Fischer		
Encourage faculty to post grades on Moodle for students to know their standing	D	2011-12	Kreta/ Dept Chairs/ Browne		Moodle not easy for grades
Establish mid-term deficiency grading system and inform students with grade problems	M	2011-12	Kreta/ Dept Chairs/ Browne		
ADVISING					
Enhance, expand and improve advising provided to students	M	2010-11	McClendon/ Chairs		
Hold advising workshop for faculty	E	2010-11	McClendon/ Chairs		
All students go through annual audit review to assure being on-track for graduation	M	2011-12	Kreta/ Dept Chairs		
Develop Peer Advising System – juniors and seniors advising freshmen	M	2011-12	McClendon /DeStafney		
Reduce number of advisees that some faculty advisors have	E	2010-11	Kreta/Pecota/ Kitazono		

Timeline and Responsible Leaders for Implementing Action Items
and
Their Relative Difficulty of Implementation (Easy, Medium, or Difficult)
(continued)

MENTORING					
Enhance, expand and improve mentoring provided by students to students	M	2010-11	Bolton/Coyle Alexander		
Establish Faculty Mentoring Program (faculty mentoring students)	D	2011-12	McClendon/ Kitazono		
TUTORING					
Enhance, expand and improve tutoring provided to students	M	2009-10	McClendon		Funding
Expand number of hours and subjects where tutoring is provided	M	2010-11	McClendon		Funding
Organize peer tutoring sessions (students tutoring students)	M	2010-11	McClendon/ DeStafney		
Organize study groups	M	2011-12	McClendon/ DeStafney/ Christopher		
Require mandatory study sessions for students with grade problems	D	2011-12	McClendon/ DeStafney/ Christopher		Lack of enforcement options
ENGAGED STUDENTS					
Provide opportunities for students to become more engaged in campus life beyond academics	D	2013-14	Kreta/ Dept Chairs/ Browne		
Reduce and eventually eliminate evening classes thus providing more time for students to study and/or participate in student life activities including joining student clubs, intramurals, and intercollegiate activities	D	2013-14	Kreta/ Dept Chairs/ Browne		Lack of classroom space
Provide more time for students to reflect	D	2013-14	Kreta/ Dept Chairs/ Browne		
Explore possibilities of assigning student housing by affinity groups	M	2010-11	Alexander		
Explore student housing around learning communities	M	2011-12	Alexander		
CULTURAL BARRIERS					
Eliminate barriers that prevent students from asking for help	E	2010-11	McClendon		Peer pressure
Eliminate barriers that prevent students with disabilities from receiving additional help/time	M	2010-11	McClendon/ Dept Chairs		Peer pressure
EARLY OPPORTUNITIES PROGRAM					
Establish EOP that provides an intensive summer bridge program for first generation college students	D	2014-15	Eisenhardt		Funding
ATHLETICS					
Analyze statistics regarding recruited versus non-recruited athletes	E	2009-10	Christopher	Fischer	
Encourage/require tutoring and advising of athletes	E	2009-10	Christopher	Coaches	
Ensure academic and Corps issues are understood and paramount among student athletes	M	2010-11	Christopher	DeStafney/ Coaches	

Timeline and Responsible Leaders for Implementing Action Items
and
Their Relative Difficulty of Implementation (Easy, Medium, or Difficult)
(continued)

CORPS OF CADETS CODE OF CONDUCT					
Establish transparency of Corps expectations	M	2010-11	Bolton/ DeStafney	McGee	
Establish student buy-in of the Corps of Cadets	D	2011-12	Bolton/ DeStafney	McGee	
Establish consistency in the enforcement of the Student Code of Conduct	M	2010-11	Bolton/ DeStafney	Alexander	
Train campus community to assist with encouraging (not necessarily penalizing) proper conduct	M	2010-11	Kreta/ DeStafney		
Establish early warning system for students in trouble	E	2009-10	DeStafny		
Get alcohol use/abuse under control; provide dry alternatives	D	2010-11	Alexander	Bolton	
Review and enforce drug policy	M	2010-11	Bolton/ DeStafney	Medical	
Review and enforce disqualification and readmission of students for disciplinary actions	E	2009-10	DeStafney		

Steps to be Taken in January, February and March 2010

Due to the shortness of time provided, this plan was developed by the members of the Provost's Council, a rather small group. The plan has not yet been disseminated, reviewed or vetted by members of the entire Delivery Team, nor the Academic Senate. Therefore, the first step to be taken in January 2010 will be to call a meeting of all interested parties where the plan will be presented, reviewed and vetted. In addition, actions will begin for all items listed for the 2009-10 timeline. Finally, action will be taken to begin collecting graduation data and to compare CMA's data with that provided by the Chancellor's Office.

Reporting Structure

The Leadership Team will meet monthly with the Support Team to assure steps are being taken and progress is being made for action items as listed in the timeline. The Leadership Team Chair will then report to the Team Leader, who in turn will report on progress to the Executive Team. Monthly reports will be provided by the Team Leader to the Chancellor's Office.

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Report
of
The Committee on Unity and Diversity

December 7, 2009

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1. The Council for Unity and Diversity

2. Diversity and Statistical Data

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1. The Council for Unity and Diversity

A. Definition of Unity and Diversity at The California Maritime Academy

The concepts of unity and diversity encompass acceptance and respect.

- It means understanding that each individual is unique, and recognizing those individual differences. These can be along the dimensions of race, ethnicity, gender, age, sexual orientation, gender identity, national origin, socio-economic status, physical or mental disabilities, marital status, religious beliefs, political beliefs, or other ideologies.

- It is the exploration of these differences in a safe, positive, and nurturing environment.

- It is about understanding each other and moving beyond simple tolerance to embracing and celebrating the rich dimensions of diversity contained within each individual.

- It is about recognizing that to survive and thrive as a world-class Maritime Academy, we must agree that each of us is mutually connected to the other. Thus, it is in our best interest to embrace diversity, develop cultural competencies, increase leadership capacities, and create inclusive spaces as a means of fully utilizing all human resource potential.

B. The charge to the Council for Unity and Diversity

The Council for Unity and Diversity's major goals are to (1) Serve as an advisory group to the President and the Vice Presidents on issues of diversity at CMA and (2) Assure compliance with state and federal equal opportunity regulations.

In order to accomplish these two major goals, the Council will:

- Recommend appropriate policies which the CMA community should aspire to, ensuring a diverse and accepting CMA community.

- Identify potential initiatives that will advance our diversity goals and report annually to the President and the Vice Presidents on progress in achieving measurably greater diversity in institutional composition and the richness of the educational environment.

- Identify programs that embrace diversity and acceptance to ensure our students are prepared to be effective leaders in a global society.

- Identify the barriers to achieving greater diversity at CMA and provide recommendations on how we can overcome those barriers.

- Identify those programs that can have the greatest positive impact on campus diversity and recommend how our resources might best be utilized and coordinated to achieve the campus diversity goals.

- Provide a forum for the discussion of diversity-related issues and ideas and promote a campus dialogue centered on diversity periodically convening town hall meetings, establishing a web page, distributing minutes from meetings, and other means as appropriate.

- Review annual reports and other data regarding the state of students, faculty and staff diversity and efforts to improve diversity at CMA.

- Continuously solicit views from the CMA community on all aspects of diversity.

- Provide opportunities to engage the community at large in CMA's efforts to ensure CMA continues to foster a diverse and accepting campus community.

- Examine specific concerns advanced by minority advocates.

- Assess how the CMA Principles of Community (see "D." below) and related campus regulations and policies are being applied and make recommendations on how to improve the communication of the Principles to the faculty, staff, and students.

- Ensure that CMA maintains a viable educational opportunity program, keeping in mind that economically disadvantaged students historically come from diverse and underrepresented communities.

C. Council for Unity and Diversity Membership

- Any member of the CMA campus community is eligible for membership in the Council for Unity and Diversity. Generally, members will serve two years based on rolling memberships. Students will serve for one year terms, but may be reappointed for a one year additional term. Voting privileges shall be granted to all members.

- The President, in consultation with the Vice Presidents and the Captain, shall appoint two members. The President shall appoint all other nominations.

- The Academic Senate shall appoint a faculty representative.

- Two students shall serve on the Council for Unity and Diversity. One shall be appointed by the Corps of Cadets and one shall be appointed by the ASCMA.

- One union member shall be nominated to represent the four active CMA bargaining units, that is, CFA, CSUEU, APC and IUOE.

- A Vallejo community leader shall be nominated by the Public Information Officer.

- There will be two ex-officio, non-voting members – The Human Resources Director (who also serves as the Affirmative Action Officer) and the Commandant of Cadets. Either of these ex-officio members may vote on issues in the case of a tie vote.

D. Principles Of Community at The California Maritime Academy

The California Maritime Academy is committed to promoting an environment that supports every member of our community in an atmosphere of mutual respect, fairness, cooperation, professionalism and leadership. CMA expects that every campus member will practice the following Principles of Community:

- We reject all forms of prejudice and discrimination. We take individual and collective responsibility for helping to eliminate bias and

discrimination and through leadership increase our own understanding of these issues through education, training, and interaction with others.

- We affirm each individual's right to dignity and strive to maintain a climate of justice marked by mutual respect for each other.

- We are a community comprised of individuals with multiple cultures, lifestyles and beliefs. We celebrate this diversity for the breadth of ideas and perspectives it brings.

- We applaud all efforts to foster and enhance the quality of campus life.

- We affirm the right to freedom of expression at CMA. We promote open expression of our individuality and our diversity within the bounds of courtesy, sensitivity, confidentiality and respect.

- We believe that active participation and leadership in addressing the most pressing issues facing our local and global communities are central to our educational mission.

- We affirm the right of each person to express thoughts and opinions freely. We encourage open expression within a climate of civility, sensitivity, confidentiality and mutual respect.

- We embrace open and equitable access to opportunities for learning and development as our obligation and goal.

- We acknowledge that our society carries historical and divisive biases, and we promote awareness of these biases through education and constructive strategies for resolving conflict.

- We celebrate the spirit of diversity in pursuit of academic excellence.

- We are committed to the highest standards of civility and decency toward all. We are committed to promoting and supporting a community where all people can work and learn together in an atmosphere free of bias or demeaning treatment.

The California Maritime Academy strives to implement its goal of being the finest Maritime Academy in the country through:

- **Diversity**: We embrace diversity in all its forms, and we strive for a community that fosters an open, inclusive and productive environment in an atmosphere of mutual respect.

- **Openness**: We believe that the exchange of ideas requires mutual respect and consideration of our differences.

- **Justice**: We are committed to due process, respect for individual dignity and equitable access to resources, recognition and rewards.

- **Celebration**: We celebrate the heritage, achievements and diversity of the community and the contributions of our members.

- **Ethics**: We conduct ourselves with integrity in our dealings with and on behalf of the University. We are accountable as individuals and as members of this community for our ethical conduct and for compliance with applicable laws and University policies and directives.

2. Diversity and Statistical Data

A. Statement of the Issue

In the Report of the WASC Visiting Team for the Capacity and Preparatory Review of The California Maritime Academy in June of 2009, the Committee made the following recommendation: *"Cal Maritime should consider and effectuate the curricular and pedagogical advantages of a more diverse faculty and student body. In particular, the campus needs to become a more welcoming environment without regard to race, gender, sexual orientation, socioeconomic status, or other factors associated with underrepresented minorities."*

B. Brief Discussion

In order to advance on the Recommendation, statistics must first be gathered to gauge Cal Maritime's diversity in the noted categories in relation to A) other Maritime Academies, B) other CSU campuses, and C) other Bay Area institutions of higher learning. These statistics could be taken from IPEDS (The Integrated Post-Secondary Data System) or other such data inventories. It should be noted that IPEDS keeps data on student diversity, but not on faculty diversity.

C. Recommendations

Recommendation #1: Data on student diversity shall be collected by the Admissions Office and the Records Office; data on faculty and staff diversity shall be collected by the Department of Human Resources. These offices shall make this data available for analysis by various constituencies on campus (Human Resources, Admissions, Accreditation Offices, Public Relations, etc).

Recommendation #2: When a new office of Institutional Research is created, data on diversity should be collected, stored and maintained within this office as a centralized repository. Should a new office of Institutional Research not be immediately funded, then this task must be accomplished through a reallocation of current resources: for example, granting release time for a faculty member or attaching the duties to a staff member.

Recommendation #3: This data on faculty, staff, and student diversity shall also be made available to the Council for Unity and Diversity.

Recommendation #4: Should the data on diversity indicate that changes should be made as these relate to our expectations of what we desire in terms of a diverse campus, then steps shall be put into place by the Council for Unity and Diversity which would enable CMA to be a "more welcoming environment regarding a diverse student, faculty, and staff body. This data should be assessed on an annual basis.

3. Diversity and the Curriculum/Diversity Inventory

A. Statement of the Issue

In the Report of the WASC Visiting Team for the Capacity and Preparatory Review of The California Maritime Academy in June of 2009, the Committee made the following recommendation: *"Cal Maritime should consider and effectuate the curricular and pedagogical advantages of a more diverse faculty and student body. In particular, the campus needs to become a more welcoming environment without regard to race, gender, sexual orientation, socioeconomic status, or other factors associated with underrepresented minorities."*

B. Brief Discussion

A "welcoming environment without regard to race, gender, sexual orientation, socioeconomic status, or other factors associated with underrepresented minorities" need not be created solely by seeking more diverse faculty and student bodies, but by expanding course offerings and co-curricular activities that directly relate to issues of diversity, and by making issues of diversity more visible on campus through a variety of student and faculty-led activities.

Moreover, many of these activities, courses, and events already take place but are not inventoried or acknowledged in any formal and codified way. A questionnaire was distributed to CMA faculty about their curricular and pedagogical engagement with issues of diversity and the President of the Associated Students of CMA was asked about student-led activities and events regarding diversity.

C. Recommendations

Recommendation #1: The Office of the Provost shall keep and maintain an inventory of curricular activities that pertain to diversity as the term is used in the WASC report, and this inventory shall be made available to the Council for Unity and Diversity for their assessment needs.

Recommendation #2: The Dean of Students, in consultation with the President of ASCMA, shall keep and maintain an inventory of all student clubs and their activities that pertain to diversity on annual basis.

Recommendation #3: The Council for Unity and Diversity shall keep and maintain an inventory of all occasional activities and events that pertain to diversity (i.e., events concerning Black History month, Hispanic month, occasional lectures and brown-bags on pertinent issues, etc.) on an annual basis.

Recommendation #4: Charge the Council for Unity and Diversity with seeing if more activities and events are needed on campus.

Recommendation #5: The Council for Unity and Diversity shall send a statement to the Curriculum Committee regarding the importance of considering issues of diversity in relation to curricular development.

4. Diversity and the Leadership Program

A. Statement of the Issue

The June 2009 Report of the WASC Visiting Team for the Capacity and Preparatory Review of The California Maritime Academy, included a recommendation that "Cal Maritime…re-examine the Leadership Development Program with a view towards *incorporating the diverse perspectives and strategies of its increasingly gender, culturally, and racially diverse student body and future work environment.*"

B. Brief Discussion

Leadership development must be a campus-wide effort. Cal Maritime cadets demonstrate leadership in nearly every aspect of their campus lives. Leadership opportunities abound in the classroom, laboratories, simulators, the training ship, and on the waterfront. In addition, cadets are taught fundamentals of leadership through participation in corps-directed activities. Resident Assistants, ASCMA officers and representatives, varsity and intramural athletes, club officers, Orientation Week leaders, and cadets/midshipmen enrolled in military commissioning programs are all recipients of leadership training. Unfortunately, there is little documented evidence that gender, cultural, or racial diversity is incorporated in the curriculum aboard the CMA campus. There is a separate recommendation on this elsewhere in this report.

C. Recommendations

Recommendation #1: Review and consider revising the Corps of Cadets' "Core Values," with an emphasis on unity and diversity within the Corps.

Recommendation #2: Establish and maintain a non-voting, ex-officio position on the Council for Unity and Diversity for the Commandant of Cadets.

5. Diversity Training

This task group was charged to document existing diversity training events on the Cal Maritime campus. The group was comprised of Vivienne McClendon and Howard Jackson. Josie Alexander, Kay Miller, and Robert DeStafney were identified as stakeholders in existing diversity training and were interviewed. Areas for existing diversity training are: Human Resources, Student Affairs, and Leadership Development. The discussion that follows reflects a summation of these interviews regarding existing diversity training, sometimes noting previous diversity training once conducted on campus but no longer conducted. This is followed by a list of recommendations.

A. Discussion

In general, diversity training that currently exists at the California Maritime Academy occurs within three distinct areas on campus: Human Resources for faculty and staff, Student Affairs for all incoming students, and Leadership Development for all incoming students as in relation to the Corps of Cadets. These efforts are not coordinated between the three areas.

1. Human Resources: Currently efforts in Human Resources are centered on an online video training which is required of all CSU campuses provided by a company called *Workplace Solutions*. This is a self-contained module which includes recorded segments, each followed by a brief quiz, requiring minimal input from the viewer. All faculty and staff are required to watch the module and complete the follow-up quiz. The video is designed to increase campus awareness of sexual harassment among the employees of Cal Maritime. This module adds to the local knowledge of what diversity is and identifies types of harassment.
   a. Currently no small group training exists.
   b. Currently no statement exists requiring employees to recognize protected categories of minorities.

   Suggested: Human Resources would like to see an increased consistency in diversity and sexual harassment training across campus in its various venues. That department is developing a presentation to be delivered to small groups on diversity awareness and discrimination and sexual

harassment, followed by activities and discussion, allowing reflection on current conditions and improving working conditions at CMA. HR believes that reflection and discussion is needed within a small group environment to raise individual ideas to the group level for improved communication and respect among the campus community.

This department also suggests a survey regarding sexual harassment. HR also would like to see a concerted effort created for increasing tolerance among students as a preparation for the intense summer cruise experience.

2. Student Affairs: This department conducts a variety of training sessions for arriving freshman students each fall. During orientation, each student receives a 1-hour training session on diversity and tolerance. These sessions are conducted via groups and group discussion as identified via corps divisions. The educational purpose for the training exercise was to make the participants examine their own prejudices, biases, and acceptance of stereotypes, as well as to make them feel uncomfortable and viscerally engaged enough to engage in authentic discussions about diversity. Prior to orientation week, Resident Assistants are also given an in-depth training session comprised of a 90- minute workshop focused on helping students to learn to live with others of diverse backgrounds as classmates and/or roommates. Student Affairs also houses the Associated Student body which organizes and supports student groups and clubs on campus. Some groups which involve diversity issues include: the Asian Pacific Islander club and the Caribbean Islanders Club. While activities for these groups contribute to diversity awareness on campus, their energies were largely personality driven and tended to wax and wane as interested students matriculate and graduate from the institution. These activities did not represent articulated "training" events.

   a. In preparation for fall 2009 Freshman Orientation, Student Affairs searched for a campus-wide statement of diversity or tolerance for CMA but was unable to find such a statement.

   b. CMA once had a half-time position called a "Diversity Officer"; funds for this position are now housed in HR but at the moment no diversity officer is on staff. This position used to create a calendar of diversity

events and training across campus for various groups of faculty, staff and students.

c. The CMA President used to send out a message (perhaps 4-5 years ago) regarding respect across campus. This kind of message provides top down leadership about the need for tolerance and respect of various cultures and values across our campus community.

d. Associated Student body events included various multicultural events. These often center around cruise preparedness including movies (particularly independent films from various countries being visited on the upcoming cruises), international foods, as well as decorations, posters, and exhibitions demonstrating selected cultures and countries. In addition, student outing sometimes focus on culture such as the annual trip to Chinatown for the Chinese New Year Parade and celebration.

Suggested: Student Affairs would like to see a concerted effort across campus to align student, faculty and staff training throughout the year. SA would like to see guest speakers and other events which could be linked to the curriculum and spearheaded by a staff position which would provide sustained support for building such an articulated program.

3. Leadership Development: Currently Leadership Development provides training for all new incoming students during orientation week. This training is comprised of two 1-hour sessions. In Fall 2009, those sessions were a) Sexual Assault Awareness and b) Living and Learning in a Diverse Environment.

Suggested: Leadership Development would like to mine the campus for opportunities where informal learning and leadership occur and better document and integrate those events. The department also plans on studying 2010 cruise preparation activities for better ways to address diversity amid the intense cruise experience. Its goal is to create a more articulated, iterative, and sustained approach to ongoing training among the Corps of Cadets.

B. Recommendations

A) The committee recommends the development of a university diversity statement to guide diversity efforts. Most universities have such a statement. Examples are provided as attachments, including the following links:

http://www.conncoll.edu/diversity/5022.htm
http://www.dreamwidth.org/legal/diversity
http://www.uchicago.edu/diversity/
http://home.nau.edu/diversity/fdgintro.asp#commitment

Action by: The new Council for Unity and Diversity should develop this statement.

B) The committee recommends this diversity statement be referred to at least once annually by the CMA President in order to underscore and reiterate its importance to the campus community.

Action by: The CMA President should include reference to this statement during his annual state of the university message.

C) Diversity was once more coordinated and organized under a single position on campus. The committee recommends that this position be recreated so efforts can be tracked and better coordinated.

Action by: Human Resources.

D) Each area individually, Human Resources, Student Affairs, as well as Leadership Development, suggests a more coordinated, sustained effort across campus to increase awareness of diversity and protected groups. Such a coordinated effort requires planning and consistency across departments and over time. Discussion, reflection, and iterative events are necessary to build a sustained effort between and among campus areas.

Action by: Coordinator for Diversity

E) Each of the three areas agrees such training is more effective in a face-to-face environment in small groups. It is recommended a coordinated effort

seek to develop a systematic approach allowing small group training across the constituencies on campus.

Action by: Such training will require the Coordinator for Diversity to work closely with Human Resources, Student Affairs, Leadership Development as well as other faculty and staff across campus.

6. Diversity Website to Encompass Access for Various Groups and Means to Maintain It

A. Statement of the Issue

There is currently no cohesive web presence recognizing, celebrating, or encouraging diversity at Cal Maritime. Developing a web strategy that creates and maintains a robust hub for those interested in diversity at California Maritime Academy will illuminate where we are and where we need to go in developing a welcoming environment for students from underrepresented backgrounds.

B. Brief Discussion

A web section focusing on campus organizations, services, and opportunities for underrepresented students exists on most college websites. A brief survey of college websites should yield at least a few models to use as inspiration before identifying what we want out of a diversity-focused website. Above all, the site should be engaging, informative, easily kept current, and easily found.

At present, our website resources for diverse groups are limited to a few links. . It offers no possibilities for staff, faculty or students to post activities or to advertise affiliations that promote diverse groups, such as the Society of Women Engineers, that are currently active at Cal Maritime. However, the possibility of allowing such postings through the campus portal (https://mycampus.csum.edu/) is currently under discussion. Cal Maritime's main website would display a link to the diversity web resource in the campus portal.

Expected Implementation: According to the Coordinator of Instructional Technology, this diversity web resource could be implemented immediately. What remains to be determined is the desired structure of the portal, e.g. creating different communities in the portal open for community members to make

postings, or listing of all diversity groups on the Associate Students of the California Maritime Academy (ASCMA) page.

Advertisement of Resources: Would be done via e-mail to the entire Cal Maritime community.

Means to Maintain Website Resources: Members of the CMA community would submit postings to the Council for Unity and Diversity. Each person or group submitting an announcement to be posted on the Diversity website would be responsible for keeping the Council for Unity and Diversity updated on changes of any postings. The Council for Unity and Diversity would administer all postings.

Other Resources: Diversity Web (http://www.diversityweb.org/index.cfm). This is an interactive resource hub for Higher Education. The Diversity Web project is housed within the Office of Diversity, Equity and Global Initiatives at the Association of American Colleges and Universities (AAC&U).

The AAC&U offers a website designed to provide a comprehensive compendium of campus practices and resources for campus practitioners seeking to place diversity at the center of the academy's educational and societal mission.

C. Recommendations

Recommendation #1: The Director of Admission and the Dean of Student Life should determine the specific goals for a future web section for underrepresented students at Cal Maritime based on best practices at other campuses and the specific needs of student life and recruiting diverse populations.

Recommendation #2: The Information Technology Planning and Advisory (ITPA) Committee should incorporate a new web section for underrepresented students into the upcoming redesign of the CMA website. If a redesign is not funded, then the ITPA shall direct the Chief Information Officer and Director of Public Relations to work with the Council for Unity and Diversity to create and appropriately locate the web section within our current website.

Recommendation #3: The Coordinator of Instructional Technology should implement a web resource for various groups through the campus portal and to broadly advertise its existence. To have the Council for Unity and Diversity decide on the structure of the web resource, administer postings and maintain it.

Recommendation #4: In addition to using the campus portal, the Council for Unity and Diversity at Cal Maritime would make diversity postings in AAC&U's Diversity Web.

6. Diversity Survey

A. Background

In Fall 2005, a Diversity Task Force (DTF) was formed to look at areas of diversity on campus. The DTF created an online survey for the students, faculty, and staff. The DTF also facilitated focus groups in six areas: African American Students, LGBQI students, Women students, Clerical & Grounds/Custodial staff, and Licensed/Non-Licensed faculty. The survey and focus groups provided some interesting feedback. A report was written but the task force did not meet again to discuss the implementation of certain recommendations.

B. Discussion

The WASC report stated "The campus needs to become a more welcoming environment with regard to race, gender, sexual orientation, socioeconomic status, or other factors associated with underrepresented minorities". The only recent survey that speaks to this comment was the survey that the DTF administered during the Spring 2006 semester. The finding did speak to the unwelcoming environment. Cal Maritime has not done the Noel-Levitz student satisfaction surveys since 2000 but this survey really does not speak to the climate of the campus.

C. Options

In order to assess the accuracy of the WASC assertions, the campus has three options that are listed below.

1. The campus might create its own diversity/climate survey that would suit the needs of the campus. In this model, the campus would also need to assign a faculty or staff member to administer the survey, analyze data and compare the results from the last administered survey.

2. The campus might use an outside vendor to provide a diversity/climate survey that would be comprehensive and a comparative assessment instrument. These companies analyze the data and provide the campus with reports on the findings of the survey. If this same vendor is used each time the survey is administered the results of each year could be compared and a history/culture of evidence would be supported in this manner.

3. In both options 1 or 2, the campus would need to decide how often this survey should be administered. After looking at other campuses, most universities either administer this type of survey every other year or every three years.

D. Recommendation on the Climate/Diversity Survey

The Provost recommended a company called Educational Benchmarking Inc. (EBI) to provide an assessment of Housing, Student Activities, and student leadership. A delegate from EBI provided committee members with a webinar on their Resident assessment for Housing & Residential Life programs. He also talked about some of their other surveys and the outcomes that are derived from the results of their surveys. It was very impressive. This company also has a climate/diversity survey that the Committee thought would help address that finding in the WASC report. The materials from EBI will be forwarded to the Council for Unity and Diversity for its consideration.

CAL MARITIME

ACADEMIC PROGRAM REVIEW GUIDE

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Part A: Introduction

Program review is a formal review undertaken every five or six years by every degree granting program and by general education departments. In the case of a degree program that is reviewed by an outside accrediting agency, the program review will be conducted in conjunction with that accreditation activity.

Program review is mandated. The CSU Board of Trustees established an academic planning and program review policy requiring each campus to establish criteria and procedures for planning and developing new programs and as well as to conduct regular reviews of existing programs. Additional "regular periodic reviews of general education policies and practices in a manner comparable to those of major programs" are also mandated.

The Western Association of Schools and Colleges (WASC) considers program review one of the foundations of the assessment of educational capacity and effectiveness. WASC Standards 2 and 4 require program review of all degree programs.

Program review also allows a department to determine whether it is meeting the needs of students and other constituents. The review can help the department prepare for future challenges in a time of change and determine the best plan for allocation of resources. This review allows the department to develop a strategy for "continuous improvement". Only by a continuous cycle of review can levels of expectation be aligned to provide students with a coherent learning experience geared to the demands of an ever-changing world. Only with a continuous cycle of review can an institution determine whether students are learning, whether learning objectives are being met and what will require curricular changes. Additionally, program review allows the department to carry out strategic planning at the department level.

The success of program review depends upon a willingness to engage in an intensive and comprehensive self-study process, with an honest professional discourse about the criteria to be applied, the relationship of programs to the institution, and the educational needs of students and society at large. External review of the program can provide validation of the program and provide additional prospective on how the program is doing. A review allows faculty to highlight program strengths and achievements, to identify goals, and to address needs through long-range planning. A key issue to be examined in program review is how the program fits with the institutional mission and goals. It is important that program review be viewed not as an empty exercise in checking boxes and filling in numbers, but rather be conducted in the spirit of improvement and progress.

Those programs that have accreditation from a national organization can substitute that organizational approach for the questions in this program review. However, all program reviews must include section VIII: Recommendations of the Department as a Result of the Program Review.

Part B: The Review

The following requirements apply to program review process:

- The cycles of review, with timeline
- The self-study preparation
- The format for self-study: overview, guidelines, format, and questions
- The review process with roles and responsibilities defined
- The use of findings and recommendations.

Program Review Cycles

Normally, a program will be reviewed on a five-year cycle. However, whenever possible, the program review will coincide with specialized accreditation or other mandated reviews. For example, engineering programs are subject to accreditation by ABET on a six-year cycle. The program review for these programs will correspond to the six year cycle.

Programs in related disciplines should also be reviewed concurrently. If a department is conducting a review for new degree programs, it will be subject to a general program review for the entire department.

General Guidelines

A self-study document must be submitted for each program under review within a department. Where appropriate, the department should provide information about minors, concentrations, and options. If a department has more than one degree program and those degree programs contain at least 50% common curriculum, only one self-study is required. If a department has multiple degrees with separate curriculum, or one degree program and general studies requirement, the separate self-study documents should be submitted but may reference common appendixes.

A scheduled review by an external accrediting agency such as ABET or IACBE may be submitted in lieu of this program review. In this case, a memo should be prepared, explaining how the categories and structure of the document relate to those of the program review self-study questions.

Programs that do not have external accrediting agencies should, with assistance from the Academic Dean, Accreditation Liaison Officer, and the Provost, establish an external review team. This team may include members of the Industrial Advisory Board, alumni, or invested parties from outside Cal Maritime.

Self-Study Preparation

Overview

The self-study is a comprehensive written report prepared by an academic department. It examines the current status of the department based on its program, activities, and achievements since its last program review. The document should identify strengths and weaknesses in curriculum and instruction. The assessment plan for the period until the next review should be included. Current objectives and outcomes should be used to assess student learning. Finally the self-study should serve as a strategic plan by which the department can plan for the future.

Preparation: Academic Program Review Data

The Chair of the department preparing a self-study should submit a request to the Dean, Institutional Support for any data required to prepare the self-study. This data may include:

A. Student Characteristics
    1. Ethnicity
    2. Gender
    3. Age
B. Enrollment: Student Credit Hour Generation (FTES) for all courses offered by the program
C. Number of Students Repeating a course.
D. Number of Current Students
E. Number of degrees Awarded in the past 5 years
F. Student/Faculty Ratio (SFR)
G. FTEF Generated

Other data that the department deem important in the review of the effectiveness should be requested. This might include number of students not proficient in Math or English upon entry, graduation rate, retention rate or faculty retention rate.

Organization of the Self-Study Report

The following is a recommended organizational template for the content for the self-study report, which is drawn from the "WASC Resource Guide for Good Practices in Academic Program Review." Unless superseded by requirements of an external accrediting body, the department may select any approach to the self-study it feels is most conducive to demonstrating its educational effectiveness provided that all of the required elements listed below are addressed.

I. Title Page

A. Name of instructional department and program
B. Name of department chair and/or program coordinator
C. Official titles of approved degrees, options, concentrations, minors. The year each was initiated, dates of accreditation by professional associations, and the date of the last program review
D. Name(s) of those responsible for the preparation of the report
E. Signatures of the department chair and all full-time department members attesting that they have participated in the review and have read the report
F. Signature of the Academic Dean attesting that he have reviewed the report and have appended summary comments and recommendations
G. Date report completed and submitted

II. Introduction: Program Mission, Objectives, and Outcomes

This section should provide a context for the review, and in contrast to subsequent sections, this is primarily descriptive in nature.

Program history. Give a brief overview of the major issues, current developments, and emerging trends in the field, and summarize the history of the program offered, with particular emphasis on modifications and changes made in response to each of the recommendations from the last program review.

Department Mission. What is the conceptual, philosophical, or theoretical framework for the program?

Program Objectives. What are the overall goals/objectives of the program? In what way do they support mission of Cal Maritime?

Educational Outcomes. What are the specific educational outcomes expected of students upon graduation? This should include any CMA wide outcomes.

External Context. How is the program responsive to the needs of the region or area in which it serves?

III. Analysis of Evidence about Program Quality

This section of the Self-Study should include a presentation and analysis of evidence about the quality and viability of the program.

Assessment of Program's Objectives and Outcomes. What are the procedures and measures used to evaluate these objectives and outcomes? What strategies are in place to determine attainment of these objectives and outcomes? What procedures are in place to make any appropriate changes? There is a series of rubrics developed by WASC which should be consulted when producing the Program Review Self-Study. These include rubrics designed to measure the efficacy of the program as a whole, and rubrics designed to measure components within the program, including capstone and portfolio reviews. The can be found at csum.edu/wasc.

Sources for Objectives and Outcomes. What are the ways in which the ideas of students, faculty, and any appropriate community advisory groups are used to determine program objectives and desired educational outcomes? How are these objectives and outcomes reviewed and changed as appropriate?

Assessment Plan: How are objectives and outcomes measured? How is this measurement used to make decisions about the program? What improvements have been made as a result of the assessment?

IV. Curriculum:

The basic purpose of this section is to assess the quality of the curriculum, emphasizing both strengths and weaknesses. Furthermore, if program weaknesses are indicated, actions planned to address them should be indicated.

Trends in Curriculum Development. What are the intellectual bases of the curriculum? Discuss the faculty's views on desirable new trends in curriculum development over the next five years.

General Education and Service Courses. Describe the quality of the program's General Education and service courses for non-majors and the nature of the faculty's commitment to these roles. In addition, what is your assessment of the courses offered for your majors by other departments?

Content of the Curriculum Describe how the content of the curriculum relates to the program's objectives and outcomes and how well it prepares students for their field of study.

Organization of the Curriculum. How does the organization of the program curriculum (especially in the major/minor) provide students with an understanding of the foundation, factual knowledge, values, methodology, and integration of the discipline?

Curriculum Flow Chart: How does the curriculum address the learning outcomes of the program?

Curriculum Review Process. What is the process by which all curricular matters are reviewed by the program faculty?

Curricular Changes. What courses have been added, deleted, or modified during past five years? What was the rationale for these changes?

Units in the Major. Describe how the total credit units in the major (including prerequisites) are appropriate for achieving program goals. What efforts are being carried out to reduce the curriculum to reach the CSU goal of 120 units?

Curriculum Comparison: How does the program's curriculum compare with curricula at selected other institutions and with disciplinary/professional standards?

Pedagogical Narrative: How does the faculty's pedagogy respond to various learning modalities and student learning preferences?

V. Faculty

This section addresses issues of the quality of the faculty. A copy of the resume of each full time faculty member should be included in the appendix.

Faculty Expertise. Who are the faculty, and what are their areas of expertise? Are there areas of needed expertise or aspects of the discipline that are not represented by present faculty? If so, indicate what plans the program has to remedy the situation. Also, what are the implications of projected retirements? Is the proportion of full-time tenured, tenure-track, and visiting lecturers to part-time faculty sufficient for the delivery of a quality program?

Assistance to New Faculty. What procedures are used to assist new full-time and part-time faculty (a) in becoming oriented to the policies and procedures of the university, (b) in providing instruction of high quality, and (c) in obtaining needed assistance and services?

Evaluation of Teaching Effectiveness. Describe the comprehensive and varied methods for evaluating teaching effectiveness. How are the evaluations used to enhance program quality? By what means are faculty members assisted in improving their teaching performance? What is the assessment of the quality of instruction in this program?

Non-Instructional Responsibilities. What efforts are made to ensure that appropriate faculty are assigned non-instructional responsibilities, including campus committees, student advising, departmental responsibilities?

VI. Students:

This section addresses the academic program's ability to meet student needs.

Student Characteristics. What are the characteristics of the students majoring in the program? What are the implications of demographic patterns in student enrollment in the program's courses? What attempts have been made to assure greater diversification as consistent with the institutional mission?

Advising. What efforts have been made in the past five years to assure strong academic advising? Specifically, what efforts are made to handle student advising needs for General Education, majors/minors? Is there an equitable distribution of the advising load among faculty?

Enrollments. List the actual student enrollments for this program for the past five years, including number of majors, number of graduates, student credit hours, and FTES. Is student enrollment at the appropriate level for the program in its present form? Can all of the concentrations, options, and individual courses currently authorized be supported by current enrollment demands? Is it possible for a student to complete this major in four years? Provide additional information, as appropriate, regarding special circumstances that will explain low enrollment.

Assistance to Students. What special assistance, services, or activities have been provided students by the program during the past five years in the following areas: (a) grants, scholarships, traineeships, assistantships, awards, and recognition; (b) job placement, career planning, tutorial help, specialized libraries, study space, etc.;

Student Preparedness for Success. Are students prepared for advanced study or the world of work? Evidence in this category could include placement of graduates into graduate schools; graduating student satisfaction surveys (and/or alumni surveys); employer critiques of student performance or employer survey satisfaction results; disciplinary ratings of the program.

VII. PROGRAM RESOURCES

This section identifies the adequacy of existing resources and recommendations for enhancement.

Staff Resources. What are the current secretarial, clerical, and technical resources of the program? Are these sufficient to meet the institutional and administrative requirements of the program?

Operating Budget. Describe the adequacy of the operating budget in support of the program's needs. Describe efforts to secure external funding in support of the program.

Equipment Resources. What are the current facilities and equipment needs of the program? What is the role of information technology and the use of computing resources?

Library, Media, and Computing Resources. Describe the adequacy of the library, media, and computer services. Do these resources support the institutional, research, and administrative needs of the program?

Facilities. Describe the adequacy of the facilities to support the program's needs.

Demand for the Program. What are the trends in number of student applications, admits, and enrollments reflected over a 5-8 year period? What is happening within the profession, local community or society generally that identifies an anticipated need for this program in the future (including market research)?

VIII. Recommendations of the Department as a Result of its Self-Study

On the basis of the self-study findings, the program should develop a strategic plan for the next five years. It should identify existing and new resources and address each of the following six areas.

Student Learning Goals. Do you envisage changes in student learning outcomes? Do you expect to see changes in student accomplishment of those outcomes during the next five years? What process is in place to review the student learning outcomes?

Curriculum. What curricular changes do you envisage during the next five years? What developments will likely cause you to change the curriculum?

Program Students. Do you see the number of students in the majors increasing during the next five years? Will those students be similar to those currently pursuing your major or do you expect to be servicing different students.

Career Preparation for Graduates. Will career opportunities for your graduates change during the next five years? How will your program adjust its curriculum and program practices to prepare the students for those opportunities?

Faculty. What changes do you foresee for the program faculty? Will there be additional or decreased numbers of faculty? Will the increase be due to increase in students in the major or from new programs? What does the program need to do to maintain the current high-quality faculty?

Resources. Will your current level of resources (staff, equipment, library resources, travel funds, etc.) be adequate to permit the maintenance of program quality during five years? What else is needed and why?

IX. Recommendations for Improving the Review Process

The department should comment on how well the program review and self-study worked for the department. Also any recommendations the department may have for improving the program review process should be offered.

X. Appendix

The appendix should contain data that is used to support the self-study. Items that should be in the appendix include resume of all full-time faculty, data such as numbers of students in the program, graduation rates, class size, and percentage of employment and any surveys that are used to support the self-study.

Conduit for Review:

The Provost announces programs to be reviewed and provides each department with written guidelines for the preparation of the self-study.

The Academic Dean and the Accreditation Liaison Officer (ALO) meet with the Department Chair to review the last program review report(s), to discuss the self-study process, to outline the requirements of the self-study report(s), and to describe what assistance they can provide the department in preparing for the review. If the department seeks to utilize an established accreditation organization to conduct the external review, that will be discussed. If there is no established accreditation organization, an external review team should be established by the Department Chair with the assistance of the Academic Dean, the ALO, and the Provost.

The Department Chair/Program Coordinator (or designee) prepares a separate self/study report for each program, in accordance with this established format in consultation with all department faculty, and submits the report to the Deans. All full-time faculty sign the self-study report(s) to indicate that they have read the report.

The Deans review the self-study, provide recommendations for improvement and changes to the self study. The department then has the opportunity to make corrections to self-study and produces the Final self-study. This Final self-study is then resubmitted to the Academic Dean and the ALO who then submit it to both the external review committee and the Curriculum Committee. .

Procedures for the external review will then occur. The report of the external review will be submitted to the Academic Dean and ALO. The Dean will then submit the Final self-study, the report of the external review and their evaluation of the self-study to the Curriculum Committee.

The Curriculum Committee will form a Sub-Committee to review the program's self-study and all other reviews. The Sub-Committee will prepare a report on the Program Review based on its review, the Dean's reviews and the external review. This should include an evaluation of the department's programs, its recommendations for improvements and changes, comments on future growth and its recommendations for program continuance or discontinuance. This report and any questions that have arisen as a result of the review are then submitted to the entire Curriculum Committee for comment and modification. A final Curriculum Committee report will then be sent to the department and to the Academic Dean and the ALO.

The Curriculum Committee's review should look at the program with particular focus on the quality of assessment of student learning. Additionally, the review should look at strengths, weaknesses and areas of concern with the program. An examination of how the program fits into the overall academic program at Cal Maritime should be examined as well as recommendations for the next 5 years. Any additional evaluations of the program that the Curriculum Committee believes are important should be included. The member of the committee from the department that is being reviewed may participate in the discussion but should not be the author of the committee report. All members of the committee should sign the report.

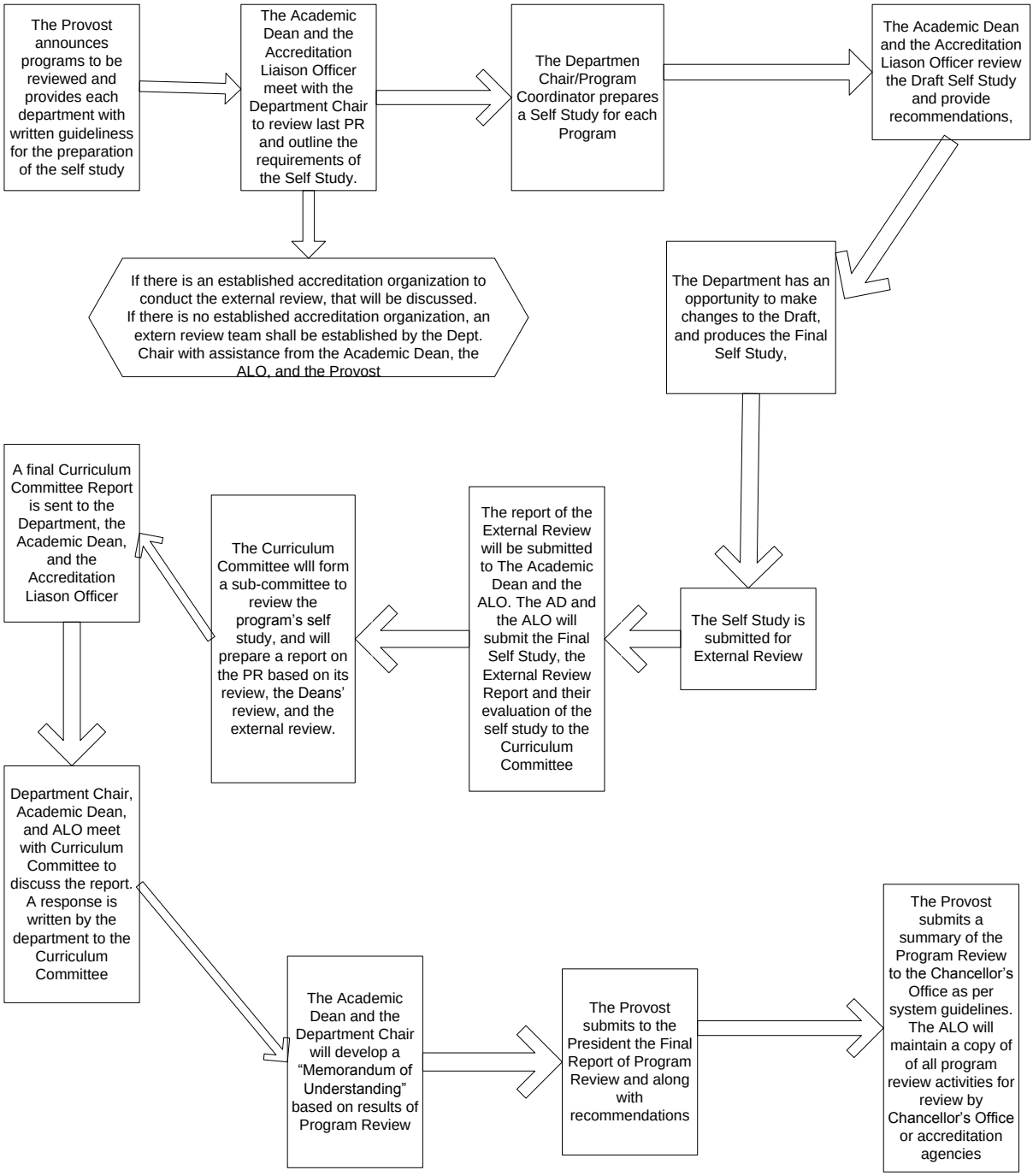
The Department Chair/program coordinator, Academic Dean, and ALO Support meet with the Curriculum Committee to discuss and answer questions about the report. A response is written by the department to the Curriculum Committee.

The Curriculum Committee report is forwarded to the Academic Dean with any department comments. The Academic Dean and Department Chair will develop a proposed "Memorandum of Understanding" based of the results of the Program Review. This MOU will lay out the direction of the program for the upcoming years.

The Provost submits to the President the Final Report of program review along with his/her recommendations for program continuance or discontinuance and for appropriate action as related to budgetary allocations and program planning along with the proposed "Memorandum of Understanding".

The Provost submits a summary of the Program Review to the Chancellor's Office as per system guidelines. The Dean of Instructional Support will maintain a copy of all program review activities for review by Chancellor's Office or accreditation agencies.

Conduit for Academic Program Review



Institution-Wide Assessment Council

Policy Statement

The Institution-Wide Assessment Council (IWAC) shall be responsible for promulgating and sustaining the assessment of institution-wide academic student learning outcomes

I. Duties and Responsibilities

The Duties and Responsibilities of the Committee on Academic Assessment are as follows:

- Implement the Assessment Plan according to the five year calendar and process chart
    - Notify the campus community of the Learning Objectives to be assessed prior to the commencement of the Academic Year
    - Identify and notify appropriate faculty and instructors for assessment practices
    - Collect and organize assessment data
    - Maintain IWAC database
    - Publish results of the assessment cycle, using appropriate templates and databases
    - Suggest actions to be taken based on assessment findings

- Propose Revisions to the Institution-Wide Student Learning Outcomes and Assessment Plan as needed

- Serve as a liaison to individual academic departments and Academic Program Review Coordinators

- Serve as liaison to WASC Coordinator and other accrediting bodies as needed

II. Membership

The Academic Assessment Council shall be co-chaired by the Accreditation Liaison Officer. The other co-chair shall be elected by members of the committee. Membership is competitive by application. All faculty are encouraged to apply, and preferably, the nominated faculty member should be responsible for Program Review or other assessment assignments on the departmental level. The selection processes shall be made with explicit considerations for: 1) broad representation across academic departments, and 2) particular faculty expertise relating to the specific learning outcomes addressed in calendar year. Members shall serve for two years, with staggered terms such that approximately half of the council shall overlap in order to preserve institutional memory for assessment sustainability.

