

Computer Science (CSEN)

CSEN 5303 Adv Topics in Computer Sci **1-3 SCH (1-3)**

One or more advanced topics. May be repeated when topic changes. (Credit may not be obtained for both CSEN 5303 and EEEN 5303 courses if the topic is the same.)

CSEN 5304 Adv Computer Architecture **3 SCH (3-0)**

Introduces the design principles of modern computers. The topics include RISC and CISC architecture, interconnection networks, multiprocessors and multicomputer systems, dataflow and systolic arrays, future outlook for architectures and the basics of parallel algorithms. (Credit may not be obtained in both CSEN 5304 and EEEN 5304.)

CSEN 5305 Graduate Research Project **3 SCH (3)**

Designed for project option students and requires completion of research project. Prerequisite: departmental approval. May be repeated for a maximum of 6 semester hours.

CSEN 5306 Thesis **3 SCH (3)**

Designed for thesis option students. The course requires completion of thesis research. Prerequisite: departmental approval. May be repeated for maximum of 6 semester hours.

CSEN 5313 Compiler Design **3 SCH (3-0)**

This course introduces the structure of a compiler and the various techniques used for designing a compiler. Topics include grammars, parsing methods, implementation details and translator writing systems.

CSEN 5314 Database Systems **3 SCH (3-0)**

Basic concepts and architecture of database systems, ER model, relational model, relational algebra, SQL, ER-to-rational mapping, functional dependencies normalization, database design process, object-oriented database. Distributed database. Prerequisite: graduate standing in computer science or another engineering discipline.

CSEN 5322 Operating systems **3 SCH (3-0)**

Operating systems principles; procedures and their implementation; protection, concurrent, cooperating and communicating processes; storage management; resource allocation; scheduling; file systems; and system design issues.

CSEN 5323 Computer Comm Networks **3 SCH (3-0)**

The International Standards Organization (ISO) Open Systems Interconnection (OSI) model as a framework for the study of computer communication networks. Data communication. Functions and protocols of physical layer, medium access sublayer, link layer, network layer and transport layer. Case studies. ISDN. Prerequisite: graduate standing in computer science or electrical engineering.

CSEN 5325 Software Engineering **3 SCH (3-0)**

Covers development life-cycle models, inspection process, software quality metrics, testing, validation metrics, estimation and scheduling. Prerequisite: graduate standing in engineering.

CSEN 5333 Real Time Systems **3 SCH (3-0)**

Characteristics of systems and techniques used in real time computer applications. Scheduling theory, verification and design techniques including simulation and probabilistic models. Prerequisite: graduate standing.

CSEN 5336 Analysis of Algorithms **3 SCH (3-0)**

Introduction of the design and analysis of computer algorithms. Topics include asymptotic efficiency; a survey of useful algorithms for sorting, information retrieval, and graphs; paradigms for algorithm design; and a brief introduction to complexity classes including NP. Prerequisite: graduate standing.

CSEN 5350 Neural Networks Application **3 SCH (3-0)**

Includes a review of network architectures, perceptron, linear networks, back-propagation and radial basis networks. A real-time laboratory experience in seeing the application of neural networks. Prerequisite: graduate standing in Computer Science. (Credit may not be obtained in both CSEN 5350 and EEEN 5350.)

CSEN 5401 Adv Probs in Computer Sci **1-4 SCH (1-4)**

Individual or group research on advanced problems conducted under the supervision of a faculty member. Maximum credit 8 semester hours.

CSEN 6303 Special Topics in Computer Science **3 SCH (3-0)**

Courses offered under this Special Topics denomination concentrate on themes not present in the current EECS curriculum, or can also be offered to strengthen and provide further depth of study in important areas of computer science. Topics vary to reflect new developments and interests on emerging areas of computer science, such as cryptography, the Internet of Things, and wireless sensor networks, to name a few. May be repeated when topic changes.