

# COMPUTER ENGINEERING (COMPENG)

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**COMPENG 1020 Computer Engineering Projects & Tools 1 Credit**

A Roadmap for the Successful Student and hands-on computer -engineering laboratory projects such as robotics, audio amplifiers, LEDs, and digital logic.

**Components:** Laboratory, Class

**COMPENG 2220 Circuit Modeling II 2 Credits**

This course covers the following topics for students majoring in computer engineering: Phasors, and sinusoidal steady-state analysis, Frequency-response analysis, Laplace transform topics.

**Components:** Discussion, Laboratory, Class

**Prereqs/Coreqs:** P: 'C-' or better in ELECTENG 1210; C: MATH 2740

**COMPENG 3010 Advanced Computer Networks 4 Credits**

This course will cover the modern data communication networks including the physical media, network structure, network device configuration, network performance evaluation, network trouble shooting and introduction to cyber security topics.

**Components:** Discussion, Laboratory, Class

**Prereqs/Coreqs:** P: 'C-' or better in (ELECTENG 1210 and COMPUTER 3830)

**COMPENG 3510 Computer Networks Applications 4 Credits**

This course will cover the modern data communication networks including the physical media, network structure, network device configuration, network performance evaluation, substation network protocols, network troubleshooting and introduction to cybersecurity topics.

**Components:** Discussion, Laboratory, Class

**Prereqs/Coreqs:** P: 'C-' or better in COMPENG 3010

**COMPENG 4020 Applications of Deep Learning in Computer Vision 4 Credits**

This course provides a comprehensive introduction to deep neural networks and application in computer vision. Deep learning is behind many recent advances in AI, including object detection, classification and self-driving cars. We will cover a range of topics from basic neural networks, multilayer perceptrons, convolutional network structures, practical aspects of training deep neural networks and applications to problem domains like computer vision. Students will learn basic concepts of deep learning as well as hands on experience to solve real-life computer vision problems.

**Components:** Discussion, Laboratory, Class

**Prereqs/Coreqs:** P: 'C-' or better in ELECTENG 3210 and COMPUTER 4030

**COMPENG 4900 Senior Design I 1 Credit**

Senior Design I provides students with experience in solving engineering problems working in groups on open-ended design problems. Students refine skills in information gathering, analysis of market and technical considerations, critical thinking of project/design scope and effective communication of project/design objectives. This course builds on previous knowledge and applies it to a global consideration of design criteria to a specific projects provided by relevant faculty. The engineering-based projects may be faculty initiated or sponsored and guided by regionally based industry.

**Components:** Laboratory, Class

**Prereqs/Coreqs:** P: 'C-' or better in ELECTENG 3900 and senior standing

**COMPENG 4930 Senior Design II 3 Credits**

Students continue the team-based project work begun in the prior term, COMPENG 4900, Senior Design I. Product design methodology is employed, in the context of teamwork and communications, to move from product specifications to a functional engineering prototype, satisfying customer's requirements. Design trade-offs are reconciled, and students experience prototype testing and iteration. Oral and written communications are important elements, throughout the course, as are the techniques of project management.

**Components:** Laboratory, Class

**Prereqs/Coreqs:** P: 'C' or better in COMPENG 4900