Institution-wide Student Learning Outcomes

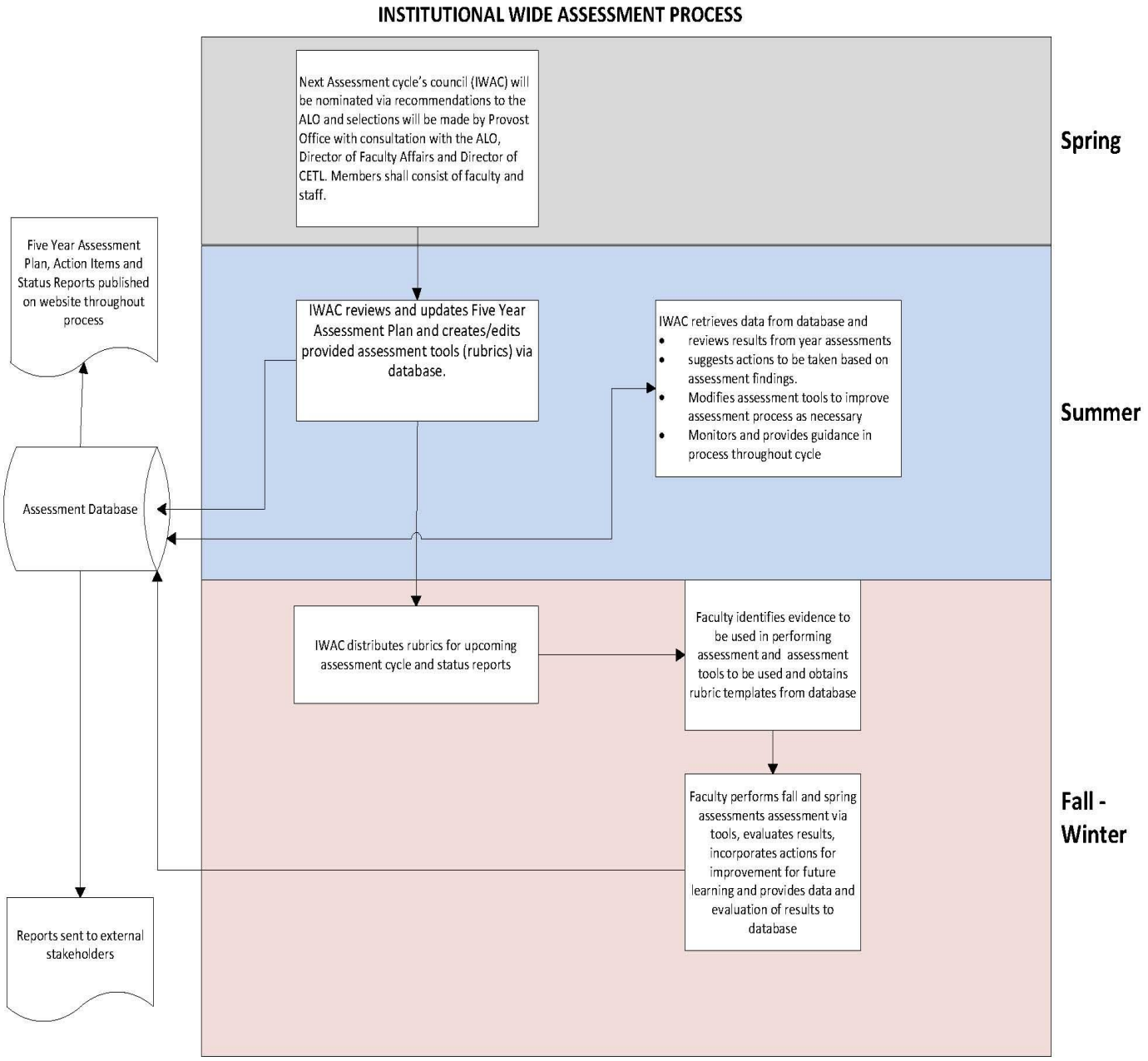
Consistent with the mission of the California Maritime Academy to provide a college education combining intellectual learning, applied technology, leadership development, and global awareness, students will develop the following competencies. Through participation in curricular and co-curricular learning opportunities, our graduates will be able to:

A.	Coherently and persuasively share information	Communication	**Intellectual Learning**
B.	Comprehend, analyze and objectively evaluate new information and ideas; and to explain things in new and different ways, often through synthesizing or applying information	Critical and Creative Thinking	
C.	Exercise intellectual inquiry via the use of sound reasoning to identify and analyze problems, formulate solutions, predict outcomes, and make conclusions and inferences from numerical information	Problem Solving	
D.	Demonstrate an understanding of fundamental concepts in human development and the natural world	Human Development in the Natural World	
E.	Employ self-knowledge of the social and cognitive factors influencing the learning process; to engage in ongoing reflection and exploration of the purpose of personal development; and to synthesize and apply knowledge and experiences to new personal and professional applications	Lifelong Learning	
F.	Demonstrate competency in discipline-specific, maritime-related fields	Mastery of discipline-specific skills	**Applied Technology**
G.	Define a specific need for information; then locate, access, evaluate and effectively apply the needed information to the problem at hand; and effectively use simulators, computers and computing applications in order to create, access, store, process, analyze and communicate information	Information Fluency and Computing Technology	
H.	Work with others in achieving common goals, and when necessary, envision new goals; motivate and empower others to achieve them; interact constructively with a diverse group of people; and foster collegiality, goodwill and community among them	Leadership, Teamwork, and Personal Development	
I.	Behave and perform in a manner that is accepted in one's profession, as well as move oneself continuously toward a goal or set of goals	Professional Conduct	**Leadership Development**
J.	Apply standards of proper conduct and responsibility towards society in one's professional or personal life	Ethical Awareness	
K.	Demonstrate an awareness of diversity in the global culture and environment, as well as the responsibilities associated with promoting the welfare of state, country, whole of humanity and planet	Global Stewardship	**Global Awareness**

Institution-Wide Assessment Council:
Five-Year Assessment Calendar

2009-2010	2010-2011	2011-2012	2012-13	2013-2014
SLO: Communication Rubric Results Action Items Status Report	SLO: Global Stewardship Rubric	SLO: Information Fluency and Computing Technology	SLO: Mastery of discipline-specific skills in maritime-related fields	SLO: Leadership, Teamwork and Interpersonal Relationships
SLO # Knowledge of the Physical World Report Results Action Items Status Report	SLO: Critical and Creative Thinking Rubric	SLO: Ethical Awareness SLO: Lifelong Learning	SLO: Problem-Solving and Quantitative Literacy	SLO: Professional Conduct

Institution-Wide Assessment Council
Flow Chart of Deadlines and Milestones



California Maritime Academy (CMA)

Draft Audit Report

Start Date: March 9, 2010

Finish Date: March 10, 2010

Contact: Dean Steve Kreta

Notified Date: February 1, 2010

CMA Representatives: RADM William B. Eisenhardt, Dean Steve Kreta, Tom Mader, Sam Pecota, Captain Harry Bolton, Chief Engineer Bill Davidson and Peg Solveson

Audit Team Members: Mr. Stan Clemons: U.S. Coast Guard Team Leader; Ms. Anne Dougherty: Maritime Administration (MARAD); LT Eric Brown: NMC Auditor; Mr. Robert Smith: NMC Engineering; Mr. David Harper: NMC Deck; Captain George Edenfield: Kings Point; Mr. Mark Libby: Maine Maritime Academy.

Audit Objective: External audit, conducted jointly between USCG and MARAD, to determine process effectiveness and compliance with current federal regulations and STCW requirements.

Scope of Audit: The purpose of this audit is to validate that CMA (1) maintains the quality of approved STCW training; (2) adheres to those standards and that they continue to be achieved; and (3) that a plan is in place for correcting any nonconformities discovered through external or internal audits.

Related Audit Documents: Pre-audit letter dated February 01, 2010; California Maritime Academy Introductory Power Point Presentation to Audit Team; STCW Program Approval Letter - NMC letter 16720/4 dated February 18, 2009 for Third Mate Program, Third Mate Program – QMED Option, Third Assistant Engineer Program, and Elective and Stand-Alone Course Approvals; CMA External Audit Report results from March 15, 2006 Audit; Corrective Action Plan letter dated April 10, 2006 from CMA to NMC; NMC response letter 16720/4 dated May 23, 2006 The Audit Team reviewed the following curriculum documents on the MOODLE website prior to arrival: STCW Compliance and Assessment Tables, Faculty Resumes, Course Syllabi and General Catalog, STCW Control Sheets, and STCW Course Outlines.

Overview:

An announced audit of California Maritime Academy was conducted at their facility in Vallejo, CA on March 9-10, 2010, in accordance with Memorandum of Understanding (MOU) between Maritime Administration (MARAD) and U.S. Coast Guard (USCG) Academy Review Committee, dated Feb 17, 1998, and the Academy Audit Package dated February 1, 2010.

Audit Summary:

On March 9, 2010 CMA President, RADM William B. Eisenhardt, met with the Audit Team and introductions were made. After the introductions, Dean Steve Kreta presented a PowerPoint presentation pertaining to CMA STCW audit. Following the presentation, Dean Steve Kreta provided a detailed tour of the campus which included the classrooms, ship handling and radar simulators, crisis management simulator, diesel and steam simulators, and numerous deck and engineering labs. During the simulation tour, Mr. Sam Pecota demonstrated the Augmented Reality Project. After the campus tour, Captain Harry Bolton and Chief Engineer Bill Davidson led the Audit Team on a very informative and impressive tour of the Training Ship Golden Bear and other vessels used for training.

During lunch, the Audit Team Members had the opportunity to interview students and discuss their training, STCW, and sea time credit and experiences. Following the student interviews, the Audit Team divided into several groups that consisted of discussions with the Engineering Faculty, classroom visits, a demonstration of the deck bridge simulator, and began review of documents provided by CMA which were used to develop a preliminary list of observations to be discussed.

The Audit Team began the second day of the external Audit with an opening meeting and revising the schedule. The Audit Team continued to review the school's documentation as provided, held individual discussions with Dean Steve Kreta and STCW Coordinator Peg Solvenson and met with the Deck Faculty. During a working lunch, the Audit Team reviewed audit observations, collected audit data and prepared the draft report, for the closing meeting to be held with the Academy Senior Staff. Mr. Stan Clemons and Ms. Anne Dougherty chaired the closing meeting.

Observations

The Audit Team's initial evaluation of the training provided by CMA was that it has a vigorous deck and engineering training program with strong evidence of STCW implementation. It is evident that both the instructors and staff are committed to excellence by ensuring that the cadets understand the importance of STCW requirements. The facilities, simulators, laboratories, and training vessels provide an outstanding combination of theoretical and practical coursework to ensure cadet competency is properly demonstrated.

Although a Quality Standards System (QSS) is not currently required, CMA is in the process of establishing a QSS management system for STCW. There is sufficient evidence that a QSS exists in part and that a significant effort is being made to mature the program.

There appears to be no unreported changes to the approved curriculum; however, there have been significant improvements to the facilities and simulation. With these improvements and new training opportunities, it is imperative that any changes be reported to the National Maritime Center, Training

and Assessment Division, and to the Maritime Administration, Office of Maritime Workforce Development, for acknowledgment and when appropriate, approval. In the original STCW approval letter dated April 11, 2002, Enclosure (4) paragraph three requires "Any proposed changes to the program, including a change of simulators or training aids, must be submitted to the Joint Coast Guard/MARAD Maritime Academy STCW Review Committee for evaluation and written approval." (46CFR11.303(d)).

In addition to all STCW requirements, documentation of seagoing service accurately showed the number of days of sea service that are required has been accumulated by each student.

CMA students overwhelmingly had positive comments on how the academy responds to their needs in support of their academic maritime pursuits. Included in these interviews were discussions of cadet commercial vessel cruises and training cruises to accumulate sea service. The Audit Team asked the cadets how their current training prepared them for the challenge of sailing on a commercial vessel. Generally, the cadets were very excited about the cruises and conveyed to the Audit Team their training was extremely valuable in preparing them for future opportunities in the commercial industry.

All members of the CMA Faculty interviewed were conscientious, dedicated and answered all questions fully and capable. The staff members demonstrated a high degree of professionalism and a full understanding of all STCW requirements.

Recommendations

1. CMA continue their migration toward electronic record and documentation processes.
2. CMA continue consolidating all documented procedures and policies into a standard process manual specific to CMA. This will capture all relevant procedures and policies into one location for easy access to all stakeholders.
3. CMA ensure any curriculum changes are submitted to the Joint CG/MARAD Maritime Academy Review Committee for evaluation and approval.
4. CMA conduct internal audit reviews for STCW approved programs as required.
5. CMA expand their continuous improvement processes to reflect existing regulatory requirements and current industry needs.

The professionalism, enthusiasm, and cooperative attitude from all faculty staff, and students were instrumental in making the audit a success.

CAL MARITIME

2010 Interim Report

Engineering Technology Department
California Maritime Academy

Bachelor of Science in Facilities Engineering Technology
and
Bachelor of Science in Marine Engineering Technology

prepared for the

Technology Accreditation Commission
Accreditation Board of Engineering and Technology

June 1, 2010

2010 Interim Report

Engineering Technology Department
California Maritime Academy

Bachelor of Science in Facilities Engineering Technology
and
Bachelor of Science in Marine Engineering Technology

Introduction

The Technology Accreditation Commission of ABET (TAC) evaluated Cal Maritime's Bachelor of Science degree programs in Facilities Engineering Technology and Marine Engineering Technology during the 2006-07 accreditation cycle. The findings were evaluated using the 2006-07 TAC Criteria for Accrediting Engineering Technology Programs. The final statement dated August 13, 2007 identified two Institutional Weaknesses, one Institutional Concern and one Program Weakness for the Marine Engineering Technology Program.

As required, Cal Maritime submitted an Interim Report during the 2008-09 accreditation cycle, addressing the 2006-07 TAC findings. Following TAC evaluation of the institution's progress the final statement dated August 14, 2009 declared all but one of the findings resolved. Since the outstanding institutional weakness applies equally to both programs, TAC moved the finding to the program section of the document, and listed the issue as a weakness for each program. This Interim Report will address actions taken by the Engineering Technology Department to resolve the remaining weakness in both programs.

Statements of the program weakness for the Facilities Engineering Technology and Marine Engineering Technology programs are identical:

Previous Finding and Criteria: Criterion 3. Assessment and Evaluation stated, "Each program must utilize multiple assessment measures in a process that provides documented results to demonstrate that the program objectives and outcomes are being met. Each program must demonstrate that the results of the assessment of program objectives are being used to improve and further develop the program in accordance with a documented process." The 2007 Final Statement reported that the assessment process was ongoing; however, no evidence was presented to show that assessment data were being used to further improve the program. Assessment was limited to direct assessment using standard tests, quizzes, homework, and laboratory reports. Improvements have been largely sporadic rather than in accordance with a documented process. Assessment processes have not yet demonstrated a clear correlation between documented results and the changes made to the programs. This finding remained a weakness until the institution demonstrates achievement of outcomes and objectives through multiple assessment measures and demonstrates that results of the assessment of program objectives and

outcomes are being used to improve and further develop the program in accordance with a documented process.

Progress: The 2008 Progress Report provided an Engineering Technology Curriculum Change Plan that outlined proposed changes to the curriculum for the class of 2009, the class of 2010, the class of 2011, and the class of 2012. The program indicated that beginning in December 2008, the department would meet twice annually to focus on assessment. The Progress Report also highlighted changes made by a faculty ad hoc committee to address problems in the Steam Plant Simulator courses. The report also provided copies of minutes of Engineering Technology Department meetings that focused on assessment of student outcomes. The Engineering Technology Department is now utilizing student evaluations and employer surveys to measure achievement of program outcomes. However, evidence was not provided to demonstrate achievement of program objectives and outcomes.

Status: This finding remains a Weakness until the program provides evidence that all program objectives and outcomes are being evaluated, and that the results are being used to further improve and develop the program.

Interim Report Response

Faculty efforts to develop a culture of evidence for assessment of the engineering technology programs at Cal Maritime were renewed during the 2008-09 academic year. Data was collected from professional licensing and certification programs, job placement databases and surveys of employers and graduates. Faculty attended workshops focused on student learning assessment and began development of rubrics for evaluation of laboratory course work and watch teams in power plant simulators and aboard the Training Ship Golden Bear. The Department Chair attended the ABET Workshop on Sustainable Assessment Processes in October 2009 and led the effort to fully implement Facilities Engineering Technology (FET) and Marine Engineering Technology (MET) Assessment Plans throughout the 2009-10 academic year. Assessments for some of the student learning outcomes in both programs have been completed and others are planned. Cal Maritime's FET and MET Assessment Plans were transformed to working documents, which are enclosed in Appendices A and B, respectively.

The following chronology summarizes faculty activity over the past two years to implement Cal Maritime's FET and MET Program Assessment Plans. Completed evaluations of educational objectives and student learning outcomes, and the actions taken to further improve and develop the FET and MET programs are documented in the respective assessment plans. Also included are several engineering technology program quality improvements, developed in conjunction with institutional initiatives or in response to feedback received from industry partners.

Timeframe	*Program Assessment or Curriculum Development Activity*
July 24, 2008	Interim Report to Technology Accreditation Commission
August 27, 2008	Faculty Forum* • FET and MET Outcome 1 – 2008 Sea Training program evaluated • FET and MET Outcome 6 – Engineering mechanics course work, and electrical distribution and transmission for marine engineers reviewed • FET and MET Outcome 11 - Safety training reviewed
September 25-27, 2009	WASC workshop on Student Learning Assessment attended by Tom Mader, Mike Kazek and Mike Strange
Fall 2008	CSU Deans of Engineering began a system-wide effort to review baccalaureate engineering programs with the goal of reducing curricular requirements to 120 semester units. At Cal Maritime several ongoing curriculum quality management efforts were associated with this initiative. • Learning objectives of EPO 317 incorporated in CRU 350. EPO 317 was deleted resulting in a one-unit reduction for the MET major • Learning objectives of EPO 320 and EPO 321 consolidated into EPO 322/322L resulting in a one-unit reduction for the MET major • Learning objectives of ET 452 incorporated in ET 490 resulting in a two-unit reduction for the FET major and one-unit increase for MET major
January 20, 2009	Employer Survey completed in conjunction with Cal Maritime Career Fair
February 26, 2009	Faculty Workshops: *Promoting Meaningful Learning* and *Promoting Student Learning through Assessment at the Program Level* Faculty Forum* • Employer survey reviewed • Graduate survey planned • E-Portfolio pilot program planned • FET and MET Outcome 3 – Laboratory rubric development • FET and MET Outcome 5 – Watch team rubric development • FET and MET Outcome 6 – Capstone project proposals

* Minutes of Faculty Forum included in Appendix C

Timeframe	*Program Assessment or Curriculum Development Activity*
2008-09 Academic Year	FET and MET Outcome 1 – In coordination with a Cal Maritime initiative to develop a residential learning experience for 4/C cadets aboard the Training Ship Golden Bear an ad hoc committee of Engineering Technology and Maritime Operations faculty conducted an evaluation of first-year practical training in marine engineering and proposed changes to the FET and MET curricula
April 14, 2009	Graduate Survey administered to the Class of 2009
June 14-17, 2009	ASEE Annual Meeting attended by Department Chair
Summer 2009	Commercial Cruise and Co-Op Supervisor Survey completed
September 22, 2009	Licensed Faculty Forum • FET and MET Outcome 1 – 2009 Sea Training program evaluated • FET and MET Outcomes 5 and 13 – Watch team rubric implementation reviewed • MET Outcome 12 –USCG License examination results evaluated
September 29, 2009	Laboratory Faculty Forum • FET and MET Outcomes 3 and 7 – Laboratory guide and rubric development continued
October 13, 2009	Faculty Forum • MET Outcome 12 – USCG License examination results discussed and license preparation website proposed • FET Outcome 12 – Evaluation of CPE-IT examination results • E-portfolio Assessment Initiative – E-portfolio pilot program held in abeyance following discontinuation of LiveText support • FET and MET Educational Objectives – Employer, Graduate, Commercial Cruise Supervisor and Co-OP Supervisor surveys evaluated
October 27-29, 2009	ABET Workshop on Sustainable Assessment Processes, 2009 Technology Accreditation Commission Summit and 2009 Annual Meeting attended by Department Chair
Fall Semester 2009	FET and MET Assessment Plans were compiled in a revised format following the guidelines provided in the ABET Workshop on Sustainable Assessment Processes

* Minutes of Faculty Forum included in Appendix C

Timeframe	*Program Assessment or Curriculum Development Activity*
January 6, 2010	Faculty Forum • FET and MET Program Outcome 1 – Performance criteria reviewed, assessments specified and evaluations scheduled for Spring Semester 2010 • FET and MET Program Outcomes 3 and 7 – Performance criteria reviewed, assessments specified and evaluations scheduled Spring Semester 2010 • FET and MET Program Outcomes 5 and 13 – Performance criteria reviewed, assessments specified and evaluation scheduled for Fall Semester 2010 • FET Outcome 12 – CPE-IT examination results from Fall Semester 2009 evaluated • MET and FET Educational Objectives – Graduation rates and placement data for the Class of 2009 evaluated
January 12 and 14, 2010	Student Focus Groups • MET Outcome 12 – Keys to success in USCG license examinations for the MET Class of 2010
January 14, 2010	President's Mission Achievement Grant approved for development of USCG license examination website
March 2, 2010	Faculty Forum • FET and MET Outcome 1 – Review of basic repair skills taught aboard the Training Ship during summer cruise
April 1, 2010	Laboratory Faculty Forum • FET and MET Outcomes 3 and 7 – Gathering and collating of data for evaluation of student matriculation in the laboratory course sequence
April 21, 2010	Industrial Advisory Board • Evaluations of FET and MET Educational Objectives presented for Board review and comment • FET and MET Outcome 1 – Actions taken in response to IAB comments concerning basic repair skills training presented for Board review and comment • FET and MET Outcome 11 - Actions taken in response to advisory board comments concerning safety awareness training presented for Board review and comment

* Minutes of Faculty Forum included in Appendix C

Conclusion

The Department has made a concerted effort to address the remaining weakness in Cal Maritime's Facilities Engineering Technology and Marine Engineering Technology programs. Although all of the student learning outcomes for these programs have not yet been evaluated, the faculty continues to develop the tools for program evaluation and has integrated assessment activities into their academic work routine. Cal Maritime's Engineering Technology Department is committed and on track to complete one or more assessment cycles for each student learning outcome prior to the next visit of the Technology Accreditation Commission.

Appendices

A Facilities Engineering Technology Program Assessment

- Assessment Plan
- Educational Objectives
  A. Evaluation of FET Educational Objectives
- Student Learning Outcomes
  1. Mastery of the knowledge, techniques, skills and modern tools of facilities engineering technology
     A. Actions taken in response to IAB comments of October 30, 2007
     B. Actions taken in response to Campus-wide Freshman Experience Initiative
  2. Ability to apply current knowledge and adapt to emerging application of mathematics, science, engineering and technology to problems associated with facilities equipment and systems
  3. Ability to use proper laboratory practices, use instrumentation for measuring physical phenomena, analyze and interpret experiments and apply experimental results to improve processes and design
  4. Ability to apply creativity in the design of systems, components or processes in the facilities environment
  5. Ability to function effectively on teams
  6. Ability to apply the principles of fluid mechanics, hydrostatic stability, solid mechanics, materials, dynamics and energy systems to technical problems related to facilities equipment, systems and structures
  7. Ability to communicate effectively in a technical environment
  8. Recognition of the need for and an ability to engage in lifelong learning including the need for updating technical knowledge and skills
  9. Ability to understand and apply concepts of professional, ethical and social responsibilities
  10. Respect for diversity and a knowledge of contemporary professional, societal and global issues
  11. Commitment to quality, safety, timeliness and continuous improvement
      A. Actions taken in response to IAB comments of October 30, 2007
  12. Ability to receive the certification as Certified Plant Engineer in Training
  13. Ability to engage in the operation, maintenance, analysis and management of modern facilities including power plants, HVAC and energy conservation
  14. The ability to perform economic analyses and industrial operations planning including managing technical projects involving scheduling and cost analysis
  15. The knowledge to manage technical projects involving manufacturing for schedules, costs and quality assurance

B Marine Engineering Technology Program Assessment

- Assessment Plan
- Educational Objectives
  A. Draft STCW Audit Report
  B. Evaluation of MET Educational Objectives
- Student Learning Outcomes
  1. Mastery of the knowledge, techniques, skills and modern tools of marine engineering technology
     A. Actions taken in response to IAB comments of October 30, 2007
     B. Actions taken in response to Campus-wide Freshman Experience Initiative
  2. Ability to apply current knowledge and adapt to emerging application of mathematics, science, engineering and technology to problems associated with marine equipment, systems and vehicles
  3. Ability to use proper laboratory practices, use instrumentation for measuring physical phenomena, analyze and interpret experiments and apply experimental results to improve processes and design
  4. Ability to apply creativity in the design of systems, components or processes in the marine environment
  5. Ability to function effectively on teams
  6. Ability to apply the principles of fluid mechanics, hydrostatic stability, solid mechanics, materials, dynamics and energy systems to technical problems related to marine equipment, systems and vehicles
     A. Actions taken in response to Commercial Cruise Feedback
  7. Ability to communicate effectively in a technical environment
  8. Recognition of the need for and an ability to engage in lifelong learning including the need for updating technical knowledge and skills
  9. Ability to understand and apply concepts of professional, ethical and social responsibilities
  10. Respect for diversity and a knowledge of contemporary professional, societal and global issues
  11. Commitment to quality, safety, timeliness and continuous improvement
  12. Ability to receive a USCG License as a Third Assistant Engineer
      A. USCG Third Assistant Engineer License Examination
      B. Draft STCW Audit Report
  13. Ability to engage in the operation, maintenance, analysis and management of modern marine power plants, associated equipment and systems

C Faculty Forum Minutes

- Faculty meeting of August 27, 2008
- Faculty meeting of February 26, 2009
- Licensed Faculty meeting September 22, 2009
- Laboratory Faculty meeting September 29, 2009
- Faculty meeting of October 13, 2009
- Faculty meeting of January 6, 2010
- Laboratory Faculty meeting of April 1, 2010

ABET
Interim Report

for the

Mechanical Engineering

Program

at

California Maritime Academy

Vallejo, CA

July 1, 2010

Introduction

The Mechanical Engineering (ME) program at California Maritime Academy (CMA) was evaluated by the Engineering Accreditation Commission (EAC) of ABET in the fall of 2008. In its draft statement the visiting team identified three weaknesses and one concern:

Weakness 1: Criterion 2, Program Educational Objectives

Weakness 2: Criterion 3, Program Outcomes

Weakness 3: Criterion 5, Curriculum

Concern 1: Criterion 4, Continuous Improvement

The ME department began the process of addressing these issues soon after the ABET visit. During several meetings in the fall of 2008 and the spring of 2009 the department crafted a roadmap to address the above issues:

1) Respond to Weakness 1 prior to ABET EAC 2009 Summer Meeting.
2) Respond to Weakness 3 by the beginning of the fall 2009 semester, with curriculum changes effective for the Class of 2011.
3) Respond to Weakness 2 and Concern 1 by the end of the spring 2010 semester by creating a program outcome assessment process that was more quantitative, with more uniform and consistent processes Document the a program assessment manual defining the processes, and initially apply the revised processes using the spring 2010 data.

The ME department submitted its Weakness 1 report to ABET in June of 2009. The ABET EAC evaluated the report at its 2009 Summer Meeting. In its Final Statement report, Appendix B, page 4, the Commission approved the ME department due-process response and considered the weakness resolved.

This report contains sections that describe the actions we have taken to address Weakness 3, Weakness 2, and Concern 1. We address Weakness 3 first because Weakness 2 and Concern 1 are somewhat related and are better addressed consecutively. We believe that the actions taken have adequately resolved these items. First, we would like to present some background information about CMA, our curriculum, our mission, program objectives and outcomes, and our assessment system.

Background

The California Maritime Academy (CMA), was originally founded in 1929 as the California Nautical School. It became the 22nd campus of the California State University (CSU) in 1995. The California Maritime Academy is the smallest campus of the California State University system. It offers degree programs in Business Administration, Facilities Engineering Technology, Global Studies and Maritime Affairs, Marine Engineering Technology, Marine Transportation, and Mechanical Engineering. The Mechanical Engineering program is the only engineering program at the campus, and confers only the bachelor degree. At present, the department consists of 6 faculty and 148 students.

All those who receive the ME degree follow the same core curriculum, which is designed to maintain the mission and learning objectives of the academy as well as the educational objectives of the program. However, students may choose to overlay additional coursework and training that is oriented toward particular job fields within the broader spectrum of mechanical engineering.

The US Coast Guard License (USCG) option, which leads to a USCG Third Assistant Engineer's license, is designed for students who wish to use their engineering degree as a marine engineer. The curriculum includes the courses that define the core ME program as well as the license and cruise course requirements that define the USCG option. Students in this option must complete all of the competencies for the Standards for Training and Certification of Watch-keepers (STCW) as set by the International Maritime Organization (IMO). In addition they are required to take and pass the 3rd Assistant Engineer's License exam as administered by the U.S. Coast Guard. These students participate in three sea-training cruises: two aboard the CMA training ship Golden Bear and one aboard a commercial vessel.

Those students who follow the ME option are not interested in pursuing a career in the merchant marine. In keeping with our mission and values, the ME option retains some of the strong practical training and hands-on aspects of the USCG option, but to a lesser degree. The curriculum includes the courses that define the core ME program as well as the requirement for sea training in their first year. This practical training distinguishes CMA from most engineering schools, and provides an added dimension to our graduates. In addition to one cruise, the ME option requires two summer internships for students to work onsite in an industry or research facility for a 2-3 month period under an engineering supervisor.

Based upon surveys and contact between faculty and alumni, we find our ME graduates in a variety of fields. Many sail with the merchant marine, at least for a few years, but it is common to see graduates change their career path and seek a shore-side engineering position or return to school for graduate study. In addition to the maritime transportation industry there is a significant representation of our alumni in the areas of power generation, HVAC, and facility commissioning and engineering.

The ME program identifies its significant constituencies as students, faculty, alumni, the engineering profession and prospective employers, and our External Advisory Board (EAB). The department seeks to include these constituencies in its assessment process.

Our External Advisory Board includes representation from industry, the ASME professional society, and academia. The EAB meets twice a year: once in the fall and once in the spring semester. The spring meeting is scheduled on the same day as the senior design presentations to allow EAB member participation in the assessment of student performance. Additional interaction among employers, students, alumni and faculty takes place during an annual career

fair on campus. CMA alumni are typically strong supporters of our program and are involved with the Academy through the alumni association and its board of directors.

Vision and Mission Statements

The *vision* of the California Maritime Academy is:

> *The California Maritime Academy will be a leading educational institution recognized for excellence in business, engineering, operations, and policy of the transportation and related industries for the Pacific Rim and beyond.*

The *mission* of California Maritime Academy is to:

- *Provide each student with a college education combining intellectual learning, applied technology, leadership development, and global awareness*
- *Provide the highest quality licensed officers and other personnel for the merchant marine and national maritime industries*
- *Provide continuing education opportunities for those in the transportation and related industries*
- *Be an information and technology resource center for the transportation and related industries.*

The mission of the Mechanical Engineering program is:

> *The mission of the Mechanical Engineering program is to produce entry-level professionals capable of applying their knowledge of science and engineering in the design, analysis, evaluation, and production of engineering devices and systems. It also provides students with the necessary academic preparation for further education and professional development in their chosen careers.*

Institution-wide Student Learning Outcomes

Consistent with the mission of the California Maritime Academy to provide each student with a college education combining intellectual learning, applied technology, leadership development, and global awareness, The learnig community at CMA has defined a set of institutional learning outcomes. Our graduates will develop and apply the following competencies through participation in curricular and co-curricular learning opportunities provided by the Academy:

I. Intellectual Learning

- Communications
  - The ability to coherently and persuasively share information with others via oral, written, visual and listening communication skills.
- Critical and creative thinking

    - The ability to comprehend, analyze and objectively evaluate new information and ideas, so as to develop informed opinions, and to explain things in a new or different way, often through synthesizing or applying intuition.
- Problem solving and quantitative literacy
    - The ability to exercise intellectual inquiry via the use of sound reasoning to identify, predict, analyze and solve problems, and to formulate, evaluate, and communicate conclusions and inferences from numerical information.
- Human development and the natural world
    - The ability to demonstrate an understanding of fundamental concepts in the humanities, social, physical and life sciences.
- Lifelong learning
    - The ability to employ self-knowledge of the social and cognitive factors influencing the learning process, to engage in ongoing reflection and exploration of the purpose of personal development, and to synthesize and apply knowledge and experiences to new personal and professional applications.

II. Applied Technology and Professional Development

- Mastery of discipline specific skills in maritime related fields
    - The ability to demonstrate competency in discipline specific skills.
- Information fluency and computing technology
    - The ability to define a specific need for information, and to then locate, access, evaluate, and effectively apply the needed information to the problem at hand and to effectively use computers and computing applications in order to create, access, store, process, analyze and communicate information.
- Use of simulation tools
    - Ability to use simulation tools in problem solving and analysis.

III. Leadership, Teamwork and Personal Development

- Leadership, teamwork and interpersonal relationships
    - The ability to work with other people in achieving common goals, and, when necessary, to envision new goals and to motivate and empower others to achieve them and to interact constructively with a diverse group of people and foster collegiality, good will, and community among them.
- Professional conduct
    - The ability to behave and perform in a manner that is accepted in one's profession and to move oneself continuously toward a goal or set of goals, despite personal difficulties, obstacles, and time constraints.

IV. Global Awareness and Social Responsibility

- Ethical awareness

    - The ability apply standards of proper conduct and responsibility towards society in one's professional and personal life.
- Global stewardship
    - The ability to demonstrate an awareness of diversity in global culture and environment, and an understanding of the responsibilities associated with promoting the welfare of state, country, whole of humanity, and planet.

Program Assessment System History and Current Status

The ME Assessment System, shown in Figure 1, consists of two main processes (loops): the Program Educational Objective processes and the Program Outcome processes.

The initial ME assessment system, along with its Program Educational Objective (PEO) processes and Program Outcome (PO) assessment processes was created during the department's spring 2001 retreat. They were presented in the 2002 ABET Self-Study report. As a result of the subsequent program review, the program received its initial accreditation. The 2008 ABET program review identified a weakness in the PEO and the process used to define them. In response to this, the process for defining PEO was revised to be more inclusive of our constituencies, and the PEO were redefined. The response was transmitted to ABET EAC, and as a result this weakness was determined to be resolved. The process for defining PEO is as follows:

- The faculty will review existing program objectives to ensure that they are consistent with the mission of the academy, the department mission and the ABET criteria, and will create revised objectives as necessary.
- The objectives will be provided to a representative group of graduates and employers for evaluation and suggested revisions.
- The faculty will evaluate responses from graduates and employers, and will modify the objectives to reflect the responses.
- The modified list of program objectives will be presented to the External Advisory Board for comment and final approval.
- This process will normally be done every 3 years, but will also be done anytime that the mission statements of the institution or department, or the ABET criteria are changed.

The current ME Program Educational Objectives (PEOs), revised in April 2009 using this process are listed below. They are published in the official school catalog as well as the school web site: www.csum.edu:

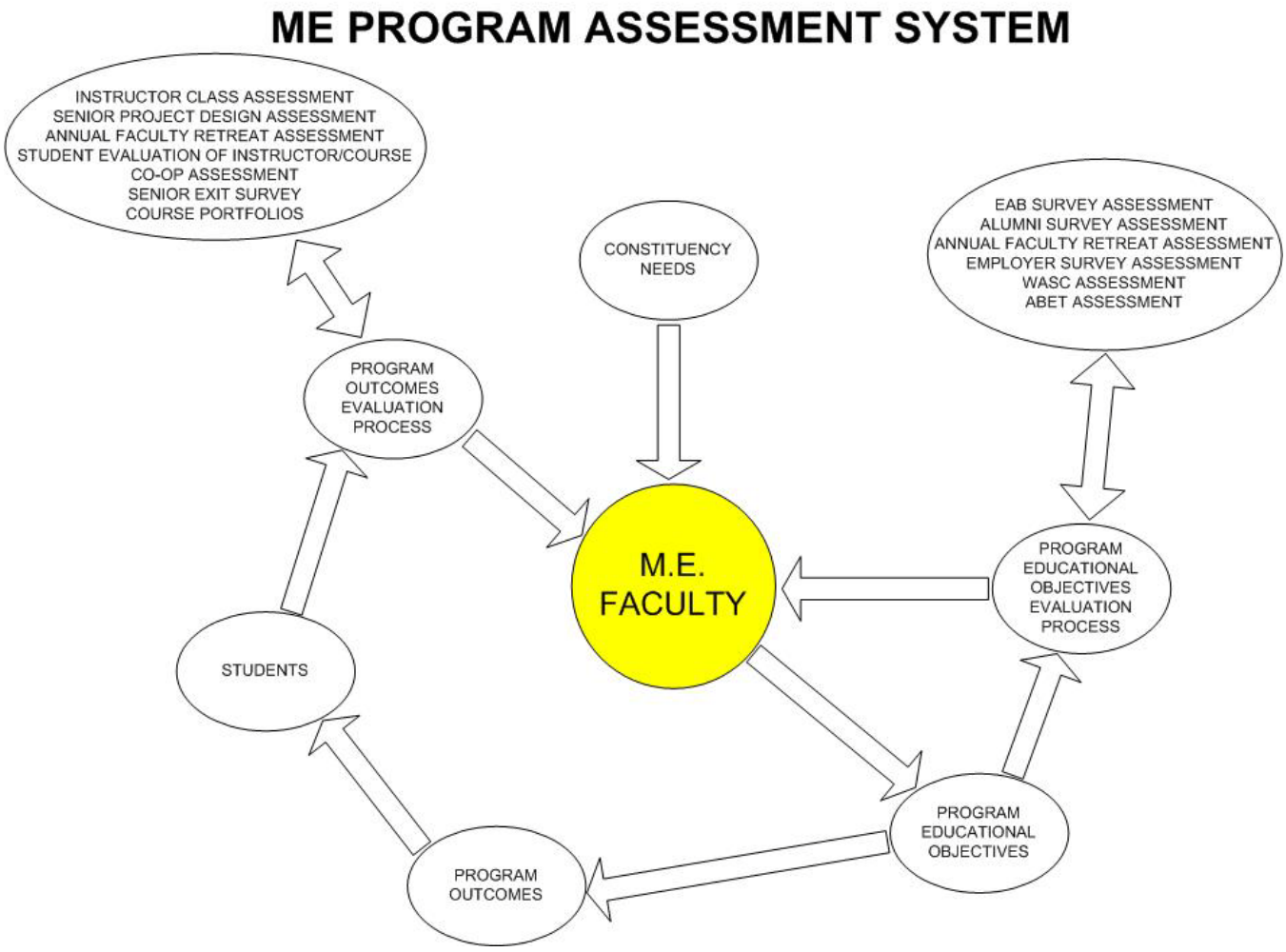

ME PROGRAM ASSESSMENT SYSTEM
INSTRUCTOR CLASS ASSESSMENT
SENIOR PROJECT DESIGN ASSESSMENT
ANNUAL FACULTY RETREAT ASSESSMENT
STUDENT EVALUATION OF INSTRUCTOR/COURSE
CO-OP ASSESSMENT
SENIOR EXIT SURVEY
COURSE PORTFOLIOS
CONSTITUENCY NEEDS
EAB SURVEY ASSESSMENT
ALUMNI SURVEY ASSESSMENT
ANNUAL FACULTY RETREAT ASSESSMENT
EMPLOYER SURVEY ASSESSMENT
WASC ASSESSMENT
ABET ASSESSMENT
PROGRAM OUTCOMES EVALUATION PROCESS
M.E. FACULTY
PROGRAM EDUCATIONAL OBJECTIVES EVALUATION PROCESS
STUDENTS
PROGRAM EDUCATIONAL OBJECTIVES
PROGRAM OUTCOMES

Figure 1

ME Program Educational Objectives (PEO's)

Mechanical engineering graduates of the California Maritime Academy will:

A Be well educated professionals who utilize their intellectual learning, applied technology experience, leadership skills, and global awareness in successful careers; and continue to improve their skills through lifelong learning and advanced studies.

B Effectively practice as professional engineers, managers, and leaders in the maritime and energy industries and a wide variety of other fields; and as licensed engineers in the merchant marine.

C Successfully combine fundamental engineering knowledge, core leadership skills, and the practical experience gained at the Academy to turn ideas into reality for the benefit of society.

D Be influential members of multidisciplinary teams; creatively and effectively contributing to the design, development, and objective evaluation of engineering components, systems, and products; and clearly communicating the work in an appropriate manner to their customers and colleagues.

E Personally assume and actively encourage peers to uphold the professional, ethical, social, and environmental responsibilities of their profession.

ME Program Outcomes (PO's)

The program outcomes (PO) that are in place are published in the official school catalog and school web site. They are communicated to the students in course syllabi and are communicated to entering ME students in ENG 110, Introduction to Engineering and Technology. They are communicated to the alumni, employers, and EAB in various forms such as surveys to solicit feedback for the department. The PO are reviewed using a similar process to the PEO to ensure that they remain in alignment with the institution and the constituents.

The current ME Program Educational Objectives (PEOs), revised in October 2009 using this process are listed below. They are published in the official school catalog as well as the school web site: www.csum.edu.

Graduates of our program will have:

1. an ability to apply knowledge of mathematics, science, and engineering
2. an ability to design and conduct experiments, as well as to analyze and interpret data
3. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economics, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
4. an ability to function on multi-disciplinary teams
5. an ability to identify, formulate, and solve engineering problems

6. an understanding of professional and ethical responsibility
7. an ability to communicate effectively
8. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
9. a recognition of the need for, and an ability to engage in life-long learning
10. a knowledge of contemporary issues
11. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
12. an ability to apply principle of engineering, basic science, and mathematics (including multivariate calculus and differential equations) to model, analyze, design, and realize physical systems, components or processes
13. ability to work professionally in both thermal and mechanical systems areas
14. an ability to apply the "hands-on" knowledge to solve/understand engineering design problems/systems
15. an ability to demonstrate leadership roles
16. an ability to comprehend and convey technical information.

The program objectives and program outcomes are related as shown in Table 1.

Table 1: Program Educational Objectives vs. Program Outcomes Grid

Program Educational Objectives Mechanical engineering graduates of the California Maritime Academy will:	**Program Outcomes**															
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
A) Be well educated professionals who utilize their intellectual learning, applied technology experience, leadership skills, and global awareness in successful careers; and continue to improve their skills through lifelong learning and advanced studies.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
B) Effectively practice as professional engineers, managers, and leaders in the maritime and energy industries and a wide variety of other fields; and as licensed engineers in the merchant marine.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
C) Successfully combine fundamental engineering knowledge, core leadership skills, and the practical experience gained at the Academy to turn ideas into reality for the benefit of society.	X	X	X		X						X	X	X	X	X	
D) Be influential members of multidisciplinary teams; creatively and effectively contributing to the design, development, and objective evaluation of engineering components, systems, and products; and clearly communicating the work in an appropriate manner to their customers and colleagues.				X			X		X	X				X	X	X
E) Personally assume and actively encourage peers to uphold the professional, ethical, social, and environmental responsibilities of their profession.				X		X	X	X	X	X						

Weakness 3 Due-Process Response and Results

The ABET Final Statement contained the following description of Weakness 3:

"Criterion 5. Curriculum This criterion requires a general education component that complements the technical content of the curriculum and is consistent with the program and institution objectives. Examination of the curriculum indicates a much lower number of general education courses than are required by the CSU system or by other curricula at the CMA indicating a potential inconsistency with at least the institutional objectives. Students tend to rate general education related outcomes (ABET 3f, 3h, 3j) at a lower priority than the technically related outcomes. Further, a number of alumni and employers also note lower performance in the areas".

This section of the report will describe the process by which modifications to the curriculum were identified and made to address this weakness, and how the effect of these modifications will be assessed.

The program outcomes section of this report lists the 16 Program outcomes for the ME program. It can be seen that program outcomes 6, 8, and 10 correspond to ABET outcomes 3f, 3h, and 3j cited in the weakness. These program outcomes are linked to Program Educational Objective A, which is, in turn, linked to the mission of the department and the academy and to the institutional learning outcomes

Assessment of PO's 6, 8, 10

The program assessment process measures the achievement of PO's by linking them to specific course outcomes. The assessment and evaluation processes for achieving course and program outcomes include indirect tools such as midterm student evaluations, student evaluations of instructor and course, and the instructor class assessments (all part of course portfolios). The direct measurements include samples of student work (such as assignments, quizzes, exams, research reports, and/or project designs, co-op report assessments) in a given course that measure a specific course outcome through a performance criterion using a rubric. In addition, program outcomes themselves are assessed through the senior project design I&II surveys, the senior exit survey, the alumni survey, and the employer survey.

The weakness states "*Students tend to rate general education related outcomes (ABET 3f, 3h, 3j) at a lower priority than the technically related outcomes. Further, a number of alumni and employers also note lower performance in the areas.*

A review of the assessment data identified the following data supporting the evaluation of weakness:

1. The alumni survey (see Assessment System manual) asked the alumni to rate 14 items, on a scale of 1 to 5, with respect to the overall preparation that they received. (1 = not prepared, 2 = somewhat prepared, 3 = prepared, 4 = very prepared 5 = extremely prepared). Figure 2.3 of the 2008 Self-Study report shows the result. All items fell within a range of 3.5 to 4.2, with the exception of item 4 (Have/apply global awareness skills), which shows a score of 2.4.

2. The alumni survey also asked about the achievement of program outcomes. The PO assessment section includes two parts. First the alumni were asked to rate the importance of each PO in their employment. (1 = not important, 2 = somewhat important, 3 = important, 4 = very important, 5 = extremely important.) The results are shown in Figures. 3.9 a, b, and c of the 2008 Self-Study report. The following were observed

   PO 8 (*The broad education necessary to understand the impact of engineering solutions in a global and societal context*), and PO 10 (*A knowledge of contemporary issues*), were rated 3.4, 3.4 respectively, lower than most others.

   Secondly, the alumni were asked to rate how well their education prepared them in each outcome. (1 = not prepared, 2 = somewhat prepared, 3 = prepared, 4 = very prepared, 5 = extremely prepared.) The results are shown in Figs. 3.10 a, b, c. The following are noted:

   The only outcome rated below 3 was PO 10: *A knowledge of contemporary issues*. It was rated 2.8.

   The following outcomes were rated in between 3.1 to 3.5:

   PO 7: *An ability to communicate effectively*

   PO 8: *The broad education necessary to understand the impact of engineering solutions in a global and societal context*

3. In the senior exit survey, assessment of program outcomes section, graduating students were asked to rate how satisfied they were with respect to the education that they received for each program outcome (same scale as above). The results are shown in Figures 3.6 a, b, c, and d of the 2008 Self-Study report for the 18 POs. (note that the program outcomes were modified in 2009 and reduced to 16 in number. However, program outcomes 6, 8 and 10 remained unchanged). The following marginal ratings, between 2 (somewhat satisfied) and 3 (satisfied) are observed:

   PO 8: *The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and social context.* 2003 and 2004 seniors rated this outcome as 2.6 and 2.7, respectively.

   PO 10: *A knowledge of contemporary issues.* 2003 and 2004 seniors rated this outcome as 2.1 and 2.6, respectively.

Comparison of General Education Courses for Mechanical Engineering and other majors at the institution

The weakness also states "*Examination of the curriculum indicates a much lower number of general education courses than are required by the CSU system or by other curricula at the CMA indicating a potential inconsistency with at least the institutional objectives."*

Table 2 shows a comparison of the General Education requirements of the Mechanical Engineering Program to those of related majors at the institution (Engineering Technology and Business Administration.) It should be noted that Engineering Communication is not taught by the mechanical engineering faculty, but by a communication instructor from the Culture and Communication Group. It is a speech/communication course that uses engineering topics as a platform for teaching oral and written communication skills (the business department does something similar with its Business Communications class). Also, the business program does not require social science electives (since economics courses are in the major), but does require science electives.

While there is much commonality among the majors, it can be seen that the required general education component is indeed lighter in mechanical engineering than in the other majors. It is fair to ask whether institutional objectives are being sufficiently met.

Table 2: General Education requirements for some majors at CMA

Mechanical Engineering	Marine Engineering Technology	Facility Engineering Technology	Business Administration
American Institutions Elective (History)	American Institutions Elective (History)	American Institutions Elective (History)	American Institutions Elective (History)
American Institutions Elective (Government)	American Institutions Elective (Government)	American Institutions Elective (Government)	American Institutions Elective (Government)
English Composition	English Composition	English Composition	English Composition
Critical Thinking Elective	Critical Thinking Elective	Critical Thinking Elective	Critical Thinking Elective
Engineering Communication	Speech Communication	Speech Communication	Business Communication
Advanced Writing	Advanced Writing	Advanced Writing	Advanced Writing
Humanities Elective (Lower Division)	Humanities Elective (Lower Division)	Humanities Elective (Lower Division)	Foreign Language Elective (2 semesters)
	Humanities Elective (Upper Division)	Humanities Elective (Upper Division)	Humanities Elective (Upper Division)
	Social Science Elective	Social Science Elective	Life Science and Physical Science Electives
Engineering Ethics	Engineering Ethics	Engineering Ethics	Business Ethics

Course of Action Identified

The ME faculty met shortly after receiving the draft statement from ABET to discuss a course of action. This was done for all of the weaknesses identified, but this section of the report will be restricted to discussing the above weakness.

