

**UNIVERSITY OF CALIFORNIA, SAN DIEGO
EDUCATIONAL EFFECTIVENESS REVIEW
PRESCRIBED EXHIBITS AND DATA DISPLAYS**

**Table 7.1b
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Inventory of Educational Effectiveness Indicators - Graduate
(as of 06/2015)

Department/ Program	Degree Type	Degree	(2) What are these learning outcomes? Where are they published?		(3) What data/evidence is used to determine that graduates have achieved the stated outcomes?	(4) Who interprets the evidence? What is the Process?		
Electrical and Computer Engineering (1) Formal learning outcomes? Yes (6) Date of last Academic Senate Review: 2014-15	Master of Science	Electrical Engineering: Applied Ocean Sciences	Have the intensive technical preparation necessary for subsequent pursuit of a Ph.D. An M.S. degree (without a Ph.D.) prepares students for a career in research or teaching.	Program Website	Catalog Copy	Plan 1: written master's thesis; Plan 2: comprehensive exam.	Thesis Committee, Department Faculty	Plan 1: Take required course work, write thesis and defend in oral examination. Plan 2: Take required course work and pass examination.
		Electrical Engineering: Applied Physics	Have the intensive technical preparation necessary for subsequent pursuit of a Ph.D. An M.S. degree (without a Ph.D.) prepares students for a career in research or teaching.	Program Website	Catalog Copy	Plan 1: written master's thesis; Plan 2: comprehensive exam.	Thesis Committee, Department Faculty	Plan 1: Take required course work, write thesis and defend in oral examination. Plan 2: Take required course work and pass examination.
		Electrical Engineering: Communication Theory and Systems	Have the intensive technical preparation necessary for subsequent pursuit of a Ph.D. An M.S. degree (without a Ph.D.) prepares students for a career in research or teaching.	Program Website	Catalog Copy	Plan 1: written master's thesis; Plan 2: comprehensive exam.	Thesis Committee, Department Faculty	Plan 1: Take required course work, write thesis and defend in oral examination. Plan 2: Take required course work and pass examination.
		Electrical Engineering: Computer Engineering	Have the intensive technical preparation necessary for subsequent pursuit of a Ph.D. An M.S. degree (without a Ph.D.) prepares students for a career in research or teaching.	Program Website	Catalog Copy	Plan 1: written master's thesis; Plan 2: research project followed by a comprehensive exam.	Thesis Committee, Department Faculty	Plan 1: Take required course work, write thesis and defend in oral examination. Plan 2: Take required course work and pass examination.
		Electrical Engineering: Electronic Circuits and Systems	Have the intensive technical preparation necessary for subsequent pursuit of a Ph.D. An M.S. degree (without a Ph.D.) prepares students for a career in research or teaching.	Program Website	Catalog Copy	Plan 1: written master's thesis; Plan 2: comprehensive exam.	Thesis Committee, Department Faculty	Plan 1: Take required course work, write thesis and defend in oral examination. Plan 2: Take required course work and pass examination.

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Electrical and Computer Engineering (continued)		Electrical Engineering: Intelligent Systems, Robotics and Control	Have the intensive technical preparation necessary for subsequent pursuit of a Ph.D. An M.S. degree (without a Ph.D.) prepares students for a career in research or teaching.	Program Website	Catalog Copy	Plan 1: written master's thesis; Plan 2: comprehensive exam.	Thesis Committee, Department Faculty	Plan 1: Take required course work, write thesis and defend in oral examination. Plan 2: Take required course work and pass examination.
		Electrical Engineering: Nanoscale Devices & Systems	Have the intensive technical preparation necessary for subsequent pursuit of a Ph.D. An M.S. degree (without a Ph.D.) prepares students for a career in research or teaching.	Program Website	Catalog Copy	Plan 1: written master's thesis; Plan 2: comprehensive exam.	Thesis Committee, Department Faculty	Plan 1: Take required course work, write thesis and defend in oral examination. Plan 2: Take required course work and pass examination.
		Electrical Engineering: Photonics	Have the intensive technical preparation necessary for subsequent pursuit of a Ph.D. An M.S. degree (without a Ph.D.) prepares students for a career in research or teaching.	Program Website	Catalog Copy	Plan 1: written master's thesis; Plan 2: comprehensive exam.	Thesis Committee, Department Faculty	Plan 1: Take required course work, write thesis and defend in oral examination. Plan 2: Take required course work and pass examination.
		Electrical Engineering: Signal and Image Processing	Have the intensive technical preparation necessary for subsequent pursuit of a Ph.D. An M.S. degree (without a Ph.D.) prepares students for a career in research or teaching.	Program Website	Catalog Copy	Plan 1: written master's thesis; Plan 2: comprehensive exam.	Thesis Committee, Department Faculty	Plan 1: Take required course work, write thesis and defend in oral examination. Plan 2: Take required course work and pass examination.
		Electrical Engineering: Medical Devices and Systems	Have the intensive technical preparation necessary for subsequent pursuit of a Ph.D. An M.S. degree (without a Ph.D.) prepares students for a career in research or teaching.	Program Website	Catalog Copy	Plan 1: written master's thesis; Plan 2: comprehensive exam.	Thesis Committee, Department Faculty	Plan 1: Take required course work, write thesis and defend in oral examination. Plan 2: Take required course work and pass examination.

