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

Academic Program	(2a) What are these learning outcomes? <u>Students graduating with a degree should be</u> <u>able to:</u>	(3) Other than GPA, what data/evidence are 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?
Department:	Written Communication	Written Communication	Written Communication	Written Communication
Department: Structural Engineering Major: Structural Eng. (1) Have formal learning outcomes been developed? Yes (6) Date of the last Academic Senate Review? [i.e. 2015- 16 if the review takes place this	 d) An ability to function in multidisciplinary teams. g) An ability to communicate effectively with written, oral, and visual means. 	 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. 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. Assessment of student outcomes through graduating senior survey and through Jacobs School alumni 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. 	 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. Vice Chair for Undergrad Affairs acts on all requests/petitions for variation of requirements. 	 Individual course instructors use feedback to modify their classes. ACS collects annual data from all approved departments and publishes outcomes. 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. Based on the findings, the department adjusts requirements and course sequences for the major. Any curriculum improvements recommended by the Undergraduate Affairs and ABET committees must be endorsed by the faculty before implementation.
2017	Oral Communication	Oral Communication	Oral Communication	Oral Communication
	d) An ability to function in multidisciplinary teams.g) An ability to communicate effectively with written, oral, and visual means.	 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. 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 	Same as above.	Same as above.
10/14/2018 Please date the form		 courses starting from freshman year and assessed directly using a rubric. 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. 		
Quantitative Reasoning:	Quantitative Reasoning	Quantitative Reasoning	Quantitative Reasoning
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.	 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 	Same as above.	Same as above.
c) An ability to design a system, component, or	individual traits of an outcome based on four achievement levels		
process to meet desired needs.e) An ability to identify, formulate, and solve engineering problems.	 Student knowledge and skills are evaluated and monitored through direct assessments (exams, group projects, homework assignments, reports and 		
k) An ability to use modern engineering techniques, skills, and computing tools necessary for engineering practice.	 presentations). Fundamentals in Engineering pre-professional licensing exam taken during senior year (optional). 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. 		
Information Literacy	Information Literacy	Information Literacy	Information Literacy
 f) An understanding of professional and ethical responsibility. 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. 	 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. SE 1, SE 103, and SE 140A/B, or SE 143A/B: The 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. Assessment of student outcomes through graduating senior survey and through Jacobs School alumni survey. Assessment of courses and individual course outcomes through enployer survey. Assessment of courses to be continuously improved to 	Same as above.	Same as above.
	 Quantitative Reasoning: 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. e) An ability to identify, formulate, and solve engineering problems. k) An ability to use modern engineering techniques, skills, and computing tools necessary for engineering practice. Information Literacy f) An understanding of professional and ethical responsibility. 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. 	 outcomes through employer survey. Assessment of course and individual course outcomes through self-evaluation by faculty teaching the course. This enables courses to be continuously improved to better meet both students inceds and the Department's administered student surveys. Quantitative Reasoning: An ability to apply knowledge of mathematics, science, and engineering. An ability to apply knowledge of mathematics, science, and engineering. An ability to design and conduct experiments, as well as being able to analyze and interpret data. An ability to design asystem, component, or process to meet desired needs. An ability to use modern engineering techniques, kills, and computing tools necessary for engineering practice. Muderstanding of professional and ethical responsibility. The broad cuduction necessary to understand the impact of engineering solutions in a global and solucial contex. A nability to use modern engineering itchiques, kills, and computing tools necessary for engineering practice. Assessment of courses and individual course doutcomes through student surveys. Assessment of courses and individual course outcomes by department-administered student surveys. Assessment of course server and additional traits of an outcome based on four achievement levels. Student knowledge and skills are evaluated and monitored through achoes School alumni survey. Assessment of courses and individual course outcomes by department-administered student surveys. Assessment of courses and individual course outcomes by department-administered student surveys. Assessment of courses and individual course outcomes by department-administered student surveys. Assessment of course strough student surveys counducte	 outcomes through employer survey. Assessment of courses and individual course outcomes through safety valations by faculty taching the course. This cashies courses to be continuously simproved to better area to bin students' access and the Department's good and objectives. An ability to apply knowledge of multitative Reasoning of student and course structure and individual SE. An ability to sign an expansion of course and course automous by department-administered students are supported at a support of the set of access through student structure. To anothity to design a system, component, or process on endividual students' and the set of data. An ability to design a system, component, or process on endividual students' and solitions are supported. An ability to design a system, component, or process on endividual students' needs and the student's needs and through alread statismers where the note that describes the mapping of student howledge and statils nee valuated and monitored through direct assessment to coll craits (a course), and statils are valuated and through prevent anos. An ability to design a system, component, or process inclusing, and counter through functions, reports and preventations). Techniques, kills, and comparing practice. For each outcome, as assessment to coll craits (a course), and student structure and individual structures and individual structures and individual structures. Assessment of course structure ph function by faculty tacking the course. Assessment of course structures by department-administer students' needs and the partment-by additional structures. Assessment of course structures the describes the empirity of administer students' needs and objectives. Assessment of course structures that describes there mapping of administer studentis and administer students' faculty accessing anot describes

	 goals and objectives. Assessment of courses through student surveys conducted by CAPE. Assessment of course outcomes by department- administered student surveys. 		
 Critical Thinking 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. e) An ability to identify, formulate, and solve engineering problems. 	 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). Fundamentals in Engineering pre-professional licensing exam taken during senior year (optional). SE 1 03, and SE 140A/B, or SE 143A/B: The 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. Assessment of student outcomes through graduating senior survey and through Jacobs School alumni 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. 	Critical Thinking Same as above.	Critical Thinking Same as above.
(2b) Where are the learning outcomes published? Please provide your department/program website address. SE Website: http://www.structures.ucsd.edu/ SE UG Handbook: http://se.ucsd.edu/sites/se.ucsd.edu/files/ac ademic- files/UG.Hndbk%20Revised%2010.16.1 8.pdf SE ABET Google Drive: https://drive.google.com/drive/folders/0Bz CSCCYT-cS9aGNzQUh6WmRJZTQ			