The department agreed that it would seek the advice of the Culture and Communication Group on how to proceed. Their recommendation was to add two general education courses to the curriculum, a humanities elective and a social science elective, to bring the ME program into

parity with the engineering technology programs. The ME faculty accepted this recommendation, and examined how to modify the curriculum to allow this.

In defining the changes to the curriculum, the faculty notes that the modifications were done using the best judgment of the faculty. Ongoing assessment of how well program objectives and outcomes are being met will allow us to ascertain the efficacy of the modifications and whether further modifications are needed.

Curriculum Changes

In adding the general education courses, it was not realistic that additional units could be added to an already heavy course load. Accordingly, other curriculum modifications were needed to allow these courses to be added. Two distinct curriculum modifications were recommended by the ME faculty. After review, these modifications received the approval of the Culture and Communications group, other departments, and was then reviewed and approved by the institution's Curriculum Committee.

Modification 1 A social science elective was added to the fall semester of the senior year. The choice of electives that satisfy this requirement include courses in economics, political science, history, law, sociology and psychology.

To allow room for this course, the required course in engineering management (ENG 470) was dropped. The reason for this decision is not that the management course outcomes were not important to the program outcomes and objectives – they certainly are. However, when our capstone design project sequence was modified several years ago, a course title "Engineering Design Process" was added to the junior year curriculum. This class has many of the same topics and course outcomes as Engineering Management, and we believe that all of the learning outcomes of the management class can be met with some modifications to the Engineering Design Process class. We recognize that this assumption must be evaluated through future assessment of the course and the program.

Modification 2 An upper division humanities elective was added to the spring semester of the senior year. The choice of electives that satisfy this requirement include courses in literature, art, and other cultural topics

To allow room for this course, the requirement to take Refrigeration and Air Conditioning (ME 342) was dropped. The refrigeration course has been made an elective within the energy stem. The ME faculty do not see this having a significant effect on the program. We could not identify any comparable mechanical engineering program that required a course dedicated to the topic of refrigeration. In most ME programs, the topic is typically included in a thermodynamics course, with more in-depth coverage in an elective. At CMA, the topic is also initially covered in the thermodynamics class here at CMA, and the thermodynamics class is a prerequisite for the

refrigeration class. Making the refrigeration class an elective has been discussed for some time within the department.

These curriculum changes were presented at the Fall 2009 and April 2010 meetings of the External Advisory Board, which gave a general support for the changes. The changes also required approval by the curriculum committee of the institution, and this approval process was completed in the 2009-2010 academic year.

The 2010-2011 senior class will be the first to experience the changes. Assessment of course outcomes, program outcomes and program objectives in the next few years will allow us to judge whether these changes have had the desired effect, or whether some different or additional curriculum modifications might be needed.

Summary

In response to the identified weakness in Criterion 5 by the ABET visiting team, the mechanical engineering program at the California Maritime Academy has modified its curriculum to strengthen its general education component. In so doing, the intention is to improve how well the program meets its program outcomes (6, 8 and 10) and program objective (A) addressed by the general education component. The success of these changes will be assessed over the next few years to determine whether the achievement of our program objectives show improvement, and whether additional modifications might be needed.

Weakness 2 Due-Process Response and Results

The ABET EAC Final Statement dated August 12, 2009 contained the following descriptions of Weakness 2:

"Criterion 3. Program Outcomes This criterion requires an assessment and evaluation process that periodically documents and demonstrates the degree to which the program outcomes are attained. The program has an assessment process that uses course portfolios, instructor surveys, and student evaluations as data to demonstrate achievement of program outcomes. The resulting data appear to be qualitative in nature and the processes for evaluating this data are not well developed, lacking uniformity and consistency. The process for the demonstration of the degree to which outcomes are attained does not appear to be formal or standardized".

As previously mentioned, the ME Assessment System in place at the time of the 2008 ABET visit, along with its Program Educational Objectives (PEO) processes and Program Outcomes (PO) assessment processes, was finalized during the department's spring 2001 retreat. These were presented in the 2002 ABET Self-Study report, and the subsequent visit and evaluation did not cite any weaknesses or concerns with the process.

No subsequent changes were made to our process between 2002 and 2008. Thus, our assessment processes did not evolve as ABET criteria evolved. Largely as a result of this, the 2008 ABET program review identified this weakness. In response to this, the ME department has revised its assessment system to better meet the ABET criteria and resolve the issues raised by ABET.

Our first step in addressing this weakness was to revise the ME program assessment system. Work on the revision was started right after the ABET fall 2008 visit in which the program outcome weakness and continuous improvement concern were raised by the visiting team. Our revised assessment system was finalized in the fall of 2009. Three major modifications were made to our system:

Modification 1 The existing qualitative (survey-based) assessment system for PO was reviewed to ensure that all faculty were performing consistent assessment of program outcomes. The qualitative tools were not changed, but the manner in which the data were analyzed was revised. Rather than simply reporting the average assessment values (using a 1 to 5 scale), the data were evaluated to determine the standard deviation of the responses and the percentage of responses that indicated a satisfactory (3 or greater) assessment of the outcome. In addition, a consistent, objective criterion was defined for determining whether a program outcome could be considered to be satisfactorily achieved.

Modification 2 A rubric-based, quantitative assessment system was defined to directly assess course outcomes using student work. All course outcomes were mapped to the program outcomes, which were mapped to the program objectives. Thus, quantitative assessment of course outcomes would allow quantitative assessment of program outcomes, using multiple

sources. As with the qualitative assessments, a consistent, objective criterion was defined for determining whether a program outcome could be considered to be satisfactorily achieved.

Modification 3 An assessment system manual was prepared with input from the entire faculty to formalize our process and ensure consistency in assessment by the faculty. The manual contains example syllabi, rubrics, and assessment practices, as well as a timeline for assessment and review of the program objectives and outcomes. It also defines the consistent, objective criteria for determining whether a program outcome is being satisfactorily achieved.

The revised ME assessment system is described in detail in the Assessment System manual accompanying this report. Please refer to it for detailed descriptions and examples of processes and tools

Process for Assessing Program Outcomes

The revised assessment process for Program Outcomes has the following steps.

Step 1 Indirect data on PO are obtained from our constituencies. The data used for assessing achievement of PO include indirect tools such as the midterm student evaluations (MSE), the student evaluations of instructor and course(SEI/C), the instructor class assessments (ICA), senior project design I&II assessments, the senior exit surveys, co-op assessments, and the alumni surveys. These indirect tools were not changed, but their evaluation was made more quantifiable and standardized. All surveys and evaluations used rated achievement on a 1 to 5 scale. The department considers that data from an indirect assessment tool supports the conclusion that a program outcome is being satisfactorily met under the following criterion:

- The average assessment value is at least 3 (on a 1 to 5 scale)
- At least 70% of the responses have a value of 3 or better.

Some further detail on the indirect tools will now be presented.

Senior Project Design I Survey This survey is conducted during the fall semester senior year capstone design project presentations. The ME and other participating faculty members evaluate the projects as well as the presentations using the survey form and the presentation rubric shown in the Appendix B of the Assessment System manual. For the eight project groups for the 2009-10 academic year whose project groups are listed below, the results of the survey for fall 2009 are tabulated in Table 2 for all projects. The scale on the survey is from 1 to 5 where:

1=unsatisfactory, 2=marginal, 3=average, 4=good, 5=excellent

Project Titles

1) All-Terrain Vehicle (ATV)
2) Hovercraft (H)
3) Spectrebot (GPS Guided Vehicle) (S)
4) Reciprocating Steam Engine (RSE)
5) Towed Passenger Hydrofoil (TPH)
6) Solar Powered Refrigerator (SPR)
7) Wind Turbine (WT)
8) Solar Powered Steam Generator (SPSG)

The numbers show the degree to which our students met their PO from ME and other faculty perspectives. The numerical values in the table show the mean values as well as the percent of the responses equal or greater than 3. The mean values, for all the outcomes, seem to fall mostly between 3 and 4. The percent values for the most part show 100% with few cases falling between 75%-80% range.

Based upon our criteria, we would conclude that these data support the conclusion that the program outcomes addressed by this course are being satisfactorily met. Note that only the applicable outcomes are shown in Table 3.

Course	PO1		PO2		PO3		PO4		PO5		PO7		PO11		PO12		PO13		PO14		PO15		PO16	
	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3
ATV	3.50	100%	3.00	100%	3.50	100%	3.42	100%	3.33	83%	3.58	100%	3.33	83%	3.20	80%	3.58	100%	3.40	100%	3.63	100%	3.50	100%
H	3.70	100%	3.50	100%	3.60	100%	3.75	100%	3.90	100%	3.80	100%	4.20	100%	3.80	100%	3.40	100%	3.70	100%	3.75	100%	3.50	100%
RSE	3.30	100%	3.17	100%	3.40	100%	3.50	100%	3.50	100%	3.70	100%	3.30	100%	3.40	100%	3.80	100%	3.70	100%	3.75	100%	3.40	100%
S	3.38	75%	3.50	100%	3.13	75%	3.50	100%	3.25	100%	3.13	75%	3.63	100%	3.50	100%	3.67	100%	3.25	100%	3.67	100%	3.25	100%
SPR	3.40	100%	3.63	100%	3.40	100%	3.50	100%	3.40	100%	3.60	100%	3.00	80%	3.00	80%	3.40	100%	3.20	80%	3.25	100%	3.20	100%
SPSG	4.08	100%	3.50	100%	4.00	100%	3.80	100%	4.00	100%	3.50	100%	3.92	100%	3.83	100%	4.08	100%	3.50	100%	3.50	100%	3.75	100%
TPH	3.38	100%	3.25	100%	3.50	100%	3.83	100%	3.50	100%	3.25	75%	3.50	100%	3.13	100%	3.50	100%	3.88	100%	3.67	100%	3.50	100%
WT	3.70	100%	3.75	100%	3.50	100%	3.70	100%	3.50	100%	4.10	100%	3.90	100%	3.60	100%	4.13	100%	3.75	100%	4.00	100%	3.88	100%
Number meeting:	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Percent meeting:	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 3: Project Design I survey results

Senior Project Design II Survey This survey is conducted during the spring semester senior year capstone design project presentations. The ME and other participating faculty members, as well as interested EAB members, (Spring EAB meeting and the project presentations are planned and scheduled on the same day for EAB member participation in the event) evaluate the projects as well as the presentations using the survey form and the presentation rubric shown in the Appendix B of the Assessment System manual. The results of the survey for spring 2010 for the same projects as listed above are tabulated in Table 4. The projects received excellent evaluations from our EAB members both in terms of written comments as well as the evaluations and observations that they made during the poster session presentation in which the student groups displayed and demonstrated their projects to the campus community.

The numbers show the degree to which our students met their PO in the Project Design Course from ME, other faculty, and EAB member perspectives. The mean values, for all the outcomes, seem to fall mostly between 3 and 4.5. The percent values for the most part show 100% with few cases falling between 75%-88% range.

The survey, therefore, supports that our students meet their Program Outcomes for the course as listed on the survey.

Course	PO1		PO2		PO3		PO4		PO5		PO6		PO7		PO9		PO11		PO13		PO14		PO15		PO16	
	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3
ATV	3.833	100%	3.778	89%	3.833	100%	4.188	100%	3.833	100%	3.286	100%	4.111	100%	3.917	100%	4	100%	3.556	100%	4	100%	3.75	100%	3.833	100%
H	3.722	100%	3.813	100%	4.056	100%	4.438	100%	3.944	100%	3.357	71%	3.944	100%	3.667	100%	4	100%	3.688	100%	4.333	100%	3.944	100%	3.722	100%
RSE	3.625	100%	3.563	100%	3.563	100%	3.714	100%	3.563	100%	3.583	100%	3.688	100%	3.571	100%	3.429	100%	3.563	100%	3.688	88%	3.429	86%	3.625	100%
S	3.778	100%	4.056	100%	4.278	100%	4.222	100%	3.944	100%	3.5	100%	3.611	89%	3.429	100%	4.333	100%	3.75	100%	4.444	100%	3.813	100%	4.056	100%
SPR	3.875	100%	4.25	100%	4.25	100%	4.143	100%	3.875	100%	3.643	100%	4.125	100%	3.8	100%	3.857	86%	4.188	100%	4.188	100%	3.875	100%	4	100%
SPSG	4.375	100%	4.125	100%	4.125	100%	4.188	100%	4.25	100%	3.875	100%	4.25	100%	3.857	100%	5	100%	4.438	100%	4.5	100%	4	100%	4.375	100%
TPH	4.125	100%	4.25	100%	4.25	100%	4	100%	4.438	100%	3.938	100%	4.438	100%	3.571	100%	4.125	100%	4	100%	4.25	100%	3.875	100%	4.25	100%
WT	3.938	100%	4.125	100%	3.688	75%	3.875	100%	3.875	88%	3.714	100%	4.25	100%	3.429	86%	3.875	88%	3.938	100%	4.063	88%	4.188	100%	4	100%
Number meeting:	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Percent meeting:	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 4: Project Design II survey results

Senior Exit Survey This survey is conducted at the end of the senior year from the graduating students. As part of the survey, students are asked to rate their satisfaction with respect to their PO achievements on a scale of 1 to 5 where:

1=unsatisfactory, 2= somewhat satisfied, 3=satisfied, 4=very satisfied, 5=extremely satisfied

This survey is shown in the Appendix B of the Assessment System manual. The results of this survey for spring of 2010 are shown in Table 5.

The numerical values in the table show the mean values as well as the percent of the responses equal or greater than 3. The mean values, for all the outcomes, seem to fall mostly between 3 and 4. The percent values for the most part show a range of 75% to 90%. Program Outcome 8 shows a mean of 3 and percent value of 60%, the lowest in both categories versus other outcomes. This suggests that this is an item that requires further evaluation by the faculty.

Course	PO1		PO2		PO3		PO4		PO5		PO6		PO7		PO8		PO9		PO10		PO11		PO12		PO13		PO14		PO15		PO16	
	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3
Senior exit survey	3.9	90%	3.9	90%	3.75	75%	3.7	0.9	3.95	100%	3.55	100%	3.8	85%	3	60%	3.6	85%	3.2	75%	3.75	90%	3.6	85%	3.5	75%	3.9	90%	3.5	85%	3.75	90%

Table 5: Senior Exit survey results

Student Evaluation of the Instructor/Course (SEI/C) This survey is conducted at the end of the semester for each course so students can evaluate the instructor, the course, and achievement of the course outcomes. The survey is shown in Appendix B of the Assessment System manual. The course ABET syllabus contains information on the course outcomes that are linked to the program outcomes for that course. For each course outcome performance criteria are defined to

measure that outcome. On the SEI/C surveys, students are asked directly to rate the degree to which they meet the performance criteria on a scale of 1 to 5 where:

1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree

The data on the course outcome achievements are then used to assess the PO achievements for that course. This process is based on the link between the course and program outcomes as shown on the course syllabus. The resulting data from this evaluation is shown in Table 6for spring 2010.

Course	Year	Stem	PO1		PO2		PO3		PO4		PO5		PO6		PO7		PO8		PO9		PO10		PO11		PO12		PO13		PO14		PO15		PO16	
			Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3
ME 240	2	Energy	4.54	96%							4.54	96%																						
ME 340	3	Energy																																
ME 342	3	Energy	4.412	100%							4.353	100%	3.706	82%													3.824	82%					4.059	100%
ME344	3	Energy	4.118	96%							4.118	96%													4.071	100%								
ME 440	3	Energy	4.4	100%			4.4	100%			4.4	100%															4.4	100%						
ME 349	4	Energy																																
ME 394	4	Energy																																
ENG 440	4	Energy																																
ME 442	4	Energy																																
ME 444	4	Energy	4.65	100%			4.72	100%			4.62	100%			4.83	100%			4.83	100%							4.65	100%						
ME 230	2	Mech.																																
ME 232	2	Mech.																																
ME 330	2	Mech.	4.371	100%							4.321	100%													4.476	97%								
ME 332	2	Mech.	4.48	98%							4.48	98%																						
ME 339	3	Mech.	4.45	93%	4.39	93%					4.57	93%			4.57	93%							4.46	93%	4.57	93%	4.48	93%					4.45	93%
ME 392	3	Mech.																																
ME 434	3	Mech.	4.69	100%							4.69	100%							4.78	100%			4.67	100%	4.69	100%	4.69	100%						
ME 430	4	Mech.																																
ME 432	4	Mech.	4.38	100%							4.44	100%											4.75	100%	4.25	100%	4.54	100%						
ENG 250	2	Inst/Ctr	4.231	99%							4.214	99%											4.308	100%	4.214	99%								
ENG 250 L	2	Inst/Ctr																																
ME 350	3	Inst/Ctr																																
ME 350L	3	Inst/Ctr																																
ME 360	3	Inst/Ctr																																
ME 360L	3	Inst/Ctr																																
ME 460	3	Inst/Ctr	4.047	98%							4.047	98%													4.047	98%								
ME 460L	3	Inst/Ctr																																
ENG 110	1	Design																																
ENG 210	1	Design																																
ME 220	2	Design																																
ENG 300	3	Design																																
ME 490	3	Design					3.667	93%	3.667	0.867	3.533	73%															3.6	87%	3.8	93%				
ME 492	4	Design																																
ME 429	4	Design																																
ME 494	4	Design																																
Number meeting:			12	12	1	1	3	3	1	1	13	13	1	1	2	2	0	0	2	2	0	0	4	4	7	7	7	7	1	1	0	0	2	2
Percent meeting:			100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			100%	100%			100%	100%	100%	100%	100%	100%	100%	100%			100%	100%

Table 6: SEI/C Survey results for program outcomes

Step 2 Direct data on PO are obtained through direct assessment of student work (such as homework, quizzes, exams, reports, and/or project designs). The process for evaluating the achievement of PO from this data has been completely revised. The process to assess whether the Program Outcomes are met begins with the Course Outcome assessments. For each course, the instructor assesses student work based upon a standard set of rubrics used by all instructors. Examples of these rubrics may be found in Appendix D of the Assessment Manual. Depending on the particular set of work, the instructor identifies the course outcome(s) that are associated with the work. From this rubric data, the instructor calculates the average value and standard deviation of the rubric scores for each course outcome, as well as the percentage of students that achieved a score of 3 (satisfactory performance) or better. Finally, the instructor maps the results from course outcomes to the Program Outcomes, once again using the linkage defined in the course syllabus. The data are then tabulated on the Instructor Class Assessment (ICA) survey for that course.

This process is explained in detail in the Assessment System manual. As an example, the Performance Criteria (PC) measurements for the ME 240 course (Engineering Thermodynamics) in the spring 2010 semester are shown in Table 7A. Note that the "PC" numbers are a course outcome associated with the PO. The particular course outcome (e.g. PC 1.1) is described in the syllabus for ME 240, which is included in the Assessment Manual in Appendix C. Table 6A also shows how each performance criterion is linked to the PO. This linkage is used to calculate the PO data for the course shown in Table 7B.

PC 1.1 PO1		PC 2.1 PO1, PO5		PC 2.2 PO1, PO5		PC 3.1 PO1, PO5	
Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3
4.56	96%	4.54	96%	4.54	96%	4.54	96%

Table 7A: ME 240 Performance Criteria results

PO 1		PO 5	
Ave	Percent > 3	Ave	Percent > 3
4.54	96%	4.54	96%

Table 7B: ME 240 Program Outcome results

Step 3 The quantitative assessment of all course outcomes associated with a particular program outcome (as described in the ABET syllabi for the courses) are calculated, and a table of overall program outcome data is created. The department considers that the direct data shows a program outcome to be satisfactorily met if there are *multiple* courses assessing that outcome and if *all* course outcomes associated with the program outcome satisfy *both* the following criterion:

- average assessment value of at least 3 (on a 1 to 5 scale)
- at least 70% of the students assessed achieve a 3 or better score.

For the direct data, the values of these criteria also shows breakdown of the courses by stem and year (Table 7C). This helps the faculty to trace a weakness or a trend in a given stem.

This process thus achieves the desired result of periodically documenting and demonstrating the degree to which the program outcomes are attained in a standardized, consistent manner.

Step 4 The ME faculty during the annual retreat meetings closely monitor, analyze, and discuss the achievement of PO's by considering the data from both direct and indirect tables. In Table 8 the values close to the threshold values are highlighted for monitoring and analysis. For example, the ME 444 course shows a percent value of 56% and a mean value of 3.06 for PO 3. This result marks this as a result that must undergo further analysis. Since this is the first data available, the course of action recommended was for the instructor for this course to look at the data in his course portfolio to see or observe if any unusual factor contributed to this data point and to discuss his observations at a department meeting.

It should also be noted that, while we have defined a threshold for satisfactory achievement, that does not imply that PO's that meet the threshold cannot also be improved. Rather, the threshold identifies the areas that demand further review, and which should have priority in the time and resources allocated to them. We recognize that, as a continuous improvement process, our goal is to methodically search for issues in the program and seek ways to improve it. Our ultimate goal is excellence in all aspects of the program.

The ME faculty are to review and discuss the PO results during the Annual Retreat Meeting and prepare a summary and recommendation document. The document prepared from the spring 2010 retreat is attached as Appendix A. Since the spring 2010 semester was the first for which this process was used, the conclusions and recommendations are somewhat tentative. As data from the fall semester and subsequent years accumulates, however, we expect that this process will prove to be more and more useful in defining how to improve our program. We also expect that experience with the process may well lead to revisions in the process itself future.

			PO1		PO2		PO3		PO4		PO5		PO6		PO7		PO8		PO9		PO10		PO11		PO12		PO13		PO14		PO15		PO16	
Course	Year	Stem	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3
ME 240	2	Energy	3.05	67%							3.11	72%																				
ME 340	3	Energy																														
ME 342	3	Energy	4	84%							4.1	85%	3.6	87%													4	84%			3.7	81%
ME344	3	Energy	4.01	89%							4.01	89%													4.044	80%						
ME 440	3	Energy	3.34	89%			3.125	67%			3.34	89%															3.5	76%				
ME 349	4	Energy																														
ME 394	4	Energy																														
ENG 440	4	Energy																														
ME 442	4	Energy																														
ME 444	4	Energy	3.64	83%			3.06	56%			3.64	83%			3.37	83%			3.37	83%							3.64	83%				
ME 230	2	Mech.																														
ME 232	2	Mech.																														
ME 330	2	Mech.	4.181	90%							4.131	88%													4.397	92%						
ME 332	2	Mech.	3.36	77%							3.36	77%																				
ME 339	3	Mech.	3.68	85%	3.68	84%					3.68	87%			4.03	90%							3.66	88%	3.68	87%	3.77	86%			3.8	86%
ME 392	3	Mech.	4.006	95%			3.889	100%			3.455	94%													4	96%	3.889	100%				
ME 434	3	Mech.	3.98	84%							3.98	84%							3.56	78%			3.6	66%	3.98	84%	3.9	79%				
ME 430	4	Mech.																														
ME 432	4	Mech.	3.752	86%							4.005	92%											4.856	100%	3.861	88%	4.833	100%				
ENG 250	2	Inst/Ctr	3.333	70%							3.231	69%											4.203	81%	3.231	69%						
ENG 250 L	2	Inst/Ctr																														
ME 350	3	Inst/Ctr																														
ME 350L	3	Inst/Ctr																														
ME 360	3	Inst/Ctr																														
ME 360L	3	Inst/Ctr																														
ME 460	3	Inst/Ctr	3.839	84%							3.839	84%													3.839	84%						
ME 460L	3	Inst/Ctr			4.58	99%																			4.58	99%						
ENG 110	1	Design																														
ENG 210	1	Design																														
ME 220	2	Design																														
ENG 300	3	Design																														
ME 490	3	Design					4	91%	3.8	70%	4.3	90%			4.167	98%															3.3	100%
ME 492	4	Design																														
ME 429	4	Design																														
ME 494	4	Design					3.437	100%	3.81	100%					3.881	100%							3.437	100%			3.437	100%	3.667	100%	4.111	100%		
Number meeting:			13	12	2	2	5	3	2	2	14	13	1	1	4	4	0	0	2	2	0	0	5	4	9	8	8	8	1	1	1	1	3	3
Percent meeting:			100%	92%	100%	100%	100%	60%	100%	100%	100%	93%	100%	100%	100%	100%			100%	100%			100%	80%	100%	89%	100%	100%	100%	100%	100%	100%	100%	100%

Table 8: Rubric-based results for program outcomes

Concern 1 Due-Process Response and Results

"Criterion 4. Continuous Improvement This criterion requires evidence of actions to improve the program based on available information such as results from criteria 2 and 3 processes. The program has an assessment process in place, however, documented program and curriculum changes appear to be primarily faculty driven, without a clear link to other available information including Criteria 2 and 3 assessment processes. A consistent lack of clear documentation that improvements are driven by decisions resulting from available information could jeopardize continued compliance with this Criterion".

We acknowledge and agree with the evaluator's concern that curricular changes and program improvements should be driven based on information derived through evaluation and assessment processes and not necessarily through faculty alone. We believe that this concern is closely related to the weakness in our assessment process, and arose from the fact that our program's processes did not sufficiently evolve in the period since the last ABET evaluation.

We believe that the process described in the previous section will provide us with a means to tie our program improvements to the assessment process in a more meaningful way and support future curriculum changes with quantifiable results, rather than just the faculty's sense of what is needed.

In summary we believe that we have devised, developed, and implemented an assessment system that measures our Program Educational Objectives and Program Outcomes through processes that will ensure program quality, and will drive future curricular changes for quality improvements.

Appendix A

Annual Program Outcome Assessment Recommendations

June 2010 Retreat

Annual Program Outcome Assessment Recommendations

June 2010 Retreat

The department met on June 7, 2010 to assess program outcomes using the quantitative assessment results from the Instructor Course Assessment (ICA) surveys , and the qualitative assessment results from indirect (Project Design I, Project Design II, Senior Exit , and Student Evaluation of Instructor/Course) surveys. For each outcome an evaluation of the degree to which each outcome was satisfied was determined. For those outcomes with questionable results, recommendations were proposed to improve program outcome determination in order to strengthen the achievement of the individual course outcomes as well as the program outcomes as a whole.

Program Outcome 1: an ability to apply knowledge of mathematics, science, and engineering

According to the instructor course assessments (Table 5), course outcomes associated with PO 1 were assessed in 13 courses, with all meeting a satisfactory level (mean of 3.0 or greater). Twelve courses met our threshold of 70% achieving a score of 3 or better.

Tables 1-4 (indirect survey results)also strongly support our conclusion that we are achieving this outcome.

Faculty Recommendation: no further action is required at this time.

Program Outcome 2: an ability to design and conduct experiments, as well as to analyze and interpret data

According to the instructor course assessments (Table 5), course outcomes associated with PO 2 were assessed in 3 courses during the spring semester. All courses met our thresholds satisfactorily. Four more courses will be evaluated in the future when fall courses are included in our assessment process.

Tables 1-4 indicate that we are achieving this outcome.

Faculty Recommendation: No action required, pending the evaluation of this outcome for the fall semester.

Program Outcome 3: an ability to design a system, component, or process to meet desired needs within realistic constraints such as economics, environmental, social, political, ethical, health and safety, manufacturability, and sustainability

According to the instructor course assessments (Table 5), course outcomes associated with PO 3 were assessed in 5 courses. Only 3 met our threshold for percent above 3.0, but all met the threshold for

average score. ME 444 (Energy Systems Design) had the lowest score with 56% of students achieving the outcome. The two capstone design sequence courses (ME 490 and ME 494) scored highly. Four more courses will be evaluated in the future when fall courses are included in our assessment process.

Tables 1-4 (which include results from the capstone design projects) indicate that we are achieving this outcome.

Faculty Recommendation: The program outcome as a whole looks to be met at this time, however the instructor of ME 444 will follow up in more detail the next time the course is offered to see if any trends can be identified. More student projects in this course will be assessed to measure this outcome.

Program Outcome 4: an ability to function on multi-disciplinary teams

According to the instructor course assessments (Table 5), course outcomes associated with PO 4 were assessed in 2 courses during the spring semester. Both courses met our thresholds satisfactorily. Two more courses will be evaluated in the future when fall courses are included in our assessment process.

Tables 1-4 indicate that we are achieving this outcome.

Faculty Recommendation: The faculty will investigate other opportunities to evaluate this outcome in the program.

Program Outcome 5: an ability to identify, formulate, and solve engineering problems

This outcome is very similar to PO 1, as the results show. According to the instructor course assessments (Table 5), course outcomes associated with PO 5 were assessed in 14 courses, with all meeting a satisfactory level (mean of 3.0 or greater). Thirteen courses met our threshold of 70% achieving a score of 3 or better.

Tables 1-4 also strongly support our conclusion that we are achieving this outcome.

Faculty Recommendation: no further action is required at this time.

Program Outcome 6: an understanding of professional and ethical responsibility

This outcome is strongly addressed in only a few courses. According to the instructor course assessments (Table 5), course outcomes associated with PO 6 were assessed in 1 course during the spring semester, which was satisfactory. During the capstone project presentations, members of the External Advisory Board posed questions regarding environmental issues not presented by the students

Tables 2-4 indicate that we are achieving this outcome.

Faculty Recommendation: The faculty will include safety and environmental issues in the project design courses, and include these courses in our assessment process. The department will request direct assessment results from the engineering ethics class. The faculty will investigate other opportunities to evaluate this outcome in the program, including the design process sequence, the leadership program and the FE exam.

Program Outcome 7: an ability to communicate effectively

According to the instructor course assessments (Table 5), course outcomes associated with PO 7 were assessed in 4 courses, with all meeting a satisfactory level (mean of 3.0 or greater and 70% achieving a score of 3 or better). Additional courses will be assessed in the fall. This program outcome is strongly associated with general education courses, many of which are not being directly assessed at this time.

Tables 1-4 also support our conclusion that we are achieving this outcome.

Faculty Recommendation: The faculty will encourage our supporting departments to assess general education courses.

Program Outcome 8: the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

Only Table 3 provides data to assess PO 8, and its results indicate a weakness regarding this outcome. This program outcome is strongly associated with general education, which was identified as a weakness in the recent ABET visit. Two additional general education courses have been added to the curriculum to address this weakness.

Faculty Recommendation: The faculty will identify methods to assess the curriculum changes and this outcome, including assisting our supporting departments' assessment of general education courses.

Program Outcome 9: a recognition of the need for, and an ability to engage in life-long learning

According to the instructor course assessments (Table 5), course outcomes associated with PO 9 were assessed in 2 courses during the spring semester. Both courses met our thresholds satisfactorily. In discussion, the faculty felt that this outcome can be associated with more courses. For example, the capstone projects typically include topics that the students must learn on their own.

Tables 2-4 indicate that we are achieving this outcome.

Faculty Recommendation: Identify more courses that could address and assess this outcome, such as project design. Develop a rubric for the faculty project advisors to assess capstone projects.

Program Outcome 10: a knowledge of contemporary issues

Only Table 3 provides data to assess PO 10, and its results indicate this outcome is acceptable. This program outcome is strongly associated with general education, which was identified as a weakness in the recent ABET visit. Two additional general education courses have been added to the curriculum to address this weakness. This outcome can also be associated with contemporary technical issues, and our department feels it is somewhat ambiguous.

Faculty Recommendation: Further elaborate on the wording of this outcome to distinguish between technical contemporary issues and social contemporary issues. Identify methods to assess the effect of curriculum changes on this outcome, including assisting our supporting departments' assessment of general education courses.

Program Outcome 11: an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

According to the instructor course assessments (Table 5), course outcomes associated with PO 11 were assessed in 4 courses, with all meeting a satisfactory level (mean of 3.0 or greater). Three courses met our threshold of 70% achieving a score of 3 or better. The below-average results for ME 434 can be partially attributed to networking issues with CAD software impeding student projects.

Tables 1-4 also strongly support our conclusion that we are achieving this outcome.

Faculty Recommendation: The program outcome as a whole looks to be met at this time, however the instructor of ME 434 will follow up in more detail the next time the course is offered to see if any trends can be identified.

Program Outcome 12: an ability to apply principle of engineering, basic science, and mathematics (including multivariate calculus and differential equations) to model, analyze, design, and realize physical systems, components or processes

This outcome is very similar to PO 1 and 5, as the results show. According to the instructor course assessments (Table 5), course outcomes associated with PO 12 were assessed in 9 courses, with all meeting a satisfactory level (mean of 3.0 or greater). Eight courses met our threshold of 70% achieving a score of 3 or better.

Tables 1-4 also strongly support our conclusion that we are achieving this outcome.

Faculty Recommendation: no further action is required at this time.

Program Outcome 13: ability to work professionally in both thermal and mechanical systems areas.

According to the instructor course assessments (Table 5), course outcomes associated with PO 13 were assessed in 8 courses, with all meeting a satisfactory level (mean of 3.0 or greater and 70% achieving a score of 3 or better).

Tables 1-4 also strongly support our conclusion that we are achieving this outcome.

Faculty Recommendation: no further action is required at this time.

Program Outcome 14: an ability to apply the "hands-on" knowledge to solve/understand engineering design problems/systems

According to the instructor course assessments (Table 5), course outcomes associated with PO 14 were assessed in one course, which met our thresholds satisfactorily. An additional course will be evaluated in the future when fall courses are included in our assessment process.

Tables 1-4 strongly indicate that we are achieving this outcome.

Faculty Recommendation: Include ME 429 (Manufacturing Processes Lab) in future assessment.

Program Outcome 15: an ability to demonstrate leadership roles

According to the instructor course assessments (Table 5), course outcomes associated with PO 15 were assessed in one course, which met our thresholds satisfactorily. This outcome is measured in the co-op and employer surveys, with strong results shown in the 2008 Self-Study report.

Tables 1-3 strongly indicate that we are achieving this outcome.

Faculty Recommendation: Identify more student experiences and courses that could be used to assess this outcome. Include ME 492 (Project Design I) in future assessment.

Program Outcome 16: an ability to comprehend and convey technical information.

According to the instructor course assessments (Table 5), course outcomes associated with PO 16 were assessed in 3 courses, with all meeting a satisfactory level (mean of 3.0 or greater and 70% achieving a score of 3 or better).

Tables 1-4 also strongly support our conclusion that we are achieving this outcome.

Faculty Recommendation: Include ME 349 (Fluid/Thermal Lab) in future assessment.

Course	PO1		PO2		PO3		PO4		PO5		PO7		PO11		PO12		PO13		PO14		PO15		PO16	
	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3
ATV	3.50	100%	3.00	100%	3.50	100%	3.42	100%	3.33	83%	3.58	100%	3.33	83%	3.20	80%	3.58	100%	3.40	100%	3.63	100%	3.50	100%
H	3.70	100%	3.50	100%	3.60	100%	3.75	100%	3.90	100%	3.80	100%	4.20	100%	3.80	100%	3.40	100%	3.70	100%	3.75	100%	3.50	100%
RSE	3.30	100%	3.17	100%	3.40	100%	3.50	100%	3.50	100%	3.70	100%	3.30	100%	3.40	100%	3.80	100%	3.70	100%	3.75	100%	3.40	100%
S	3.38	75%	3.50	100%	3.13	75%	3.50	100%	3.25	100%	3.13	75%	3.63	100%	3.50	100%	3.67	100%	3.25	100%	3.67	100%	3.25	100%
SPR	3.40	100%	3.63	100%	3.40	100%	3.50	100%	3.40	100%	3.60	100%	3.00	80%	3.00	80%	3.40	100%	3.20	80%	3.25	100%	3.20	100%
SPSG	4.08	100%	3.50	100%	4.00	100%	3.80	100%	4.00	100%	3.50	100%	3.92	100%	3.83	100%	4.08	100%	3.50	100%	3.50	100%	3.75	100%
TPH	3.38	100%	3.25	100%	3.50	100%	3.83	100%	3.50	100%	3.25	75%	3.50	100%	3.13	100%	3.50	100%	3.88	100%	3.67	100%	3.50	100%
WT	3.70	100%	3.75	100%	3.50	100%	3.70	100%	3.50	100%	4.10	100%	3.90	100%	3.60	100%	4.13	100%	3.75	100%	4.00	100%	3.88	100%
Number meeting:	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Percent meeting:	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 1: Capstone Project I Assessment

Course	PO1		PO2		PO3		PO4		PO5		PO6		PO7		PO9		PO11		PO13		PO14		PO15		PO16	
	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3
ATV	3.833	100%	3.778	89%	3.833	100%	4.188	100%	3.833	100%	3.286	100%	4.111	100%	3.917	100%	4	100%	3.556	100%	4	100%	3.75	100%	3.833	100%
H	3.722	100%	3.813	100%	4.056	100%	4.438	100%	3.944	100%	3.357	71%	3.944	100%	3.667	100%	4	100%	3.688	100%	4.333	100%	3.944	100%	3.722	100%
RSE	3.625	100%	3.563	100%	3.563	100%	3.714	100%	3.563	100%	3.583	100%	3.688	100%	3.571	100%	3.429	100%	3.563	100%	3.688	88%	3.429	86%	3.625	100%
S	3.778	100%	4.056	100%	4.278	100%	4.222	100%	3.944	100%	3.5	100%	3.611	89%	3.429	100%	4.333	100%	3.75	100%	4.444	100%	3.813	100%	4.056	100%
SPR	3.875	100%	4.25	100%	4.25	100%	4.143	100%	3.875	100%	3.643	100%	4.125	100%	3.8	100%	3.857	86%	4.188	100%	4.188	100%	3.875	100%	4	100%
SPSG	4.375	100%	4.125	100%	4.125	100%	4.188	100%	4.25	100%	3.875	100%	4.25	100%	3.857	100%	5	100%	4.438	100%	4.5	100%	4	100%	4.375	100%
TPH	4.125	100%	4.25	100%	4.25	100%	4	100%	4.438	100%	3.938	100%	4.438	100%	3.571	100%	4.125	100%	4	100%	4.25	100%	3.875	100%	4.25	100%
WT	3.938	100%	4.125	100%	3.688	75%	3.875	100%	3.875	88%	3.714	100%	4.25	100%	3.429	86%	3.875	88%	3.938	100%	4.063	88%	4.188	100%	4	100%
Number meeting:	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Percent meeting:	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 2: Capstone Project II Assessment

Course	PO1		PO2		PO3		PO4		PO5		PO6		PO7		PO8		PO9		PO10		PO11		PO12		PO13		PO14		PO15		PO16	
	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3
Senior exit survey	3.9	90%	3.9	0.9	3.75	75%	3.7	0.9	3.95	100%	3.55	100%	3.8	85%	3	60%	3.6	85%	3.2	75%	3.75	90%	3.6	85%	3.5	75%	3.9	90%	3.5	85%	3.75	90%

Table 3: Senior Exit Survey Assessment

Course	Year	Stem	PO1		PO2		PO3		PO4		PO5		PO6		PO7		PO8		PO9		PO10		PO11		PO12		PO13		PO14		PO15		PO16	
			Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3
ME 240	2	Energy	4.54	96%							4.54	96%																						
ME 340	3	Energy																																
ME 342	3	Energy	4.412	100%							4.353	100%	3.706	82%													3.824	82%					4.059	100%
ME344	3	Energy	4.118	96%							4.118	96%													4.071	100%								
ME 440	3	Energy	4.4	100%			4.4	100%			4.4	100%															4.4	100%						
ME 349	4	Energy																																
ME 394	4	Energy																																
ENG 440	4	Energy																																
ME 442	4	Energy																																
ME 444	4	Energy	4.65	100%			4.72	100%			4.62	100%			4.83	100%			4.83	100%							4.65	100%						
ME 230	2	Mech.																																
ME 232	2	Mech.																																
ME 330	2	Mech.	4.371	100%							4.321	100%													4.476	97%								
ME 332	2	Mech.	4.48	98%							4.48	98%																						
ME 339	3	Mech.	4.45	93%	4.39	93%					4.57	93%			4.57	93%							4.46	93%	4.57	93%	4.48	93%					4.45	93%
ME 392	3	Mech.																																
ME 434	3	Mech.	4.69	100%							4.69	100%							4.78	100%			4.67	100%	4.69	100%	4.69	100%						
ME 430	4	Mech.																																
ME 432	4	Mech.	4.38	100%							4.44	100%											4.75	100%	4.25	100%	4.54	100%						
ENG 250	2	Inst/Ctr	4.231	99%							4.214	99%											4.308	100%	4.214	99%								
ENG 250 L	2	Inst/Ctr																																
ME 350	3	Inst/Ctr																																
ME 350L	3	Inst/Ctr																																
ME 360	3	Inst/Ctr																																
ME 360L	3	Inst/Ctr																																
ME 460	3	Inst/Ctr	4.047	98%							4.047	98%													4.047	98%								
ME 460L	3	Inst/Ctr																																
ENG 110	1	Design																																
ENG 210	1	Design																																
ME 220	2	Design																																
ENG 300	3	Design																																
ME 490	3	Design					3.667	93%	3.667	0.867	3.533	73%															3.6	87%	3.8	93%				
ME 492	4	Design																																
ME 429	4	Design																																
ME 494	4	Design																																
Number meeting:			12	12	1	1	3	3	1	1	13	13	1	1	2	2	0	0	2	2	0	0	4	4	7	7	7	7	1	1	0	0	2	2
Percent meeting:			100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			100%	100%			100%	100%	100%	100%	100%	100%	100%	100%			100%	100%

Table 4: Student Evaluation of Instructor/Course Assessment

			PO1		PO2		PO3		PO4		PO5		PO6		PO7		PO8		PO9		PO10		PO11		PO12		PO13		PO14		PO15		PO16	
Course	Year	Stem	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3
ME 240	2	Energy	3.05	67%							3.11	72%																				
ME 340	3	Energy																														
ME 342	3	Energy	4	84%							4.1	85%	3.6	87%													4	84%				3.7	81%
ME344	3	Energy	4.01	89%							4.01	89%													4.044	80%						
ME 440	3	Energy	3.34	89%			3.125	67%			3.34	89%															3.5	76%				
ME 349	4	Energy																														
ME 394	4	Energy																														
ENG 440	4	Energy																														
ME 442	4	Energy																														
ME 444	4	Energy	3.64	83%			3.06	56%			3.64	83%			3.37	83%			3.37	83%							3.64	83%				
ME 230	2	Mech.																														
ME 232	2	Mech.																														
ME 330	2	Mech.	4.181	90%							4.131	88%													4.397	92%						
ME 332	2	Mech.	3.36	77%							3.36	77%																				
ME 339	3	Mech.	3.68	85%	3.68	84%					3.68	87%			4.03	90%							3.66	88%	3.68	87%	3.77	86%			3.8	86%
ME 392	3	Mech.	4.006	95%			3.889	100%			3.455	94%													4	96%	3.889	100%				
ME 434	3	Mech.	3.98	84%							3.98	84%							3.56	78%			3.6	66%	3.98	84%	3.9	79%				
ME 430	4	Mech.																														
ME 432	4	Mech.	3.752	86%							4.005	92%											4.856	100%	3.861	88%	4.833	100%				
ENG 250	2	Inst/Ctr	3.333	70%							3.231	69%											4.203	81%	3.231	69%						
ENG 250 L	2	Inst/Ctr																														
ME 350	3	Inst/Ctr																														
ME 350L	3	Inst/Ctr																														
ME 360	3	Inst/Ctr																														
ME 360L	3	Inst/Ctr																														
ME 460	3	Inst/Ctr	3.839	84%							3.839	84%													3.839	84%						
ME 460L	3	Inst/Ctr			4.58	99%																			4.58	99%						
ENG 110	1	Design																														
ENG 210	1	Design																														
ME 220	2	Design																														
ENG 300	3	Design																														
ME 490	3	Design					4	91%	3.8	70%	4.3	90%			4.167	98%															3.3	100%
ME 492	4	Design																														
ME 429	4	Design																														
ME 494	4	Design					3.437	100%	3.81	100%					3.881	100%							3.437	100%			3.437	100%	3.667	100%	4.111	100%		
Number meeting:			13	12	2	2	5	3	2	2	14	13	1	1	4	4	0	0	2	2	0	0	5	4	9	8	8	8	1	1	1	1	3	3
Percent meeting:			100%	92%	100%	100%	100%	60%	100%	100%	100%	93%	100%	100%	100%	100%			100%	100%			100%	80%	100%	89%	100%	100%	100%	100%	100%	100%	100%	100%

Table 5: Rubric-Based Assessment

WORKSHEET 6
Participating Schools
2009-2010 CSU K-12, Community College and Community-Based Organization Student Academic Outreach Programs

Californa Maritime Academy

Participating Elementary, Middle, High Schools, Community Colleges, and Community-Based Orc

	Grade Level	Name of School	City/County	
1	High School	Bethel High School	Vallejo/ Solano County	CSL
2	Middle School	Grace Patterson Middle School	Vallejo/ Solano County	CSL
3	Elementary	Vallejo Charter School	Vallejo/ Solano County	CSL
4	Middle School	Mare Island Technology School	Vallejo/ Solano County	CSL
5	Middle School	Vallejo Boys and Girls Club	Vallejo/ Solano County	CBO
6	High School	CSU Chico	Chico/ Butte County	ETS
7	High School	Vallejo Library	Vallejo/ Solano County	CBO
8	Community College	Solano Community College	Fairfield/ Solano County	OT
9	Community College	Napa Valley College	Napa/ Napa County	OT
10	Community College	Diablo Valley College	Pleasant Hill/ Contra Costa County	OT
11	High School	Fairfield High School	Fairfield/ Solano County	PIQE
12	High School	Richmond, High School	Richmond/ West Contra Costa County	PIQE
13	Elementary	Dani Mini Elementary School	Vallejo/ Solano County	PIQE
14	Elementary	Highland Elementary School	Vallejo/ Solano County	PIQE
15	Elementary	Springstowne Middle School	Vallejo/ Solano County	CSL-IS

	Participating Elementary, Middle, High Schools, Community Colleges, and Community-Based Orc			
16	High School	Solano Step Up Community Collaboration	Fairfield/ Solano County	CBO
17	High School	Milpitas High School/ AVID	Milpitas/ Santa Clara County	OT
18	High School	Riverbank High School/ AVID	Riverbank/ Los Angeles County	OT
19	High School	Banning High School	Wilmington/ Los Angeles County	OT
20	High School	Stonegate High School/ AVID	West Sacramento/ Yolo County	OT
21	High School	Elkhorn Village High Schoo/ AVIDl	West Sacramento/ Yolo County	OT
22	High School	Upper Lake High School/ AVID	Upper Lake/ Lake County	OT
23	High School	Oakland High School	Oakland/ Alameda County	ETS
24	High School	Vallejo JFK Library	Vallejo/ Solano County	CSL
25	Elementary	Vallejo Christian Church	Vallejo/ Solano County	CSL
26	--			--
27	--			--
28	--			--
29	--			--
30	--			--
31	--			--
32	--			--
33	--			--
34	--			--
35	--			--

WORKSHEET 5

Community Service Learning

-2010 CSU K-12 and Community College tudent Academic Outreach Programs

California Maritime Academy

Description
Partnered with Jesse Bethel High School to bring CSU information for students and the local community
Partnered with Grace Patterson Elementary School to have Maritime Students conduct a History Class Lesson and importance of the US constitution
Partnered with Grace Patterson Elementary School to have Maritime students collect school supplies for low socio-economic stduents and families
Partnered with Vallejo Charter School to have Maritime students tutor elementary students in math and science
Partnered with MIT Academy to have Maritime students tutor elementary students in math and science
Partnered with VallejoBoys and Girls Club to have Maritime students tutor elementary students in math and science
Maritime students volunteered at library to tutor high school students
Maritime students volunteered to tutor local elementary students who went to Vallejo Christian Church
Cal Maritime's Community Partners promoted their organizations to students staff ad faculty with the purpose of increasing their volunteer pools. Held in conjunction with Career and Transfer Day, community college students
Two graduating seniors were presented with am engraved crystal during Cal Maritime's Annual Graduation Awardes Ceremony to recognize outsanting students who have contributed immensly to campus leadership and community

Office of Community Engagement and Early Assessment Programs Outreach Activity for 2009-2010 AY

Sep-09	Oct-09
1. Global Studies Government Class visits Grace Patterson's 5th Grade Class to present on the importance of the US Constitution	1. Town Hall Meeting I hosted by CSUM at the Global Center for Success to provide an open forum for community needs.

