

**EE 492 SENIOR DESIGN PROJECT PLANNING (1)**

Senior Design Project Planning calls on the professional skills of the discipline; it draws on the core disciplines of the students' major field of study, as well as exploring necessary topics such as scheduling, organization, budgeting, prototyping, develop teamwork, customer liaison skills, employ creativity in proposing new solutions, and so forth. Hence, by the end of the capstone process students are expected to have a good understanding about various design phases, including analysis phase, a design phase, a validation phase and a production phase. Prerequisite: EE 310 and 330 and Senior standing, or consent of the instructor.

**EE 493 SENIOR DESIGN PROJECT (3)**

This is a capstone course. A major project designed to bring the knowledge gained from various courses together to analyze, design, and implement an electronic and/or communications system in an efficient and economic manner. Prerequisite: EE 492, or consent of the instructor.

**EE 497 ENGINEERING SCIENCE COLLOQUIUM (1)**

Lecture, 1 hour. Series of lectures on topics of interest in the relevant fields of engineering. A maximum of 1 unit can be applied to the ES major. The students may not miss more than two presentations. A brief summary of each presentation must be submitted after the presentation. The course grade is decided on evaluation of these reports. Cr/NC only. Prerequisite: Consent of the instructor only. Permission required.

**EE 498 ENGINEERING PRACTICUM (1-4)**

Under the faculty instructor's supervision, engineering juniors and seniors take this service learning training to further their practical engineering experience. A specific assignment is given by the instructor to each student for assisting the class to learn either in class or labs. Regular meetings with the instructor necessary keep track of progress of the assignment and evaluate the student's learning. The course is CR/NC only. Pre-requisite: junior or senior standing. Consent of instructor required.

**Engineering Science (ES)**

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**ES 101A COMMUNICATION IN THE DIGITAL AGE (3)**

Concept of digital age, technology, and modern communications, understanding various routinely used technical terms and commonly known computer and communications components and devices; understanding digital voice, video and data communication, mobile communication, and communication through internet; ill effects such as radiation, invasion of privacy, unethical usages and protection from them; assessment of learning. (The companion laboratory course ES 101B is strongly recommended; the course does not apply to ES major). Prerequisite: GE math eligibility. This course meets GE Area B3 requirement.

**ES 101B COMMUNICATION IN THE DIGITAL AGE LABORATORY (1)**

Laboratory to demonstrate the concepts discussed in the course ES 101A and give hands-on experience to the students. (Does not apply to the ES major). Co-requisite: ES 101A, or permission of the instructor. This course meets the GE science laboratory requirement.

**ES 210 DIGITAL CIRCUITS AND LOGIC DESIGN (4)**

Students learn how to analyze and evaluate scientific, inductive and deductive reasoning, through digital logic and its application to logic gates and digital electronic circuits. Laboratory work includes designing, building and testing of digital circuits and designs. Project assignments require students present their own design and the final product in public, making persuasive presentations with efficient verbal and non-verbal skills, and listening to peers critiques for improvement. This course fulfills GE A3. Prerequisites: ES 112, Co-requisite: ES 230, or consent of instructor.

**ES 345E ENGINEERING APPLICATIONS OF PROBABILITY THEORY (1)**

Lecture, 1 hour. This is a one-unit course introducing how to apply probability theory to model engineering problems, particularly in communications and networking areas. Topics covered include application of probability to measure of information and redundancy, moments to measure power, correlation to determine correlation function, power spectrum and linear prediction, and estimation of statistical parameters. Co-requisite: math 345E or consent of instructor.

**ES 495 SPECIAL STUDIES (1-4)**

May be repeated for credit up to 8 units.