UC San Diego - WASC Exhibit 7.1
Inventory of Educational Effectiveness Indicators

Academic Program	(1) Formal learning outcomes been developed?	(2) What are these learning outcomes? — Where are they published? (Please specify)	(3) Other than GPA, what data/evidence is used to determine that graduates have achieved stated outcomes for the degree? (e.g., capstone course, portfolio review, licensure examination)	(4) Who interprets the evidence? What is the process?	(5) How are the findings used?	(6) Date of last Academic Senate Review?
Department: *Structural Engineering* **Major:** • *Structural Engineering* • *Engineering Sciences*	Yes	**Students graduating with a degree should be able to:** a) *An ability to apply knowledge of mathematics, science, and engineering* b) *An ability to design and conduct experiments, as well as being able to analyze and interpret data* c) *An ability to design a system, component, or process to meet desired needs* d) *An ability to function in multidisciplinary teams* e) *An ability to identify, formulate, and solve engineering problems* f) *An understanding of professional and ethical responsibility* g) *An ability to communicate effectively with written, oral, and visual means* h) *The broad education necessary to understand the impact of engineering solutions in a global and societal context* i) *A recognition of the need for and an ability to engage in life-long learning* j) *A knowledge of contemporary issues* k) *An ability to use modern engineering techniques, skills, and computing tools necessary for engineering practice.* **Learning outcomes published:** • *Course syllabi* • *JSOE ABET website (http://abet.ucsd.edu/se27/default.aspx)* • *Internal Structural Engineering Server (contact se-help@ucsd.edu for access to documents)* • *SE Website: http://www.structures.ucsd.edu/node/3* • *SE Undergraduate Handbook http://www.structures.ucsd.edu/node/32*	**Data/Evidence:** • *A matrix has been generated that describes the mapping of student outcomes to individual SE courses.* • *For each outcome, an additional evaluation matrix has been created as an assessment tool (rubric) to evaluate individual traits of an outcome based on four achievement levels.* • *Student knowledge and skills are evaluated and monitored through direct assessments (exams, group projects, homework assignments, reports and presentations).* • *SE 103, SE 120 and SE 140: Capstone design sequence provides several experiences that require student teams to design, build, and test structures. Economics, sustainability, and ethical, social and political considerations are also introduced.* • *To ensure that all students have the skills necessary for successful professional practice (team participation and effective verbal/written communication), group activities and projects, written reports and formal verbal presentations are required in a number of courses starting from freshman year and assessed directly using a rubric.* • *To ensure a minimum level of competence, program requires a minimum GPA of 2.0 overall, with at least a C- grade in each course pertaining to the Structural Engineering major.* • *Fundamentals in Engineering pre-professional licensing exam taken during senior year (optional)* *Indirect assessment measures:* • *Assessment of student outcomes through graduating senior survey and through Jacobs School alumni survey* • *Assessment of program objectives and of student outcomes through employer survey* • *Assessment of courses and individual course outcomes through self-evaluation by faculty teaching the course. This enables courses to be continuously improved to better meet both students' needs and the Department's goals and objectives.* • *Assessment of courses through student surveys conducted by CAPE* • *Assessment of course outcomes by department-administered student surveys* *Direct assessment and evaluation using rubrics:* • *Assessment and evaluation of group projects through final reports and presentations in pertinent courses, or assessment and evaluation of prerequisites tests.*	• *Undergraduate Affairs and ABET Committees regularly review Student outcomes.* • *An Industrial Advisory Board is also convened annually to provide input on various aspects of the program assessment (objectives, outcomes).* • *All of the evidence collected in column (3) is evaluated by the Undergraduate Affairs and ABET committees.* • *The Faculty self assessments are reviewed quarterly by faculty ad hoc curriculum committees for a variety of sub-disciplines. Issues raised by these committees are reviewed by Undergraduate Affairs and ABET committees.* • *An action plan is developed based on the measurement and assessment of surveys, the evaluation and analysis of Faculty self assessments, and results from direct assessments.* • *If department resource management cannot address issues, recommended curriculum improvements are proposed by the Undergraduate Affairs and ABET committees and curriculum changes are endorsed fully by faculty.* • *Vice Chair for Undergrad Education acts on all requests/petitions for variation of requirements.* • *CEP review Committee*	• *ACS collects annual data from all approved departments and publishes outcomes.* • *Internally the department adjusts requirements and course sequences for the major.* • *Individual course instructors use feedback to modify their classes.*	*2008*