Nov-09	Dec-09
1. Town Hall Meeting II hosted by CSUM held at the Norman King Community Center	1. Office and Class Supplies Donation by Global Studies students to Grace Patterson 2. Best of Bay Conselors Tour- *(Admissions)*

Jan-10	Feb-10
Outreach/Visits to- Vallejo Chamber of Commerce, Solano Community Foundation, and Continental of Omega Boys and Girls Club, and Rebuilding Together Solano County Participated in the CSU Surdna Training Initiative Advancing Community Engagement with Student Leaders. Two current cadet leaders were also trained with CETL staff	Tabled at Hogan High School College Day, Vallejo CA Outreach/Visits to- Vallejo Humane Society, Vallejo Charter School, Benecia High School, Vacaville High School, Rodriguez High Shcol, Jesse Bethel HS, Solano Community College, St. Patrick/Vincent HS, and Napa HS Outreach and tabled for CSU Super Sunday with President Eisenhardt at Old Path Miracle Cathedral in Vallejo, CA

Mar-10	Apr-10
Participated in Jesse Bethel HS Community Collaboration Meeting Outreach/Visits to- Will C Wood HS, Vanden HS, Solano County Office of Education, John Swett HS, and Armijo HS	Tabled at Jesse Bethel HS College Fair Attended Leadership Vallejo Open House CSU Road to College Tour (*Admissions*)

Particpated in Jesse Bethel HS E-Waste Drive	Participated in Solano Advocates Green (SAGE) Arbor Day Community Event
Particpated with over 400 Unversities across the nation in being a Townhall viewing site for the Latino Advocacy Summit (Cesear Chavez Day)	Team CMA participated in March of Dimes-March for Babies, Solano County
Hosted Middle School Day for Springstowne Middle School, Vallejo Charter School, and Vallejo Middle School. Over 150 local students and teachers participated	
CMA students participated in Vallejo Waterfront Clean-up project	

May-10	**Jun-10**
Attended Global Center for Success Community Fair, Mare Island	International Trade Academy *(Admissions)*
Tabled for Vacaville High School College Fair	Began Pre-Planning for fall Career and Community Partners Expo at Cal Maritime
Outreach/Visits to- Parent Institute for Quality Education (PIQE), Berkeley CA. PIQE will be working with Solano area high schools in collaboration with Cal Maritime	Provided CSU workshop for PIQE Regional Trainers
Tabled for Springtowne Middle School College Fair, Vallejo CA	
Tabled for Montera Middle School College Fair	

Jul-10	**Aug-10**
Cal Maritime tour for Solano Probation	Coordinate Jumpstart program for graduating high school seniors needing remediation before enrolling at CMA for Fall
Tabled for Step Up Youth Awards and Resource	

Fair at Fairfield/Suisun Community Center

Meet with faculty from Vallejo MIT Academy to start coordination of CMA & MIT collaboration

Sep-10

Meet with Community Partners

Complete organization for Career & Community Partners Expo

Host CSU Counselor Conference *(Admissions)*

Begin meetings with local high school administrators and principals for EAP/ERWC Trainings

Coordinate CMA student placements at community partner sites for volunteer hours

California Maritime Academy
Annual Learning Results: Institution-Wide Writing Assessment
2009-2010

Prepared by:
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in conjunction with the Committee on Educational Effectiveness

1. Executive Summary:

In its endeavor to further develop a comprehensive culture of evidence for effective student learning, the faculty of the Writing Program, in conjunction with the Institution-Wide Assessment Council, set out to measure written communication through a variety of assessment instruments, including Graduate Writing Exam data, cross-disciplinary and campus wide surveys, and data collection for multiple types of student writing. The following results represent a multi-faceted, aggregated and disaggregated analysis of student performance in written communication.

Were Standards Met?:

- Student Writing Samples: Yes: Writing standards were met by students of all majors and levels in the areas of "content" and "organization," with scores no lower than a "four" out of a possible "five." No: Standards were nearly, but not quite met in the area of "mechanics," with an averaged score of 3.79 out of a possible "five."
- Faculty Attitudes Survey: Yes: 89% of seniors were ranked "adequately" or "well-prepared" for writing on the job. No: faculty were satisfied with seniors' abilities in eight of sixteen skill sets. The remaining eight (skill sets in mechanics/utilizing and documenting external sources) ranked between "somewhat satisfied" and "somewhat dissatisfied."
- Comparison of Student Test Scores With Demographic Data: No: Technical fields are much less likely to pass the Graduate Writing Exam than non-technical fields.

Improvement Plans:

1. Review of current assessment tools and standards for success.
2. Correlation of the 2010-11 Collegiate Learning Assessment (CLA) data (forthcoming) with current faculty perceptions of student achievement.
3. Development and implementation of a cross-disciplinary faculty poll, clarifying/determining:
    a. Which, if any, documentation style is preferred in student research papers?
    b. Which aspects of integrating and citing source material are especially problematic for students?
2. More specific assessment of writing mechanics issues on the lower-division level, across the Culture & Communication program, and implementation of changes in relevant course(s).
3. Development of a plan for improving GWE pass rates for more technical majors.

This report will be included in the 2010 EER for WASC Accreditation, as part of Cal Maritime's Assessment of Institution-Wide Student Learning Outcomes for 2009-2010. It will also be housed in the UWAC database and made available on the Cal Maritime website. Finally, this report will be instrumental in the development and implementation of the 2010-2011 Culture & Communication Program Review.

2. Closing the Loop: Status of Proposed Action Items

	Next Step #1
a) "Next Steps"	Design/implement university-wide assessment of UW-SLO: Communicate effectively
b) Status of Next Steps	Completed, 5/10✓

3. What do We Want Students to Learn?

	Evidence #1	Evidence #2	Evidence #3
a) 2009-10 UW-SLO	"Communicate effectively"	"Communicate effectively"	"Communicate effectively"
b) Learning Criteria: (specific qualities desired in student work)	"Acceptable" levels of content mastery, organization, and mechanics.		
c) Standards for Success:	Desired outcome: Score averages above 4.0, in all three areas. Required outcome: Consistent "acceptable" score averages, even when disaggregated by course level and type.	Desired outcome: At least 80% of seniors ranked at least "adequately" or "well" equipped for writing on the job. Even distribution of adequate scores in specific writing skill sets.	Desired outcome: More or less equal pass rates across majors.

4. What Evidence do We Use to Assess Their Learning?

	Evidence #1	Evidence #2	Evidence #3
a) Evidence: Describe summative evidence you analyze & the size of the sample	31 courses, 596 writing samples (paper clip)	28 faculty (paper clip)	841 Graduate Writing Exams (Junior Level) (paper clip)
b) Assessment Tool/Method	Student Writing Sample/Rubric	Faculty Attitude Survey	Comparison of Test Scores With Student Demographic Data
c) Assessment Process:	1. Faculty chose an assignment in which students wrote a minimum of 750 words of formal/structured prose. 2. Faculty randomly selected 20% of the work (or ten samples--whichever was the larger number) for assessment. 3. Faculty used the "General Writing Assessment Rubric" to generate three numerical scores for each paper: one for content, one for organization, and one for mechanics. Faculty recorded each paper's score on a score sheet ("Writing Assessment Score Sheet").	Faculty completed a survey measuring: 1. Confidence in student writing, both in general, and within specific parameters. 2. Total number of writing assignments in their courses. 3. Writing genres utilized in their courses. 4. Writing pedagogies utilized in their courses.	1. Student test data was disaggregated by major, over a period of four semesters, to determine whether a pattern was discernible. 2. Student test scores were disaggregated by transfer status, to see if a pattern was discernible.

5. How Well Are They Learning? (And SO WHAT?)

a) Results of Student Learning	Evidence #1	Evidence #2	Evidence #3
	1. Averaged student writing scores across all majors and levels were ranked as follows: 4.01 (Content); 4.07 (Organization) and 3.79 (Mechanics) out of a possible six. All three scores fell within the "Acceptable" range. Note: scores in mechanics were the lowest of the three scores. (Figure 1) 2. Averaged student writing scores disaggregated by course level (lower vs. upper division) fell within an "Acceptable" range of 3.67 (mechanics, upper division) and 4.15 (content, upper division). (Figure 2) 3. Though averaged student writing scores disaggregated by course type (general education vs. courses in the major) fell within "Acceptable" levels (ranging from 3.7 (mechanics in major courses)-4.3 (organization in general education courses), in all three areas, scores were higher in general education courses and lower in courses in the major. (Figure 3)	1. Confidence: 0% of faculty surveyed believe that entering freshmen are "well-prepared" for college-level writing; 46% believed they are "poorly" prepared; 29% "do not know." (Figure 5) 2. Confidence: 52% of faculty surveyed "do not know" how prepared transfer students are for college-level writing; however, 37% believe that they are "adequately" prepared. 0% believe they write "well"; (Figure 6) 3. Confidence 68% of faculty surveyed believe that graduating seniors write "adequately"; 21% believe they write "well." (Figure 7) 4. Confidence in seniors' specific writing skills: Faculty were only "somewhat satisfied," at best, across all skill sets. Skill sets which ranked the lowest involved mechanics, and integration and citation of outside source material. (Figure 8) 5. Average number of writing assignments: Culture & Communication, the department housing Cal Maritime's composition courses, had the highest number of writing assignments per course, at 11.9. IBL held the second highest average, at 4.3, and ET the third, at 3.2. The rest of the departments fell under 3 writing assignments per course. (Figure 9) 6. Writing genres utilized (total): Research papers were by far the most frequently assigned writing genre (17, in all departments), followed by lab reports (10), collaborative projects (10), summaries/abstracts (8) and journals/reflection papers (7). Case studies (5) and position papers (5) were also assigned somewhat frequently. (Figure 10) 7. Writing genres (by department): C&C and IBL assigned the widest	1. The average pass rate across all majors, from fall 2008-spring 2010 was 34%. 2. GSMA and IBL students had the highest passing rates, at 50% and 45%, respectively. MET was the next highest, at 39%. MT, ME and FET scored below average, at 26%, 20% and 13%, respectively. (Figure 19) 3. Students who take their lower-division composition at Cal Maritime pass the GWE at a 57% pass rate. Students who transfer in their lower-division composition course are much less likely to pass the GWE (31%). (Figures 21 & 23) 4. Additional information: between fall 2004-Spring 2008, 31% of students who transferred in their basic composition course left Cal Maritime before taking the GWE. (Figure 22)

		variety of writing genres, at 10 each. ET and ME each assigned 7 genres; GSMA 5, S&M 4, and MT 2. (Figures 11-17) 8. Faculty across the disciplines tended to use most "best practices" writing pedagogies either "always" or "sometimes," with the exceptions of "having students read/respond to other students' writing" and "conferring with students on papers in progress." (Figure 18)	
b) Achieving Standards: Did your program achieve its standards for success?	Yes, in the areas of "content" and "organization." Not quite, in "mechanics."	Yes: 89% of seniors were ranked "adequately" or "well-prepared" for writing on the job. No: faculty were satisfied with seniors' abilities in eight of sixteen skill sets. The remaining eight (skill sets in mechanics and utilizing and documenting external sources) ranked between "somewhat satisfied" and "somewhat dissatisfied."	No: Technical fields (especially FET) are much less likely to pass the Graduate Writing Exam than non-technical fields.
c) Discussion of Results for Program Improvement:	1. For the next iteration of this assessment tool, distribution of scores, as well as averages, should be calculated. 2. Upper-division instructors should be polled as to what mechanics issues they are seeing in their courses, in order to determine why they are ranking mechanics so low. Are there higher-order mechanics concerns? 3. An attempt should be made to determine why major professors are ranking student writing lower than general education professors. Is this a matter of genre/writing in the disciplines issues? 4. The definition of "mechanics" needs to be discussed and agreed upon by faculty, to ensure that it is being assessed accurately (e.g. Are documentation style and essay formatting a part of mechanics?). 5. In some cases, students do not seem to be practicing upper-division genres until they are upper-division students. Perhaps this should happen earlier?	1. 89% of faculty feel that seniors write adequately or well. 2. Some faculty did not answer some of the questions on the survey, which indicated that they do/did not teach freshmen or seniors; because of this, some of the results may not be entirely accurate. 3. The progress of transfer students, as a group, needs to be made more visible. 4. Not enough courses were assessed in the "Average Number of Writing Assignments Per Course" assessment tool.	1. Students in more technical majors need to have similar GWE pass rates. 2. The progress of transfer students, especially if they tend to leave Cal Maritime at a higher rate than traditional students, needs to be made more visible.
d) Participants in	Vivienne McClendon, Director, CETL		

Discussing/Reviewing Results	Graham Benton, ALO/C&C core faculty Stephen Pronchick, Chair, ME Lloyd Kitazono, Chair, M & S/Coordinator, Faculty Development Lui Hebron, GSMA core faculty Bunny Paine-Clemes, C&C core faculty Julie Chisholm, C&C core faculty
e) Communication of Results:	This report will be included in the 2010 EER for WASC Accreditation, as part of Cal Maritime's Assessment of University-Wide Student Learning Outcomes for 2009-2010. It will also be housed in the UWAC database and made available on the Cal Maritime website. Finally, this report will be instrumental in the development and implementation of the 2010-2011 Culture & Communication Program Review.

5. Now What? (Plan to Improve Our Program)

	Proposed Change #1	Proposed Change #2	Proposed Change #3
a) Proposed Changes	Faculty poll, asking: 1. Which, if any, documentation style is preferred in student research papers? 2. Which aspects of integrating and citing source material are especially problematic for students?	More specific assessment of mechanics issues on the lower-division level, across the Culture & Communication program, and implementing changes in the relevant course(s).	A plan for improving GWE pass rates for more technical majors (especially FET students) should be developed.
b) Rationale for Proposed Changes	1. It is unclear whether the documentation styles taught in lower-division composition are compatible with upper-division writing assignments. 2. It is not known whether students have more trouble literally incorporating the ideas of others into their work, or citing their sources, or both.	1. It is not known how much and what kind of mechanics instruction is occurring in C&C courses, especially EGL 100. 2. What is being taught in the C&C program is not adequate for upper-division students in the majors.	1. Students in technical fields fall well below the average in passing the GWE.
c) Proposed Completion Date	Fall 2010	Fall 2010-Spring 2011	Fall 2010-Spring 2011
d) Stakeholders Involved	C&C Program	C&C Program	C&C Program; core faculty
e) Vetting to Stakeholders	Coordinators of Writing Program	Coordinators of Writing Program	Coordinators of Writing Program
f) Shepherding Changes	Coordinators of Writing Program	Coordinators of Writing Program	Coordinators of Writing Program
g) Budget Integration	N/A	N/A	UWAC?
h) Incorporating Changes	Coordinators of Writing Program	Coordinators of Writing Program	Coordinators of Writing Program
i) Improvement Target Goals	Across the board improvement in faculty perception in seniors' documentation/citation abilities.	Equal coverage of common mechanics issues in lower-division composition courses.	Less disparity in the pass rates of students majoring in technical fields, on the GWE.
j) Evidence of effectiveness	Across the board improvement in faculty perception in seniors' documentation/citation abilities.	Less disparity between lower-and upper-division mechanics scores, on the next iteration of the UW writing assessment.	Less disparity in the pass rates of students majoring in technical fields, on the GWE.

6. Reflection on Assessment Process

	Reflection #1	Reflection #2	Reflection #3
a) Strengths	A large amount of data/multiple assessment tools yielded a great deal of information.	Assessment was developed and implemented efficiently and in a timely manner.	Assessment tools were developed in accordance with UW- and Program SLOs.
b) Modifications	Assessment tools need to be fine-tuned to ensure that all data is statistically significant.	Faculty buy-in needs to be stronger. In some cases, data samples were too small.	Technology support needs to be more consistent/robust. Data collection/analysis tools needs standardization.

7. What do We Want Students to Learn?

a) UW-SLOs	"Communicate Effectively"

Appendix: Graphs generated by raw data

Appendix: Institution-Wide Writing Assessment Graphs

Cal Maritime
Summer 2010

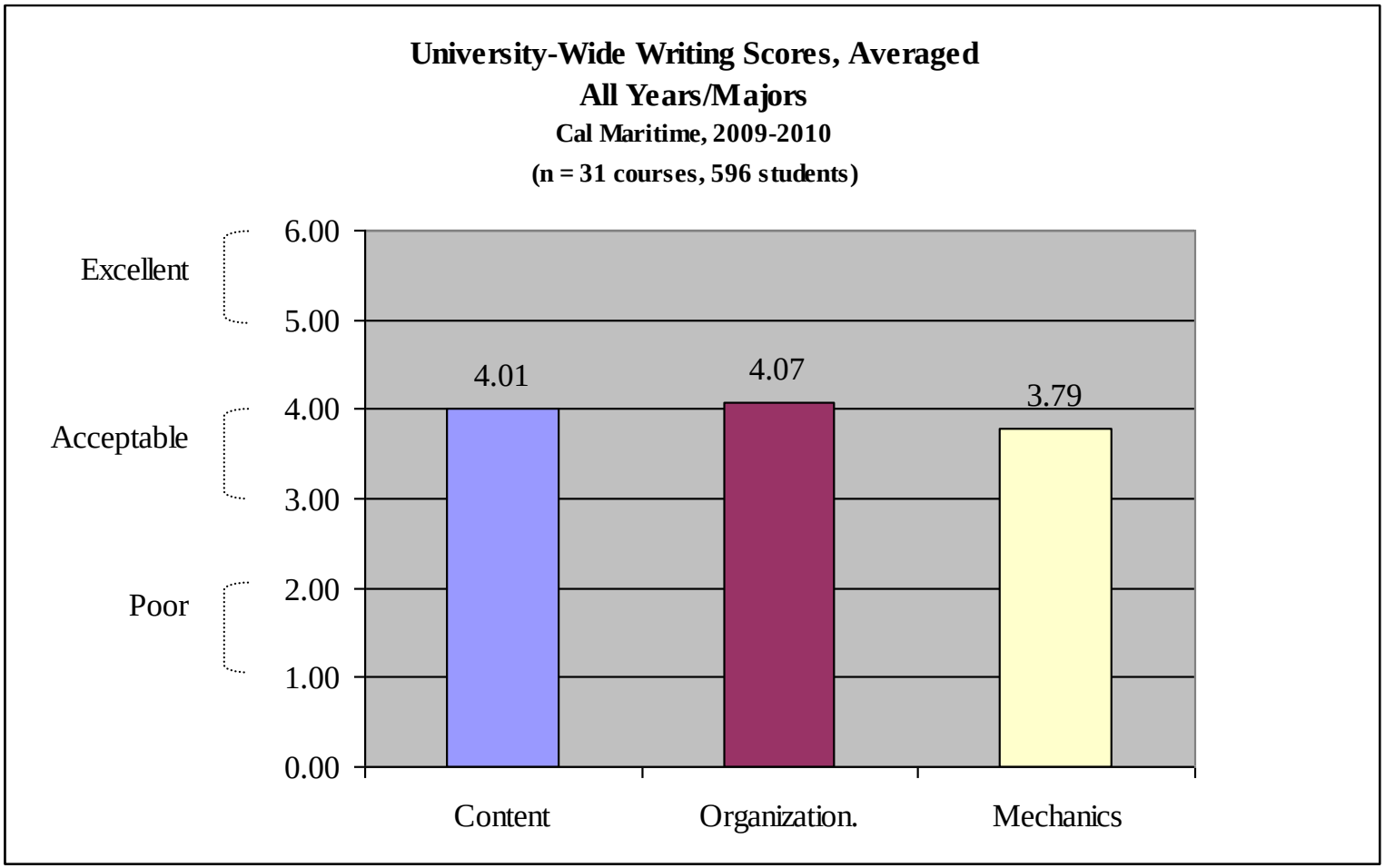


Figure 1

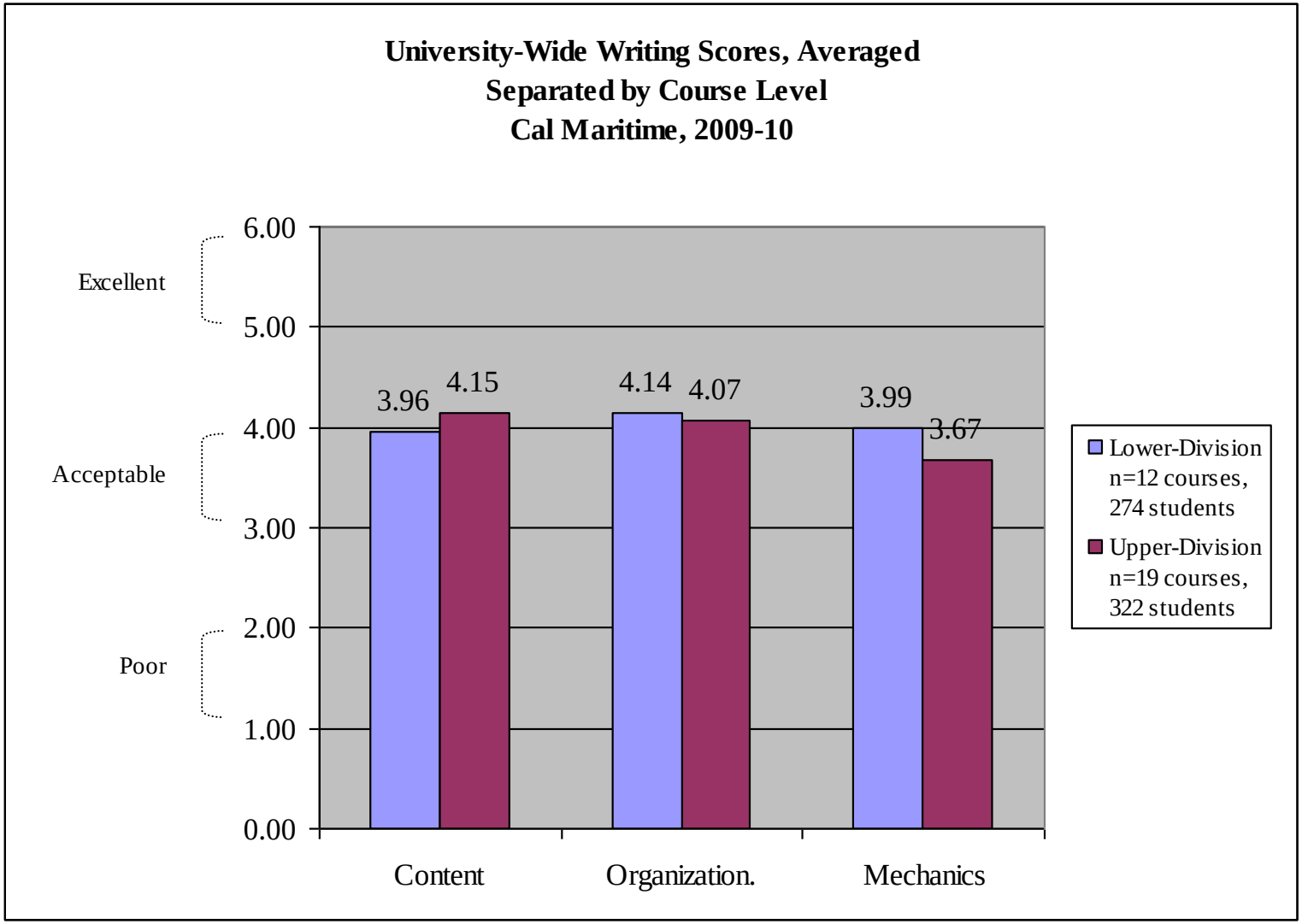

University-Wide Writing Scores, Averaged
Separated by Course Level
Cal Maritime, 2009-10
Excellent
Acceptable
Poor
6.00
5.00
4.00
3.00
2.00
1.00
0.00
3.96
4.15
4.14
4.07
3.99
3.67
Content
Organization.
Mechanics
Lower-Division n=12 courses, 274 students
Upper-Division n=19 courses, 322 students

Figure 2

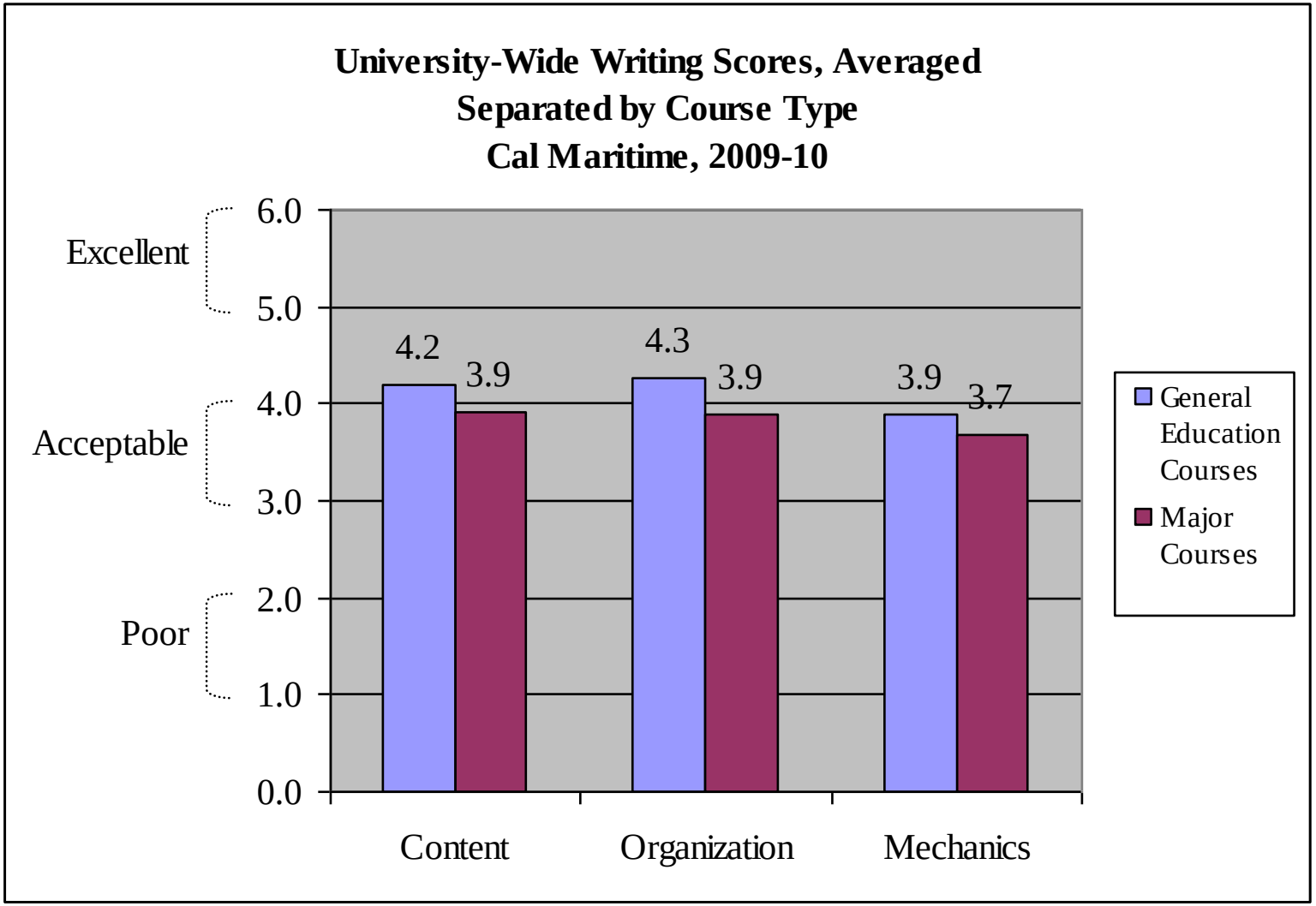

University-Wide Writing Scores, Averaged
Separated by Course Type
Cal Maritime, 2009-10
Excellent
Acceptable
Poor
6.0
5.0
4.0
3.0
2.0
1.0
0.0
4.2
3.9
4.3
3.9
3.9
3.7
Content
Organization
Mechanics
General Education Courses
Major Courses

Figure 3

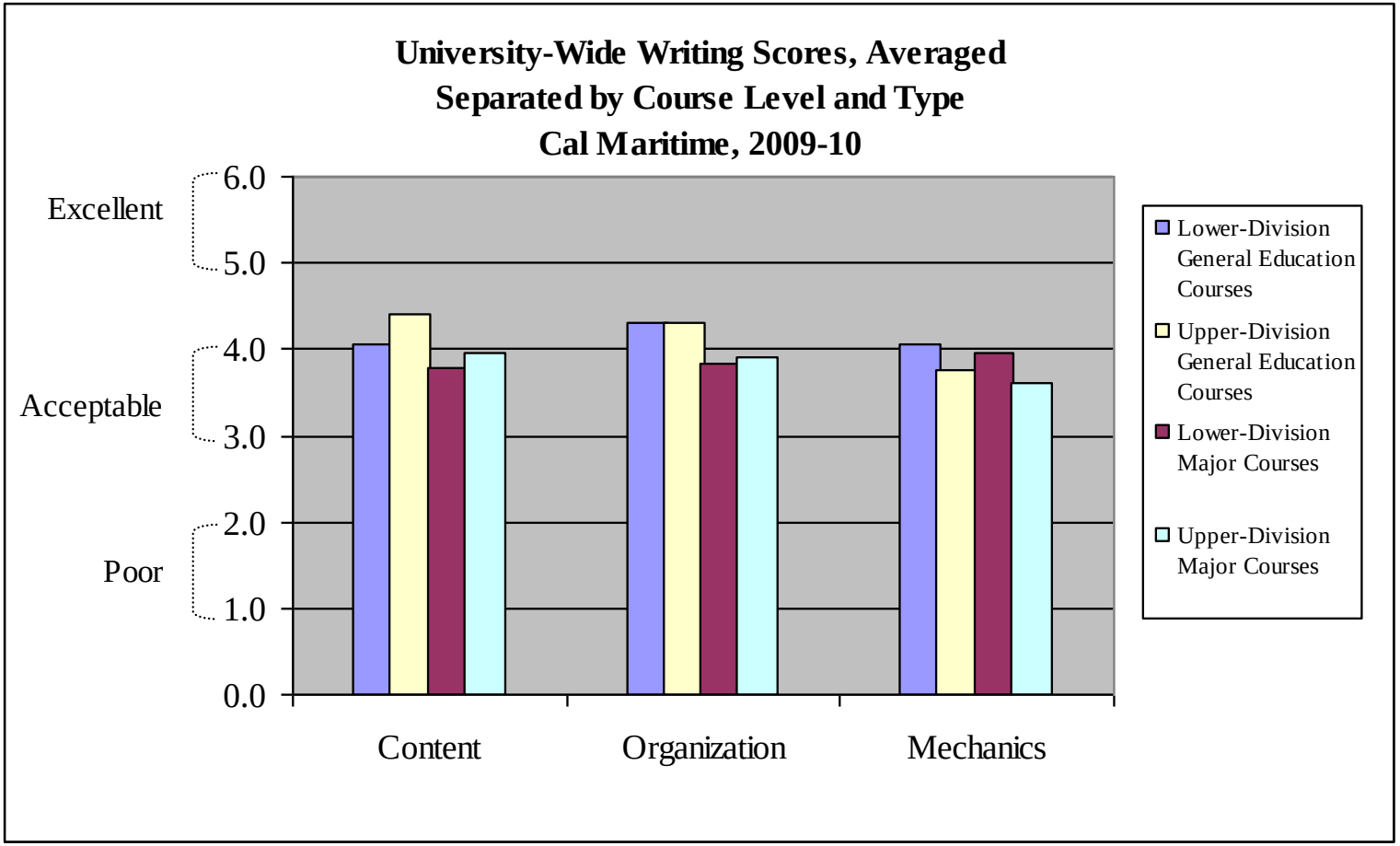

University-Wide Writing Scores, Averaged
Separated by Course Level and Type
Cal Maritime, 2009-10
Excellent
Acceptable
Poor
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Content
Organization
Mechanics
Lower-Division General Education Courses
Upper-Division General Education Courses
Lower-Division Major Courses
Upper-Division Major Courses

Figure 4

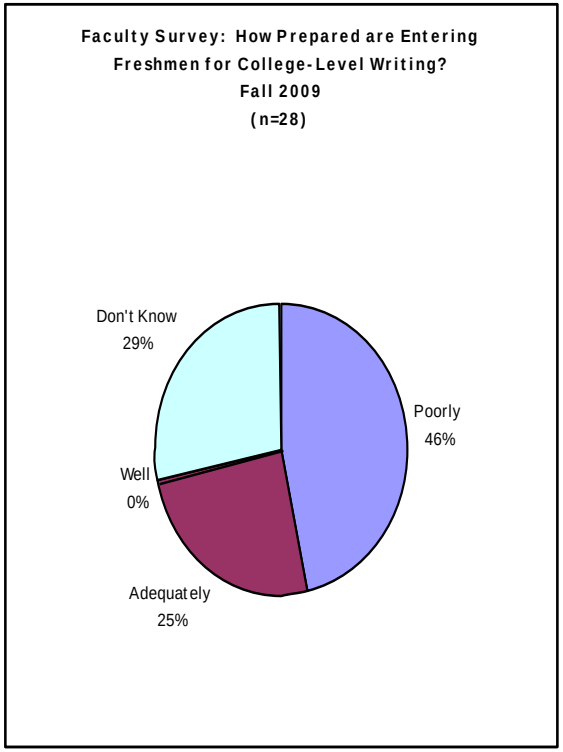


Figure 5

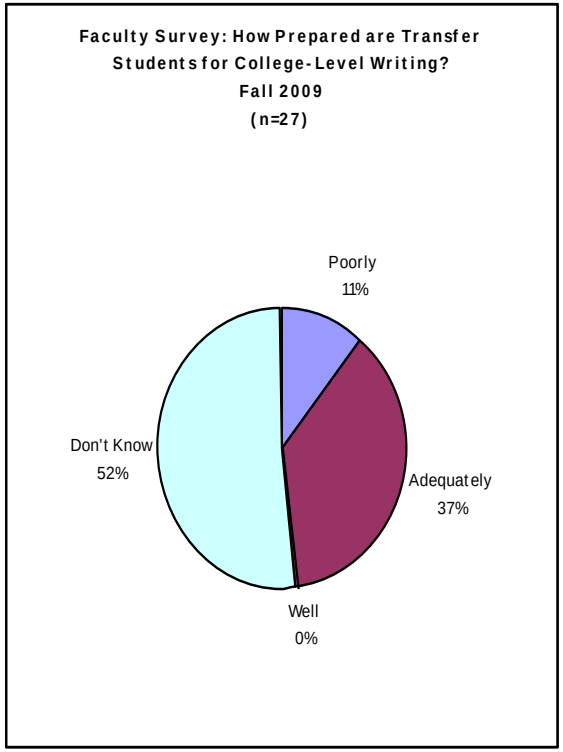


Figure 6

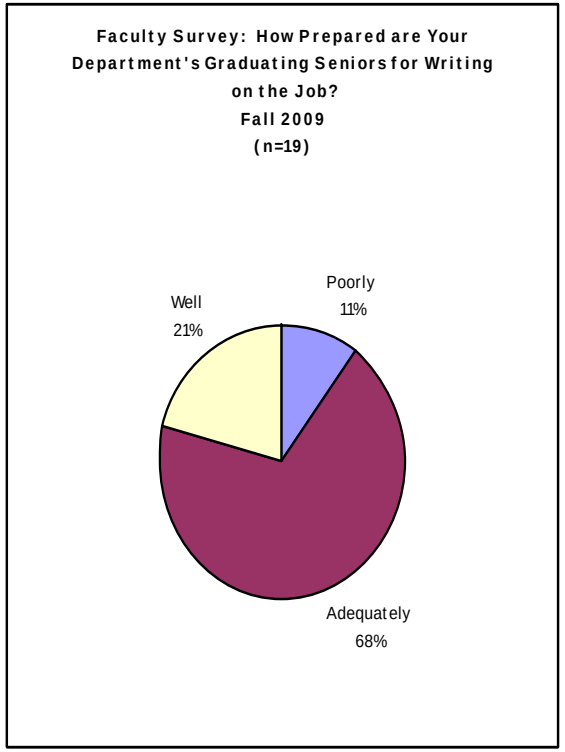


Figure 7

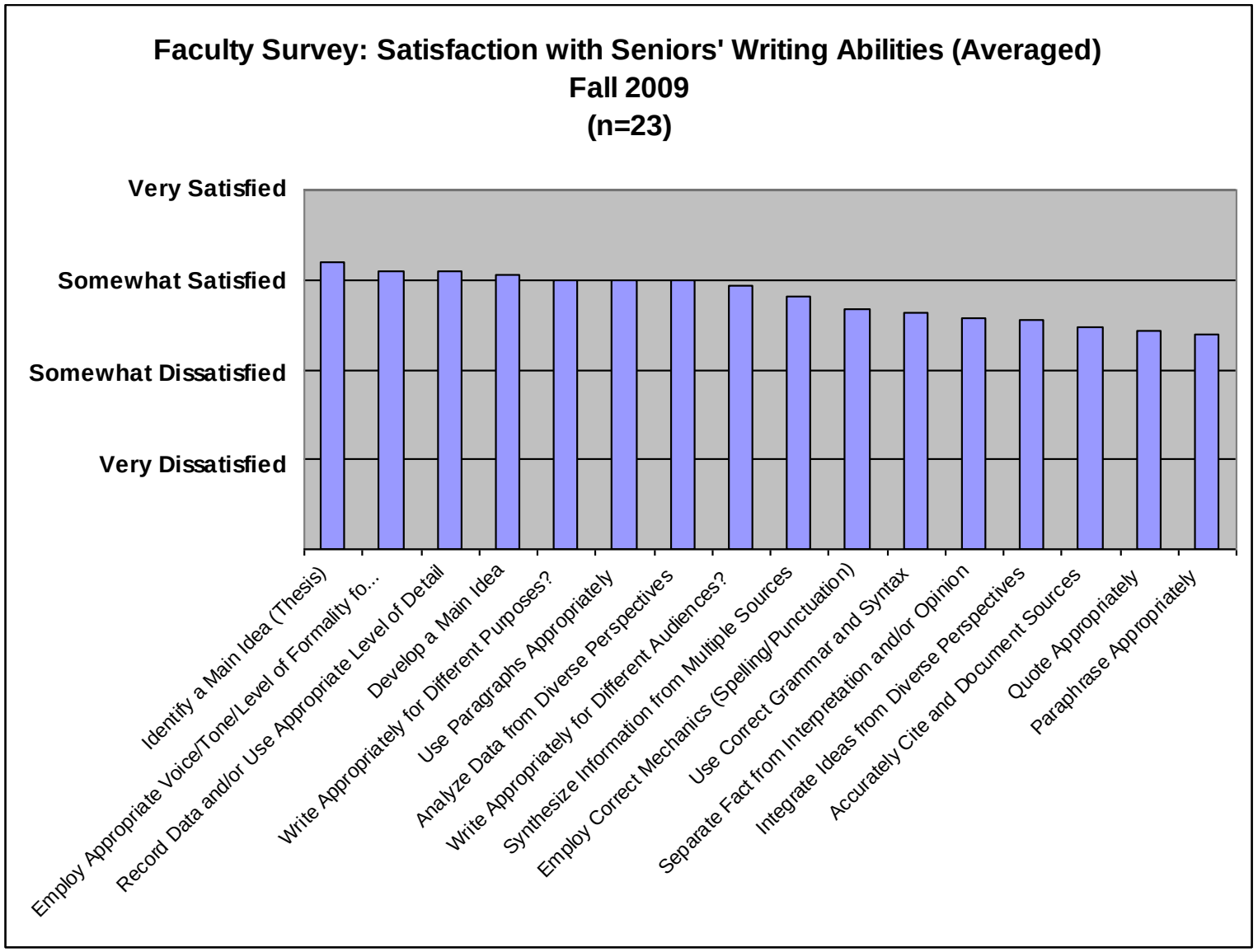

Faculty Survey: Satisfaction with Seniors' Writing Abilities (Averaged)
Fall 2009
(n=23)
Very Satisfied
Somewhat Satisfied
Somewhat Dissatisfied
Very Dissatisfied
Identify a Main Idea (Thesis)
Employ Appropriate Voice/Tone/Level of Formality fo...
Record Data and/or Use Appropriate Level of Detail
Develop a Main Idea
Write Appropriately for Different Purposes?
Use Paragraphs Appropriately
Analyze Data from Diverse Perspectives
Write Appropriately for Different Audiences?
Synthesize Information from Multiple Sources
Employ Correct Mechanics (Spelling/Punctuation)
Use Correct Grammar and Syntax
Separate Fact from Interpretation and/or Opinion
Integrate Ideas from Diverse Perspectives
Accurately Cite and Document Sources
Quote Appropriately
Paraphrase Appropriately

Figure 8

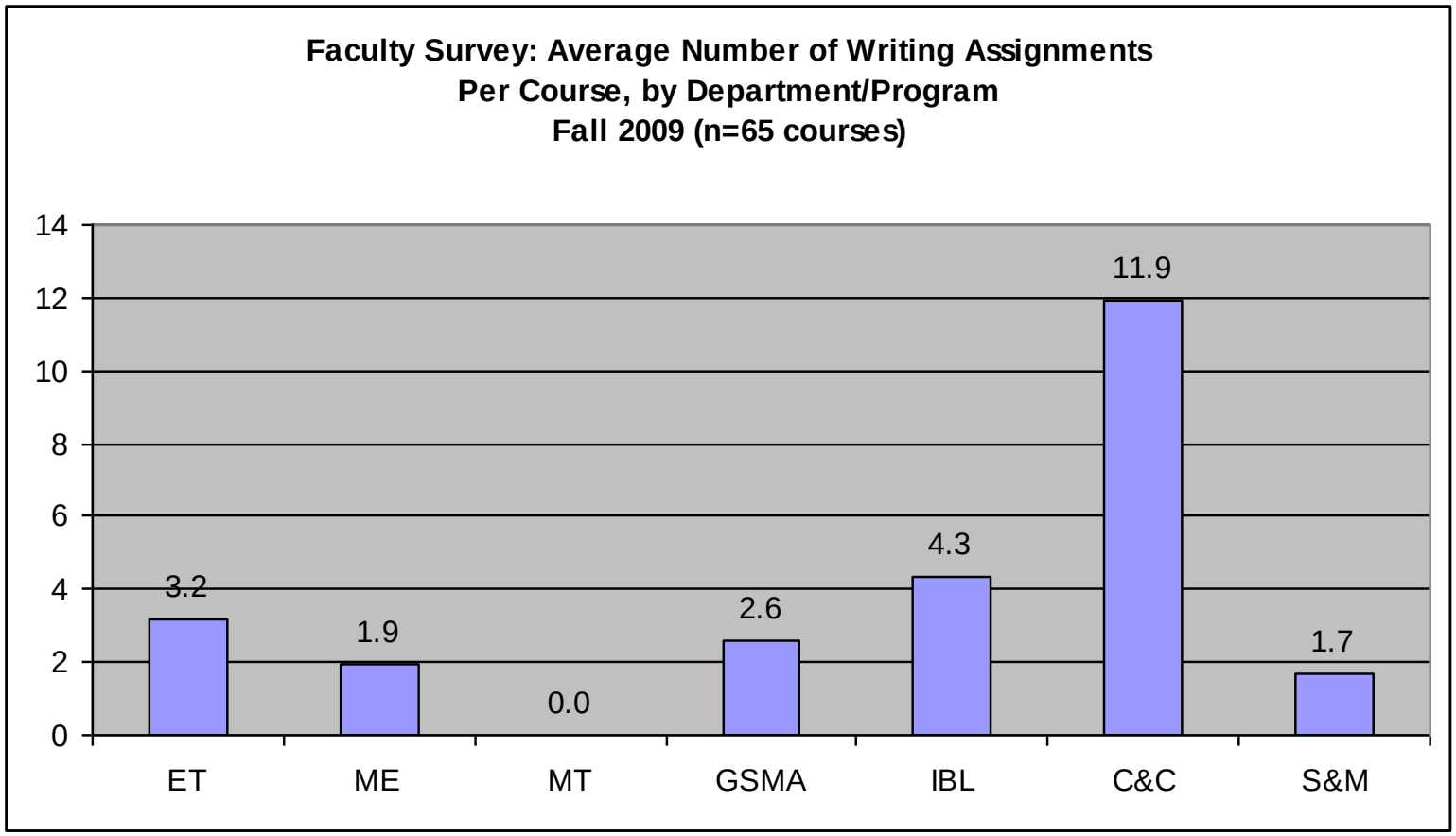

Faculty Survey: Average Number of Writing Assignments
Per Course, by Department/Program
Fall 2009 (n=65 courses)
14
12
10
8
6
4
2
0
3.2
1.9
0.0
2.6
4.3
11.9
1.7
ET
ME
MT
GSMA
IBL
C&C
S&M

Figure 9

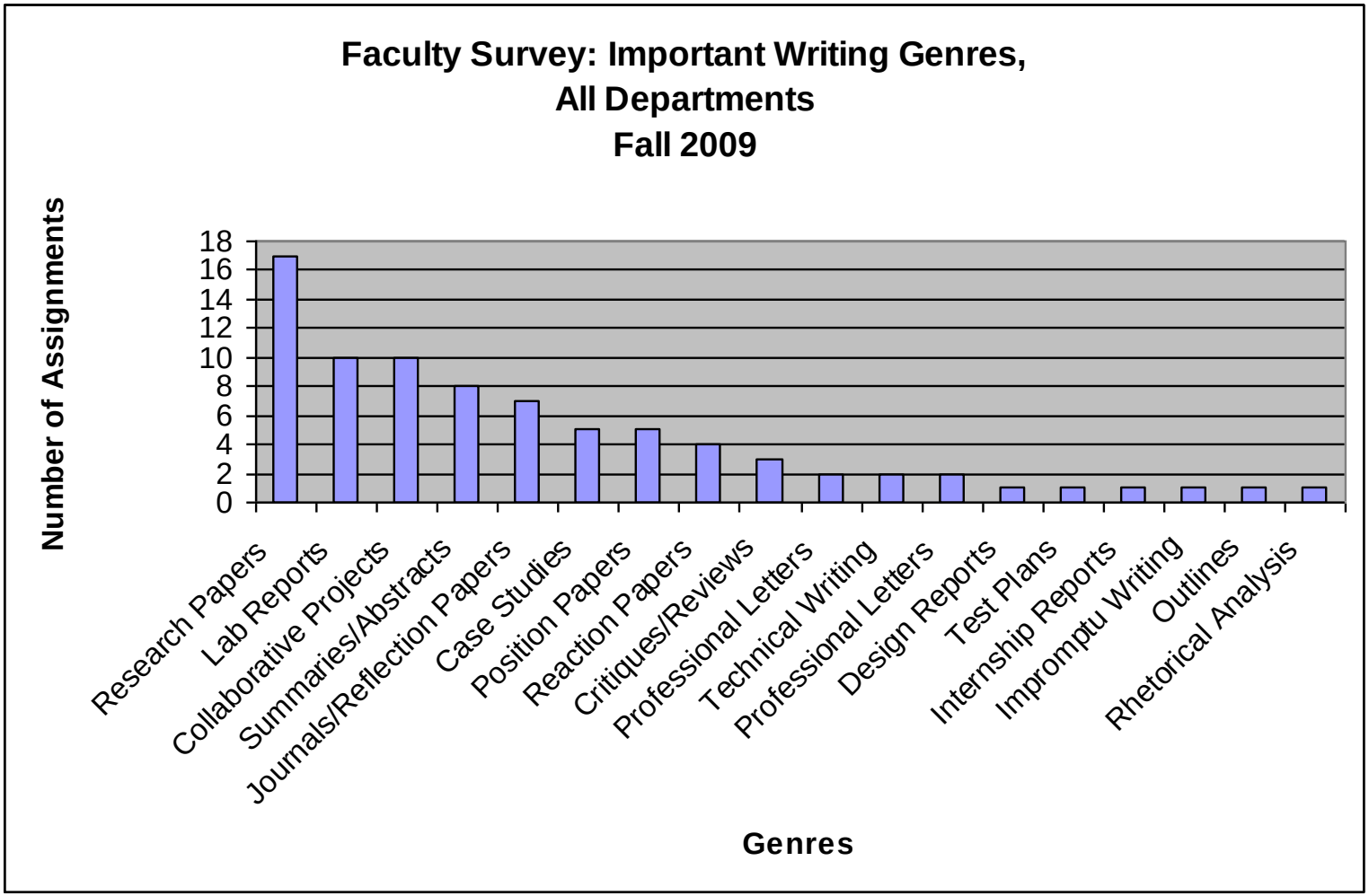

Faculty Survey: Important Writing Genres,
All Departments
Fall 2009
Number of Assignments
18
16
14
12
10
8
6
4
2
0
Research Papers
Lab Reports
Collaborative Projects
Summaries/Abstracts
Journals/Reflection Papers
Case Studies
Position Papers
Reaction Papers
Critiques/Reviews
Professional Letters
Technical Writing
Professional Letters
Design Reports
Test Plans
Internship Reports
Impromptu Writing
Outlines
Rhetorical Analysis
Genres