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Electrical and Computer Engineering (continued)	Doctor of Philosophy	Electrical Engineering: Applied Ocean Sciences	Be knowledgeable about all aspects of man's purposeful and unusual intervention into the sea.	Program Website	Catalog Copy	Comprehensive examination, qualifying examination, written dissertation, and oral examination in defense of dissertation	Department faculty and faculty from the Scripps Institution of Oceanography.	Pass all examinations, write dissertation and defend in oral examination
		Electrical Engineering: Applied Physics	Applied Physics: Electronic Devices and Materials Be knowledgeable in the following fields: synthesis, characterization, and application of metals, semiconductors and dielectric materials in solid state electronic and opto-electronic devices. Applied Physics: Electronic Devices and Materials\Magnetic Recording Be knowledgeable in the following fields: studying magnetic heads, recording media, and the process of transferring information between the heads and the medium. Applied Physics: Radio and Space Science Be knowledgeable in the study of radio waves propagating through turbulent media. The theory of such propagation is also studied with a view to removing the distorting effects of the turbulent medium on astronomical observations and providing an accurate restoration of the intrinsic signals.	Program Website	Catalog Copy	Comprehensive examination, qualifying examination, written dissertation, and oral examination in defense of dissertation	Department Faculty and Doctoral Committee	Pass all examinations, write dissertation and defend in oral examination
		Electrical Engineering: Communication Theory and Systems	Be knowledgeable in the following areas of study: detection signals, the prediction and filtering of random processes, the design and analysis of communication systems, the analysis of protocols for communication networks and statistical processing of images.	Program Website	Catalog Copy	Comprehensive examination, qualifying examination, written dissertation, and oral examination in defense of dissertation	Department Faculty and Doctoral Committee	Pass all examinations, write dissertation and defend in oral examination

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Electrical and Computer Engineering (continued)		Electrical Engineering: Computer Engineering	Have the skills in both software and hardware design to make proper unbiased trade-offs in design and for researchers to consider all paths towards the solution of research questions and problems. Areas of emphasis include VLSi and logic design and reliable computer and communication systems.	Program Website	Catalog Copy	Comprehensive examination, qualifying examination, written dissertation, and oral examination in defense of dissertation	Department Faculty and Doctoral Committee	Pass all examinations, write dissertation and defend in oral examination
		Electrical Engineering: Electronic Circuits and Systems	Be knowledgeable in the following fields: analog and digital integrated circuits, very large-scale integration (VLSI), analog and digital signal processing and system algorithms and architectures.	Program Website	Catalog Copy	Comprehensive examination, qualifying examination, written dissertation, and oral examination in defense of dissertation	Department Faculty and Doctoral Committee	Pass all examinations, write dissertation and defend in oral examination
		Electrical Engineering: Intelligent Systems, Robotics and Control	Be knowledgeable in the following issues: with the design of human-interactive intelligent systems that can sense the world (defined as some specified domain of interest); represent or model the world; detect and identify states and events in the world; reason about and make decisions about the world; and/or act on the world, perhaps all in real-time.	Program Website	Catalog Copy	Comprehensive examination, qualifying examination, written dissertation, and oral examination in defense of dissertation	Department Faculty and Doctoral Committee	Pass all examinations, write dissertation and defend in oral examination

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Electrical and Computer Engineering (continued)		Electrical Engineering: Nanoscale Devices & Systems	Be knowledgeable in the program area addresses the science and engineering of materials and device structures with characteristic sizes of ~100nm.	Program Website	Catalog Copy	Comprehensive examination, qualifying examination, written dissertation, and oral examination in defense of dissertation	Department Faculty and Doctoral Committee	Pass all examinations, write dissertation and defend in oral examination
		Electrical Engineering: Photonics	Be knowledgeable in the field of optical science and engineering, optical and opto-electronic materials and device technology, communication and computer engineering as well as photonic systems of engineering.	Program Website	Catalog Copy	Comprehensive examination, qualifying examination, written dissertation, and oral examination in defense of dissertation	Department Faculty and Doctoral Committee	Pass all examinations, write dissertation and defend in oral examination
		Electrical Engineering: Signal and Image Processing	Explore engineering issues related to the modeling of signals starting from the physics of the problem, developing and evaluating algorithms for extracting the necessary information from the signal, and the implementation of these algorithms on electronic and opto-electronic systems.	Program Website	Catalog Copy	Comprehensive examination, qualifying examination, written dissertation, and oral examination in defense of dissertation	Department Faculty and Doctoral Committee	Pass all examinations, write dissertation and defend in oral examination
		Electrical Engineering: Medical Devices and Systems	Explore engineering issues related to medical devices for diagnosis of cancers, diagnosis of chronic and infectious diseases, anatomical and clinical pathology using imaging algorithms and systems, minimally invasive and robotic surgery, and remote medicine employing wireless sensor network solutions.	Program Website	Catalog Copy	Comprehensive examination, qualifying examination, written dissertation, and oral examination in defense of dissertation	Department Faculty and Doctoral Committee	Pass all examinations, write dissertation and defend in oral examination