Graduate Learning Goals/Objectives Policy

The Faculty Senate recommends that departments/interdisciplinary groups with graduate programs in their purview be required to establish Graduate Goals/Objectives, Program Learning Outcomes with an associated curriculum map, and an assessment plan with an associated action plan, to be submitted to the Office of Graduate Studies within one full academic year of approval of this policy (Approved in May 2015). Items in *italics* are additional elements being requested to assist with institutional level data collection.

Graduate Learning Goals/Objectives and Program Learning Outcomes

The Faculty Senate further recommends that in developing graduate learning goals/objectives, faculty consult resources such as the information submitted in the Instructional Program Priorities (IPP) process, the Graduate Learning Goals recommended by the Graduate Studies Policies Committee, and/or the Lumina Foundation Degree Qualifications Profile in framing their learning goals/objectives and assessment components.
Graduate programs shall develop Program Learning Outcomes (PLOs) that represent their unique perspectives. Each graduate program shall define its own set of learning outcomes, specific to the level of study and to the discipline, which are clearly more advanced in content than those defined for related undergraduate work. For some programs, these might already be defined, at least in part, by external accrediting agencies. Such defined outcomes shall also form the basis for assessment plans within graduate programs and offer foci for future academic program review terms.
Program Learning Outcomes are designed with the goal of placing graduated master's or doctoral students into post-degree positions in secondary education, non-profits, business and consulting, government and private agencies, and other fields that draw on the knowledge and skills of graduates in the focused areas of their degree preparation.

Graduate Learning Objectives	Program Learning Outcomes
1. Disciplinary knowledge: Master, integrate, and apply disciplinary knowledge and skills to current, practical, and important contexts and situations.	1. Ability to apply core and advanced Electrical and Electronic Engineering knowledge and skills to synthesize and analyze as a part of the design process.
2. Communication: Communicate key knowledge with clarity and purpose both within the discipline and in broader contexts.	2. Ability to effectively communicate the theory, function and practical aspects of an electrical and/or electronic system.
3. Critical thinking/analysis: Demonstrate the ability to be creative, analytical, and critical thinkers. The goal is to assess students' expertise in use of modern hardware and software tools, as applied to their coursework and more importantly in their culminating experience, be it thesis, project or comprehensive exam.	3. The ability to use contemporary engineering techniques and tools for analysis and design.
4. Information literacy: Demonstrate the ability to obtain, assess, and analyze information from a myriad of sources.	4. The ability to locate, extract and organize relevant information needed to address engineering problems.
5. Professionalism: Demonstrate professional integrity.	5. Ability to make timely and appropriate decisions in the engineering workplace

Curriculum Map

Each program shall create a curriculum map:

1. List all courses, both required and elective, as well as other required graduate education activities.
2. Indicate where in the curriculum each PLO is addressed through development of a curriculum map. The curriculum map may be presented in many formats, including tabular form as the template below. Another format may be substituted
3. *Please indicate if the course is a core (C), an elective (E), or culminating experience (Thesis, Project, or Comprehensive Examination) course.*

Course Work	**PLO 1**	**PLO 2**	**PLO 3**	**PLO 4**	**PLO 5**
EEE 201 (C)				x	x
EEE 244 (C)	x	x	x		
EEE 246 (C)-Controls Systems Elective core	x	x	x		
EEE 221(E)	x	x	x		
EEE 241(E)	x	x	x		
EEE 249(E)	x	x	x		
EEE 211 (C) – Communications-Circuits Elective core	x	x	x		
EEE 212(E)	x	x	x		
EEE 213(E)	x	x	x		
EEE 214(E)	x	x	x		
EEE 260 (C)) – Communications-Systems Elective core	x	x	x		
EEE 245(E)	x	x	x		
EEE 261(E)	x	x	x		
EEE 262(E)	x	x	x		
EEE 264(E)	x	x	x		
EEE 250 (C) – Power Systems Elective core	x	x	x		
EEE 251(E)	x	x	x		
EEE 252(E)	x	x	x		
EEE 253(E)	x	x	x		
EEE 254(E)	x	x	x		
EEE 255(E)	x	x	x		
EEE 256(E)	x	x	x		
EEE 257(E)	x	x	x		