Figure 10

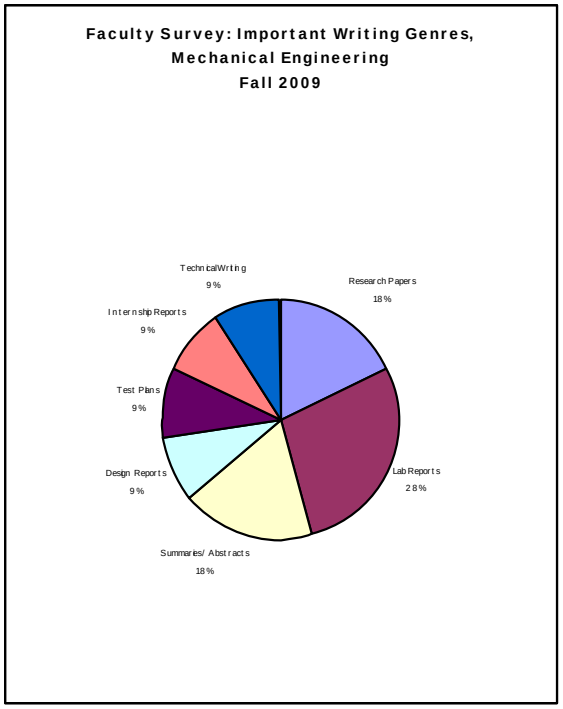


Figure 11

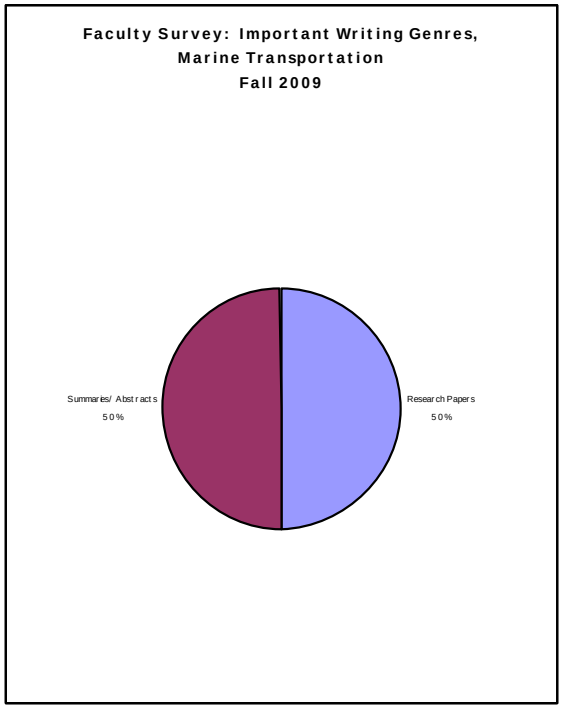


Figure 12

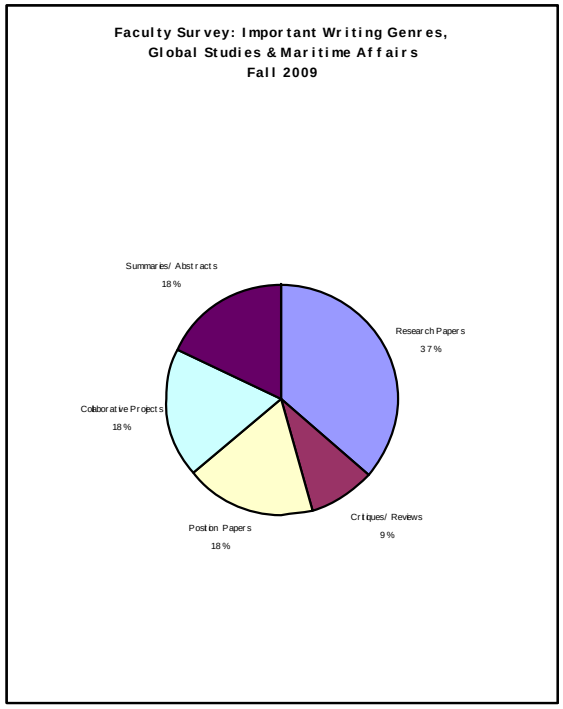


Figure 13

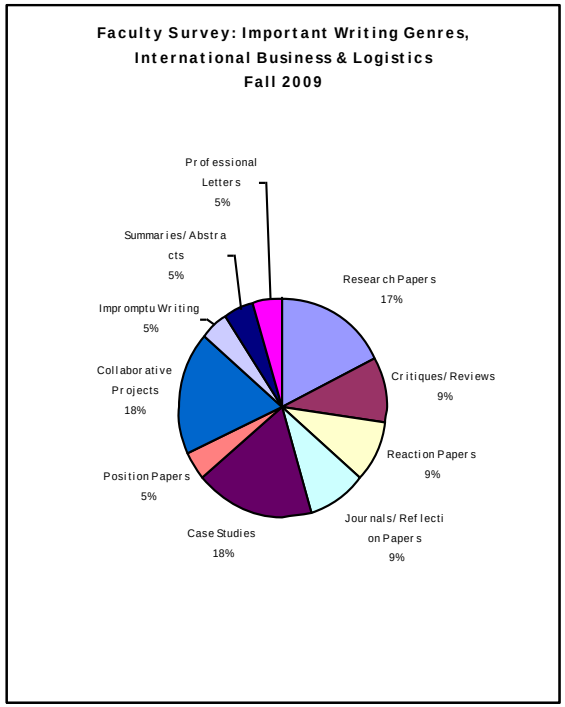


Figure 14

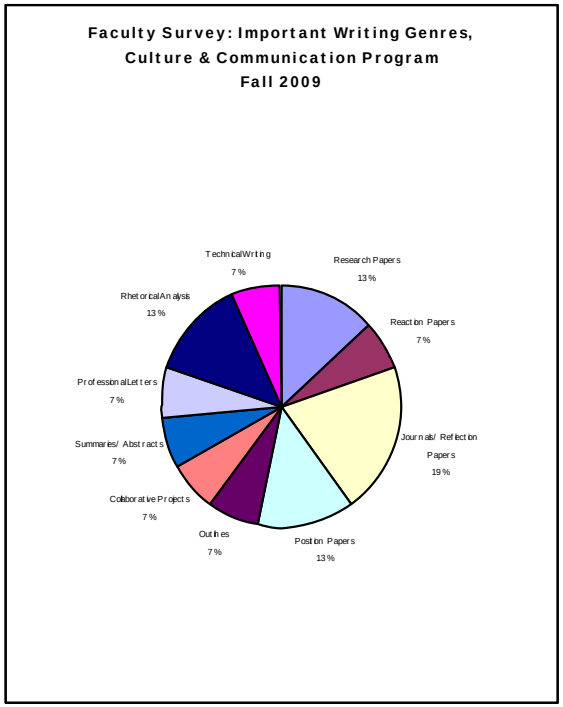


Figure 15

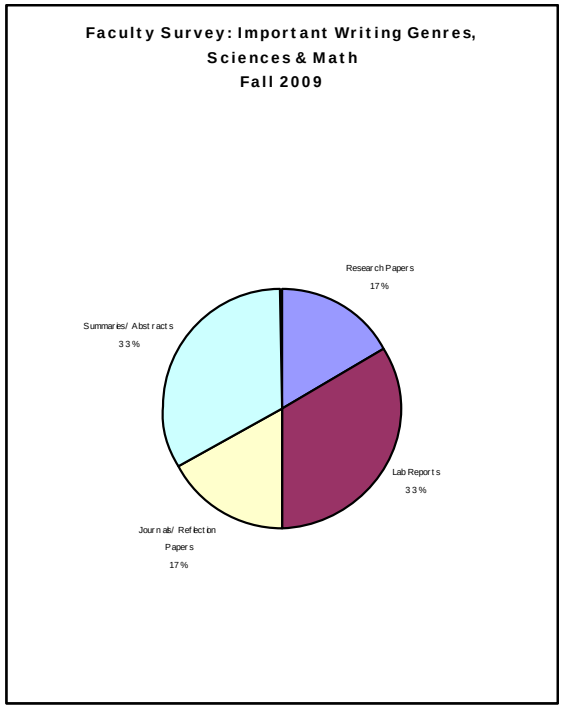


Figure 16

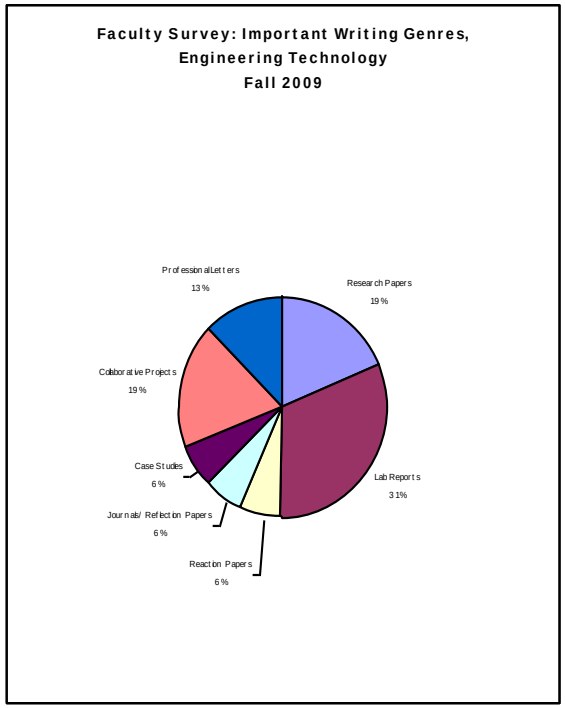

Faculty Survey: Important Writing Genres,
Engineering Technology
Fall 2009
Professonal Letters
13%
Research Papers
19%
Collborative Projects
19%
Case Studies
6%
Lab Reports
31%
Journals/ Reflection Papers
6%
Reaction Papers
6%

Figure 17

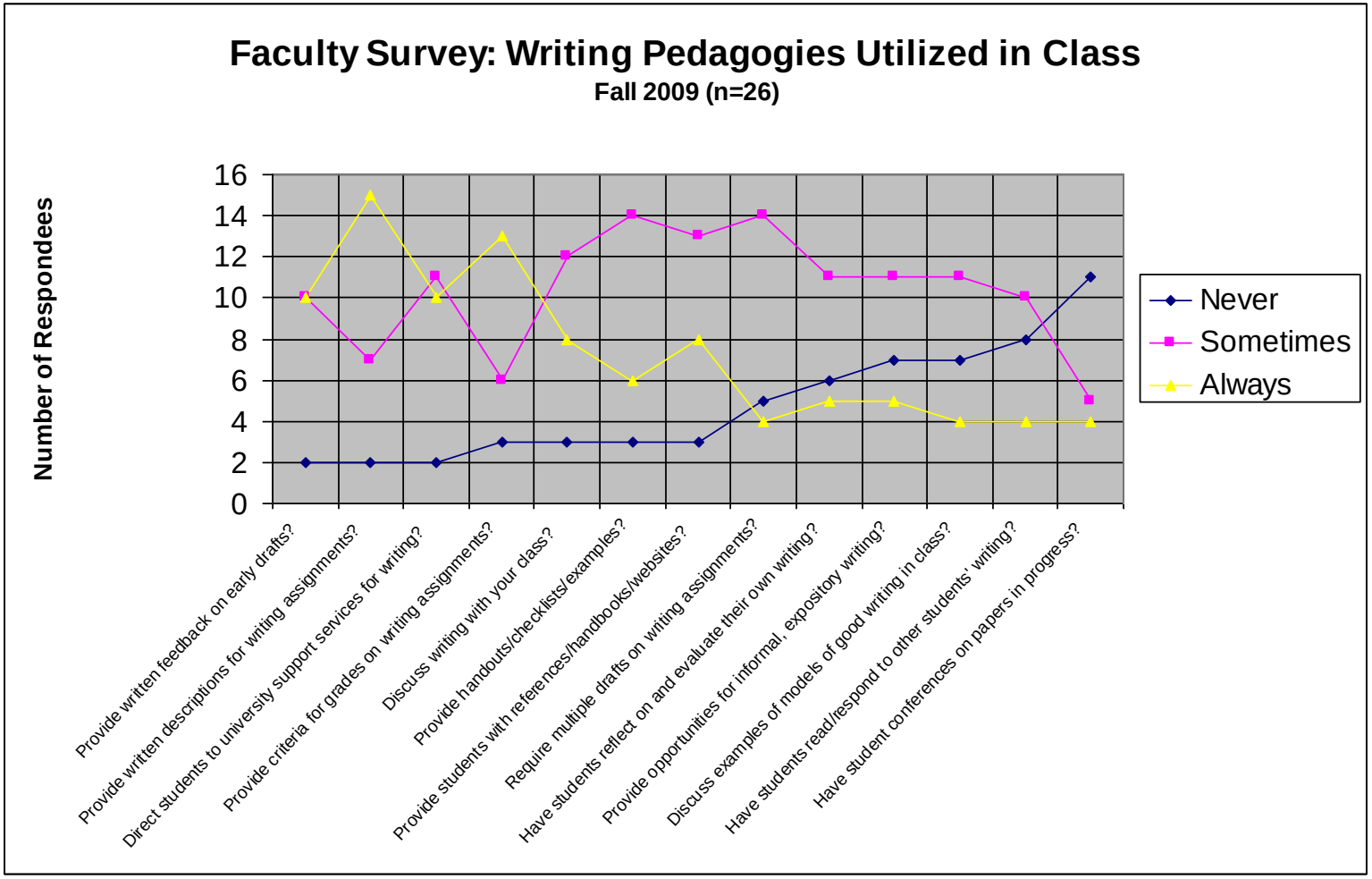

Faculty Survey: Writing Pedagogies Utilized in Class
Fall 2009 (n=26)
Number of Respondees
16
14
12
10
8
6
4
2
0
Never
Sometimes
Always
Provide written feedback on early drafts?
Provide written descriptions for writing assignments?
Direct students to university support services for writing?
Provide criteria for grades on writing assignments?
Discuss writing with your class?
Provide handouts/checklists/examples?
Provide students with references/handbooks/websites?
Require multiple drafts on writing assignments?
Have students reflect on and evaluate their own writing?
Provide opportunities for informal, expository writing?
Discuss examples of models of good writing in class?
Have students read/respond to other students' writing?
Have student conferences on papers in progress?

Figure 18

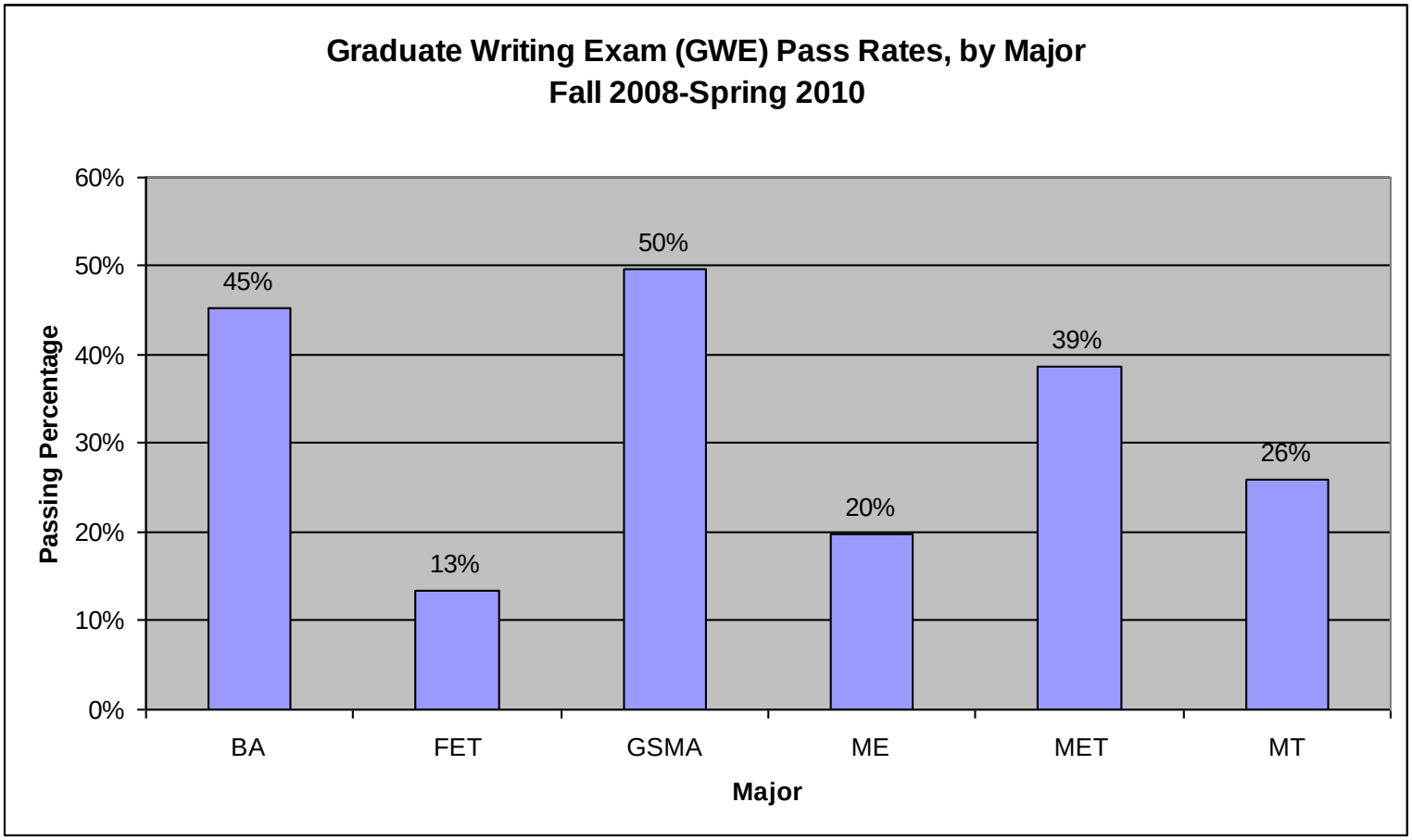

Graduate Writing Exam (GWE) Pass Rates, by Major
Fall 2008-Spring 2010
Passing Percentage
60%
50%
40%
30%
20%
10%
0%
45%
13%
50%
20%
39%
26%
BA
FET
GSMA
ME
MET
MT
Major

Figure 19

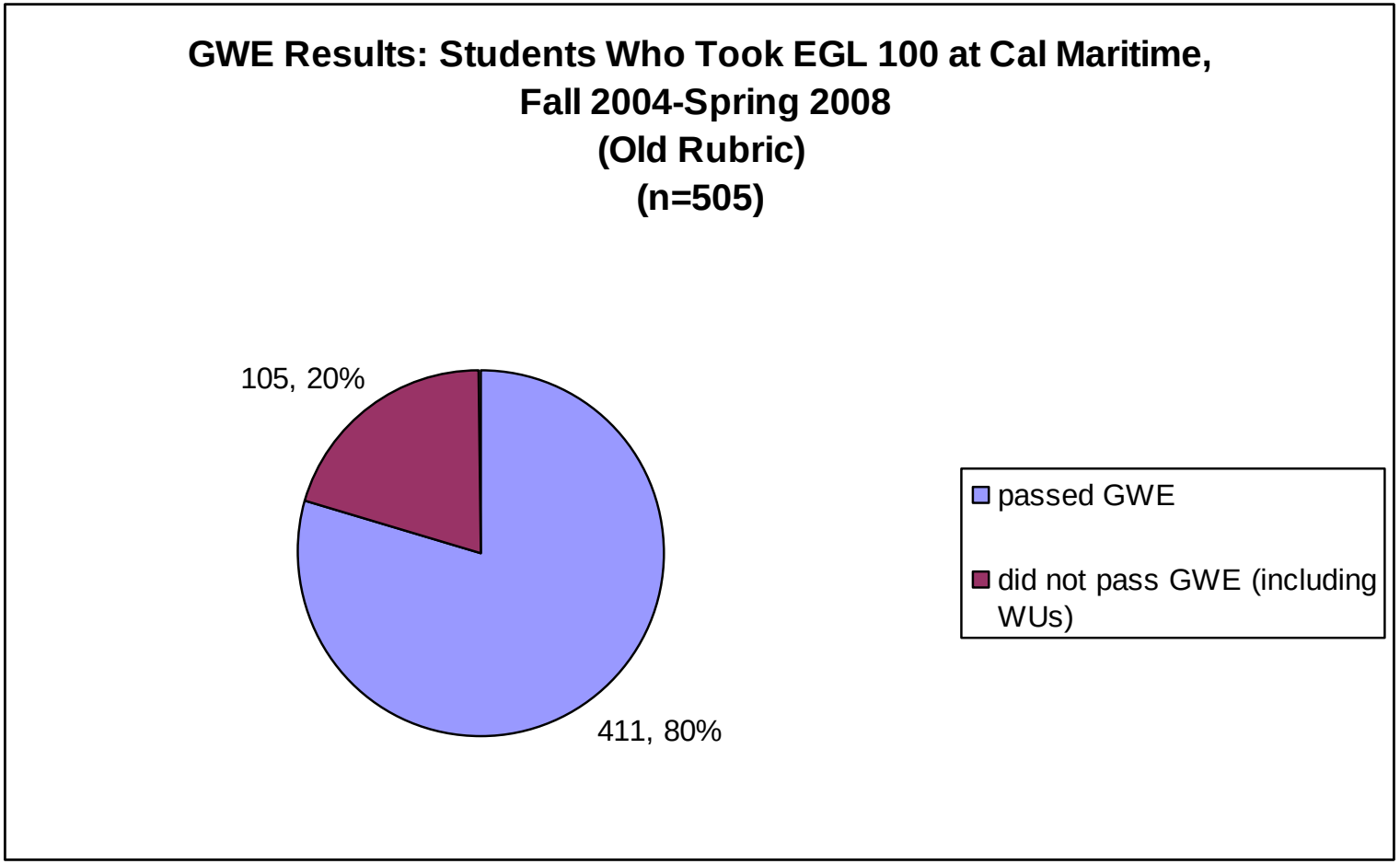

GWE Results: Students Who Took EGL 100 at Cal Maritime,
Fall 2004-Spring 2008
(Old Rubric)
(n=505)
105, 20%
411, 80%
passed GWE
did not pass GWE (including WUs)

Figure 20

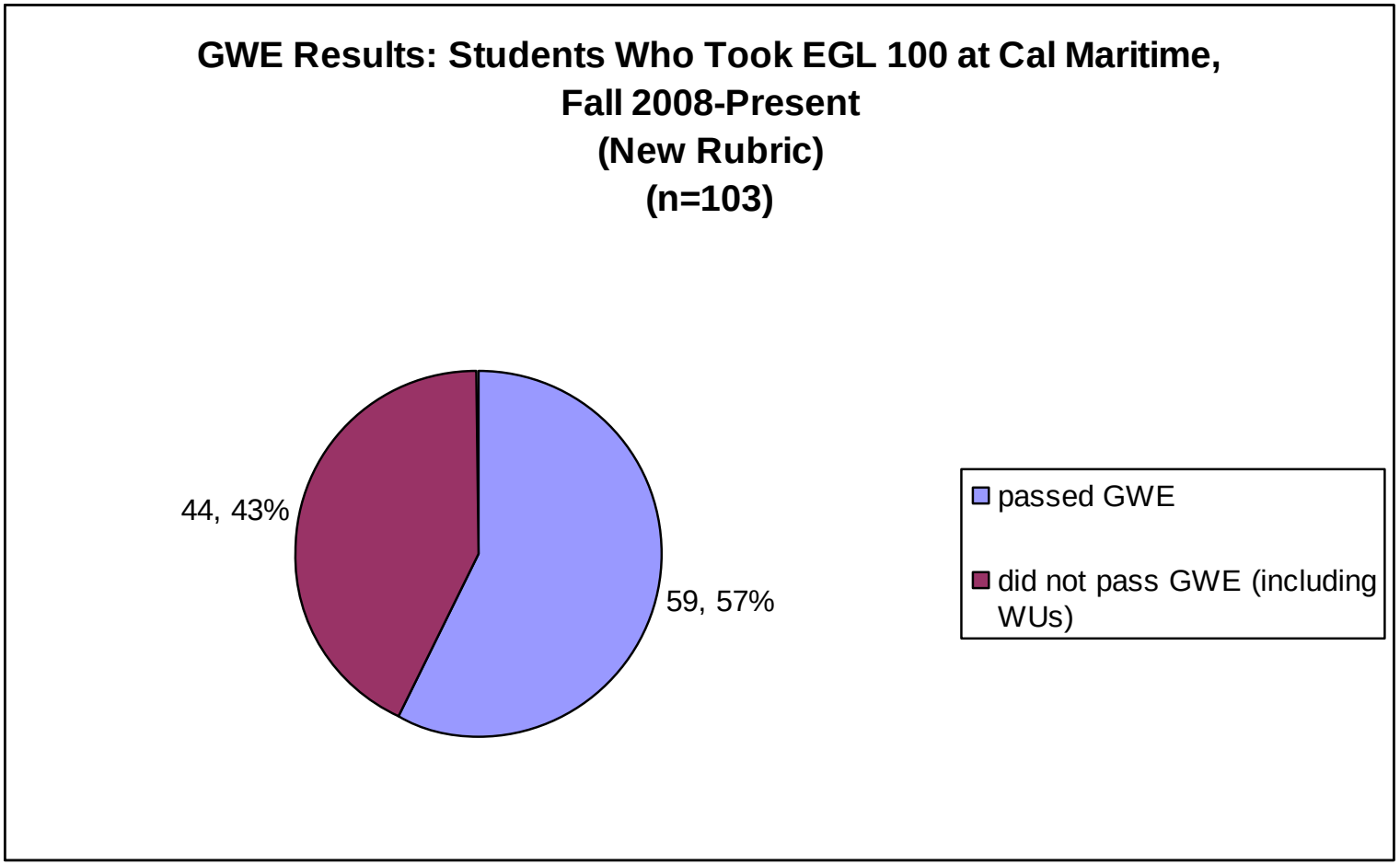

GWE Results: Students Who Took EGL 100 at Cal Maritime, Fall 2008-Present (New Rubric) (n=103)
44, 43%
59, 57%
passed GWE
did not pass GWE (including WUs)

Figure 21

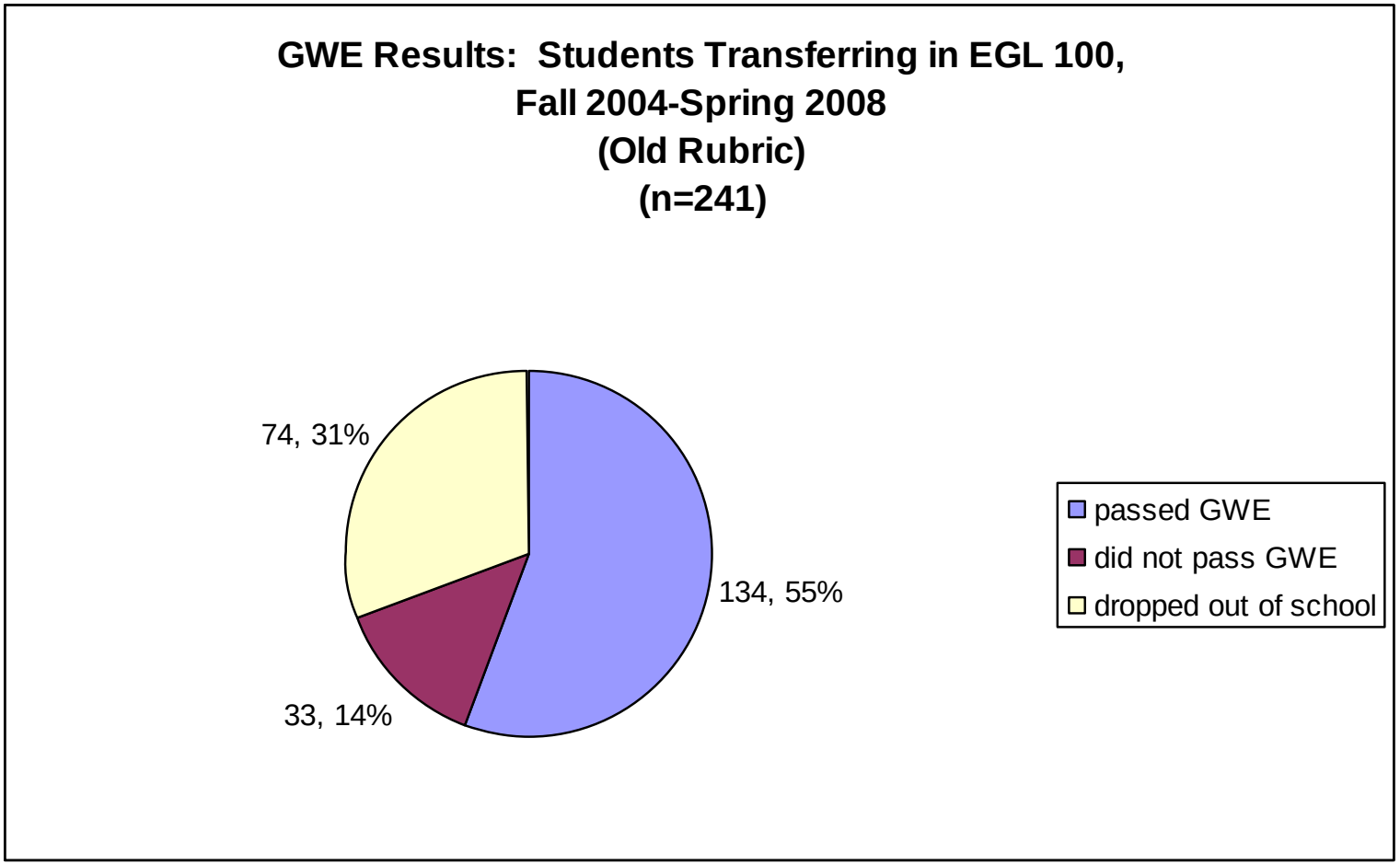

GWE Results: Students Transferring in EGL 100,
Fall 2004-Spring 2008
(Old Rubric)
(n=241)
74, 31%
134, 55%
33, 14%
passed GWE
did not pass GWE
dropped out of school

Figure 22

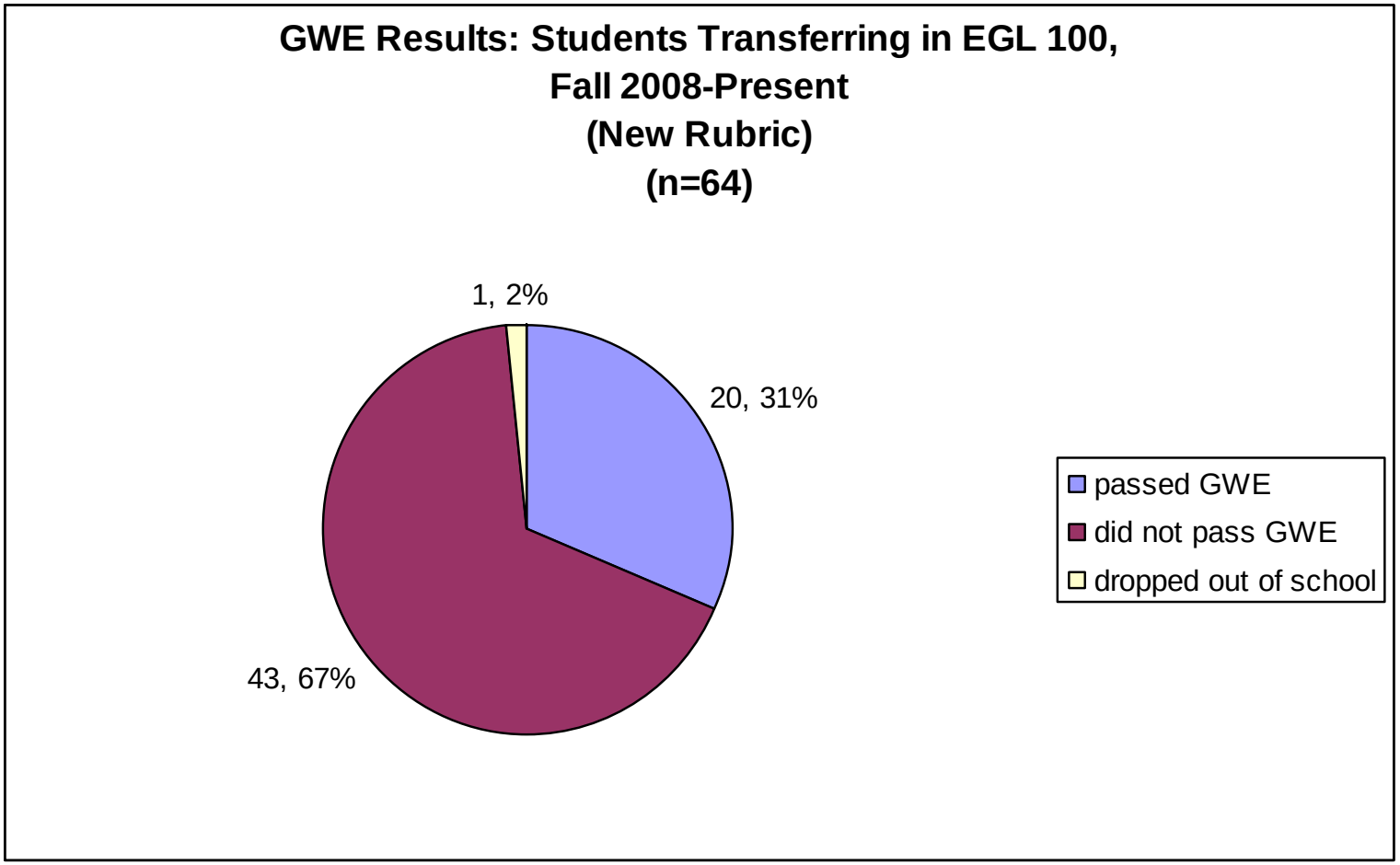

GWE Results: Students Transferring in EGL 100,
Fall 2008-Present
(New Rubric)
(n=64)
1, 2%
20, 31%
43, 67%
passed GWE
did not pass GWE
dropped out of school

Figure 23

Information Fluency Program Assessment at Cal Maritime Using the iSkills and iCritical Thinking Tests

Michele Van Hoeck
Information Fluency Coordinator

Background

In Fall 2006, the Cal Maritime Library administered a standardized information literacy test, iSkills, to entering freshmen, Class of 2010. iSkills was created by the Educational Testing Service (ETS) to assess student mastery of the Association of College and Research Library (ACRL) Information Literacy Standards. Funding for the testing was provided by a California State University Information Competence Grant.

Approximately 57% of the total freshman population at that time was tested (137 students). In Spring 2007, the same test was administered to a portion of graduating seniors. (32%, 49 students). Both sets of tests were intended to provide a baseline score for assessment of information fluency instruction in the succeeding years.

The average scores of Cal Maritime students on the iSkills test in 2006-07 were neither significantly higher nor lower than the national median. Freshmen had a mean score of 554, while seniors' mean score was 556. The range of scoring was 400 to 700; the national median score was 554.

By Fall 2007, a new 2-unit Information Fluency course commenced (LIB100), required for freshmen Marine Engineering Technology and Global Studies majors. Furthermore, a more systematic program of information fluency instruction via classroom visits began, compared to previous years, based on curriculum mapping completed in 2005 and 2006. The freshmen who took iSkills in Fall 2006 would, in the coming years, typically receive instruction from a librarian on 7-8 separate occasions as part of our course-integrated information fluency program. From Fall 2007 up to and including Fall 2009, all freshmen students in LIB100 took the iSkills test on the second day of class.

The goal of this project was to improve cumulative Cal Maritime senior performance by 20% in the class of 2011, the first class that would have taken LIB100. We elected to test senior performance of the class of 2010, since they were the first group to take the iSkills test, and could help us assess our course-integrated instruction program for the years 2006-2010. Furthermore, they would be the last group to have no instruction via a full-semester course, and so would serve as another point of comparison to assess LIB100 in 2011.

Spring 2010: iCritical Thinking

By the Spring of 2010, ETS had replaced the iSkills assessment test with iCritical Thinking, a certification test for information and communication technology skills. iCritical Thinking was marketed as comparable to iSkills, with a few key differences: 1) a shorter test, without the one

long task included in the original; 2) both “Core” and “Advanced” tasks (Cal Maritime previously tested with just the “Advanced” version of iSkills); and 3) an adjusted scoring system. ETS provided a concordance to convert iSkills scores to the iCritical Thinking scale.

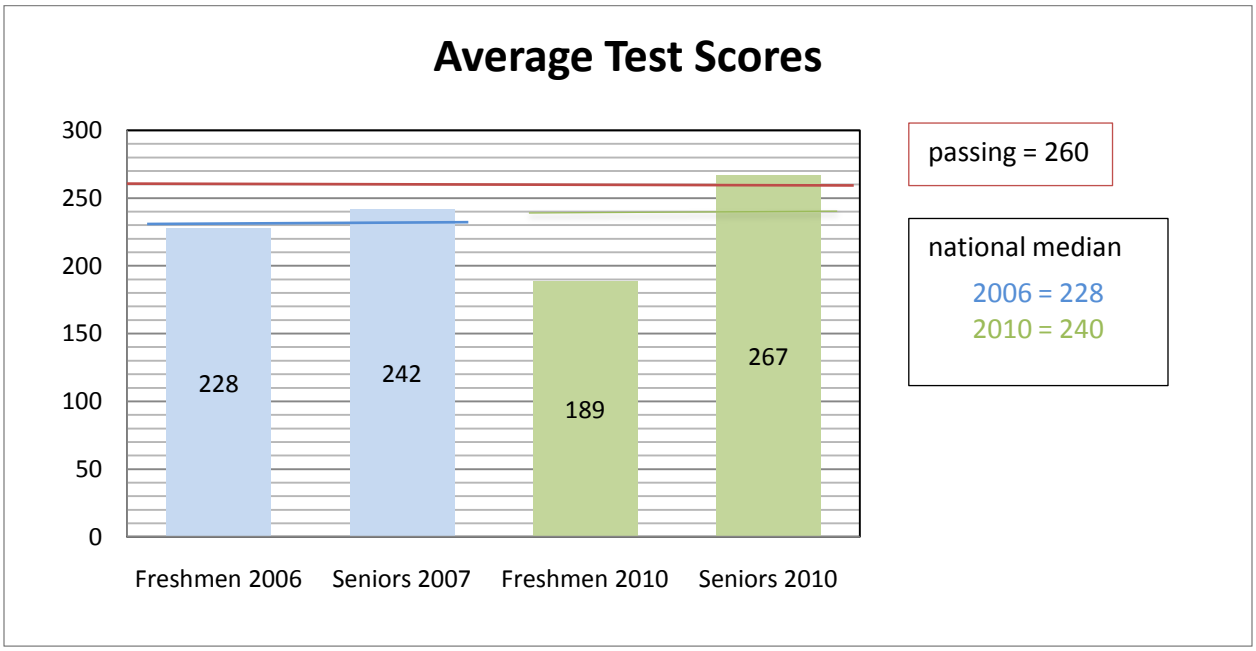
Unfortunately, the original version of the iSkills test was not available to be administered in Spring 2010, so we chose to test Cal Maritime graduating seniors with iCritical Thinking, acknowledging that this assessment of information fluency instruction would be imperfect. We intend to move to a new assessment instrument in Fall 2010 for testing freshmen students in LIB100, for both content and technical reasons.

Contacting & Testing the Class of 2010

Of the original group of 137 freshmen who took the ICT test in Fall 2006, only 83 remained at Cal Maritime in Spring 2010. These seniors were solicited by email and via notices in the Library to take the iCritical Thinking test. A total of 27 students responded and took the test in April, a few weeks before graduation.

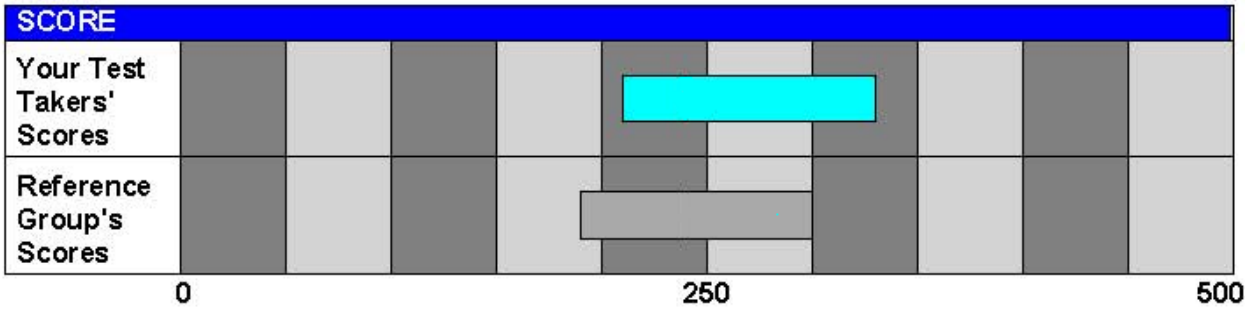
This subgroup of senior testers turned out to be representative of the original group, score-wise. The average score of these students as freshmen was 554, the exact average of the original freshman group in full.

Results



2006-2007 scores converted to iCritical Thinking score range via ETS conversion table

Just under half (48%) of Cal Maritime seniors passed the iCritical Thinking Test. As freshmen in 2006, 35% of the same group of students achieved a comparable score on iSkills.



Boxes indicate range of test scores for middle 50% of the group.

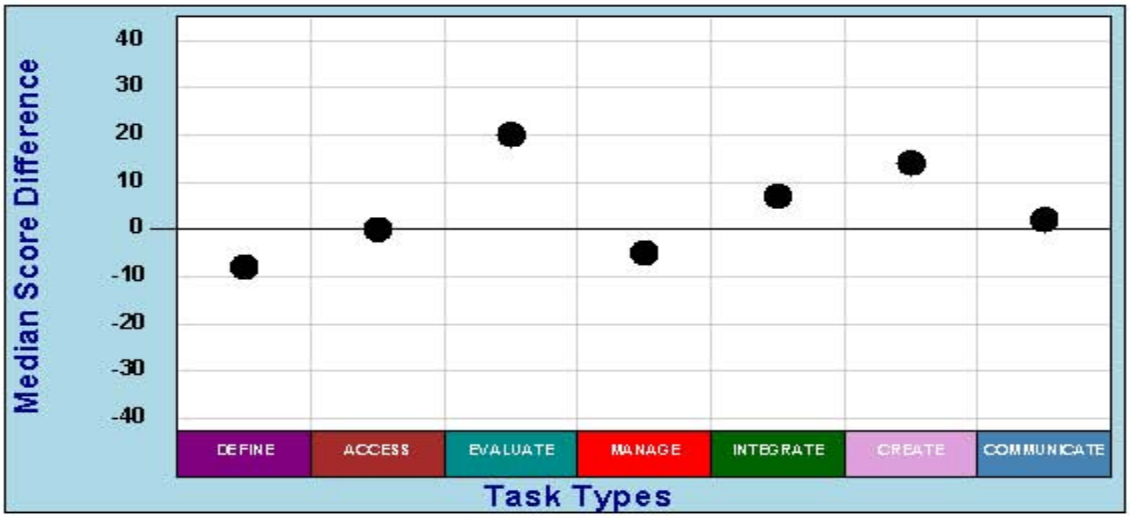
The scoring range for iCritical Thinking is 0 to 500, in increments of 10 points, with a passing score being 260. The average score for Cal Maritime seniors was 267, which represented an 18% gain compared to the students' score as freshmen, and a 15% improvement over the baseline score of Cal Maritime seniors in 2007 (232, when converted to the iCritical Thinking scale). The national reference group (consisting of college students and adults in the workforce) had a median score of 240.

The Class of 2010, therefore, seems to have achieved a appreciable improvement in information fluency skills, compared to students who graduated four years earlier. But the change in test format cautions against a conclusive finding. With iCritical Thinking missing the "long question" and containing more basic or "core" tasks relative to the original iSkills used for the baseline, one might be inclined to attribute the higher scores to an easier test. But the passing rate for Cal Maritime freshmen taking the same test in Spring 2010 was 11%, much lower than the passing rate for the Class of 2010 as freshmen (35%), which does not suggest an easier test.

Ultimately, the change in test format limits our ability to assess with confidence the information fluency program in place during the Class of 2010's time at Cal Maritime.

Task Type Breakdown

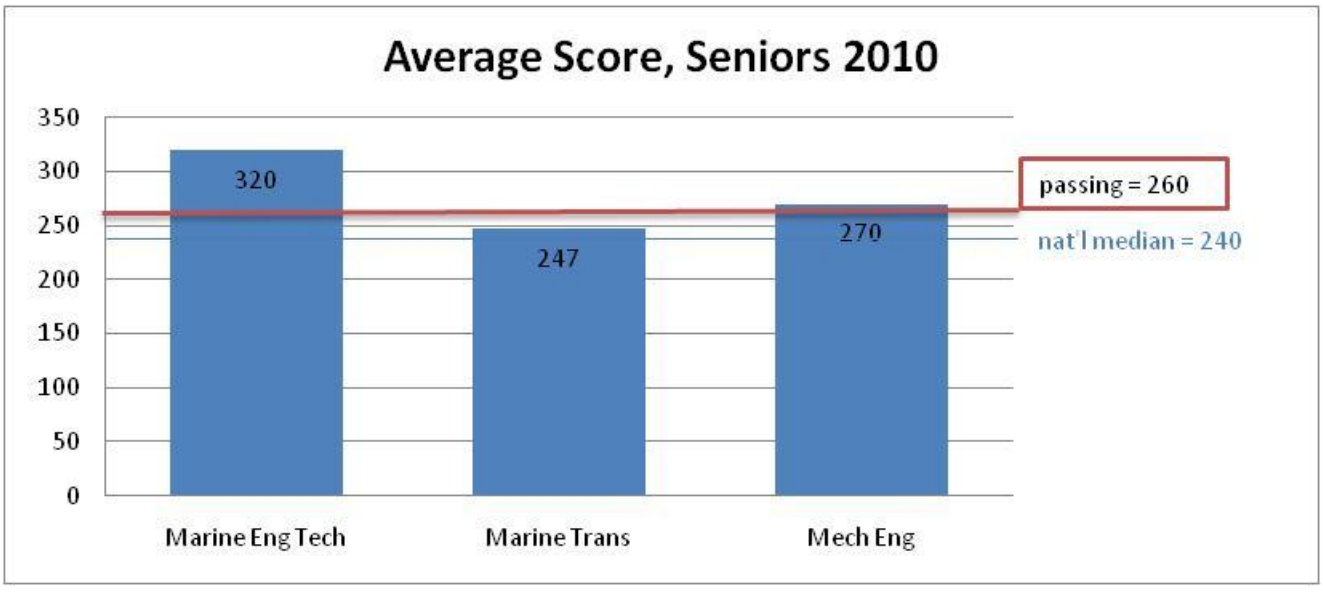
One of the useful aspects of the original iSkills test was its detailed report on scores broken down roughly by ACRL information literacy standards. Unfortunately, iCritical Thinking offers a much more abbreviated report which cannot be compared with the original data from iSkills.



Round symbol indicates Cal Maritime performance compared to the national reference group, as a percentage over or under the median.

Based on ETS descriptions of task types and example questions from the iCritical Thinking test (see attached document), the skills that most closely match the course-integrated information fluency instruction via the Library at Cal Maritime are the first three: Define, Access, and Evaluate. The chart above indicates that Cal Maritime seniors were stronger in evaluation skills (20% over the national median) and weaker in defining skills (8% under the median), which ETS describes as "understanding and articulating the scope of an information problem" (see attachment for example test questions for these skills).

Comparing Majors



Marine Engineering Technology majors scored highest on average and also had an 80% passing rate. Both Marine Transportation and Mechanical Engineering majors had a 40% pass rate, with lower average scores of 247 and 270, respectively. Only one Business major and one Global Studies major took the test, so no averages are reported here for those majors.

There was no difference between majors in formal information fluency instruction for this group of students tested. The typical student in this sample had approximately five classes in which a librarian provided 1-2 sessions of instruction. There was no correlation between test score and the number of Information Fluency instruction sessions offered. Students who had fewer instruction sessions were usually transfer students who received credit for EGL100, EGL220, and/or COM100, all classes which included two information fluency sessions. As stated previously, none of these students had LIB100, as it was first offered in Fall 2007 and not required for the Class of 2010.

The higher performance by Marine Engineering Technology majors may be attributable to a more opportunities to practice information fluency skills in their required courses, but that information is unavailable. In general, the sample size for each major is too small to draw definitive conclusions related to major.

