# COSC - Computer Science

### COSC 5000 Distributed Systems (3)

Students will examine the fundamentals of computer information systems in a distributed environment, including network concepts, operating systems concepts, network operating systems, transaction management and time coordination. Emphasis will be placed on the elements necessary for distributed information systems.

### COSC 5010 Object-Oriented Analysis and Design (3)

Students will learn the principles of object-oriented analysis and design: classes, polymorphism, encapsulation and inheritance. The emphasis is on development principles for medium, large and distributed systems. Students will develop a logical design project. **Prerequisite**: Programming proficiency in C++.

### COSC 5020 Object-Oriented Programming (3)

Students will apply the principles of object-oriented programming in the implementation of a major information system project using C++. Students will implement the object-oriented design from COSC 5010. **Prerequisite**: COSC 5010.

### COSC 5030 Agile Software Development (3)

Students will explore the important principles of software development: delivering value to the customer, focusing on individual developers and their skills, collaboration, an emphasis on producing working software, the critical contribution of technical excellence and a willingness to change course when demands shift. Several key software development methods are investigated and one methodology is actively examined using a course development project. **Prerequisite**: COSC 5020.

### COSC 5040 Distributed Database Design (3)

Students will study the principles of homogeneous database technology and the principles of distributed database systems. The emphasis will be on the integration of heterogeneous database management systems into a coherent system. Students will develop a logical design for a distributed database.

### COSC 5050 Distributed Database Applications (3)

Students will implement the distributed database developed in COSC 5040. Emphasis will be on good design techniques and proper documentation. Students will implement a database project in this course. **Prerequisite**: COSC 5040.

### COSC 5060 Systems Concepts (3)

Students will study the mathematical basis of connected systems. Topics will include queues, graphs, matrices and finite state machines. **Prerequisite**: College algebra.

### COSC 5110 Network Architecture (3)

Students will study the fundamental concepts of computer networks. Topics will include network topologies, protocols and network operating systems. The OSI model will be used to evaluate and compare systems.

### COSC 5120 Data Communication (3)

Students will study the internet working standards and common carrier services. Emphasis will be placed on the analysis and design of systems using current communication technologies.

### COSC 5130 Computer Security and Reliability (3)

Students will study hardware and software reliability and security using currently available technology. Emphasis will be placed on security analysis of the system, physical threats to systems, virus protection, system recovery and encryption.

### COSC 5140 Network Design and Management (3)

Students will study the design of a distributed system. The emphasis will be on systems with multiple topologies and protocols.

### COSC 5150 Distributed Application Development (3)

Students will be introduced to the creation of Web-based applications. This course will also cover the components of Web design and incorporate various languages to enhance Web documents. **Prerequisite**: COSC 5050.

### COSC 5200 Issues in Distributed Systems (3)

Students will be introduced to the issues in emerging technologies in distributed systems. This course will cover advanced theories and technologies in building distributed systems, such as mobile applications and web services.

### COSC 6000 Distributed Systems Project (3)

Students will design and implement a major system distributed information system that integrates the learning experiences gained in the previous courses. **Prerequisites**: COSC 5150 and completion of 30 credit hours of the required and elective COSC courses in this program.

Course Descriptions