

Rutgers University, Department of Electrical and Computer Engineering
ABET COURSE SYLLABUS
COURSE: 14:332:491, 492

Course Catalog Description: 14:332:491, 492 - Special Problems/Independent Research (3)
 Independent Research under the guidance of a faculty member

Pre-Requisite Courses: Consent of Undergraduate Director

Co-Requisite Courses: None

Pre-Requisite by Topic: None

Textbook & Materials: None.

References: None

Overall Educational Objective: Individual investigation in some branch of electrical and computer engineering of particular interest to the student. The topic selected for study must be approved and directed by a faculty member.

Course Learning Outcomes: A student who successfully fulfills the course requirements will have demonstrated:

1. an ability to do independent research
2. An ability to utilize technical resources both from prior relevant coursework, as well as from sources students must seek out on their own (e.g., various technical literature, data sheets, webinars, etc.)
3. An ability to write technical documents and give oral presentations related to the work completed.

How Course Outcomes are Assessed:
 Technical Report (100%)

N = none S = Supportive H = highly related

Outcome	Level	Proficiency assessed by
(a) an ability to apply knowledge of Mathematics, science, and engineering	H	Technical Report
(b) an ability to design and conduct experiments and interpret data	H	Technical Report
(c) an ability to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	N	
(d) an ability to function as part of a multi-disciplinary team	N	
(e) an ability to identify, formulate, and solve ECE problems	H	Technical Report
(f) an understanding of professional and ethical responsibility	S	Discussions with advisor
(g) an ability to communicate in written and oral form	H	Technical Report & Presentation
(h) the broad education necessary to understand the impact of electrical and computer engineering solutions in a global, economic, environmental, and societal context	S	Discussions with advisor
(i) a recognition of the need for, and an ability to engage in life-long learning	S	Discussions with advisor
(j) a knowledge of contemporary issues	S	Discussions with advisor
(k) an ability to use the techniques, skills, and modern engineering tools necessary for electrical and computer engineering practice	H	Technical Report

Information to Students: A maximum of six credits (three credits at the most per semester) can be earned under special problems. The credits can be used to satisfy the departmental or technical elective requirements. A one page or so proposal of the technical work along with its title and an application form (found on ECE WEBSITE) properly filled must be submitted to the Undergraduate Director in order to enroll in this course. Students who are on academic probation are not qualified to enroll in this course. A technical report describing in detail the study undertaken must be submitted to the Undergraduate Director at the end of the study.

Independent Learning Experiences: These are reflected in the Technical Report

Contribution to the Professional Component:

(a) College-level mathematics and basic sciences: 0.25 credit hours

(b) Engineering Topics (Science and/or Design): 2.75 credit hours

(c) General Education: 0 credit hours

Total credits: 3

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