Conclusion and Recommendation

By all measures available, the Cal Maritime Information Fluency Program appears to have effected some improvement in student learning during the years 2006-2010, relative to 2003-2007. Tested seniors in 2010 scored 15% higher than the baseline group of 2007 seniors. The difference between senior and freshmen scores was much greater in 2010, as was the amount by which our students beat the national median (11% vs. 2%). The improvement in test scores does not appear to be due to a shortening of the test or inclusion of more basic tasks. It may, however, be related to the greater percentage of work and personal-life scenarios used for the test questions.

Despite this improvement, fewer than 50% of Cal Maritime graduates achieved a score that would "certify" them to an institution (academic or workplace) looking to evaluate their information fluency skills via this ETS instrument.

The Task Type report suggests at least one area on which to focus instruction improvement efforts, and also corresponds with the findings of an independent survey conducted (coincidentally) within weeks of our iCritical Thinking testing. Project Information Literacy surveyed students nationally and here at Cal Maritime and reported that students find the initial "defining" stage of research to be by far the most difficult[1]. This finding, along with the lower-than-median scores for "defining" tasks on the iCritical Thinking test, indicate a need to strengthen this aspect of information fluency instruction at Cal Maritime.

The original goal of 20% improvement in average senior score, which was proposed in the initial grant report submitted August 1, 2007, may still be evaluated by following through with that

[1] Head, A. and Eisenberg, M. (2010) . *Project Information Literacy survey summary: Cal Maritime*. Unpublished report, The Information School, University of Washington.

report's recommendation to test seniors in 2011. While a new assessment tool is planned for freshmen entering in Fall 2010, it would be worthwhile to use the iCritical Thinking instrument to test graduating seniors in Spring 2011. Despite its limitations, it will allow the Library to compare student learning via the course-integrated instruction program vs. learning via a full-semester Information Fluency course taken as a freshman. Using the same test in 2011 as 2010 will provide a more valid set of data than available for this report.

Every effort should be made to obtain a larger sample size of seniors tested in 2011 and to obtain a large, representative sample from every major on campus. The Information Fluency Coordinator will contact faculty teaching senior capstone classes at the beginning of the Spring 2011 semester to request access to one class session for testing each major.

Appendix VII, Section J, Subsection c.

As a case study, the following excerpt showcases the strategies, techniques, and results of "discipline specific knowledge" in the Department of Global Studies and Maritime Affairs.

Sample of GSMA Program Assessment and Outcomes; 2009-2010

The course outcomes are directly assessed, and are tied to the program outcomes as shown in the course syllabi and summarized in Table 2; therefore as the course outcomes are met, the program outcomes are met. Because the outcomes and objectives are linked as explained above, as the program's educational outcomes are met, the program's objectives are achieved.

The process to ensure that the program's objectives and educational outcomes are met begins with the course assessment. The Program Outcomes are satisfactorily met if there are *multiple* courses that satisfy both the following criteria: (1) average assessment value of at least 3 (on a 5-point scale) and at least a 2 (on a 4-point scale); and (2) at least 70% of the students assessed achieve a 3 or better score.

The other data used to check if the program meets its outcomes include data from the Senior Seminar course survey of faculty; the senior exit survey; and the student evaluation of the instructor and course (SEIC) surveys performed in each class.

Each summer the GSMA faculty meet to discuss assessment results and other program issues. The data is analyzed as a group, and a report is written summarizing the assessment results.

Table 2
Course Coupling to Program Outcomes

	Outcome	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Course															
Year 1	GMA 100	I	I	I	R	I	I	I	I	I	I	I	I	I	I	I
	GMA 105	I	I	I		I	I	I	I	I	I			I		
	GMA 120	R	R	R		R	R	R	R	R	R	R	R	R	R	R
Year 2	GMA 200	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
	GMA 210	I	I		I		R	R	R	A		I	I	I	I	I
	GMA 211	R	R		R		R	R	R	A		R	R	R	R	R
	GMA 215	I	I		I	I	I	I	I	I	I	I	I	I	I	I
	GMA 220	R	R	R		R	R	R	R	R	R	R	R	R	R	R
	GMA 225	R	R	R		R	R	R	R	R	R	R	R	R	R	R
Year 3	GMA 300	A	A	A		A	A	A	A	A	A	A	A	A	A	A

Table 2 Course Coupling to Program Outcomes																
	Outcome	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	GMA 310	R	R	R		R	R	R	R	R	R	R	R	R	R	R
	GMA 320	R	R	R		R	R	R	R	R	R	R	R	R	R	R
	GMA 330	A	R	A	A	A	A	A	A	A	A	A	A	A	R	R
	GMA 360	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	CEP 330	R	R	A	R		R	R	R	R	R	A	A	A	A	A
	HIS 300	R	R	A	A		A	R	R	R		A	A		R	R
	HIS 315	R	R					R	R	R		R	R	A	A	A
	HIS 316	R	R					R	R	R		R	R	A	A	A
Year 4	GMA 400	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	GMA 401	A	A	A		A	A	A	A	A	A	A	A	A	A	A
	GMA 405	A	A	A	R	A	A	A	A	A	A	A	A	A	A	A
	GMA 410	A	A	A	R	A	A	A	A	A	A	A	A	A	A	A
	GMA 430	A	A	A		A	A	A	A	A	A	A	A	A	A	A
	GMA 450	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
	HUM 400	A	A	A		A	A	A	A	A	A	A	A	A	A	A
I: Introduced		R: Reinforced				A: Advanced										

As indicated by Table 3, the students are clearly achieving at minimum a "developing" understanding of the discipline specific knowledge of their course work in the GSMA program. Indeed, not only have students demonstrated a 70+% in all 10 of the courses assessed, but in 6 of the classes, 70+% students have achieved a mastery of the material either at the competent or proficient level.

Table 3 Discipline Specific Knowledge						
Course	Assessment Score					
	Goal (70+%) Rubric	Proficient (A, 90-99%) 4	Competent (B, 80-89%) 3	Developing (C, 70-79%) 2	Marginal (D, 60-69%) 1	Unacceptable (F, 1-59%) 0
GMA 105 Fall 09	Maritime Economics, Maritime Security, Maritime Environmental Issues					
52%*	79%	33%	19%	26%	21%	0%
61%	75%	33%	28%	15%	25%	0%
66%	88%	43%	23%	23%	13%	0%
GMA 215 Fall 09	Political Frameworks and Institutions, Structure, Electoral System, Executive, Legislature and Judiciary, Political Culture and Socialization, Ideologies and Belief Systems, Political Economy, Interest Groups, Political Parties, Media, Country Issue Areas					
76%	92%	34%	42%	16%	6%	2%
GMA 300 Fall 09	Patterns and Process, Historical Perspective, Military, Diplomacy International Political System, World Political Economy, Value, Beliefs and Preferences, Presidential Preeminence, Foreign Policy Bureaucracy, Congress and Foreign Policy, Rational Choice, Bureaucratic Organizations, Leadership Characteristics					
46%	71%	15%	31%	25%	18%	11%
GMA 405 Fall 09	International Organizations, Neoliberal Institutionalism, International Maritime Organization (IMO), United Nations, Organizational Theory, International Interaction and Cooperation					
92%	97%	26%	66%	6%	3%	0%
97%	100%	26%	71%	3%	0%	0%
89%	100%	23%	66%	11%	0%	0%
GMA 100 Spring 10	Theories of International Relations, Foreign Policy, International Conflict, International Political Economy, Military Power, Terrorism, Weapons of Mass Destruction (WMD), International Development					
83%	96%	36%	47%	13%	2%	2%
86%	100%	43%	43%	14%	0%	0%
93%	100%	33%	60%	7%	0%	0%

GMA 120 Spring 10	History of Environmental Policy, Major Environmental Debates, U.S. Environmental Policy, Public Lands, Water Issues, Energy and the Environment, Waste and Disposal, Air Quality, Climate Change, Sustainability					
87%	95%	22%	65%	8%	5%	0%
89%	100%	6%	83%	11%	0%	0%
GMA 220 Spring 10	Maritime Economic, Political and Environmental Issues					
99%	100%	61%	38%	1%	0%	0%
GMA 310 Spring 10	Oil Around the World, Oil and International Political Economy (IPE), Oil and Contemporary International Relations, Oil and International Conflict, Organization of Petroluem Exporting Countrie (OPEC), Case Studies (Saudi Arabia, Russia, United States, Canada, Venezuela, Nigeria, United Arab Emirates), The Politics of Liquefied Natural Gas (LNG)					
53%	94%	18%	35%	41%	6%	0%
94%	100%	25%	69%	6%	0%	0%
GMA 330 Spring 10	Maritime Security, Maritime Threats, Maritime Disaster + Response					
60%	60%	27%	33%	0%	33%	7%
60%	73%	40%	20%	13%	7%	20%
7%	7%	0%	7%	0%	33%	60%
HIS 300 Spring 10	US maritime cultural, economic, and social history					
71%	94%	39%	32%	23%	7%	0%
74%	93%	29%	45%	19%	7%	0%
HIS 316 Spring 10	World maritime, cultural, economic, social and technological history					
77%	100%	23%	54%	23%	0%	0%

Table 4 presents the assessment results for writing skill. The findings indicate that students are achieving between 80% and 94% at the acceptable and/or excellent level of mastery for content; between 90% and 100% for mechanics; and between 80% and 100% for organization.

Table 4 Writing Skills				
Course	Assessment Score			
	Goal (70+% - 3) Rubric	Poor 1-2	Acceptable 3-4	Excellent 5-6
GMA 105 Fall 09	Maritime Economics, Maritime Security, Maritime Environmental Issues			
Content	79%	21%	45%	34%
organization	66%	34%	45%	21%
mechanics	77%	23%	53%	24%
GMA 215 Fall 09	Political Framework (unitary, federal, con-federal), Electoral System (single-member or proportional), and Executive/Legislative Structure (presidential or parliamentary)			
Content	85%	15%	44%	41%
organization	100%	0%	62%	38%
mechanics	100%	0%	62%	38%
GMA 300 Fall 09	US hegemony, power distribution of the international system, US security interests, globalized economy, imperial overstretch, public opinion			
Content	93%	7%	60%	33%
organization	93%	7%	64%	29%
mechanics	93%	7%	64%	29%
content	100%	0%	44%	56%
organization	100%	0%	63%	37%
mechanics	100%	0%	63%	37%

GMA 330 Spring 10				
content	94%	6%	75%	19%
organization	94%	6%	75%	19%
mechanics	94%	6%	81%	13%
HIS 101 Fall 09	US cultural, social, economic and technological history			
content	80%	20%	50%	30%
organization	80%	20%	50%	30%
mechanics	90%	10%	60%	30%
HIS 300 Spring 10	World maritime, cultural, economic, social and technological history			
content	90%	10%	40%	50%
organization	90%	10%	60%	30%
mechanics	80%	20%	70%	10%

California Maritime Academy
Department of Mechanical Engineering
Assessment System Manual

Revised June 2010

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Overview

This document presents the assessment system for the Mechanical Engineering department at the California Maritime Academy (CMA), a specialized campus of the California State University. The assessment methods presented have been selected for compatibility with the ABET EAC criteria, but are application for other internal and external program reviews (e.g. WASC review and CSU program review). The main purpose of this assessment procedure is to monitor the performance of the program, to ensure it meets its educational objectives, and to use the data collected for continuous improvement of the program.

The document is intended as a guide to faculty members in acquiring, analyzing, and reporting assessment data. By following the procedures described, we help ensure that we have a uniform and consistent assessment system in place for the department. The data will provide evidence on how well we are achieving our outcomes and objectives, and will help guide future program improvements.

Mechanical Engineering at the California Maritime Academy

The California Maritime Academy (CMA), was originally founded in 1929 as the California Nautical School. It became the 22nd campus of the California State University (CSU) in 1995. The California Maritime Academy is the smallest campus of the California State University system. It offers degree programs in Business Administration, Facilities Engineering Technology, Global Studies and Maritime Affairs, Marine Engineering Technology, Marine Transportation, and Mechanical Engineering. The Mechanical Engineering program is the only engineering program at the campus, and confers only the bachelor degree. At present, the department consists of 6 faculty and 148 students.

All those who receive the ME degree follow the same core curriculum, which is designed to maintain the mission and learning objectives of the academy as well as the educational objectives of the program. However, students may choose to overlay additional coursework and training that is oriented toward particular job fields within the broader spectrum of mechanical engineering.

The US Coast Guard License (USCG) option, which leads to a USCG Third Assistant Engineer's license, is designed for students who wish to use their engineering degree as a marine engineer. The curriculum includes the courses that define the core ME program as well as the license and cruise course requirements that define the USCG option. Students in this option must complete all of the competencies for the Standards for Training and Certification of Watch-keepers (STCW) as set by the International Maritime Organization (IMO). In addition they are required to take and pass the 3rd Assistant Engineer's License exam as administered by the U.S. Coast Guard. These students participate in three sea-training cruises: two aboard the CMA training ship Golden Bear and one aboard a commercial vessel.

Those students who follow the ME option are not interested in pursuing a career in the merchant marine. In keeping with our mission and values, the ME option retains some of the strong practical training and hands-on aspects of the USCG option, but to a lesser degree. The curriculum includes the courses that define the core ME program as well as the requirement for sea training in their first year. This practical training distinguishes CMA from most engineering schools, and provides an added dimension to our graduates. In addition to one cruise, the ME option requires two summer internships for students to work onsite in an industry or research facility for a 2-3 month period under an engineering supervisor.

Based upon surveys and contact between faculty and alumni, we find our ME graduates in a variety of fields. Many sail with the merchant marine, at least for a few years, but it is common to see graduates change their career path and seek a shore-side engineering position or return to school for graduate study. In addition to the maritime transportation industry there is a significant representation of our alumni in the areas of power generation, HVAC, and facility commissioning and engineering.

The ME program identifies its significant constituencies as students, faculty, alumni, the engineering profession and prospective employers, and our External Advisory Board (EAB). The department seeks to include these constituencies in its assessment process.
Our External Advisory Board includes representation from industry, the ASME professional society, and academia. The EAB meets twice a year: once in the fall and once in the spring semester. The spring meeting is scheduled on the same day as the senior design presentations to allow EAB member participation in the assessment of student performance. Additional interaction among employers, students, alumni and faculty takes place during an annual career fair on campus. CMA alumni are typically strong supporters of our program and are involved with the Academy through the alumni association and its board of directors.

Vision and Mission Statements

The *vision* of the California Maritime Academy is:

> *The California Maritime Academy will be a leading educational institution recognized for excellence in business, engineering, operations, and policy of the transportation and related industries for the Pacific Rim and beyond.*

The *mission* of California Maritime Academy is to:

- *Provide each student with a college education combining intellectual learning, applied technology, leadership development, and global awareness*
- *Provide the highest quality licensed officers and other personnel for the merchant marine and national maritime industries*
- *Provide continuing education opportunities for those in the transportation and related industries*
- *Be an information and technology resource center for the transportation and related industries.*

The mission of the Mechanical Engineering program is:

> *The mission of the Mechanical Engineering program is to produce entry-level professionals capable of applying their knowledge of science and engineering in the design, analysis, evaluation, and production of engineering devices and systems. It also provides students with the necessary academic preparation for further education and professional development in their chosen careers.*

Institution-wide Student Learning Outcomes

Consistent with the mission of the California Maritime Academy to provide each student with a college education combining intellectual learning, applied technology, leadership development, and global awareness, The learnig community at CMA has defined a set of institutional learning outcomes. Our graduates will develop and apply the following competencies through participation in curricular and co-curricular learning opportunities provided by the Academy:

I. Intellectual Learning

- Communications
    - The ability to coherently and persuasively share information with others via oral, written, visual and listening communication skills.
- Critical and creative thinking

    - The ability to comprehend, analyze and objectively evaluate new information and ideas, so as to develop informed opinions, and to explain things in a new or different way, often through synthesizing or applying intuition.
- Problem solving and quantitative literacy
    - The ability to exercise intellectual inquiry via the use of sound reasoning to identify, predict, analyze and solve problems, and to formulate, evaluate, and communicate conclusions and inferences from numerical information.
- Human development and the natural world
    - The ability to demonstrate an understanding of fundamental concepts in the humanities, social, physical and life sciences.
- Lifelong learning
    - The ability to employ self-knowledge of the social and cognitive factors influencing the learning process, to engage in ongoing reflection and exploration of the purpose of personal development, and to synthesize and apply knowledge and experiences to new personal and professional applications.

II. Applied Technology and Professional Development

- Mastery of discipline specific skills in maritime related fields
    - The ability to demonstrate competency in discipline specific skills.
- Information fluency and computing technology
    - The ability to define a specific need for information, and to then locate, access, evaluate, and effectively apply the needed information to the problem at hand and to effectively use computers and computing applications in order to create, access, store, process, analyze and communicate information.
- Use of simulation tools
    - Ability to use simulation tools in problem solving and analysis.

III. Leadership, Teamwork and Personal Development

- Leadership, teamwork and interpersonal relationships
    - The ability to work with other people in achieving common goals, and, when necessary, to envision new goals and to motivate and empower others to achieve them and to interact constructively with a diverse group of people and foster collegiality, good will, and community among them.
- Professional conduct
    - The ability to behave and perform in a manner that is accepted in one's profession and to move oneself continuously toward a goal or set of goals, despite personal difficulties, obstacles, and time constraints.

IV. Global Awareness and Social Responsibility

- Ethical awareness
    - The ability apply standards of proper conduct and responsibility towards society in one's professional and personal life.
- Global stewardship
    - The ability to demonstrate an awareness of diversity in global culture and environment, and an understanding of the responsibilities associated with promoting the welfare of state, country, whole of humanity, and planet.

Assessment System History and Current Status

The ME Assessment System, shown in Figure 1, consists of two main processes (loops): the Program Educational Objective processes and the Program Outcome processes.

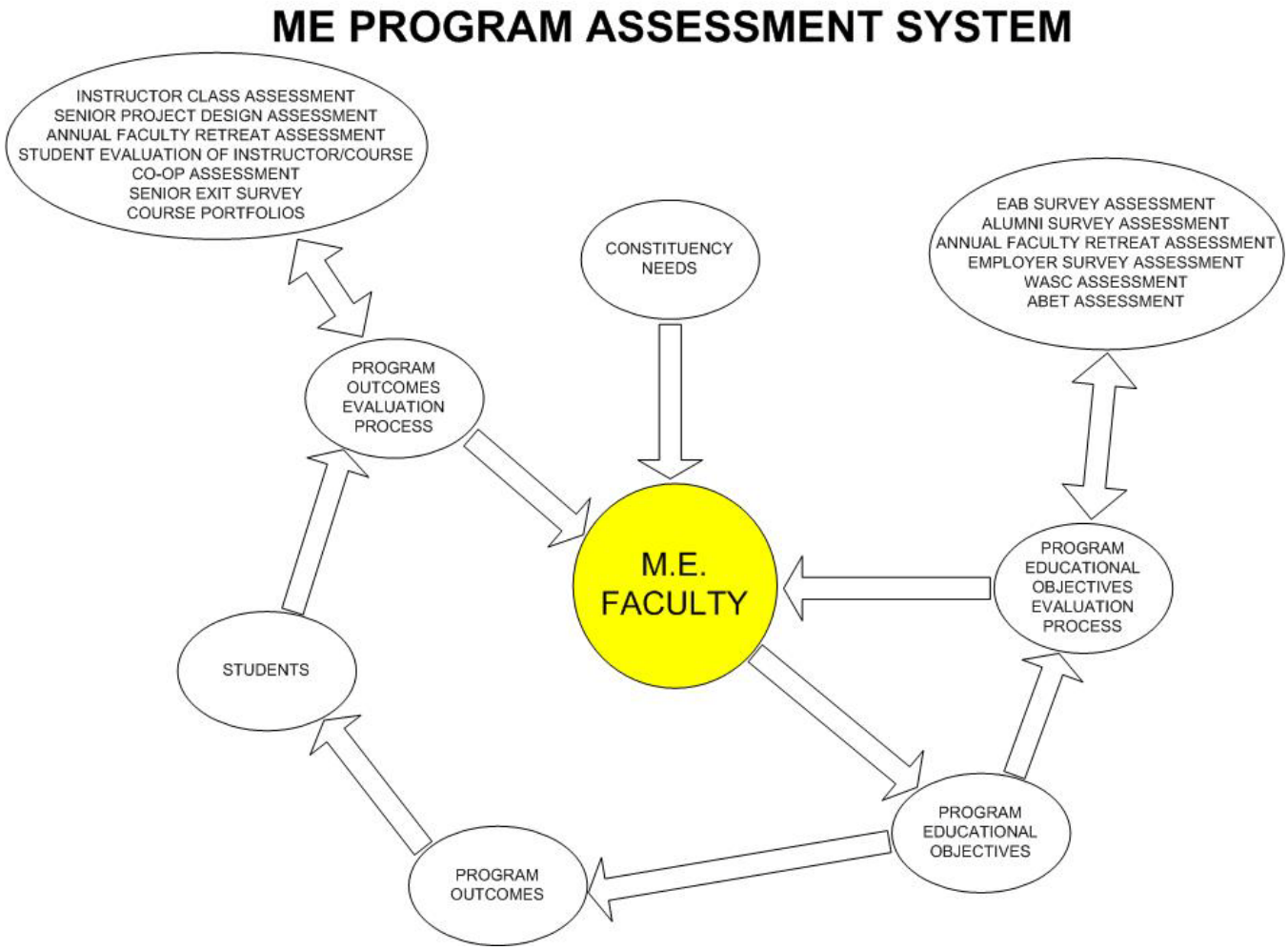

Figure 1

Program Educational Objectives Processes

The 2008 ABET program review identified a weakness in the PEO and the process used to define them. In response to this, the process for defining PEO was revised to be more inclusive of our constituencies, and the PEO were redefined. The response was transmitted to ABET EAC, and as a result this weakness was determined to be resolved. The process for defining PEO is as follows:

- The faculty will review existing program objectives to ensure that they are consistent with the mission of the academy, the department mission and the ABET criteria, and will create revised objectives as necessary.
- The objectives will be provided to a representative group of graduates and employers for evaluation and suggested revisions.
- The faculty will evaluate responses from graduates and employers, and will modify the objectives to reflect the responses.
- The modified list of program objectives will be presented to the External Advisory Board for comment and final approval.
- This process will normally be done every 3 years, but will also be done anytime that the mission statements of the institution or department, or the ABET criteria are changed.

The current ME Program Educational Objectives (PEOs), revised in April 2009 using this process are listed below. They are published in the official school catalog as well as the school web site: www.csum.edu:

Mechanical engineering graduates of the California Maritime Academy will:

A. Be well educated professionals who utilize their intellectual learning, applied technology experience, leadership skills, and global awareness in successful careers; and continue to improve their skills through lifelong learning and advanced studies.

B. Effectively practice as professional engineers, managers, and leaders in the maritime and energy industries and a wide variety of other fields; and as licensed engineers in the merchant marine.

C. Successfully combine fundamental engineering knowledge, core leadership skills, and the practical experience gained at the Academy to turn ideas into reality for the benefit of society.

D. Be influential members of multidisciplinary teams; creatively and effectively contributing to the design, development, and objective evaluation of engineering components, systems, and products; and clearly communicating the work in an appropriate manner to their customers and colleagues.

E. Personally assume and actively encourage peers to uphold the professional, ethical, social, and environmental responsibilities of their profession.

The process to assess and evaluate attainment of the PEO includes indirect measures that include EAB, employer, and alumni surveys as well as WASC (Western Association of Schools and Colleges), and ABET reports. Additionally, meetings such as the President's retreat, Academic Senate retreat, and the ME department retreats provide opportunities for the ME faculty to evaluate attainment of the PEO and alignment with institutional objectives and the needs of constituents.

The EAB and Employer surveys seek to assess and evaluate the degree to which our graduates meet and achieve our PEOs from the EAB and employers' perspectives. This assessment process takes place periodically: the surveys are collected and are processed every six years, and the results are used to evaluate the achievement of the program objectives. The surveys are included in Appendix A.

Alumni input on objectives is solicited and documented through periodic alumni surveys. These surveys seek not only to find if our alumni believe that we are satisfying our objectives, but also how important they consider each objective is to them. This survey is also included in Appendix A.

In addition to the indirect surveys to assess our Program Educational Objectives, the annual direct (and indirect) assessment of our Program Outcomes is also used to assess attainment of our PEO, as they are linked together as discussed later.

As a final step in the Educational Objectives review process, the recommendations of the faculty are presented to the EAB for discussion, revision and approval. This EAB review is documented in the minutes of the meeting.

Program Outcomes Processes

The program outcomes (PO) that are in place are published in the official school catalog and school web site. They are communicated to the students in course syllabi and are communicated to entering ME students in ENG 110, Introduction to Engineering and Technology. They are communicated to the alumni, employers, and EAB in various forms such as surveys to solicit feedback for the department. The PO are reviewed using a similar process to the PEO to ensure that they remain in alignment with the institution and the constituents.

The current ME Program Educational Objectives (PEOs), revised in October 2009 using this process are listed below. They are published in the official school catalog as well as the school web site: www.csum.edu.

Graduates of our program will have:

1. an ability to apply knowledge of mathematics, science, and engineering
2. an ability to design and conduct experiments, as well as to analyze and interpret data
3. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economics, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
4. an ability to function on multi-disciplinary teams
5. an ability to identify, formulate, and solve engineering problems
6. an understanding of professional and ethical responsibility
7. an ability to communicate effectively
8. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
9. a recognition of the need for, and an ability to engage in life-long learning
10. a knowledge of contemporary issues
11. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
12. an ability to apply principle of engineering, basic science, and mathematics (including multivariate calculus and differential equations) to model, analyze, design, and realize physical systems, components or processes
13. ability to work professionally in both thermal and mechanical systems areas

14. an ability to apply the "hands-on" knowledge to solve/understand engineering design problems/systems
15. an ability to demonstrate leadership roles
16. an ability to comprehend and convey technical information.

The evaluation processes for achieving POs include both indirect and direct tools. Indirect methods include the midterm student evaluations (MSE) of courses,, the student evaluations of instructor and course (SEI/C), the instructor class assessments (ICA) (all as part of course portfolios), senior project design assessments, senior exit survey, co-op report assessment, and the alumni survey.

Direct measurements of the achievement of program outcomes involve measuring the achievement of course outcomes, and the linkage of these course objectives to the program objectives.

Course Outcome (CO) Assessment and Linkage to PO and PEO

The program outcomes and objectives are achieved through a curriculum that offers a number of required as well as elective courses. Each course has defined course outcomes and course objectives that are linked to the program outcomes and objectives, and a set of rubric-based performance criteria that are used to provide quantitative measurement of how well course outcomes are achieved. Course objectives, outcomes, and performance criteria are all shown and included in the ABET Syllabi for each course. An example for one course is shown in Appendix B.

Tools for assessing course outcomes include assessment of student works (such as homework, quizzes, exams, reports, and/or project designs) that measure a specific course outcome through a performance criterion using a rubric. The rubric system assures consistency in the outcome evaluation process. The course outcomes are then used to measure the program outcomes for that course. Appendix C contains examples of the rubrics used.

The linkage among program outcomes and course outcomes is shown in Table 1. The course outcomes are thus directly and quantitatively assessed, and are tied to the program outcomes as shown in the course syllabi; therefore if the course outcomes are met, that provides direct quantitative evidence that program outcomes are met.

There are a number of program outcomes that are related to each program educational objective. The program objectives and program outcomes are related as shown in Figure 2. Because the outcomes and objectives are linked, evidence that the program outcomes are met supports the conclusion that program educational objectives are being achieved.

Note that the direct assessment of PEO and PO through the assessment of course outcomes is supplemented by the indirect measurements of PO and PEO described above.

The Process for Assessing Course Outcomes and Program Outcomes

The process to ensure that the Program Outcomes are met begins with the course assessments. For each course, the instructor assembles the rubric based assessments of student work used to assess that course outcome. From this data, the instructor calculates the average value and standard deviation of the rubric scores, as well as the percentage of students that achieved a score of 3 (satisfactory performance) or better. The quantitative assessment of all course outcomes associated with a particular program

outcome (according to Table 1) are listed under that program outcome number, and a table of overall program outcome data is created

In addition to this direct course outcome data, the qualitative survey data is also tabulated in a similar manner for each program outcome.. These data include Capstone Project I and II courses surveys of faculty and the external advisory board members; the senior exit survey; and the student evaluation of the instructor and course (SEIC) surveys performed in each class.

Each summer the ME faculty meet to review these program outcome assessment results and other program issues. The rubric data among instructors is reviewed for consistency by the faculty. The data is then reviewed and analyzed by the faculty, and a report is prepared summarizing the assessment results. An example of the report, from spring 2010, is shown in Appendix E.

The department considers a program outcome to be satisfactorily met if there are *multiple* courses assessing that outcomes and if all course outcomes associated with the program outcome satisfy both the following criterion:

- average assessment value of at least 3 (on a 1 to 5 scale)
- at least 70% of the students assessed achieve a 3 or better score.

Program outcomes that do not meet these criteria require further assessment from the faculty to determine what issues exist and how they might be addressed. Outcomes that do meet the criteria do not require further assessment, but they may be further addressed at the discretion of the faculty

	Outcome	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Course																
Year 1	ENG 110									X	X						
Year 2	ENG 210	X										X					
	ENG 250	X				X						X	X				
	ENG 250L	X										X					
	ME 220											X					
	ME 230					X											X
	ME 232	X				X											
	ME 240	X				X											
	ME 330	X				X							X				
	ME 332	X				X											
Year 3	ENG 300	X				X						X					
	ME 339	X	X			X		X				X	X	X			X
	ME 340	X				X											
	ME 342	X				X	X							X			X
	ME 344	X				X							X				
	ME 350	X				X											
	ME 350L		X														
	ME 360	X				X											
	ME 360L		X									X					
	ME 392	X		X		X							X	X			
	ME 434	X				X				X		X	X	X			
	ME 440	X		X		X								X			
Year 4	ME 394	X		X		X		X		X			X	X			
	ME 349	X	X					X				X		X			X
	ME 429			X											X		
	ENG 440	X				X		X	X	X	X						
	ME 430	X	X			X		X				X	X	X			
	ME 432	X				X						X	X	X			
	ME 442	X		X	X			X		X				X			X
	ME 444	X		X		X		X		X				X			
	ME 460	X				X						X					
	ME 460L		X									X					
	ME 490			X	X	X		X									X
	ME 492			X	X	X		X				X	X	X		X	
	ME 494			X	X			X				X		X	X	X	

Table 1 Linkage of Course Outcomes to Program Outcomes

Table 2: Program Educational Objectives vs. Program Outcomes Grid

Program Educational Objectives Mechanical engineering graduates of the California Maritime Academy will:	**Program Outcomes**															
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
A) Be well educated professionals who utilize their intellectual learning, applied technology experience, leadership skills, and global awareness in successful careers; and continue to improve their skills through lifelong learning and advanced studies.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
B) Effectively practice as professional engineers, managers, and leaders in the maritime and energy industries and a wide variety of other fields; and as licensed engineers in the merchant marine.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
C) Successfully combine fundamental engineering knowledge, core leadership skills, and the practical experience gained at the Academy to turn ideas into reality for the benefit of society.	X	X	X		X						X	X	X	X	X	
D) Be influential members of multidisciplinary teams; creatively and effectively contributing to the design, development, and objective evaluation of engineering components, systems, and products; and clearly communicating the work in an appropriate manner to their customers and colleagues.				X			X		X	X				X	X	X
E) Personally assume and actively encourage peers to uphold the professional, ethical, social, and environmental responsibilities of their profession.				X		X	X	X	X	X						

1. an ability to apply knowledge of mathematics, science, and engineering
2. an ability to design and conduct experiments, as well as to analyze and interpret data
3. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economics, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
4. an ability to function on multi-disciplinary teams
5. an ability to identify, formulate, and solve engineering problems
6. an understanding of professional and ethical responsibility
7. an ability to communicate effectively
8. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
9. a recognition of the need for, and an ability to engage in life-long learning
10. a knowledge of contemporary issues
11. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
12. an ability to apply principle of engineering, basic science, and mathematics (including multivariate calculus and differential equations) to model, analyze, design, and realize physical systems, components or processes
13. ability to work professionally in both thermal and mechanical systems areas
14. an ability to apply the “hands-on” knowledge to solve/understand engineering design problems/systems
15. an ability to demonstrate leadership roles
16. an ability to comprehend and convey technical information.

Appendix A:

Instructions for the Instructor

Instructions for the Instructor

(Revised Spring 2010)
Each faculty member in the department will be assigned classes to assess. The faculty member will be in charge of maintaining a portfolio for the course. The portfolio shall contain:

1. Class Course Syllabus (handed out to students)
2. ABET Course Syllabus (any extra material required by ABET but not handed out)
3. Direct Evaluation Methods and Results for Course Outcomes using Performance Criteria/Rubric System Description
4. Indirect Assessment Methods and Results
    a. Mid-term Student Evaluation of Instructor/Course results
    b. Student Evaluation Of Instructor/Course average scores and student comments
    c. Instructor Class Assessment
5. Sample Copies of HW/Special Assignments/Quiz/Exam/Report/Project

Syllabus

The syllabus shall accurately describe the course, its objectives and outcomes, as well as how the outcomes tie into the program outcomes. Part of the definition of course outcomes is to choose the proper way to assess these outcomes for both program outcome assessment and individual course improvement.

Samples of a course syllabus and an ABET syllabus are included in Appendix *C Program Outcome Assessment Loop. A summary of the information to include in the syllabus for assessment is below:*

Course objectives: Objectives list the overall goals of the course. They should be referenced to tie into the program objectives

Course outcomes: Outcomes list measurable goals of the course. They should be referenced to tie into the program outcomes.

Outcome rubric: Performance criteria to assess course outcomes. Rubrics should describe what will be measured, how the data will be collected, and a criterion for success or failure.

What data to collect

The basis for the data collection is the indirect assessment surveys and the quantitative rubric-based assessments. Both forms of assessment measure a course's level of meeting its course outcomes. If the course outcomes are met, then it can be concluded that the program outcomes are being met, based on the matrix connecting course outcomes with the program outcomes (Table 1).

Indirect Assessment

The indirect assessments are generally surveys. The students are surveyed mid-semester and at the end of the course, and the instructor is surveyed at the end of the course. Appendix C contains the following examples:

- A typical mid-term assessment survey.
- A typical student evaluation of the course survey.
- A typical instructor class assessment.

Quantitative Assessment

The rubric-based assessment is a quantitative technique that allows the instructor to assess the student progress at meeting the course outcomes. Any form of student work that addresses the outcomes, such as midterm exam questions, homework, oral presentations, etc. may be used. The work is assessed based on how well the student has met the course outcomes. This data is used for program assessment as well as course improvement. Model rubrics are included in Appendix D.

The syllabus for each course should define the outcome rubrics to be used, as well as the outcomes themselves (for examples, see Appendix B)

Data Collection

The instructor shall keep the data from each course in a course portfolio (or in electronic form), which may also include sample work from the class. The portfolio should have assessment data from previous years if available. The instructor's class assessment (ICA) should summarize the assessment data from the course. Also, an excel file can be used to tabulate the data uniformly for use by the program to assess its outcomes. Appendix B has examples of each of these forms.

Timeline for the semester

- Syllabus and planned assessment should be done by the beginning of class.
- The midterm assessments shall be done around the 7^{th} week of classes.
- The rubric-based assessment shall be done as the work is presented in the class, and tabulated by the end of the semester.
- Other assessment shall be finished by the end of the course.
- Annually (typically in the summer), the faculty shall meet to discuss the assessment results and review which faculty are assigned to which courses.

Appendix B:

Program Educational Objectives Assessment Loop

EAB Survey

The surveys asked the participants to rate their level of agreements, on a scale of 1 to 5, on how well prepared our graduates are in regard to the 14 items listed below. (1 = unsatisfactory, 2 = marginal, 3 = average, 4 = very good, 5 = outstanding). The 14 items are listed below:

1. Effectively apply engineering/technology in their profession
2. Compete professionally as an engineer
3. Be a leader
4. Have/apply global awareness skills
5. Be a lifelong learner
6. Realize/apply both the thermal and mechanical stems
7. Apply engineering fundamentals in solving problems
8. Model/formulate/solve engineering problems
9. Think creatively and critically
10. Synthesize information
11. Communicate effectively
12. Function effectively in multidisciplinary teams
13. Design/conduct/assess engineering experiments
14. Be a professional, ethical, socially responsible engineer

The following table shows the linkage between the above items and PEOs. Objectives are indicated with capital letters.

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14
PEO	A,C	A,B,C, D, E	A, E	A	A	B,C, D	C	C	D	D	E	D	D	E

Assessment Process for the External Advisory Board Survey

1. The Mechanical Engineering department will conduct, evaluate, and tabulate the External Advisory Board Survey. The surveys are to be conducted every 3 or 6 years (depending on ABET accreditation length) and the results are to be transmitted to the Dean and to the Mechanical Engineering Department Chair.

2. The Dean and the Chair are to review the results and transmit them to the faculty/staff.

3. If a program-related problem is identified as a result of this assessment, then the Dean and the Chair are to refer the problem to a faculty member or an appropriate committee for a resolution to the problem.

4. Process/actions/recommendations for “problem resolution” are to be documented and reported to the Dean and the Chair.

California Maritime Academy
Mechanical Engineering Department
External Advisory Board Assessment

Your assessment of the following statements will help the Mechanical Engineering Department assess its Educational Program Objectives. The department appreciates your response. Please rate your level of agreement with the following items. Note the scale used.

The mechanical engineering graduates from CMA are well prepared to:

	No Opinion	1 Unsatis-factory	2 Marginal	3 Average	4 Very Good	5 Outstand-ing
1) effectively apply engineering/ technology in their profession	☐	☐	☐	☐	☐	☐
2) compete professionally as an engineer	☐	☐	☐	☐	☐	☐
3) be a leader	☐	☐	☐	☐	☐	☐
4) have/apply global awareness skills	☐	☐	☐	☐	☐	☐
5) be a lifelong learner	☐	☐	☐	☐	☐	☐
6) realize/apply both the thermal and mechanical stems	☐	☐	☐	☐	☐	☐
7) apply engineering fundamentals in solving problems	☐	☐	☐	☐	☐	☐
8) model/formulate/solve engineering problems	☐	☐	☐	☐	☐	☐
9) think creatively and critically	☐	☐	☐	☐	☐	☐
10) synthesize information	☐	☐	☐	☐	☐	☐
11) communicate effectively	☐	☐	☐	☐	☐	☐
12) function effectively in multidisciplinary teams	☐	☐	☐	☐	☐	☐
13) design/conduct/assess engineering experiments	☐	☐	☐	☐	☐	☐
14) be a professional, ethical, socially responsible engineer	☐	☐	☐	☐	☐	☐

15) What industry do you work in?

□ Aerospace	□ Automotive/IC Engines	□ Banking/Investment	□ Bioengineering
□ Computer Engineering	□ Education	□ Electronics/Electric Packaging	□ Entertainment
□ Environmental Engineering	□ Nuclear Engineering	□ Petroleum/Off-Shore Drilling	□ Power
□ Pressure Vessels/Piping	□ Pharmaceutical	□ Telecommunications	
□ Transportation/Shipping	□ Textile	□ Other _____	

16) What is your primary job function?

□ Management	□ Product Design	□ Systems Design	□ Production Engineering
□ Testing/Quality Control	□ Education	□ Plant Engineering	□ Operation/Maintenance
□ Research & Development	□ Other _____		

17) What do you think are the strengths of the ME program at CMA?

18) What do you think are the weaknesses of the ME program at CMA? Any suggestions on how to improve?

19) Any other comments or suggestions?
(Use the back if necessary.)

Alumni Survey

The Alumni Survey is a comprehensive survey that not only surveys our graduates on the type of industry in which they are employed, their primary job function, and job title, but also seeks to obtain from them the degree to which our program outcomes and objectives are achieved. This assessment process takes place periodically, the surveys are collected and are processed about every six or three years, and the results are used to evaluate the achievement of the program objectives

Assessment Process for the Alumni Survey

1. The ME department will conduct, evaluate, and tabulate the Alumni Survey. The surveys are to be conducted regularly from students who have graduated in recent years. The results are to be transmitted to the Dean's Office and to the Mechanical Engineering Department Chair.

2. The Dean and the Chair are to review the results and transmit them to the faculty/staff.

3. If a program-related problem is identified as a result of this assessment, then the Dean and the Chair are to refer the problem to a faculty member or an appropriate committee for a resolution to the problem.

4. Process/actions/recommendations for "problem resolution" are to be documented and reported to the Dean and the Chair.

California Maritime Academy
Mechanical Engineering Department
Mechanical Engineering Alumni Survey

The information that you provide in this survey will help the Mechanical Engineering Department to improve the quality of its program. The department appreciates your response.

I. Alumni/Career Information

Gender/Ethnicity: □ Male □ Female
□ African-American □ Asian □ Caucasian □ Hispanic □ Native American □ Other

Year of Graduation from CMA? _____

Did you graduate from CMA within the past □ one year □ three years □ five years □ ten years?

Did/Are you attend/attending graduate school? □ Yes □ No

Highest degree earned? □ B.S. □ M.S. □ Ph.D. □ Other _____

Certificates/credentials earned after graduation? _____ Date: _____

What industry do you work in?

□ Aerospace	□ Automotive/IC Engines	□ Banking/Investment	□ Bioengineering
□ Computer Engineering	□ Education	□ Electronics/Electric Packaging	□ Entertainment
□ Environmental Engineering	□ Nuclear Engineering	□ Petroleum/Off-Shore Drilling	□ Power
□ Pressure Vessels/Piping	□ Pharmaceutical	□ Telecommunications	
□ Transportation/Shipping	□ Textile	□ Other _____	

What is your primary job function?

□ Management	□ Product Design	□ Systems Design	□ Production Engineering
□ Testing/Quality Control	□ Education	□ Plant Engineering	□ Operation/Maintenance
□ Consulting	□ Graduate Student	□ Research &Development	
□ Other _____			

What is your job title?

□ Staff Engineer	□ Project Engineer	□ Chief/Principal Engineer	□ Design Engineer
□ Senior Engineer	□ Development Engineer	□ Project Manager	□ Educator
□ President/Vice President	□ Sales Engineer	□ Manufacturing Engineer	□ Operator
□ Quality Assurance Manager	□ Plant Engineer	□ Other _____	

How many years have you worked as an engineer?
□ 1-2 □ 3-4 □ 5-6 □ >7

Have you taken the Fundamental Examination (old EIT exam)? □ Yes Year _____ □ No

If yes, did you pass the exam? □ Yes □ No

Are you a licensed Professional Engineer? □ Yes Year _____ □ No

If no, are you planning to become one? □ Yes □ No

II. Assessment of Program Outcomes

Please rate the following Program Outcomes. These outcomes are the abilities/skills/attributes expected of engineering graduates. Rate each outcome in two respects. First, how important each outcome has been to your employment and, second, how well your education at CMA prepared you for that outcome.

Program Outcomes	1 Not Important	2 Somewhat Important	3 Important	4 Very Important	5 Extremely Important	1 Not Prepared	2 Somewhat Prepared	3 Prepared	4 Very Prepared	5 Extremely Prepared
1) An ability to apply knowledge of mathematics, science, and engineering	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2) An ability to design and conduct experiments, as well as to analyze and interpret data	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3) An ability to design a system, component, or process to meet desired needs	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4) An ability to function on multi-disciplinary teams	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5) An ability to identify, formulate, and solve engineering problems	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
6) An understanding of professional and ethical responsibility	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
7) An ability to communicate effectively	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
8) The broad education necessary to understand the impact of engineering solutions in a global and societal context	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
9) A recognition of the need for, and an ability to engage in life-long learning	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
10) A knowledge of contemporary issues	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
11) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
12) An ability to apply principle of engineering, basic science, and mathematics (including multivariate calculus and differential equations) to model, analyze, design, and realize physical systems, components or processes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
13) Ability to work professionally in both thermal and mechanical systems areas	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
14) an ability to apply the "hands-on" knowledge to solve/understand engineering design problems/systems	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
15) An ability to demonstrate leadership roles	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
16) an ability to comprehend and convey technical information	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

III. Assessment of Program Educational Objectives

Please rate the following Program Educational Objectives. These objectives are statements that describe the expected accomplishments of graduates after graduation. Rate each item with respect to the degree of preparation that you received/experienced. Please note the scale used.

Are you aware of the ME Program Educational Objectives? ☐ Yes ☐ Somewhat ☐ No

Program Educational Objectives	No Opinion	1 Not Prepared	2 Somewhat Prepared	3 Prepared	4 Very Prepared	5 Extremely Prepared
A. Be well educated professionals who utilize their intellectual learning, applied technology experience, leadership skills, and global awareness in successful careers; and continue to improve their skills through lifelong learning and advanced studies.	☐	☐	☐	☐	☐	☐
B. Effectively practice as professional engineers, managers, and leaders in the maritime and energy industries and a wide variety of other fields; and as licensed engineers in the merchant marine.	☐	☐	☐	☐	☐	☐
C. Successfully combine fundamental engineering knowledge, core leadership skills, and the practical experience gained at the Academy to turn ideas into reality for the benefit of society.	☐	☐	☐	☐	☐	☐
D. Be influential members of multidisciplinary teams; creatively and effectively contributing to the design, development, and objective evaluation of engineering components, systems, and products; and clearly communicating the work in an appropriate manner to their customers and colleagues.	☐	☐	☐	☐	☐	☐
E. Personally assume and actively encourage peers to uphold the professional, ethical, social, and environmental responsibilities of their profession.	☐	☐	☐	☐	☐	☐

IV. Overall Assessment of Alumni Experience

Please rate the following items with respect to the overall preparation that you received/experienced for each item. Please note the scale used.

	No Opinion	1 Not Prepared	2 Somewhat Prepared	3 Prepared	4 Very Prepared	5 Extremely Prepared
Your overall preparation to:						
1) effectively apply engineering/technology in your profession	☐	☐	☐	☐	☐	☐
2) compete professionally as an engineer	☐	☐	☐	☐	☐	☐
3) be a leader	☐	☐	☐	☐	☐	☐
4) have/apply global awareness skills	☐	☐	☐	☐	☐	☐
5) be a lifelong learner	☐	☐	☐	☐	☐	☐
6) realize/apply both the thermal and mechanical stems	☐	☐	☐	☐	☐	☐
7) apply engineering fundamentals in solving problems	☐	☐	☐	☐	☐	☐
8) model/formulate/solve engineering problems	☐	☐	☐	☐	☐	☐
9) think creatively and critically	☐	☐	☐	☐	☐	☐
10) synthesize information	☐	☐	☐	☐	☐	☐
11) communicate effectively	☐	☐	☐	☐	☐	☐
12) function effectively in multidisciplinary teams	☐	☐	☐	☐	☐	☐
13) design/conduct/assess engineering experiments	☐	☐	☐	☐	☐	☐
14) be a professional, ethical, socially responsible engineer	☐	☐	☐	☐	☐	☐

15) Would you recommend the ME program at CMA to a relative/friend? ☐ Yes ☐ Maybe ☐ No

16) What do you think are the strengths of the ME program at CMA?

17) What do you think are the weaknesses of the ME program at CMA? Any suggestions on how to improve?

18) Any other comments?
(Use the back if necessary.)

	1 Poor	2 Inadequate	3 Fair	4 Good	5 Excellent
19) How do you rate this survey?	☐	☐	☐	☐	☐

Employer Survey

Assessment Process for the Employer Survey

1. The Career Development Center will conduct the Employer Survey. The surveys are to be conducted every three or six years, depending on the ABET accreditation cycle. The Mechanical Engineering Department will evaluate and tabulate the surveys. The results are to be transmitted to the Dean's Office and to the Mechanical Engineering Department Chair.

2. The Dean and the Chair are to review the results and transmit them to the faculty/staff.

3. If a program-related problem is identified as a result of this assessment, then the Dean and the Chair are to refer the problem to a faculty member or an appropriate committee for a resolution to the problem.

4. Process/actions/recommendations for "problem resolution" are to be documented and reported to the Dean and the Chair.

California Maritime Academy
Mechanical Engineering Department
Employer Survey Assessment

Your assessment of the following statements will help the Mechanical Engineering Department assess its Program Educational Objectives. The department appreciates your response. Please rate your level of agreement with the following items. Note the scale used.