EEE 259(E)	x	x	x		
EEE 230 (C) – Microelectronic Design Elective core	x	x	x		
EEE 231(E)	x	x	x		
EEE 232(E)	x	x	x		
EEE 234(E)	x	x	x		
EEE 235(E)	x	x	x		
EEE 236(E)	x	x	x		
EEE 238(E)	x	x	x		
EEE 239(E)	x	x	x		
EEE 285 (C) – Computer Architecture & Digital Design Elective core	x	x	x		
EEE 270(E)	x	x	x		
EEE 272(E)	x	x	x		
EEE 273(E)	x	x	x		
EEE 274(E)	x	x	x		
EEE 280(E)	x	x	x		
EEE 286(E)	x	x	x		
EEE 500 – Project/Thesis/Comprehensive Exam (Culminating experience)	x	x	x	x	x

Assessment Plan

Each graduate program shall develop a plan for assessing student achievement of its Program Learning Outcomes:

1. *Indicate the date assessment of the PLO started and identify each PLO separately in the Assessment Plan*.
2. Identify graduate program-specific direct and indirect lines of evidence for each of the PLOs. (See the policy for summaries of the kinds of direct and indirect evaluative data programs might draw on to assess progress towards and achievement of PLOs).
3. *Please indicate the lead personnel associated with evaluating each PLO.*
4. *Articulate evaluation parameters for measuring introductory and advanced levels of graduate student development for each PLO and the timeline for* measurement, e.g., at time of admission or prior to culminating experience coursework.
5. Evaluate each of the PLOs based on direct lines of evidence, collectively supporting the evaluation of introductory and advanced levels of development over the course of each student's program trajectory. Emphasis should be placed on early assessment of indicators that predict success in the graduate experience.

Lines of Evidence for Assessing Graduate Program Learning Outcomes						
Date	**PLO**	**Direct Lines of Evidence** (Example: Assignments in core courses; early writing assessment)	**Indirect Lines of Evidence** (Mid-course assessments; Alumni Survey)	**Lead/Resources** (Example: Faculty Advisors; Course Instructor; Department Chair)	**Evaluation Parameters & Timeline**: Examples of timeline: Admission (A); Exit (E); On-going (O); Follow up with Alumni (F); Qualification for Culminating Experience (Q)	**Evaluation of each PLO based on direct lines of evidence**
	1	Assignments/Midterms/Final Projects in **Elective core** classes: EEE 241 EEE 211 EEE 260 EEE 250 EEE 230 EEE 285	Alumni survey	Elective Core area advisors Faculty teaching Elective core classes		
	2	Assignments/Midterms/Final Projects in Core and Elective core classes: EEE 244 EEE 241 EEE 211 EEE 260 EEE 250 EEE 230 EEE 285		Elective Core area advisors Faculty teaching Elective core classes		
	3	Projects in Core and Elective core classes: EEE 244 EEE 241 EEE 211 EEE 260 EEE 250 EEE 230 EEE 285				
	4	EEE 500 Project/Thesis report EEE 201 Sample Topic form and Sample Introduction projects	Alumni survey	Project/Thesis advisors Graduate Coordinator	Q	

	5	EEE 500 Project/Thesis report (verified by turnitin) EEE 201 Sample Topic form and Sample Introduction projects (verified by turnitin)		Project/Thesis advisors Graduate Coordinator	Q	

Action Plan

Based on the assessment data collected, each graduate program shall provide detailed information about action steps to be taken to maintain program quality and/or address identified deficiencies.

1. Assessment Data Summary
2. Evaluation
3. Actions for Program Improvements and/or Continuation

PLO	Assessment Data Summary	Evaluation	Actions for Program Improvement and/or Continuation
1	Data from Elective Core classes: EEE 241 (Spring semester) EEE 211 (Fall semester) EEE 260 (Spring semester) EEE 250 (Fall semester) EEE 230 (Fall semester) EEE 285 (Spring semester)	Every three years for all PLOs	
2	Data from Core classes: EEE 244 (Spring semester) Data from Elective Core classes: EEE 241 (Spring semester) EEE 211 (Fall semester) EEE 260 (Spring semester) EEE 250 (Fall semester) EEE 230 (Fall semester) EEE 285 (Spring semester)		
3	Data from Core classes:		

	EEE 244 (Spring semester) Data from Elective Core classes: EEE 241 (Spring semester) EEE 211 (Fall semester) EEE 260 (Spring semester) EEE 250 (Fall semester) EEE 230 (Fall semester) EEE 285 (Spring semester)		
4	Data from project/thesis/comprehensive exam Spring/Fall semesters Data from EEE 201 Spring/Fall semesters		
5	Data from project/thesis/comprehensive exam Spring/Fall semesters Data from EEE 201 Spring/Fall semesters		