

NEWARK COLLEGE OF ENGINEERING

SYLLABUS AND COURSE INFORMATION

Course Name: ECET Senior Project

Course Number: ECET 400

Course Structure: 2-2-3 (lecture hr/wk – lab hr/wk – course credits)

Course Description: The capstone project course for the ECET program. Students work as a group to design and develop of a product. Students must study project management, concurrent engineering, proposal development, research, societal impact, market research, prototyping, and testing. Students develop a formal project proposal, gantt chart, and design specification for their project.

Students apply technical knowledge to build and test their project. Documentation and demonstration of formal testing procedures, computer analysis, simulation, time and cost estimates, and compliance with specifications is required. Students present a functioning prototype of the project to a design review board and other students enrolled in the course.

Prerequisites: ECET 305 and ECET 344 and ECET 411 and (ENG 352 or COM 313)

Corequisites: None

**Required, Elective,
or Selected Elective:** Required

Required Materials: Electronic course materials provided by the instructor.

Course Outcomes: By the end of the course students are able to:

1. Develop, design, and document an electrical/computer engineering technology-based project by applying knowledge gained at NJIT and other institutions.
2. Write Functional Specifications for the project
3. Monitor the progress of a project and make continuous improvements utilizing software applications.
4. Analyze preliminary designs for the project and divide them into deliverables.
5. Purchase, test, and become familiar with the main components of a project and the technical specifications and standards.
6. Gain an appreciation for ethics, professionalism, diversity, and life-long learning.
7. Present oral and written technical information in a professional and concise manner.
8. Identify problems with the progress of a project and make improvements to meet specific goals.

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9. Understand factors that affect quality of a project, process, or company.
10. Develop test procedures for each deliverable and demonstrate that deliverables meet the test procedures and are delivered on a timely basis.
11. Apply critical thinking, research, and communication skills to an engineering design project.
12. Build, test, and troubleshoot the software and hardware of a prototype; redesign where necessary.
13. Effectively interact with other team members to complete a project with interim goals, and understand individual responsibilities within a team setting.
14. Understand and discuss the impact and importance of diversity, equity, and inclusion concepts and policies on the engineering profession.

Class Topics: Project Management Design Documentation
Design Specifications Project Reports
Engineering Ethics Cost Reporting
Design Implementation Design Verification

Student Outcomes: The Course Learning Outcomes support achievement of the following Student Outcomes from the ETAC of ABET Criterion 3 requirements.

Student Outcome 2: An ability to design systems, components, or processes meeting specified needs for broadly defined engineering problems appropriate to the discipline.

Related Course Learning Outcomes: 1 and 2

Student Outcome 3: An ability to apply written, oral, and graphical communication in broadly defined technical and non-technical environments; and an ability to identify and use appropriate technical literature.

Related Course Learning Outcomes: 7

Academic Integrity: Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at:

<http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf>

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action.

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This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu

Modification to Course: The Course Outline may be modified at the discretion of the instructor or in the event of extenuating circumstances. Students will be notified in class of any changes to the Course Outline.

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