The mechanical engineering graduates from CMA are well prepared to:

	No Opinion	1 Unsatis-factory	2 Marginal	3 Average	4 Very Good	5 Outstand-ing
1) effectively apply engineering/ technology in their profession	☐	☐	☐	☐	☐	☐
2) compete professionally as an engineer	☐	☐	☐	☐	☐	☐
6) be a leader	☐	☐	☐	☐	☐	☐
7) have/apply global awareness skills	☐	☐	☐	☐	☐	☐
8) be a lifelong learner	☐	☐	☐	☐	☐	☐
6) realize/apply both the thermal and mechanical stems	☐	☐	☐	☐	☐	☐
7) apply engineering fundamentals in solving problems	☐	☐	☐	☐	☐	☐
8) model/formulate/solve engineering problems	☐	☐	☐	☐	☐	☐
9) think creatively and critically	☐	☐	☐	☐	☐	☐
10) synthesize information	☐	☐	☐	☐	☐	☐
11) communicate effectively	☐	☐	☐	☐	☐	☐
12) function effectively in multidisciplinary teams	☐	☐	☐	☐	☐	☐
13) design/conduct/assess engineering experiments	☐	☐	☐	☐	☐	☐
15) be a professional, ethical, socially responsible engineer	☐	☐	☐	☐	☐	☐

15) Number of CMA graduates who have worked under your supervision? _____

16) What industry do you work in?

□ Aerospace	□ Automotive/IC Engines	□ Banking/Investment	□ Bioengineering
□ Computer Engineering	□ Education	□ Electronics/Electric Packaging	□ Entertainment
□ Environmental Engineering	□ Nuclear Engineering	□ Petroleum/Off-Shore Drilling	□ Power
□ Pressure Vessels/Piping	□ Pharmaceutical	□ Telecommunications	
□ Transportation/Shipping	□ Textile	□ Other _____	

17) What is your primary job function?

□ Management	□ Product Design	□ Systems Design	□ Production Engineering
□ Testing/Quality Control	□ Education	□ Plant Engineering	□ Operation/Maintenance
□ Research & Development	□ Other _____		

18) What is your job title?

□ Staff Engineer	□ Project Engineer	□ Chief/Principal Engineer	□ Design Engineer
□ Senior Engineer	□ Development Engineer	□ Project Manager	□ Educator
□ President/Vice President	□ Sales Engineer	□ Manufacturing Engineer	□ Operator
□ Quality Assurance Manager	□ Plant Engineer	□ Other _____	

19) What is your employee job title?

□ Staff Engineer	□ Project Engineer	□ Chief/Principal Engineer	□ Design Engineer
□ Senior Engineer	□ Development Engineer	□ Project Manager	□ Plant Engineer
□ Quality Assurance Manager	□ Sales Engineer	□ Manufacturing Engineer	□ Operator
□ Other _____			

20) Do you encourage the CMA graduates to become licensed Professional Engineers? □ Yes □ No

21) What do you think are the strengths of the ME program at CMA?

22) What do you think are the weaknesses of the ME program at CMA? Any suggestions on how to improve?

23) Any other comments or suggestions?
(Use the back if necessary.)

WASC Assessment Survey

Process for the WASC Assessment

1. During the annual retreat, the ME faculty study the self-study report prepared by the WASC Committee. The report is evaluated.

2. Any findings are noted/listed. The department is to take actions on the findings within a year and report to the Academic Dean at its next annual retreat.

3. The ME faculty further reviews the WASC accreditation team report during the annual retreat. The department is to take actions on any concern/weakness/deficiency noted by the team within one year and report to the Academic Dean at its next annual retreat.

California Maritime Academy
Mechanical Engineering Department
WASC Assessment

This assessment is to be performed by the ME faculty after a WASC visit is completed and the WASC team findings are reported.

1) Did the WASC report indicate any concern/weakness/deficiency in regard to the "intellectual learning" experiences of students? ☐ Yes ☐ No If yes, please comment.

2) Did the WASC report indicate any concern/weakness/deficiency in regard to the "applied technology" experiences of students? ☐ Yes ☐ No If yes, please comment.

3) Did the WASC report indicate any concern/weakness/deficiency in regard to the "leadership development" experiences of students? ☐ Yes ☐ No If yes, please comment.

4) Did the WASC report indicate any concern/weakness/deficiency in regard to students' abilities to apply knowledge of mathematics, science, and engineering? ☐ Yes ☐ No If yes, please comment.

5) Did the WASC report indicate any concern/weakness/deficiency in regard to students' design process skills and their abilities to model and formulate problems? ☐ Yes ☐ No If yes, please comment.

6) Did the WASC report indicate any concern/weakness/deficiency in regard to students' abilities to think creatively and critically, and to synthesize information? ☐ Yes ☐ No If yes, please comment.

7) Did the WASC report indicate any / concern/weakness/deficiency in regard to students' abilities to communicate effectively? ☐ Yes ☐ No If yes, please comment.

8) Did the WASC report indicate any concern/weakness/deficiency in regard to students' abilities to function on multidisciplinary teams? ☐ Yes ☐ No If yes, please comment.

9) Did the WASC report indicate any concern/weakness/deficiency in regard to students' abilities to use mathematical, computational, experimental, "hands-on", and data analysis techniques to design, conduct, and assess engineering experiments? ☐ Yes ☐ No If yes, please comment.

10) Did the WASC report indicate any concern/weakness/deficiency in regard to students' understanding of professional, social, and ethical responsibilities? ☐ Yes ☐ No If yes, please comment.

ABET Assessment Survey

Process for the ABET Assessment

1. During the annual retreat, the ME faculty study the self-study report prepared by the ABET Committee before a visit is to take place. The report is evaluated.

2. Any findings are noted/listed. The department is to take actions on the findings within a year and report to the Academic Dean at its next annual retreat.

3. The ME faculty further reviews the ABET accreditation team report during the annual retreat. The department is to take actions on any concern/weakness/deficiency noted by the team within one year and report to the Academic Dean at its next annual retreat.

California Maritime Academy
Mechanical Engineering Department
ABET Assessment

This assessment is to be performed by the ME faculty after an ABET visit is completed and the ABET team findings are reported.

1) Did the ABET report indicate any concern/weakness/deficiency in regard to the "intellectual learning" experiences of students? ☐ Yes ☐ No If yes, please comment.

2) Did the ABET report indicate any concern/weakness/deficiency in regard to the "applied technology" experiences of students? ☐ Yes ☐ No If yes, please comment.

3) Did the ABET report indicate any concern/weakness/deficiency in regard to the "leadership development" experiences of students? ☐ Yes ☐ No If yes, please comment.

4) Did the ABET report indicate any concern/weakness/deficiency in regard to students' abilities to apply knowledge of mathematics, science, and engineering? ☐ Yes ☐ No If yes, please comment.

5) Did the ABET report indicate any deficiencies in regard to students' design process skills and their abilities to model and formulate problems? ☐ Yes ☐ No If yes, please comment.

6) Did the ABET report indicate any concern/weakness/deficiency in regard to students' abilities to think creatively and critically, and to synthesize information? ☐ Yes ☐ No If yes, please comment.

7) Did the ABET report indicate any concern/weakness/deficiency in regard to students' abilities to communicate effectively? ☐ Yes ☐ No If yes, please comment.

8) Did the ABET report indicate any concern/weakness/deficiency in regard to students' abilities to function on multidisciplinary teams? ☐ Yes ☐ No If yes, please comment.

9) Did the ABET report indicate any concern/weakness/deficiency in regard to students' abilities to use mathematical, computational, experimental, "hands-on", and data analysis techniques to design, conduct, and assess engineering experiments? ☐ Yes ☐ No If yes, please comment.

10) Did the ABET report indicate any concern/weakness/deficiency in regard to students' understanding of professional, social, and ethical responsibilities? ☐ Yes ☐ No If yes, please comment.

Appendix C:

Program Outcome Assessment Loop

Capstone Project Surveys

Assessment Process for the Project Design Presentation Assessment

1. The Instructor of Record for the project design course will call for senior design presentations. Faculty members are to be notified of the scheduling, project design title, design group names, and the technical advisor.

2. Assessment forms for each of the design projects are to be made and handed out to the faculty/IAB members during the presentation.

3. The Instructor of Record is to collect the forms and present the results to the ME faculty during the ME Faculty Retreat.

4. If a program-related problem is identified as a result of this assessment, then the Chair is to refer the problem to a faculty member or an appropriate committee for a resolution to the problem.

5. Processes/actions/recommendations for "problem resolution" are to be documented and reported to the department chair.

California Maritime Academy
Mechanical Engineering Department
Senior Project Design (I) Assessment
Term _____

Student Name(s): _____

_____

_____

Project Design Title: _____

Assessment by: □ ME Faculty □ Non-ME Faculty □ Other

Please respond to the following statements. Please note the scale used.

The senior design students satisfactorily demonstrated: (The numbers below correspond to the Program Outcomes)

Program Outcomes	Not Applicable	1 Unsatis-factory	2 Marginal	3 Average	4 Good	5 Outstand-ing
1) The ability to apply knowledge of mathematics, science, and engineering	☐	☐	☐	☐	☐	☐
2) The ability to design and conduct experiments, as well as to analyze and interpret data	☐	☐	☐	☐	☐	☐
3) The ability to design a system, component, or process to meet desired needs within realistic constraints such as economics, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	☐	☐	☐	☐	☐	☐
4) The ability to function on multi-disciplinary teams	☐	☐	☐	☐	☐	☐
5) The ability to identify, formulate, and solve engineering problems	☐	☐	☐	☐	☐	☐
7) The ability to communicate effectively	☐	☐	☐	☐	☐	☐
11) The ability to use the techniques, skills, and modern engineering tools necessary for engineering practice	☐	☐	☐	☐	☐	☐
12) The ability to apply principle of engineering, basic science, and mathematics (including multivariate calculus and differential equations) to model, analyze, design, and realize physical systems, components or processes	☐	☐	☐	☐	☐	☐
13) The ability to work professionally in both thermal and mechanical systems areas	☐	☐	☐	☐	☐	☐
14) The ability to apply the "hands-on" knowledge to solve/understand engineering design problems/systems	☐	☐	☐	☐	☐	☐
15) The ability to demonstrate leadership roles	☐	☐	☐	☐	☐	☐
16) The ability to comprehend and convey technical information	☐	☐	☐	☐	☐	☐

California Maritime Academy
Mechanical Engineering Department
Senior Project Design (II) Assessment
Term _____

Student Name(s): _____

_____

Project Design Title: _____

Assessment by: □ ME Faculty □ Non-ME Faculty □ Other

Please respond to the following statements. Please note the scale used.

The senior design students satisfactorily demonstrated: (The numbers below correspond to the Program Outcomes)

Program Outcomes	Not Applicable	1 Unsatis-factory	2 Marginal	3 Average	4 Good	5 Outstand-ing
1) The ability to apply knowledge of mathematics, science, and engineering	☐	☐	☐	☐	☐	☐
2) The ability to design and conduct experiments, as well as to analyze and interpret data	☐	☐	☐	☐	☐	☐
3) The ability to design a system, component, or process to meet desired needs within realistic constraints such as economics, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	☐	☐	☐	☐	☐	☐
4) The ability to function on multi-disciplinary teams	☐	☐	☐	☐	☐	☐
5) The ability to identify, formulate, and solve engineering problems	☐	☐	☐	☐	☐	☐
6) An understanding of professional and ethical responsibility	☐	☐	☐	☐	☐	☐
7) The ability to communicate effectively	☐	☐	☐	☐	☐	☐
9) A recognition of the need for, and an ability to engage in life-long learning	☐	☐	☐	☐	☐	☐
11) The ability to use the techniques, skills, and modern engineering tools necessary for engineering practice	☐	☐	☐	☐	☐	☐
13) The ability to work professionally in both thermal and mechanical systems areas	☐	☐	☐	☐	☐	☐
14) The ability to apply the “hands-on” knowledge to solve/ understand engineering design problems/systems	☐	☐	☐	☐	☐	☐
15) The ability to demonstrate leadership roles	☐	☐	☐	☐	☐	☐
16) The ability to comprehend and convey technical information	☐	☐	☐	☐	☐	☐

Graduating Senior Survey

Assessment Process for the Graduating Senior Survey

1. The Mechanical Engineering Department will conduct, evaluate, and tabulate the Graduating Senior Survey. The surveys are to be conducted before or by the graduation date and the results are to be transmitted to the Dean's Office and the ME Chair.

2. The Dean and the Chair are to review the results and transmit them to the faculty/staff.

3. If a program-related problem is identified as a result of this assessment, then the Dean and the Chair are to refer the problem to a faculty member or an appropriate committee for a resolution to the problem.

4. Process/actions/recommendations for "problem resolution" are to be documented and reported to the Dean and the Chair.

California Maritime Academy
Mechanical Engineering Department
Senior Exit Survey
Spring _____

The information that you provide in this survey will help the Mechanical Engineering Department to improve the quality of its program. The department appreciates your response.

Personal Information (optional)

Name: _____

E-mail Address: _____

I. General Student/Career Information

1) Starting year at CMA? _____

2) Class standing at CMA? _____

3) Expected graduation date from CMA? _____

4) Your approximate GPA? ☐ less than 2.0 ☐ 2.0–2.5 ☐ 2.5–3.0 ☐ 3.0–3.5 ☐ 3.5–4.0

5) Your ME stem? ☐ Energy Stem ☐ Mechanical Stem

6) Your professional option? ☐ USCG License Option ☐ CPE-It Option

7) Are you planning to attend graduate school? ☐ Yes ☐ No If yes, where? _____

8) How many job interviews have you had? ☐ 0 ☐ 1-2 ☐ 3-4 ☐ >4

9) How many job offers have you received? ☐ 0 ☐ 1-2 ☐ 3-4 ☐ >4

10) Which type of job will you most likely accept?
☐ shore-based engineering ☐ shore-based operation & maintenance
☐ sea-based operation & maintenance

Company Name: _____

Position: _____

Comments:

II. Overall Assessment of the ME Curriculum

Please rate the following items in two respects. First, how much emphasis is given to each item in your program and, second, how satisfied you are in each item with respect to the education that you received.

	Too Little Emphasis	Adequate Emphasis	Too Much Emphasis	1 Not Satisfied	2 Somewhat Satisfied	3 Satisfied	4 Very Satisfied	5 Extremely Satisfied
A. Basic Subjects								
Mathematics	☐	☐	☐	☐	☐	☐	☐	☐
Physical Sciences	☐	☐	☐	☐	☐	☐	☐	☐
Humanities	☐	☐	☐	☐	☐	☐	☐	☐
Social Sciences	☐	☐	☐	☐	☐	☐	☐	☐
B. Professional Subjects								
USCG License Courses	☐	☐	☐	☐	☐	☐	☐	☐
Corps Activities	☐	☐	☐	☐	☐	☐	☐	☐
Cruise Experience	☐	☐	☐	☐	☐	☐	☐	☐
Co-Op Experience	☐	☐	☐	☐	☐	☐	☐	☐
C. Mech. Engr. Subjects								
Core Courses (ME & ENG)	☐	☐	☐	☐	☐	☐	☐	☐
Laboratories	☐	☐	☐	☐	☐	☐	☐	☐
Stem Courses (Energy or Mech.)	☐	☐	☐	☐	☐	☐	☐	☐
Project Design Courses	☐	☐	☐	☐	☐	☐	☐	☐

Comments:

III. Assessment of Program Outcomes

Please rate the following Program Outcomes. These outcomes are the abilities/attributes expected of engineering professionals. Rate each item based on your total learning experience in your program. In your opinion, first tell us how much emphasis is given to each item and, second, how satisfied you are in each item with respect to the education that you received. Please note the scale used.

Are you aware of the ME Department Program outcomes? ☐ Yes ☐ Somewhat ☐ No

Program Outcomes	Too Little Emphasis	Adequate Emphasis	Too Much Emphasis	1 Not Satisfied	2 Somewhat Satisfied	3 Satisfied	4 Very Satisfied	5 Extremely Satisfied
1) An ability to apply knowledge of mathematics, science, and engineering	☐	☐	☐	☐	☐	☐	☐	☐
2) An ability to design and conduct experiments, as well as to analyze and interpret data	☐	☐	☐	☐	☐	☐	☐	☐
3) An ability to design a system, component, or process to meet desired needs within realistic constraints	☐	☐	☐	☐	☐	☐	☐	☐
4) An ability to function on multi-disciplinary teams	☐	☐	☐	☐	☐	☐	☐	☐
5) An ability to identify, formulate, and solve engineering problems	☐	☐	☐	☐	☐	☐	☐	☐
6) An understanding of professional and ethical responsibility	☐	☐	☐	☐	☐	☐	☐	☐
7) An ability to communicate effectively	☐	☐	☐	☐	☐	☐	☐	☐
8) The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	☐	☐	☐	☐	☐	☐	☐	☐
9) A recognition of the need for, and an ability to engage in life-long learning	☐	☐	☐	☐	☐	☐	☐	☐
10) A knowledge of contemporary issues	☐	☐	☐	☐	☐	☐	☐	☐
11) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice	☐	☐	☐	☐	☐	☐	☐	☐
12) An ability to apply principle of engineering, basic science, and mathematics (including multivariate calculus and differential equations) to model, analyze, design, and realize physical systems, components or processes	☐	☐	☐	☐	☐	☐	☐	☐
13) Ability to work professionally in both thermal and mechanical systems areas	☐	☐	☐	☐	☐	☐	☐	☐
14) An ability to apply the “hands-on” knowledge to solve/ understand engineering design problems/systems	☐	☐	☐	☐	☐	☐	☐	☐
15) An ability to demonstrate leadership roles	☐	☐	☐	☐	☐	☐	☐	☐
16) An ability to comprehend and convey technical information	☐	☐	☐	☐	☐	☐	☐	☐

IV. Overall Assessment of Student Experience

Please rate the following items with respect to the overall satisfaction that you received/experienced for each item. Please note the scale used.

Student Experience	No Opinion	1 Not Satisfied	2 Somewhat Satisfied	3 Satisfied	4 Very Satisfied	5 Extremely Satisfied
1) Quality of Instruction by the Faculty in:						
Mathematics	☐	☐	☐	☐	☐	☐
Physical Sciences (Chemistry/Physics)	☐	☐	☐	☐	☐	☐
Humanities/Social Sciences	☐	☐	☐	☐	☐	☐
Naval Science	☐	☐	☐	☐	☐	☐
Engineering Plant Operation (EPO)	☐	☐	☐	☐	☐	☐
Mechanical Engineering	☐	☐	☐	☐	☐	☐
Engineering Technology	☐	☐	☐	☐	☐	☐
2) Quality of Advisement with Respect to:						
Academic Planning	☐	☐	☐	☐	☐	☐
Advisor Availability	☐	☐	☐	☐	☐	☐
Advisor Willingness to Help	☐	☐	☐	☐	☐	☐
Clarity of Your Program Requirements	☐	☐	☐	☐	☐	☐
3) Quality of Facilities:						
Computing	☐	☐	☐	☐	☐	☐
Classrooms	☐	☐	☐	☐	☐	☐
Science Laboratories	☐	☐	☐	☐	☐	☐
Engineering Laboratories	☐	☐	☐	☐	☐	☐
Plant Operations Laboratories	☐	☐	☐	☐	☐	☐
Simulators	☐	☐	☐	☐	☐	☐
Library	☐	☐	☐	☐	☐	☐
4) Quality of Support Services:						
Academic/Financial:						
Admissions	☐	☐	☐	☐	☐	☐
Bookstore	☐	☐	☐	☐	☐	☐
Career Services:						
Commercial Cruise/Co-Op	☐	☐	☐	☐	☐	☐
Job Placement	☐	☐	☐	☐	☐	☐
Financial Aid	☐	☐	☐	☐	☐	☐
Information Technology Services	☐	☐	☐	☐	☐	☐
Library	☐	☐	☐	☐	☐	☐
Records Office	☐	☐	☐	☐	☐	☐

Student Experience	0 No Opinion	1 Not Satisfied	2 Somewhat Satisfied	3 Satisfied	4 Very Satisfied	5 Extremely Satisfied
Administrative Offices:						
President's Office	☐	☐	☐	☐	☐	☐
VP Academic Affairs	☐	☐	☐	☐	☐	☐
Dean's Office	☐	☐	☐	☐	☐	☐
Captain's Office	☐	☐	☐	☐	☐	☐
Other Services:						
Food Services	☐	☐	☐	☐	☐	☐
Health/Counseling Services	☐	☐	☐	☐	☐	☐
Housing Services	☐	☐	☐	☐	☐	☐
Recreation/Athletic Services	☐	☐	☐	☐	☐	☐
Parking/Transportation Services	☐	☐	☐	☐	☐	☐
Campus Security	☐	☐	☐	☐	☐	☐
5) What is your overall satisfaction with your education at CMA?	☐	☐	☐	☐	☐	☐
6) Would you recommend the ME program at CMA to a relative/friend?	Yes ☐	Maybe ☐	No ☐			
7) What do you think are the strengths of the ME program at CMA?						
8) What do you think are the weaknesses of the ME program at CMA? Any suggestions on how to improve?						
9) Any other comments? (Use the back if necessary.)						
10) How do you rate this survey?	1 Poor ☐	2 Inadequate ☐	3 Fair ☐	4 Good ☐	5 Excellent ☐	

Employer Evaluation of Cooperative Education Student

Please fax to Steve Pronchick
Mechanical Engineering Department
707-654-1110
or email to: stevep@csum.edu

or mail to: S. Pronchick
M.E. Department
California Maritime Academy
200 Maritime Academy Drive
Vallejo, CA 94590

Student Name _____

Company Name _____Supervisor's Name _____

May we discuss this evaluation with the student? Yes No

Thank you for taking the time to complete this evaluation. Your response will help us to assess and improve our preparation of students for careers in engineering. Please rate the following statements on a scale of 1 to 5:

1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree, NA = not applicable.

1.	The student worked well with other employees	NA 1 2 3 4 5
2.	They showed good judgment in making decisions	NA 1 2 3 4 5
3.	They were able to learn quickly	NA 1 2 3 4 5
4.	They communicated well orally	NA 1 2 3 4 5
5.	They communicated well in writing	NA 1 2 3 4 5
6.	They were enthusiastic and interested in the work	NA 1 2 3 4 5
7.	They were dependable	NA 1 2 3 4 5
8.	The quality of their work was good	NA 1 2 3 4 5
9.	Their attendance was regular	NA 1 2 3 4 5
10.	Their punctuality was regular	NA 1 2 3 4 5
11.	The student understands the need for, and is prepared for lifelong learning	NA 1 2 3 4 5
12.	The student understands the professional, social and ethical responsibilities of an engineer.	NA 1 2 3 4 5
13.	The student is able to participate in multi-disciplinary team activities	NA 1 2 3 4 5
14.	The student is able to assume leadership roles.	NA 1 2 3 4 5
15.	The student is able to perform engineering problem solving.	NA 1 2 3 4 5
16.	The student is able to understand and convey technical information	NA 1 2 3 4 5
17.	The student is able to apply "hands-on" knowledge to solve/understand engineering problems/systems.	NA 1 2 3 4 5

Additional Remarks (attach additional page if needed)

EXAMPLE CLASS SYLLABUS

CALIFORNIA MARITIME ACADEMY
DEPARTMENT OF MECHANICAL ENGINEERING

PROFESSOR Bagheri
COURSE NUMBER ME 240
CREDITS 3
SEMESTER Spring 2010
E-mail: nbagheri@csum.edu
Phone: 654-1102
Office: Rm. 224
Office Hours: M,W, F 10:00-11:00
M,W, F 12:00-1:00

COURSE NAME: Engineering Thermodynamics

CLASS SCHEDULE: Monday, Wednesday, and Friday 9:00-9:50

COURSE DESCRIPTION:
Study of the basic principles of thermodynamics and their applications to engineering processes and cycles. Topics include study of the first and second laws and application of these laws to thermodynamic systems, and power and refrigeration cycles.

COURSE OBJECTIVES[1]:
1. To provide a fundamental knowledge of the conservation laws as applied to thermodynamics systems. [B, C, D]
2. To understand the physical processes involved in thermodynamic systems/cycles. [B, C, D]
3. To enhance students' engineering problem solving modeling/analysis abilities. [C, D]
4. To enable students to advance to any fields related to thermal systems. [A, B]

COURSE OUTCOMES[2]:
1. Students will learn about phase-change processes and properties of pure substances. [1], (Chapters 1, 3)
2. Students will be able to apply conservation laws (mass balance, energy balance, and entropy balance) to closed/open systems. [1, 5], (Chapters 4, 5, 6, 7)
3. Students will be able to understand, model, analyze, and solve thermodynamic processes and cycles. [1, 5], (Chapters 4, 5, 6, 7, 9, 10, 11)

COURSE PREREQUISITES:
PHY 200 Engineering Physics I

COURSE POSTREQUISITES:
ME 342 Refrigeration and Air Conditioning
ME 344 Heat Transfer
ME 440 Advanced Fluid Mechanics and Thermodynamics

TEXTBOOK:
Thermodynamics: An Engineering Approach, 6th Ed., Y. A. Cengel & M. A. Boles, McGraw-Hill.

OTHER REFERENCES:
Fundamentals of Engineering Thermodynamics, Moran & Shapiro, Wiley & Sons.
Fundamentals of Classical Thermodynamics, 5th Ed., Sonntag, Borgnakke, & Van Wylen, Wiley & Sons.

GRADING:

Homework…….....	15%
Quizzes.....	15%
Exam I.....	20%
Exam II.....	20%
Final Exam.....	30%

[1] Letters in the brackets refer to the Program Objectives.
[2] Numbers in the brackets refer to the Program Outcomes.

HOMEWORK:
Homework sets will be assigned by chapter number. There may be more than one set in a given chapter. You will have one week to turn in your homework set from the date it is assigned. You are encouraged to work in groups on your homework assignments, however, you are expected to turn in your own work and set. It is your responsibility to know about the due date as they are announced in class. Under no circumstances late homework will be accepted. Assigned homework problems will be discussed in class at least one class session before they are due. Take advantage of this and be prepared for discussion sessions.

QUIZZES:
There will be a total of five quizzes on chapters 3, 4, 5, 7, 9. Quizzes will be short and will be given at the end of the above chapters. Quizzes cannot be made up, however, your lowest quiz score will be dropped.

EXAMS:
All exams are open book and notes. No make-up exams will be given under any circumstances.

ATTENDANCE:
All students are to attend all classes unless an absence is properly authorized on the basis of the guidelines found in the student handbook. It is the student's responsibility to be familiar with the guidelines. Further, students having three unexcused absences will be withdrawn from class with a grade of WU.

Program Outcomes

1. **an ability to apply knowledge of mathematics, science, and engineering**
2. an ability to design and conduct experiments, as well as to analyze and interpret data
3. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economics, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
4. an ability to function on multi-disciplinary teams
5. **an ability to identify, formulate, and solve engineering problems**
6. an understanding of professional and ethical responsibility
7. an ability to communicate effectively
8. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
9. a recognition of the need for, and an ability to engage in life-long learning
10. a knowledge of contemporary issues
11. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
12. an ability to apply principle of engineering, basic science, and mathematics (including multivariate calculus and differential equations) to model, analyze, design, and realize physical systems, components or processes
13. ability to work professionally in both thermal and mechanical systems areas
14. an ability to apply the "hands-on" knowledge to solve/understand engineering design problems/systems
15. an ability to demonstrate leadership roles
16. an ability to comprehend and convey technical information.

ME 240 ENGINEERING THERMODYNAMICS COURSE OUTLINE

WEEK	SUBJECT	READING
1	Basic Concepts of Thermodynamics	Chapter 1
2	Energy, Energy Transfer	Chapter 2
3	Properties of Pure Substances	Chapter 3
4	Properties of Pure Substances, **QUIZ #1**	Chapter 3
5	Energy Analysis of Closed Systems	Chapter 4
6	Energy Analysis of Closed Systems, **QUIZ #2, EXAM I**	Chapter 4
7	Mass and Energy Analysis of Control Volumes	Chapter 5
8	Mass and Energy Analysis of Control Volumes, **QUIZ #3**	Chapter 5
9	The 2nd Law of Thermodynamics	Chapter 6
10	Entropy	Chapter 7
11	Entropy: **QUIZ #4, EXAM II**	Chapter 7
12	Gas Power Cycles	Chapter 9
13	Vapor and Combined Power Cycles, **QUIZ #5**	Chapter 10
14	Refrigeration Cycles	Chapter 11

Topics:

Chapter 1 Introduction and Basic Concepts: 1.1: Thermodynamics and Energy; 1.2: Dimensions and Units; 1.3: Systems and Control Volumes; 1.4: Properties of a System; 1.5 Density and Specific Gravity; 1.6: State and Equilibrium; 1.7: Processes and Cycles; 1.8: Temperature and Zeroth Law of Thermodynamics; 1.9: Pressure; 1.10: The Manometer; 1.11: The Barometer and Atmospheric Pressure

Chapter 2 Energy, Energy Transfer, and General Energy Analysis: 2.2: Forms of Energy; 2.3: Energy Transfer by Heat; 2.4 Energy Transfer by Work; 2.5: Mechanical Forms of Work; 2.6: The First Law of Thermodynamics; 2.7: Energy Conversion Efficiencies; 2.8: Energy and Environment

Chapter 3 Properties pf Pure Substances: 3.1: Pure Substance; 3.2: Phase of a Pure Substance; 3.3: Phase Change Processes of Pure Substances; 3.4 Property Diagram for Phase-Change Processes; 3.5: Property Tables; 3.6: The Ideal-Gas Equation of State; 3.7: Compressibility Factor

Chapter 4 Energy Analysis of Closed Systems: 4.1 Moving Boundary Work; 4.2: Energy Balance for Closed Systems; 4.3: Specific Heats; 4.4: Internal Energy, Enthalpy, and Specific Heats of Ideal-Gases; 4.5: Internal Energy, Enthalpy, and Specific Heats of Solids and Liquids

Chapter 5 Mass and Energy Analysis of Control Volumes 5.1: Conservation of Mass; 5.2: Flow Work and the Energy of a Flowing Fluid; 5.3: Energy Analysis of a Steady-Flow Systems; 5.4: Some Steady-Flow Engineering Devices; 5.5: Energy Analysis of Unsteady-Flow Processes

Chapter 6 The 2nd Law of Thermodynamics: 6.1: Introduction to the Second Law; 6.2 Thermal Energy Reservoir; 6.3: Heat Engines; 6.4: Refrigerator and Heat Pumps; 6.6: Reversible and Irreversible Processes; 6.7 The Carnot Cycle; 6.8 The Carnot Principles; 6.9: The Thermodynamic Temperature Scale; 6.10: The Carnot Heat Engine; 6.11: The Carnot Refrigerator and Heat Pump

Chapter 7 Entropy: 7.1: Entropy; 7.2: The Increase of Entropy Principle; 7.3: Entropy Change of Pure Substances; 7.4: Isentropic Processes; 7.5: Property Diagrams Involving Entropy; 7.7: The T-ds relations; 7.8: Entropy Change of Liquids and Solids; 7.9: The Entropy Change of Ideal Gases; 7.10 Reversible Steady-Flow Work; 7.11: Minimizing the Compressor Work; 7.12: Isentropic Efficiencies of Steady-Flow Devices; 7.13: Entropy Balance

Chapter 9 Gas Power Cycles: 9.1: Power Cycles Analysis; 9.2: The Carnot Cycle; 9.3: Air-Standard Assumptions; 9.4 Reciprocating Engines; 9.5: Otto Cycle; 9.6: Diesel Cycle; 9.7: Stirling and Ericsson Cycles; 9.8: Brayton Cycle-The Gas Turbine Cycles

Chapter 10 Vapor and Combined Power Cycles: 10.1: The Carnot Vapor Cycle; 10.2: Rankine Cycle; 10.3: Deviation from the Idealized Cycles; 10.4: Increasing the Efficiency of Rankine Cycles; 10.5: The Reheat Cycle; 10.6: The Regenerative Cycle

Chapter 11 Refrigeration Cycles: 11.1: Refrigerators and Heat Pumps; 11.2: The Reversed Carnot Cycle; 11.3: Ideal Refrigeration Cycle; 11.4: Actual Refrigeration Cycle; 11.6: Heat Pump Systems

EXAMPLE CLASS ABET SYLLABUS

CALIFORNIA MARITIME ACADEMY
DEPARTMENT OF MECHANICAL ENGINEERING

ME 240 Engineering Thermodynamics
(Required)

CATALOG DATA: Class Hour: 3, Credit: 3
Study of the basic principles of thermodynamics and their applications to engineering processes and cycles. Topics include study of the first and second laws and application of these laws to thermodynamic systems, and power and refrigeration cycles.

COURSE PREREQUISITE:
PHY 200 Engineering Physics I

COURSE POSTREQUISITES:
ME 342 Refrigeration and Air Conditioning
ME 344 Heat Transfer
ME 440 Advanced Fluid Mechanics and Thermodynamics

TEXTBOOK:
Thermodynamics: An Engineering Approach, 6th Ed., Y. A. Cengel & M. A. Boles, McGraw-Hill.

OTHER REFERENCES:
Fundamentals of Engineering Thermodynamics, 4th Ed., Moran & Shapiro, Wiley & Sons.
Fundamentals of Classical Thermodynamics, 5th Ed., Sonntag, Borgnakke, & Van Wylen, Wiley & Sons.

COURSE OBJECTIVES[3]:
1. To provide a fundamental knowledge of the conservation laws as applied to thermodynamics systems. [B, C, D]
2. To understand the physical processes involved in thermodynamic systems/cycles. [B, C, D]
3. To enhance students' engineering problem solving modeling/analysis abilities. [C, D]
4. To enable students to advance to any fields related to thermal systems. [A, B]

COURSE OUTCOMES[4]
1. Students will learn about phase-change processes and properties of pure substances. [1]
2. Students will be able to apply conservation laws (mass balance, energy balance, and entropy balance) to closed/open systems. [1, 5]
3. Students will be able to understand, model, analyze, and solve thermodynamic processes and cycles. [1, 5]

Course Outcome	Prog. Outcome	Performance Criteria	Metric	Accepted Criterion
1.1	1	Students will demonstrate that they are familiar with phase-change processes and properties of pure	Q #1 SEI/C Survey	3/5 3.5/5 or 70%

[3] Letters in the brackets refer to the Program Educational Objectives.
[4] Numbers in the brackets refer to the Program Outcomes.

		substances.		
2.1	1, 5	Students will demonstrate that they can apply mass, energy, and entropy balances to closed systems.	Q #2 SEI/C Survey	3/5 3.5/5 or 70%
2.2	1, 5	Students will demonstrate that they can apply mass, energy, and entropy balances to open systems.	Q #3 Q #4 SEI/C Survey	3/5 3/5 3.5/5 or 70%
3.1	1, 5	Students will demonstrate that they can model, analyze, and solve thermodynamics processes and cycles.	Q #5 SEI/C Survey	3/5 3.5/5 or 70%

COURSE EVALUATION METHODS:

I. Homework (15%), II. Quizzes (15%), III. Midterm Exams (40%), IV. Final Exam (30%), V. Midterm Student Evaluation (MSE) Survey, VI. Student Evaluation of Instructor/Course (SEI/C) Survey, VII. Instructor Class Assessment (ICA) Survey.

TOPICS:

I. Basic Concepts of Thermodynamics:
- Thermodynamics and Energy
- Dimensions and Units
- Closed and Open Systems
- Forms of Energy
- Properties of a System
- State and Equilibrium, Processes and Cycles
- Pressure, Temperature and the Zeroth Law of Thermodynamics

II. Properties of Pure Substances
- Pure Substance, Phases of a Pure Substance
- Phase-Change Processes, Property Diagrams for Phase-Change Processes
- Vapor Pressure, Property Tables
- The Ideal-Gas Equation of State
- Compressibility factor

III. The First Law of Thermodynamics: Closed Systems
- Heat Transfer, Work, Mechanical Forms of Work
- The First Law of Thermodynamics
- Specific Heats, Internal Energy, Enthalpy, and Specific Heats of Liquids and Solids

IV. The First Law of Thermodynamics: Control Volumes
- Thermodynamic Analysis of Control Volumes
- The Steady-Flow Process
- Some Steady-Flow Processes
- Unsteady-Flow Processes

V. The Second Law of Thermodynamics
- Thermal Energy Reservoirs
- Heat Engines, Energy Conversion Efficiencies
- Refrigerators and Heat Pumps, Coefficient of Performance
- Reversible and Irreversible Processes
- The Thermodynamic Temperature Scale
- The Carnot Heat Engine, The Carnot Refrigerator and Heat Pump

VI. Entropy
- The increase of Entropy Principle
- Entropy Change of Pure Substances
- Isentropic Process, Property Diagrams
- Tds Relations, Entropy Change of Liquids and Solids
- Entropy Change of Ideal Gases
- Reversible Steady-Flow Work
- Isentropic Efficiencies
- Entropy Balance

VII. Gas Power Cycles
- Air-Standard Assumptions
- Otto and Diesel Cycles
- Stirling and Ericsson Cycles
- Brayton Cycle, Regeneration, Intercooling, Reheating

VIII. Vapor Power Cycles
- Rankine Cycle
- Efficiency and Increase in Efficiency
- Reheat and Regenerative Rankine Cycles

IX. Refrigeration Cycles
- Refrigerators and Heat Pumps
- The Ideal and Actual Vapor-Compression Cycles
- Heat Pump Systems

CURRICULUM CONTRIBUTION:
Engineering Science: 3 Units
Engineering Design: 0 Units

PROGRAM OUTCOMES RELATIONSHIP:
Please see attached.

Prepared by: Nader Bagheri, January 2010

Mechanical Engineering Program

Program Outcomes

1. **an ability to apply knowledge of mathematics, science, and engineering**
2. an ability to design and conduct experiments, as well as to analyze and interpret data
3. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economics, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
4. an ability to function on multi-disciplinary teams
5. **an ability to identify, formulate, and solve engineering problems**
6. an understanding of professional and ethical responsibility
7. an ability to communicate effectively
8. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
9. a recognition of the need for, and an ability to engage in life-long learning
10. a knowledge of contemporary issues
11. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
12. an ability to apply principle of engineering, basic science, and mathematics (including multivariate calculus and differential equations) to model, analyze, design, and realize physical systems, components or processes
13. ability to work professionally in both thermal and mechanical systems areas
14. an ability to apply the “hands-on” knowledge to solve/understand engineering design problems/systems
15. an ability to demonstrate leadership roles
16. an ability to comprehend and convey technical information.

Example assessment data collection

ME *** Spring 10	CO 4 PO 1, 13, 16				
	Rubric Element				
Test 2	1	2	3	4	Value
Student1	4	3	3		3.333333
Student2	4	3	3		3.333333
Student3	5	5	4.8		4.933333
Student4	3	2	2		2.333333
Student5	3	3	2		2.666667
Student6	5	5	4		4.666667
Student7	4	3	3		3.333333
Student8	5	5	3		4.333333
Student9	5	5	3		4.333333
Student10	5	4	3		4
Student12					
Student13	5	5	5		5
Student14	5	5	4		4.666667
Student15	4	3	2		3
Student16	5	5	4		4.666667
Student17	5	5	4		4.666667
Student18	2	1	1		1.333333
Student19	4	3	3		3.333333
Student20	4	3	2		3
Student21	3	2	2		2.333333
Student22	4	3	2		3
Student23					
Student24	5	4	4		4.333333
Number of Responses	**21**	**21**	**21**	**0**	**21**
Count number 1-1.5	0	1	1	0	1
Count number 1.5-2.5	1	2	6	0	2
Count number 2.5-3.5	3	8	7	0	8
Count number 3.5-4.5	7	2	5	0	4
Count number 4.5-5	10	8	2	0	6
Total number 1-5	21	21	21	0	21
Number greater than 3	**20**	**18**	**14**	**0**	**17**
Mean	**4.2**	**3.666667**	**3.038095**	**NA**	**3.647619**
Std Deviation	**0.9**	**1.238278**	**1.053791**	**#DIV/0!**	**1.014811**
Median	**4**	**4**	**4**	**4**	**4**

Example Midterm evaluation

Midterm Student Evaluation (MSE) Survey

Course: ME 240 **Instructor**: Dr. Bagheri **Semester/Year**: S 2010

Please provide specific written comments regarding the efficacy of the instructional environment that you have encountered thus far in this class. Your comments may help your instructor improve the quality of the instructional program he/she has designed. Please be specific regarding items such as:

1) Previous course preparation for this class. Do you feel you were ready for this class? Course prerequisite for this course is PHY 200: Engineering physics I.

2) Any comments regarding the instructor's presentation of course materials, use of board, or visual aides?

3) Any comments regarding course assignments, quizzes, exam contents, or student evaluation/grading?

4) Any comments related to enhancing the learning environment generated by this class?

Example student evaluation of instructor/course

Student Evaluation of Instructor/Course (SEI/C)

Course: ME 240 **Instructor**: Dr. Bagheri **Semester/Year**: _____

Your anonymous response is greatly appreciated. Your response will help the instructor and the department to improve the quality of instruction. It will also be used by the department and by the school to evaluate faculty. Please answer them accurately and responsively.

Please rate the following statements on a scale of 1 to 5: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree, NA = not applicable.

1a. The course is well organized…….	NA 1 2 3 4 5
1b. The course laboratory is well organized……	NA 1 2 3 4 5
2. The course objectives, outcomes, topics, and requirements are clearly stated in the course syllabus and made clear by the instructor……..	NA 1 2 3 4 5
3. The textbooks (s) required for this course are adequate……	NA 1 2 3 4 5
4. The course assignments are challenging…….	NA 1 2 3 4 5
5. The exams/quizzes are reasonable in length, frequency, difficulty, and content…..	NA 1 2 3 4 5
6. The instructor seems to be well prepared…….	NA 1 2 3 4 5
7. The instructor teaches the course materials/concepts clearly……..	NA 1 2 3 4 5
8. The instructor is reasonable in grading/evaluating exams/quizzes/assignments…..	NA 1 2 3 4 5
9. I feel comfortable to ask questions in class or to speak to my professor outside the class…….	NA 1 2 3 4 5
10. I am satisfied with my learning/progress in this class……..	NA 1 2 3 4 5
11. I look forward to coming to this class……..	NA 1 2 3 4 5
12. Overall, I would rate the instructor as a good teacher……..	NA 1 2 3 4 5
13. Overall, this is a good course……	NA 1 2 3 4 5

Please rate the degree to which you agree with the following Performance criteria statements for this course:

14. Students will demonstrate that they are familiar with phase-change processes… and properties of pure substances. (PC 1.1; PC=Performance Criteria)	NA 1 2 3 4 5
15. Students will demonstrate that they can apply mass, energy, and entropy balances… to closed systems. (PC 2.1)	NA 1 2 3 4 5
16. Students will demonstrate that they can apply mass, energy, and entropy balances… to open systems. (PC 2.2)	NA 1 2 3 4 5
17. Students will demonstrate that they can model, analyze, and solve thermodynamic.. processes and cycles. (PC 3.1)	NA 1 2 3 4 5

Please provide comments that that might help your instructor to improve the quality of instruction. Any comments on any aspect of this course including previous course preparation for this class, amount of weekly work required and spent, course and exam contents, instructor presentation of course materials, and grading of exams and homework are greatly appreciated. Please use the back of this form to make additional comments.

Instructor Class Assessment (ICA) Survey

Course: ME 240 **Instructor:** Dr. Bagheri **Semester:** **Year:**

Midterm Student Evaluation (MSE) Survey Summary:

1) Previous course preparation for this class. Do you feel you were ready for this class? Course prerequisite for this course is: PHY 200: Engineering physics I.

2) Any comments regarding the instructor's presentation of course materials, use of board, or visual aides?

3) Any comments regarding course assignments, quizzes, exam contents, or student evaluation?

4) Any comments related to enhancing the learning environment generated by this class?

Instructor Evaluation of Course Outcomes and Student Evaluation of Instructor/Course (SEI/C) Survey Summary:

Course Outcome	Prog. Outcome	Performance Criteria	Metric	Accepted Criterion	Statistical Scores
1.1	1	Students will demonstrate that they are familiar with phase-change processes and properties of pure substances.	Q #1 SEI/C Survey	3/5 3.5/5 or 70%	
2.1	1, 5	Students will demonstrate that they can apply mass, energy, and entropy balances to closed systems.	Q #2 SEI/C Survey	3/5 3.5/5 or 70%	
2.2	1, 5	Students will demonstrate that they can apply mass, energy, and entropy balances to open systems.	Q #3 Q #4 SEI/C Survey	3/5 3/5 3.5/5 or 70%	
3.1	1, 5	Students will demonstrate that they can model, analyze, and solve thermodynamics processes and cycles.	Q #5 SEI/C Survey	3/5 3.5/5 or 70%	

Note to the instructor: Based on the course outcome evaluation results as well as the MSE and SEI/C Survey results, please discuss any concerns or any actions taken:

Assessment Process for Instructor Class Assessments:

1) Instructor Class Assessments (ICA) is to be done at the end of the semester in which the course is offered.
2) ICA forms are to be placed in the Course Portfolio.
3) The department faculty are to consider/discuss the assessment results during the Retreat meeting.
4) The responsible faculty member for each course is to file the results in the Course Portfolio and state necessary actions taken to remedy the shortfalls, if any. The Course Portfolio is to contain the instructor class assessment results for at least the previous 3 years.

Appendix D:

Rubrics

Simple Skill Analysis Rubric

Rubric to assess the degree to which an Engineering skill is demonstrated in a particular course assignment, quiz or test.

1. **Poor:** Student has not demonstrated any ability to perform this skill.
2. **Marginal:** Student had a partial, but unsatisfactory ability to perform the skill.
3. **Adequate:** Student can perform the skill at an adequate, acceptable level with some mistakes.
4. **Good:** Student can perform the skill fairly well with a few minor mistakes.
5. **Excellent:** Student has demonstrated mastery of the skill with complete correct work and method.

Engineering Analysis Rubric

Engineering Analysis Rubric (for assignments/projects requiring a process formulation to get result(s))

	Poor	Acceptable	Excellent
Identify and Formulate the Problem	Demonstrates little or no understanding of what information and assumptions are needed to perform the analysis. Approach is not directed to the objective of the analysis. Unable to organize the analysis.	Demonstrates some uncertainty in what information and assumptions are relevant to the analysis. Approach appears somewhat unfocused, but essentially effective. Information gathering is somewhat unorganized, but relevant.	Clearly Identifies relevant known properties and appropriate assumptions. Focuses the analysis on the desired result. Gathers information in an appropriate form.
	1	**3**	**5**
Analysis Method	Unable to identify effective solution methods, or employs methods that are inappropriate to the analysis.	Methods selected result in a cumbersome analysis with unnecessary work, but are essentially effective.	Employs an optimum method that efficiently leads to the desired results.
	1	**3**	**5**
Application of Analysis Method/Results	No results are obtained, or major errors are present.	Some errors in the application and calculations are present, but they are minor in nature.	Analysis is carried out correctly. Results are correct. Units are correctly used.
	1	**3**	**5**
Interpretation of Results	No discussion or interpretation was provided, although the results clearly required some critical review.	Some discussion of the results is present, but not in a critical manner appropriate to the analysis.	Results are critically reviewed for accuracy and meaning in a manner appropriate to the analysis.
	1	**3**	**5**

Research or Design Project Rubric

Course Research/Design Project Report Rubric

	Poor	Acceptable	Excellent
Research/Design Content	Limited research/design development with undeveloped ideas or few details, weak supporting evidence.	Some depth of research/design development with sufficient details, adequate supporting evidence.	Excellent depth of research/design development with clear details, specific and thorough supporting evidence.
	1	**3**	**5**
Research/Design Problem Formulation	Incomplete definition and description of the research/design project, serious deficiencies in use and application of engineering principles, incomplete understanding of design factors and constraints.	Somewhat complete definition and description of the research/design project, sufficient use and application of engineering principles. Sufficient understanding of the design factors and constraints.	Excellent definition and description of the research/design project, correct use and application of the engineering principles. Excellent understanding of the design factors and constraints.
	1	**3**	**5**
Results, Conclusions, and Recommendations	Missed results or poorly stated them, conclusions are unsupported, no or basic recommendations.	Results, conclusions, and recommendations are sufficiently stated.	Results and conclusions are clear and relevant. Recommendations reflect good understanding of the project.
	1	**3**	**5**
Computer-Aided Tools, Figures, Tables	Minimal application and use of computer-aided tools and graphics, undocumented figures and tables.	Computer-aided tools were sufficiently used to present/develop research/design project, figures and tables were sufficiently provided.	Computer-aided tools were effectively used to present/develop research/design project, figures and tables were completely provided.
	1	**3**	**5**
Report Format/Mechanics	Significant deficiencies in formatting, wording, spelling, grammar, or punctuation. Writing lacks sentence variety.	Adequate report formatting and usage of wording, grammar, and punctuation. Some sentence variety.	Excellent formatting, word usage, spelling, grammar and punctuation. Wide variety of sentence structure.
	1	**3**	**5**

Lab Report Rubric

Experimental Data Analysis/Design Lab Report Rubric

	Poor	**Acceptable**	**Excellent**
Effectiveness of Experimental Procedures/Design	Somewhat ineffective. Would allow experiments to achieve some goals.	Somewhat effective. Would allow experiments to achieve most goals.	Very effective. Would allow experiments to achieve all goals.
	1	**3**	**5**
Data Tabulation/Graphics	Little or no attempt to organize/tabulate/graph data in a comprehensible way.	Organized/tabulated/graphed most data correctly.	Data completely and appropriately organized/tabulated/graphed.
	1	**3**	**5**
Data Calculations/Interpretation	Significant errors in calculations. Little or no attempt to interpret data.	Calculated/interpreted most data correctly.	Data completely and appropriately calculated/interpreted.
	1	**3**	**5**
Statistical/Error Analyses of Data	Statistical methods were applied with significant errors or absent.	Statistical methods were attempted and most methods were correctly applied.	Statistical methods were fully and correctly applied.
	1	**3**	**5**
Data Results/Discussion/recommendations	Missed the point of the experiment or analyzed the most basic points. No or basic recommendations.	Adequate insight. Missed some important points. Sufficient recommendations.	Excellent insight. Results and discussions were complete and focused. Recommendations reflect good understanding of the experiment.
	1	**3**	**5**
Report Format/Mechanics	Significant deficiencies in formatting, wording, spelling, grammar, or punctuation. Writing lacks sentence variety.	Adequate report formatting and usage of wording, grammar, and punctuation. Some sentence variety.	Excellent formatting, word usage, spelling, grammar and punctuation. Wide variety of sentence structure.
	1	**3**	**5**

Capstone Project Presentation Rubric

Senior Project Design Presentation Rubric

	Poor	Acceptable	Excellent
Content	Lacks or demonstrates limited idea development with few details and/or weak supporting evidence.	Demonstrates some depth of idea development, with specific, sufficient details, and/or adequate supporting evidence.	Demonstrates reflective, analytical and/or insightful idea development; provides specific, thorough supporting evidence.
	1	**3**	**5**
Organization	Presentation is rambling and unfocused, with main theme and supporting details presented in a disorganized, unrelated way.	Presentation demonstrates some grasp of organization, with a discernible theme and supporting details	Presentation is clearly organized around a central theme. Each paragraph is clear and relates to the others in a well-planned framework.
	1	**3**	**5**
Delivery	Presentation does not stay on topic, difficult to understand, uses incomplete sentences, little or no consideration of audience, difficult to hear, appears tense.	Presenter adequately delivers the information while staying on the topic, considers the audience, speaks somewhat clearly.	Presenter effectively and creatively delivers the information while staying on the topic and considering the audience, uses voice variations, seems confident and delightful.
	1	**3**	**5**
Quality of Slides/Visual Aid	Slides are difficult to read and understand, spelling/grammar errors evident.	Slides are easy to read and understand, key words are used.	Slides support the presentation, are easy to read and understand, key words are used effectively.
	1	**3**	**5**
Time/Pace/Preparation	Goes over time, rushes to finish, pace too slow or fast, presentation is lacking in preparation.	Ends on time, does not rush, preparation shows satisfactory preparation.	Good pace, Presentation shows detailed preparation and practice in delivery.
	1	**3**	**5**

Capstone Project Report Rubric

	Poor	Acceptable	Excellent
Project Statement and Objectives	Unable to clearly state the scope of the project or identify and list the design objectives.	Sufficiently states the scope of the project and is able to identify and list the design objectives.	Excellent and clear understanding of the scope of the project and its objectives.
	1	**3**	**5**
Project Specifications and Constraints	Little understanding of the project specifications and its constraints.	Understands the specification process and the constraints.	Clearly identifies and list project specifications and offers realistic constraints.
	1	**3**	**5**
Alternative Design Evaluations	Unable to identify or basic considerations of the design alternatives.	Alternative approaches identified and evaluated at an acceptable level.	Clear identification and evaluation of the design alternatives.
	1	**3**	**5**
Conceptual and Preliminary Design Developments	Unable to conceptualize and offer a preliminary design.	Capable of conceptualizing and developing a preliminary design. Understands the conceptual and preliminary design processes.	Superior understanding of the conceptual and preliminary design processes. Develops a preliminary design that meets its objectives/constraints.
	1	**3**	**5**
Mathematical Modeling and Analysis	Unable to model, analyze, and evaluate the preliminary design. No apparent use of auxiliary techniques/tools to evaluate the design.	Adequate modeling, analysis, and evaluation of the design. Uses some auxiliary techniques/tools to evaluate the design.	Superior use of auxiliary techniques/tools in modeling, analyzing, and evaluating the design.
	1	**3**	**5**
Design Construction, Testing and Evaluations	Unable or little attempt to construct, test, and evaluate the design.	Design construction, testing, and evaluations were sufficiently performed.	Design construction, testing, and evaluation performed at a level that exceeded expectations. The design met its objectives/specifications.
	1	**3**	**5**
Final Detailed Design	No or little attempt to refine the preliminary design to a final design to meet the design objectives.	The analysis and testing design procedures were adequately followed to refine the preliminary design to a final design. Design objectives/specifications are met at an acceptable level.	Superior use of the design procedures to refine the design to a final detailed design .The design met or exceeded its objectives/specifications.
	1	**3**	**5**
Project Management and Team Functioning	Poor project planning/scheduling. Little coordination among team members.	Adequate project planning/scheduling to meet the deadline. Adequate coordination among team members.	Effective and efficient project planning/scheduling to finish the project on time and within the budget. Effective coordination among team members.
	1	**3**	**5**

Appendix E :

Example of Annual Report

Annual Program Outcome Assessment Recommendations

Retreat June 2010

The department met on June 7, 2010 to assess program outcomes using the quantitative assessment results from the Instructor Course Assessment (ICA) surveys , and the qualitative assessment results from indirect (Project Design I, Project Design II, Senior Exit , and Student Evaluation of Instructor/Course) surveys. For each outcome an evaluation of the degree to which each outcome was satisfied was determined. For those outcomes with questionable results, recommendations were proposed to improve program outcome determination in order to strengthen the achievement of the individual course outcomes as well as the program outcomes as a whole.

This assessment is the initial use of the system defined following the 2008 ABET visit. As such, data was only available for courses offered in the spring 2010 semester. Subsequent retreats will be able to see results for all courses offered during the academic year.

Program Outcome 1: an ability to apply knowledge of mathematics, science, and engineering

According to the instructor course assessments (Table 5), course outcomes associated with PO 1 were assessed in 13 courses, with all meeting a satisfactory level (mean of 3.0 or greater). Twelve courses met our threshold of 70% achieving a score of 3 or better.
Tables 1-4 (indirect survey results)also strongly support our conclusion that we are achieving this outcome.
Faculty Recommendation: no further action is required at this time.

Program Outcome 2: an ability to design and conduct experiments, as well as to analyze and interpret data
According to the instructor course assessments (Table 5), course outcomes associated with PO 2 were assessed in 3 courses during the spring semester. All courses met our thresholds satisfactorily. Four more courses will be evaluated in the future when fall courses are included in our assessment process.
Tables 1-4 indicate that we are achieving this outcome.
Faculty Recommendation: No action required, pending the evaluation of this outcome for the fall semester.

Program Outcome 3: an ability to design a system, component, or process to meet desired needs within realistic constraints such as economics, environmental, social, political, ethical, health and safety, manufacturability, and sustainability

According to the instructor course assessments (Table 5), course outcomes associated with PO 3 were assessed in 5 courses. Only 3 met our threshold for percent above 3.0, but all met the threshold for average score. ME 444 (Energy Systems Design) had the lowest score with 56% of students achieving the outcome. The two capstone design sequence courses (ME 490 and ME 494) scored highly. Four more courses will be evaluated in the future when fall courses are included in our assessment process.
Tables 1-4 (which include results from the capstone design projects) indicate that we are achieving this outcome.
Faculty Recommendation: The program outcome as a whole looks to be met at this time, however the instructor of ME 444 will follow up in more detail the next time the course is offered to see if any trends can be identified. More student projects in this course will be assessed to measure this outcome.

Program Outcome 4: an ability to function on multi-disciplinary teams
According to the instructor course assessments (Table 5), course outcomes associated with PO 4 were assessed in 2 courses during the spring semester. Both courses met our thresholds satisfactorily. Two more courses will be evaluated in the future when fall courses are included in our assessment process.
Tables 1-4 indicate that we are achieving this outcome.
Faculty Recommendation: The faculty will investigate other opportunities to evaluate this outcome in the program.

Program Outcome 5: an ability to identify, formulate, and solve engineering problems
This outcome is very similar to PO 1, as the results show. According to the instructor course assessments (Table 5), course outcomes associated with PO 5 were assessed in 14 courses, with all meeting a satisfactory level (mean of 3.0 or greater). Thirteen courses met our threshold of 70% achieving a score of 3 or better.
Tables 1-4 also strongly support our conclusion that we are achieving this outcome.
Faculty Recommendation: no further action is required at this time.

Program Outcome 6: an understanding of professional and ethical responsibility
This outcome is strongly addressed in only a few courses. According to the instructor course assessments (Table 5), course outcomes associated with PO 6 were assessed in 1 course during the spring semester, which was satisfactory. During the capstone project presentations, members of the External Advisory Board posed questions regarding environmental issues not presented by the students
Tables 2-4 indicate that we are achieving this outcome.
Faculty Recommendation: The faculty will include safety and environmental issues in the project design courses, and include these courses in our assessment process. The department will request direct assessment results from the engineering ethics class. The faculty will investigate other opportunities to evaluate this outcome in the program, including the design process sequence, the leadership program and the FE exam.

Program Outcome 7: an ability to communicate effectively
According to the instructor course assessments (Table 5), course outcomes associated with PO 7 were assessed in 4 courses, with all meeting a satisfactory level (mean of 3.0 or greater and 70%

achieving a score of 3 or better). Additional courses will be assessed in the fall. This program outcome is strongly associated with general education courses, many of which are not being directly assessed at this time.
Tables 1-4 also support our conclusion that we are achieving this outcome.
Faculty Recommendation: The faculty will encourage our supporting departments to assess general education courses.

Program Outcome 8: the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
Only Table 3 provides data to assess PO 8, and its results indicate a weakness regarding this outcome. This program outcome is strongly associated with general education, which was identified as a weakness in the recent ABET visit. Two additional general education courses have been added to the curriculum to address this weakness.
Faculty Recommendation: The faculty will identify methods to assess the curriculum changes and this outcome, including assisting our supporting departments' assessment of general education courses.

Program Outcome 9: a recognition of the need for, and an ability to engage in life-long learning
According to the instructor course assessments (Table 5), course outcomes associated with PO 9 were assessed in 2 courses during the spring semester. Both courses met our thresholds satisfactorily. In discussion, the faculty felt that this outcome can be associated with more courses. For example, the capstone projects typically include topics that the students must learn on their own.
Tables 2-4 indicate that we are achieving this outcome.
Faculty Recommendation: Identify more courses that could address and assess this outcome, such as project design. Develop a rubric for the faculty project advisors to assess capstone projects.

Program Outcome 10: a knowledge of contemporary issues
Only Table 3 provides data to assess PO 10, and its results indicate this outcome is acceptable. This program outcome is strongly associated with general education, which was identified as a weakness in the recent ABET visit. Two additional general education courses have been added to the curriculum to address this weakness. This outcome can also be associated with contemporary technical issues, and our department feels it is somewhat ambiguous.
Faculty Recommendation: Further elaborate on the wording of this outcome to distinguish between technical contemporary issues and social contemporary issues. Identify methods to assess the effect of curriculum changes on this outcome, including assisting our supporting departments' assessment of general education courses.

Program Outcome 11: an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
According to the instructor course assessments (Table 5), course outcomes associated with PO 11 were assessed in 4 courses, with all meeting a satisfactory level (mean of 3.0 or greater). Three courses met our threshold of 70% achieving a score of 3 or better. The below-average results for ME 434 can be partially attributed to networking issues with CAD software impeding student projects.

Tables 1-4 also strongly support our conclusion that we are achieving this outcome.
Faculty Recommendation: The program outcome as a whole looks to be met at this time, however the instructor of ME 434 will follow up in more detail the next time the course is offered to see if any trends can be identified.

Program Outcome 12: an ability to apply principle of engineering, basic science, and mathematics (including multivariate calculus and differential equations) to model, analyze, design, and realize physical systems, components or processes
This outcome is very similar to PO 1 and 5, as the results show. According to the instructor course assessments (Table 5), course outcomes associated with PO 12 were assessed in 9 courses, with all meeting a satisfactory level (mean of 3.0 or greater). Eight courses met our threshold of 70% achieving a score of 3 or better.
Tables 1-4 also strongly support our conclusion that we are achieving this outcome.
Faculty Recommendation: no further action is required at this time.

Program Outcome 13: ability to work professionally in both thermal and mechanical systems areas.
According to the instructor course assessments (Table 5), course outcomes associated with PO 13 were assessed in 8 courses, with all meeting a satisfactory level (mean of 3.0 or greater and 70% achieving a score of 3 or better).
Tables 1-4 also strongly support our conclusion that we are achieving this outcome.
Faculty Recommendation: no further action is required at this time.

Program Outcome 14: an ability to apply the "hands-on" knowledge to solve/understand engineering design problems/systems
According to the instructor course assessments (Table 5), course outcomes associated with PO 14 were assessed in one course, which met our thresholds satisfactorily. An additional course will be evaluated in the future when fall courses are included in our assessment process.
Tables 1-4 strongly indicate that we are achieving this outcome.
Faculty Recommendation: Include ME 429 (Manufacturing Processes Lab) in future assessment.

Program Outcome 15: an ability to demonstrate leadership roles
According to the instructor course assessments (Table 5), course outcomes associated with PO 15 were assessed in one course, which met our thresholds satisfactorily. This outcome is measured in the co-op and employer surveys, with strong results shown in the 2008 Self-Study report.
Tables 1-3 strongly indicate that we are achieving this outcome.
Faculty Recommendation: Identify more student experiences and courses that could be used to assess this outcome. Include ME 492 (Project Design I) in future assessment.

Program Outcome 16: an ability to comprehend and convey technical information.
According to the instructor course assessments (Table 5), course outcomes associated with PO 16 were assessed in 3 courses, with all meeting a satisfactory level (mean of 3.0 or greater and 70% achieving a score of 3 or better).
Tables 1-4 also strongly support our conclusion that we are achieving this outcome.
Faculty Recommendation: Include ME 349 (Fluid/Thermal Lab) in future assessment.

Course	PO1		PO2		PO3		PO4		PO5		PO7		PO11		PO12		PO13		PO14		PO15		PO16	
	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3
ATV	3.50	100%	3.00	100%	3.50	100%	3.42	100%	3.33	83%	3.58	100%	3.33	83%	3.20	80%	3.58	100%	3.40	100%	3.63	100%	3.50	100%
H	3.70	100%	3.50	100%	3.60	100%	3.75	100%	3.90	100%	3.80	100%	4.20	100%	3.80	100%	3.40	100%	3.70	100%	3.75	100%	3.50	100%
RSE	3.30	100%	3.17	100%	3.40	100%	3.50	100%	3.50	100%	3.70	100%	3.30	100%	3.40	100%	3.80	100%	3.70	100%	3.75	100%	3.40	100%
S	3.38	75%	3.50	100%	3.13	75%	3.50	100%	3.25	100%	3.13	75%	3.63	100%	3.50	100%	3.67	100%	3.25	100%	3.67	100%	3.25	100%
SPR	3.40	100%	3.63	100%	3.40	100%	3.50	100%	3.40	100%	3.60	100%	3.00	80%	3.00	80%	3.40	100%	3.20	80%	3.25	100%	3.20	100%
SPSG	4.08	100%	3.50	100%	4.00	100%	3.80	100%	4.00	100%	3.50	100%	3.92	100%	3.83	100%	4.08	100%	3.50	100%	3.50	100%	3.75	100%
TPH	3.38	100%	3.25	100%	3.50	100%	3.83	100%	3.50	100%	3.25	75%	3.50	100%	3.13	100%	3.50	100%	3.88	100%	3.67	100%	3.50	100%
WT	3.70	100%	3.75	100%	3.50	100%	3.70	100%	3.50	100%	4.10	100%	3.90	100%	3.60	100%	4.13	100%	3.75	100%	4.00	100%	3.88	100%
Number meeting:	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Percent meeting:	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 1: Capstone Project I Assessment

Course	PO1		PO2		PO3		PO4		PO5		PO6		PO7		PO9		PO11		PO13		PO14		PO15		PO16	
	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3
ATV	3.833	100%	3.778	89%	3.833	100%	4.188	100%	3.833	100%	3.286	100%	4.111	100%	3.917	100%	4	100%	3.556	100%	4	100%	3.75	100%	3.833	100%
H	3.722	100%	3.813	100%	4.056	100%	4.438	100%	3.944	100%	3.357	71%	3.944	100%	3.667	100%	4	100%	3.688	100%	4.333	100%	3.944	100%	3.722	100%
RSE	3.625	100%	3.563	100%	3.563	100%	3.714	100%	3.563	100%	3.583	100%	3.688	100%	3.571	100%	3.429	100%	3.563	100%	3.688	88%	3.429	86%	3.625	100%
S	3.778	100%	4.056	100%	4.278	100%	4.222	100%	3.944	100%	3.5	100%	3.611	89%	3.429	100%	4.333	100%	3.75	100%	4.444	100%	3.813	100%	4.056	100%
SPR	3.875	100%	4.25	100%	4.25	100%	4.143	100%	3.875	100%	3.643	100%	4.125	100%	3.8	100%	3.857	86%	4.188	100%	4.188	100%	3.875	100%	4	100%
SPSG	4.375	100%	4.125	100%	4.125	100%	4.188	100%	4.25	100%	3.875	100%	4.25	100%	3.857	100%	5	100%	4.438	100%	4.5	100%	4	100%	4.375	100%
TPH	4.125	100%	4.25	100%	4.25	100%	4	100%	4.438	100%	3.938	100%	4.438	100%	3.571	100%	4.125	100%	4	100%	4.25	100%	3.875	100%	4.25	100%
WT	3.938	100%	4.125	100%	3.688	75%	3.875	100%	3.875	88%	3.714	100%	4.25	100%	3.429	86%	3.875	88%	3.938	100%	4.063	88%	4.188	100%	4	100%
Number meeting:	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Percent meeting:	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 2: Capstone Project II Assessment

Course	PO1		PO2		PO3		PO4		PO5		PO6		PO7		PO8		PO9		PO10		PO11		PO12		PO13		PO14		PO15		PO16	
	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3
Senior exit survey	3.9	90%	3.9	0.9	3.75	75%	3.7	0.9	3.95	100%	3.55	100%	3.8	85%	3	60%	3.6	85%	3.2	75%	3.75	90%	3.6	85%	3.5	75%	3.9	90%	3.5	85%	3.75	90%

Table 3: Senior Exit Survey Assessment

Course	Year	Stem	PO1		PO2		PO3		PO4		PO5		PO6		PO7		PO8		PO9		PO10		PO11		PO12		PO13		PO14		PO15		PO16	
			Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3
ME 240	2	Energy	4.54	96%							4.54	96%																						
ME 340	3	Energy																																
ME 342	3	Energy	4.412	100%							4.353	100%	3.706	82%													3.824	82%					4.059	100%
ME344	3	Energy	4.118	96%							4.118	96%													4.071	100%								
ME 440	3	Energy	4.4	100%			4.4	100%			4.4	100%															4.4	100%						
ME 349	4	Energy																																
ME 394	4	Energy																																
ENG 440	4	Energy																																
ME 442	4	Energy																																
ME 444	4	Energy	4.65	100%			4.72	100%			4.62	100%			4.83	100%			4.83	100%							4.65	100%						
ME 230	2	Mech.																																
ME 232	2	Mech.																																
ME 330	2	Mech.	4.371	100%							4.321	100%													4.476	97%								
ME 332	2	Mech.	4.48	98%							4.48	98%																						
ME 339	3	Mech.	4.45	93%	4.39	93%					4.57	93%			4.57	93%							4.46	93%	4.57	93%	4.48	93%					4.45	93%
ME 392	3	Mech.																																
ME 434	3	Mech.	4.69	100%							4.69	100%							4.78	100%			4.67	100%	4.69	100%	4.69	100%						
ME 430	4	Mech.																																
ME 432	4	Mech.	4.38	100%							4.44	100%											4.75	100%	4.25	100%	4.54	100%						
ENG 250	2	Inst/Ctr	4.231	99%							4.214	99%											4.308	100%	4.214	99%								
ENG 250 L	2	Inst/Ctr																																
ME 350	3	Inst/Ctr																																
ME 350L	3	Inst/Ctr																																
ME 360	3	Inst/Ctr																																
ME 360L	3	Inst/Ctr																																
ME 460	3	Inst/Ctr	4.047	98%							4.047	98%													4.047	98%								
ME 460L	3	Inst/Ctr																																
ENG 110	1	Design																																
ENG 210	1	Design																																
ME 220	2	Design																																
ENG 300	3	Design																																
ME 490	3	Design					3.667	93%	3.667	0.867	3.533	73%															3.6	87%	3.8	93%				
ME 492	4	Design																																
ME 429	4	Design																																
ME 494	4	Design																																
Number meeting:			12	12	1	1	3	3	1	1	13	13	1	1	2	2	0	0	2	2	0	0	4	4	7	7	7	7	1	1	0	0	2	2
Percent meeting:			100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			100%	100%			100%	100%	100%	100%	100%	100%	100%	100%			100%	100%

Table 4: Student Evaluation of Instructor/Course Assessment

			PO1		PO2		PO3		PO4		PO5		PO6		PO7		PO8		PO9		PO10		PO11		PO12		PO13		PO14		PO15		PO16	
Course	Year	Stem	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3	Ave	Percent > 3
ME 240	2	Energy	3.05	67%							3.11	72%																				
ME 340	3	Energy																														
ME 342	3	Energy	4	84%							4.1	85%	3.6	87%													4	84%				3.7	81%
ME344	3	Energy	4.01	89%							4.01	89%													4.044	80%						
ME 440	3	Energy	3.34	89%			3.125	67%			3.34	89%															3.5	76%				
ME 349	4	Energy																														
ME 394	4	Energy																														
ENG 440	4	Energy																														
ME 442	4	Energy																														
ME 444	4	Energy	3.64	83%			3.06	56%			3.64	83%			3.37	83%			3.37	83%							3.64	83%				
ME 230	2	Mech.																														
ME 232	2	Mech.																														
ME 330	2	Mech.	4.181	90%							4.131	88%													4.397	92%						
ME 332	2	Mech.	3.36	77%							3.36	77%																				
ME 339	3	Mech.	3.68	85%	3.68	84%					3.68	87%			4.03	90%							3.66	88%	3.68	87%	3.77	86%			3.8	86%
ME 392	3	Mech.	4.006	95%			3.889	100%			3.455	94%													4	96%	3.889	100%				
ME 434	3	Mech.	3.98	84%							3.98	84%							3.56	78%			3.6	66%	3.98	84%	3.9	79%				
ME 430	4	Mech.																														
ME 432	4	Mech.	3.752	86%							4.005	92%											4.856	100%	3.861	88%	4.833	100%				
ENG 250	2	Inst/Ctr	3.333	70%							3.231	69%											4.203	81%	3.231	69%						
ENG 250 L	2	Inst/Ctr																														
ME 350	3	Inst/Ctr																														
ME 350L	3	Inst/Ctr																														
ME 360	3	Inst/Ctr																														
ME 360L	3	Inst/Ctr																														
ME 460	3	Inst/Ctr	3.839	84%							3.839	84%													3.839	84%						
ME 460L	3	Inst/Ctr			4.58	99%																			4.58	99%						
ENG 110	1	Design																														
ENG 210	1	Design																														
ME 220	2	Design																														
ENG 300	3	Design																														
ME 490	3	Design					4	91%	3.8	70%	4.3	90%			4.167	98%															3.3	100%
ME 492	4	Design																														
ME 429	4	Design																														
ME 494	4	Design					3.437	100%	3.81	100%					3.881	100%							3.437	100%			3.437	100%	3.667	100%	4.111	100%		
Number meeting:			13	12	2	2	5	3	2	2	14	13	1	1	4	4	0	0	2	2	0	0	5	4	9	8	8	8	1	1	1	1	3	3
Percent meeting:			100%	92%	100%	100%	100%	60%	100%	100%	100%	93%	100%	100%	100%	100%			100%	100%			100%	80%	100%	89%	100%	100%	100%	100%	100%	100%	100%	100%

Table 5: Rubric-Based Assessment

Appendix VIII

FIGURES REFERENCED IN THE EDUCATIONAL EFFECTIVENESS REPORT

ESSAY ONE: INTELLECTUAL LEARNING

Figure 1.2 Exhibit of Representative Faculty Development Workshops 2006-2010

Title	Date
"Active Learning and Critical Thinking"	2/2006
"A Painless System of Writing to Publish"	3/2006
"The Real Essence of the Teacher-Learning Connection"	3/2006
"The Academy Speaks: Faculty Members Report on Research"	3/2006
'The Academy Speaks": Turning a Sabbatical into Book"	4/2006
"Who Are Our Students? An Exploration of Learning Styles"	4/2006
"Teaching and Learning Styles"	4/2006
"Workshop on Meyers-Briggs Learning Styles"	9/2006
"Special Panel of Presenters at International Conferences"	10/2006
"Bite Size Topics in Critical Thinking: Egocentrism"	10/2006
"The Academy Speaks: "Avoiding Burnout, Balancing Personal and Professional Lives".	10/2006
The Faculty Speaks: Faculty Members Report on Research"	11/2006
"Community Engagement as Transformational Learning"	9/2008
"WebCT: Tips from Beginning to End "	9/2008
"Livetext and Student Portfolios"	10/2008
"One Hour to Web Independence: Faculty Web Development"	10/2008
"Accessibility Training – Creating More Accessible Instructional Materials"	11/2008
"CATS: Classroom Assessment Techniques"	12/2008
"iLearn/Moodle – Focusing on the Gradebook"	9/2009
"Low-stakes high-impact Assessment vs. high-stakes low-learning impact assessment"	11/2009
"Case, Problem, and Project-based Learning: Bringing the Real World to the Classroom"	11/2009
"The Teaching Professor"	11/2009
"Enhancing Student Motivation and Creativy"	12/2009
"Physics and Scientific Theories Predicting the Behavior of Nature"	2/2010
"Web Page Accessibility – How to Check, How to Fix"	3/2010
"Integrated Course Design for Significant Learning"	3/2010
"Retention through early intervention"	2/2010

Fig. 1.3 Maritime History and Culture Series, 2004 – 2010

Presenter	Affiliation	Title
Rich King	Williams College and Mystic Seaport	"Lobsters in American History and Culture"
Jennifer Speelman	The Citadel	When the Sea was a Hard School: the Professionalization of Maritime Education
Douglas Kroll	College of the Desert	"Friends in Peace and War: The Visit of the Imperial Russian Navy to Civil War San Francisco"
James Allan	St. Mary's College	So Many Ghastly Piles of Marine Debris: Shipwrecks, Shipbreaking and the San Francisco Waterfront
Steve Gilford	Independent Scholar	"Built by the Mile: Henry J Kaiser and Industrial Shipbuilding"
David Rollison	College of Marin	Jack London and Maritime Literature
Maria Brooks	Independent Scholar/Documentarian	Shipping Out: A History of Women in the Maritime Industry
Edward (Ted) Melilllo	Amherst College	"Strangers from a Different Shore: Chileans and the Making of San Francisco"
Karina Busto-Ibarra	UC Davis	Maritime Trade Between the Californias: Mexican-American Commerce, 1870-1920
Ralph Shanks	Independent Scholar	The Lighthouses of San Francisco Bay
Kathleen Williams	Cogswell Polytechnical College	Grace Hopper: Admiral of the Cyber Sea
Arthur Donovan	United States Merchant Marine Academy	"The Box thatChanged the World: Containerization and the Maritime Industry"
Michael Martin	University College Cork and UC Berkeley	"Cork Harbour: Gateway to the New World
Matthew James	Sonoma State University	"Evidence for Evolution: The Voyage of the California Academy of Sciences to the Galapagos"
David McCuan	Sonoma State University	"Maritime Policy, Laws, and Regulations:
Richard (Dick) Walker	UC Berkeley	"Maritime Geography of the Bay Area"
Bob Barde	UC Berkeley	"Immigration at the Golden Gate: Passenger Ships, Exclusion and Angel Island"
Steve Priske	Independent Scholar	"The Tall Ships of San Francisco"
Carlos Lopes	Menlo College	"Maritime History of Spanish California"
Ken Lightfoot	UC Berkeley	"Maritime Anthropology of the Bay Area"

Fig 1.4: Sample of Faculty Research on Student Learning, 2007-2009.
(See also Essay Two, *Applied Technology*, subsection "Process" for recent scholarly work and creative activity in experiential learning at the Academy.)

Title	Author
"Training paradigm assisted accidents: Are we teaching students to break the error chain?"	Captain Samuel R. Pecota and Captain James J. Buckley, Ph.D.
"Using the Perry Method to Chart Cognitive Growth in a Class"	Bunny Paine-Clemes, Ph.D.
Practice-based learning: Exploiting new technologies (Navigation),	Captain James J. Buckley, Ph.D and Captain Samuel R. Pecota
Role playing in engine simulation: Deck/engine reality interface OICEW training,	Scott Green and Captain Bill Schmid
ECDIS and Error Trapping: A Bridge Simulation Experiment,	Captain Steven D. Browne and Captain James J. Buckley, Ph.D
Integration of ECDIS into bridge simulation courses: Are there performance or perception differences?	Captain James J. Buckley, PhD and Captain Samuel R. Pecota
New Technology Demands Maritime Education Reform,	Captain Samuel R. Pecota and Captain James J. Buckley, PhD.
Globalization, Cultural Intelligence, and Maritime Education,	Graham Benton, Ph.D. and Dr. Timothy Lynch Ph.D
Creativity for the New Maritime Community: Maritime Training in the Twenty-First Century.	Bunny Paine-Clemes, Ph.D

ESSAY TWO: APPLIED TECHNOLOGY

Figure 2.1 Applied Technology implementation in degree programs

Program	Laboratory	Simulation	Maritime Operations	Internship or Co-Op	Cruise
Marine Transportation	Chemistry Electricity & Electronics Navigation (3) Marine Supervisory & Management (2) LNG	Bridge (2) Radar GMDSS ECDIS LNG	Marine Survival Industrial Safety Ship Operations (3) Marlinspike Small Craft Operations Cargo Operations Ship Handling Tug & Barge Firefighting Shipboard Medical	60 days aboard commercial vessel	120 days aboard Training Ship GOLDEN BEAR
Marine Engineering Technology	Chemistry Physics Materials Fluids Electrical Circuits Electronics Electrical Machinery Instrumentation Automation Refrigeration Power Engineering Engineering Graphics Welding Manufacturing Processes (2)	Diesel Plant Steam Plant (2)	Marine Survival Plant Operations (3) Firefighting Shipboard Medical	60 days aboard commercial vessel	120 days aboard Training Ship GOLDEN BEAR
Facilities Engineering Technology	Chemistry Physics Materials Fluids Electrical Circuits Electronics Electrical Machinery Instrumentation Automation Refrigeration HVAC Engineering Diagnostics Power Engineering Engineering Graphics Welding Manufacturing Processes (2)	Diesel Plant Steam Plant (2)	Marine Survival Plant Operations (3)	120 days in two Industry Co-Ops	60 days aboard Training Ship GOLDEN BEAR

Program	Laboratory	Simulation	Maritime Operations	Internship or Co-Op	Cruise
Global Studies and Maritime Affairs	Physical Science		Basic Safety	250 hours in one business or industry Co-Op	60 days aboard Training Ship GOLDEN BEAR
International Business and Logistics	Physical Science		Basic Safety	250 hours in one GSMA Co-Op	60 days aboard Training Ship GOLDEN BEAR
Mechanical Engineering (License)	Chemistry Physics Material / Mechanical Fluid / Thermal Electrical Circuits & Electronics Electro-mechanical Machinery Instrumentation and Measurement Automatic Feedback & Control Welding Manufacturing Processes (2) Project Design	Steam Plant (2) Diesel Plant	Marine Survival Plant Operations (3) Firefighting Shipboard Medical	60 days aboard commercial vessel	120 days aboard Training Ship GOLDEN BEAR
Mechanical Engineering	Chemistry Physics Material / Mechanical Fluid / Thermal Electrical Circuits & Electronics Electro-mechanical Machinery Instrumentation and Measurement Automatic Feedback & Control Engineering Diagnostics Welding Manufacturing Processes (2) Project Design	Steam Plant (2) Diesel Plant	Marine Survival Plant Operations (3)	120 days in two industry Co-Ops	60 days aboard Training Ship GOLDEN BEAR

Figure 2.2 Information Technology Competency By Academic Program

Program	Digital Information Fluency
Marine Transportation	Electronic Chart Display and Information System (ECDIS) Global Maritime Distress Safety System (GMDSS) Radar / Automatic Radar Plotting Aid (ARPA) Advanced Navigation Liquefied Gas Cargos
Marine Engineering Technology	Information Fluency in the Digital World Engineering Graphics Programming Applications for ETs Instrumentation Electronics Automation
Facilities Engineering Technology	Information Fluency in the Digital World Engineering Graphics Programming Applications for ETs Instrumentation Electronics Automation
Global Studies & Maritime Affairs	Information Fluency in the Digital World
International Business and Logistics	Introduction to Computers Business Communications Business Decision Analysis Information Systems Management Financial Management Quantitative Managerial Methods
Mechanical Engineering	Engineering Communications Computer Aided Engineering Electrical Circuits and Electronics Instrumentation and Measurement Automatic Feedback and Control

ESSAY FOUR: GLOBAL AWARENESS

Figure 4.1 Global humanitarian assistance programs undertaken by students aboard the Training Ship *Golden Bear* 2001-2010

Organization	Location
2010 **Hee Rak Orphanage** *Children's clothing and toys*	Busan, South Korea
2009 **Arturo Pratt Seaman's Orphanage** *Children's clothing and toys*	Valparaiso, Chile
2008 **Disabled Children and Adults Home** *Clothing, toys, toiletries, etc.*	Tonga
2007 **Orphanage in Vietnam** **Sponsored by East Meets West Foundation** *Medical Supplies (Dental unit, incubators)*	Vietnam
2006 **Arturo Pratt Seaman's Orphanage** *Children's clothing and toys*	Valparaiso, Chile
2005 **Dilkusha Children's Home** *Clothing, toys, toiletries, textbooks*	Suva, Fiji
2004 **Hee Rak Orphanage** *Children's clothing and toys*	Busan, South Korea
2003 **Books from Stanford Library (12 pallets)**	Mazatlan, Mexico and Costa Rica
2002 **Ministry of Education** *Textbooks (5 pallets)* **Military Medical Division** *Medical supplies (3 pallets)* **Catholic Charities** *Sewing machines and materials*	Suva, Fiji
2001 **Orphanage** *Children's clothing and toys*	Subic Bay, Philippines

Figure 4.2 Memoranda of Understanding for International Exchange

University	Location
Admiral Makarov State Maritime Academy	St. Petersburg, Russia
Dalian Maritime University	Dalian, China
Dokuz Eylul University School of Maritime Business and Management	Izmir, Turkey
Far Eastern State Maritime Academy	Vladivostok, Russia
FIDENA- Fideicomiso de Formacion y Capacitacion para el Personal de la Marina Mercante Nacional	Cuernavaca, Mexico
Kobe University	Kobe, Japan
Korea Maritime University	Busan, South Korea
Mokpo National Maritime University	Mokpo, South Korea
Shanghai Maritime University	Shanghai, China
Singapore Maritime Academy	The Republic of Singapore
Tokyo University of Marine Science & Technology	Tokyo, Japan
Vladivostok Maritime College	Vladivostok, Russia

Figure 4.3 Summer Cooperative Educational Placements for GSMA Students 2005-2010

Student	Placement in Co-op
Cole Ashcraft	Federal Bureau of Investigation
Adil Ashiq	APL
Joel Barnecut	Vessel Traffic Service, San Francisco
Kate Barrett	Office of Representative Sam Farr (Washington, DC)
Ryan Beason	Office of California State Senator Leland Yee
Zach Birmingham	Port of Hueneme
Cody Blackshear	Office of California State Senator Ken Calvert
Andrew Blake	Port of Everett, Washington
Diana Bradley-Jungemann	PortsAmerica
Devon Bray	Foss Maritime Company
Alicia Bryant	ConocoPhillips (Houston)
Ryan Burger	Vallejo Police Department
Paul Burgin	US Maritime Administration
Melinda Carandang	Orient Overseas Container Line (OOCL)
Itzel Carranza	Port of Los Angeles
Matthew Chamberlain	United States Secret Service, San Francisco
Brian Clerici	Napa County Department of Elections
Kenneth Cruz	Port of Oakland
Jonathan Daniel	California Department of Boating and Waterways
Charles Davis	Crowley Maritime
Wenseslada Delgadillo	American Bureau of Shipping (Houston)
Amanda Denny	USCG, Sector Guam
John Dickinson	US Customs and Border Patrol
Jamie Dickerson	Port of Stockton

James Dumont	Office of the District Attorney, Nevada County
Dennis Fedorov	San Francisco Bay National Wildlife Refuge
Joel Fetherlin	Navy Exchange Loss Prevention and Safety Team, San Diego
Kellen Garey	USCG, Sector Honolulu
Matt Godde	American President Lines
Seamus Gunn	United States Navy,
Robert Hamer	United States Navy, USS WASP
Christopher Hart	Wenthur Group, LLP
Nicholas Hathaway	Crowley Maritime Corporation
Charles Heinbockel	Mystic Seaport
Simon Heller	Office of Senator Bill Nelson (Tallahassee, FL)
Elissa Hemus	Federal Bureau of Investigation
Wesley Heninger	Port of Los Angeles
Heather Higgins	Office of Representative Ed Royce (Washington, DC)
Kyle Hirsh	Office of Representative Duncan Hunter (Washington, DC)
David Hollander	USCG, Sector Guam
Kyle Holmes	USCG, Sector Los Angeles
Sean Jenkins	Pacific Maritime Shipping Association and Port of San Francisco
Gregory Johnston	East Bay Terrorism Early Warning Group
Allison Jolls	Environmental Science Associates, Center for the Future of the Oceans, and the Port of Los Angeles
Christina Keneipp	United States Secret Service, San Francisco
Eric Krick	California Department of Agriculture
John Kinney	California Highway Patrol
Peter Knowles	United States Secret Service, San Francisco
Brandi Lakey	California State Lands Commission
Garrett Laudenback	USCG, Sector Los Angeles
Jessie Lee	Pacific Maritime Shipping Association and Port of Los Angeles
Nick Leksich	Port of Stockton
Samantha Ligne	Hornblower Cruises
Zachary Lowe	Port of Oakland
Joseph Mahach	US Agency for International Development (Washington, DC)
Tiffany Manes	US Coast Guard, Regional Exam Center
Melanie Mariotti	Keesal, Young, and Logan, LLP
Nicholas Mass	Elevationweb.org
Cairo McCrockan	African American Heritage Museum, Oakland
Dylan McCulley	Federal Bureau of Investigation
Michelle McGrath	USCG, Sector San Francisco
Manuel Medina	Peruvian Consulate, San Francisco
Yolanda Mercado	US Coast Guard, Alameda
Ron Miller	Center for Continuing Maritime Education
Michelle Nancarrow	California State Lands Commission
Joseph Noll	Port of Stockton
Martin O'Hagan	USCG, Regional Exam Center
David Perez	USCG, Sector Honolulu
Dominique Pongun	Cross-Cultural Solutions, Costa Rica
Victor Reginato	Ocean Revolution
Jillian Ross	Federal Bureau of Investigation
Charles Ruddell	Port Police: Port of Los Angeles/Long Beach

Hillary Ruggles	Port of Oakland
Daisy Ruvalcaba	Port of Seattle
Laura Sanders	US Dept of Agriculture (US Forest Service)
Joseph Schlosser	USCG, Sector Honolulu
Marley Schroepfer	Federal Bureau of Investigation
Adam Shawen	Communications Service Corporation
Ivar Skjerpe	California State Lands Commission
Miguel Suarez	Genentech
Nicole Suraci	US Coast Guard
Kristen Swader	PortsAmerica
Stevie Swanson	NASSCO and Deorchis and Partners, LLP
John Terry	City of Richmond
Anna Thompson	Assistant Purser, TSGB
Jennifer Tutass	Aquatic Protection Agency
Hayden Vokey	Chubb and Sons Insurance Company (Seattle)
Marisa Why	USCG, Sector Honolulu
Eric Willett	Pacific Maritime Shipping Association
Kelvin Yuen	USCG, Regional Exam Center

Figure 4.6 Global Awareness survey, Summer Cruise 2010

1. I am aware of the political and economic systems of other cultures

	1	2	3	4	5
Pre-Cruise %	16%	18%	25%	30%	11%
Post-Cruise %	3%	10%	23%	41%	22%
% Change	-13%	-8%	-2%	11%	11%

2. I am aware of the religious beliefs of other cultures

	1	2	3	4	5
Pre-Cruise %	16%	18%	28%	24%	14%
Post-Cruise %	3%	4%	23%	44%	26%
% Change	-13%	-14%	-5%	20%	12%

3. I am aware of the marriage and family systems of other cultures

	1	2	3	4	5
Pre-Cruise %	20%	19%	26%	24%	11%
Post-Cruise %	5%	10%	33%	37%	15%
% Change	-15%	-9%	7%	13%	4%

4. I am aware of the arts and crafts of other cultures

	1	2	3	4	5
Pre-Cruise %	17%	11%	20%	38%	13%
Post-Cruise %	4%	10%	29%	40%	18%
% Change	-13%	-1%	9%	2%	5%

5. I know the basic rules (eg. grammar) of other languages

	1	2	3	4	5
Pre-Cruise %	24%	15%	24%	24%	14%
Post-Cruise %	21%	19%	23%	25%	11%
% Change	-3%	4%	-1%	1%	-3%

6. I know how to express non-verbal behaviors in other cultures

	1	2	3	4	5
Pre-Cruise %	13%	17%	24%	31%	16%
Post-Cruise %	9%	9%	29%	38%	15%
% Change	-4%	-8%	5%	7%	-1%

7. I enjoy interacting with people from different cultures

	1	2	3	4	5
Pre-Cruise %	11%	6%	17%	33%	33%
Post-Cruise %	4%	4%	20%	34%	37%
% Change	-7%	-2%	3%	1%	4%

8. I enjoy visiting cultures that are unfamiliar to me

	1	2	3	4	5
Pre-Cruise %	10%	1%	23%	33%	33%
Post-Cruise %	4%	2%	17%	29%	47%
% Change	-6%	1%	-6%	-4%	14%

9. I am confident I can socialize with people in a culture that is unfamiliar to me

	1	2	3	4	5
Pre-Cruise %	9%	6%	33%	34%	18%
Post-Cruise %	4%	4%	18%	38%	36%
% Change	-5%	-2%	-15%	4%	18%

10. I am confident that I can get accustomed to the daily differences of an unfamiliar culture

	1	2	3	4	5
Pre-Cruise %	11%	10%	25%	36%	16%
Post-Cruise %	4%	3%	22%	46%	26%
% Change	-7%	-7%	-3%	10%	10%

11. I am confident I can deal with the stresses of adjusting to a culture that is new to me

	1	2	3	4	5
Pre-Cruise %	11%	3%	32%	39%	15%
Post-Cruise %	4%	5%	17%	43%	29%
% Change	-7%	2%	-15%	4%	14%

12. I am looking forward to visiting other cultures during Cal Maritime's summer cruise

	1	2	3	4	5
Pre-Cruise %	11%	5%	28%	33%	23%
Post-Cruise %	4%	2%	12%	29%	53%
% Change	-7%	-3%	-16%	-4%	30%

13. I look forward to participating in cultural activities while in port

	1	2	3	4	5
Pre-Cruise %	10%	5%	30%	27%	28%
Post-Cruise %	4%	4%	20%	31%	41%
% Change	-6%	-1%	-10%	4%	13%

14. I will make an effort to experience the cultures of the nations where TSGB makes a port call

	1	2	3	4	5
Pre-Cruise %	10%	6%	24%	32%	27%
Post-Cruise %	5%	1%	21%	35%	38%
% Change	-5%	-5%	-3%	3%	11%

15. I expect my level of Global Awareness to be enhanced by my experiences in port

	1	2	3	4	5
Pre-Cruise %	17%	8%	28%	25%	22%
Post-Cruise %	5%	4%	18%	40%	32%
% Change	-12%	-4%	-10%	15%	10%

1 - Strongly disagree
2 - Disagree
3 - No opinion
4 - Agree
5 - Strongly agree

Figure 4.7 Analytic Rubric for Global Stewardship

Analytic Rubric for Global Stewardship			
	Initial (1-2)	**Satisfactory (3-4)**	**Exemplary (5-6)**
Spectrum of Knowledge: How much knowledge does the student demonstrate in understanding one's self in relation to the complex identities of others, their histories, and their cultures?	Limited spectrum of knowledge: • mentions some issue(s) involving global concerns and problems, but does not discuss these areas in a meaningful way • contains some evidence of self-reflection in the area of global issues • demonstrates superficial reflection and reveals little or no questioning of established views • has knowledge of cultural differences, but is unable to establish connections with other concepts	Fair to good amount of knowledge in field of study: • thoughtfully analyzes situations in which global issues have played an important role • begins to investigate connections between areas of controversy and to extrapolate meaning from specific examples • applies learning in global issues to issues that arise in everyday life • contemplates the impact of personal choices and social action in the context of interpersonal and broader societal spheres • demonstrates some awareness of cultural, political, economic, and religious differences of the people of the world	In-depth knowledge with extensive variety of resources: • creatively and comprehensively articulates approaches to global issues, citing specific evidence • demonstrates an ability view multiple sides of these issues • constructs independent meaning and interpretations • presents well-developed ideas on the role of global issues in both private and public life • demonstrates a sense of the diverse aspects of culture, politics, economics, and religion
Understanding of Responsibilities: Does the student demonstrate an understanding of the responsibilities associated with promoting welfare of state, country, whole of humanity, and planet?	Lack of understanding of basic global issues, concerns and problems: • lacks awareness of individual's connection to global society and community • fails to understand how global issues and social responsibility manifest concretely in one's own personal choices, including decisions on when and how to act	Good grasp of global issues, concerns and problems: • shows some awareness of individual's connection to global society and community • begins to understand how global issues and social responsibility manifest concretely in one's own personal choices, including decisions on when and how to act	Deep and comprehensive understanding of global issues, concerns and problems: • clearly understands individual's connection to global society and community • fully understands how global issues and social responsibility manifest concretely in one's own personal choices, including decisions on when and how to act

Knowledge: The ability to demonstrate an awareness of diversity in global culture and environment.

Understanding: The ability to demonstrate an understanding of the responsibilities associated with promoting welfare of state, country, whole of humanity, and planet.

Scoring:

Exceeds standard (total points 10-12)
Meets standard (total points 7-9)
Approaches standard (total points 4-6)
Begins standard or absent (total points 1-3)

Appendix IX

ACRONYMS AND ABBREVIATIONS

ABS	ABS School of Maritime Policy and Management
BA/IBL	Business Administration/International Business and Logistics
C/C	Program in Culture and Communications
CETL	Center for Engagement, Teaching and Learning
CLA	Collegiate Learning Assessment
CMA	The California Maritime Academy
ET	Engineering Technology Department
FET	Facilities Engineering Technology
GSMA	Global Studies and Maritime Affairs
GWE/GWAR	Graduate Writing Exam/Graduate Writing Assessment Requirement
IACBE	International Assembly for Collegiate Business Education
IAMU	International Association of Maritime Universities
IBL	International Business and Logistics; also, BA/IBL
IMO	International Maritime Organization
IWAC	Institution Wide Assessment Council
IW-SLO	Institution-Wide Student Learning Outcome
MAROPS	Maritime Operations Department
ME	Mechanical Engineering Department
MET	Marine Engineering Technology Department
MPM	Department of Maritime Policy and Management (see ABS School of Maritime Policy and Management)
MSTEM	Masters of Science in Technology Engineering and Management
P-SLO	Program Student Learning Outcome
MT	Department of Marine Transportation
QMED	Qualified Member of the Engineering Department
S/M	Department of Science and Mathematics
STCW	Standards of Training, Certification, and Watchkeeping
TSGB	Training Ship Golden Bear
USCG	United States Coast Guard
XL	Department of Extended Learning