

Information Technology (ITE) Course Descriptions

ITE 100 Fundamentals of Information Systems and Technology

3 cr.

Catalog description:

This course provides an overview of fundamental areas within the field of Information Technology, introducing basic vocabulary, central concepts, and typical applications. The topics discussed include computer hardware, software, communications fundamentals, system development, information management, workforce considerations, and related societal, legal and ethical issues. Three lecture hours per week.

Prerequisite: High school algebra I & II plus experience with a window-based operating system and the use of email and a word processor. Recommended for students with no prior programming experience.

ITE 105 Problem Solving with Algorithms

3 cr.

Catalog description:

This course serves as an introduction to programming. Using flow charts, pseudo-languages, and software development strategies, students will learn techniques for identifying and selecting solutions to problems by designing algorithms, using stepwise refinement and structured programming techniques. Students will design algorithms using pseudo-code, implement algorithms using a simplified programming environment, and participate in hands-on debugging, testing, and documenting activities. Topics include principles of programming, the logic of constructing a computer program, integrating modules into a cohesive application, and fundamentals of programming languages. In-class exercises allow students to practice these techniques while solving assigned problems. Three lecture hours per week.

Prerequisites: High school algebra I & II plus experience with a window-based operating system and the use of email and a word processor. Recommended for students with no prior programming experience.

ITE 200 Computer Hardware and Software

3 cr.

Catalog description:

This course surveys the fundamentals and skills required to understand and work with computer hardware and software. Topics include system architecture that goes into details of the roles and assembly and disassembly of various computer parts. System diagnostics, upgrades, maintenance, and documentation are taught as the next steps. Instruction includes lectures, demonstrations, and hands-on work. Three lecture hours per week.

Prerequisites: ITE100

ITE 210 Introduction to Programming**4 cr.**

Catalog description:

This course introduces a set of fundamental programming concepts and problem-solving techniques for the development of computer programs using a high level programming language. Topics such as problem specification, standard data types, control structures, methods, and design for reuse are presented through a study of specific example problems and solutions. Style, documentation, solution robustness, and conformance with specifications are emphasized throughout. Three lecture hours and three hours of scheduled laboratory per week.

Prerequisite(s): ITE 105**ITE310 Computer Networks****4 cr.**

Catalog description:

This course begins with an introduction to computer networks, including hardware, software, troubleshooting, and maintenance. IT professionals need to understand various components of the networking infrastructure of an organization as well as the various protocols and standards used to implement these infrastructures. TCP/IP stack will be presented with the discussion of OSI layered model and data/control flow through each layer using top-down or bottom-up approaches. Understanding of networking protocols, TCP/IP stack, and troubleshooting, and maintenance of networks will be given through class lectures as well as labs. Three lecture hours and three hours of scheduled laboratory per week.

Prerequisites: ITE100, ITE105**ITE315 Information Security****4 cr.**

Catalog description:

The course covers a unified view of information security that examines the closely related areas of information security, software security, networks, web security, and forensics using a common set of underlying security principles. Students will get an understanding of how to model secure environments and how to implement these starting from standalone computers, operating systems, and then going towards distributed networks and web. Each of the security areas is examined in sufficient detail for students to understand the complexity of modern threats and the corresponding sophistication of the software and hardware that is designed to counter these threats. Three lecture hours and three hours of scheduled laboratory per week.

Prerequisites: ITE310

ITE320 Information Management Systems

4 cr.

Catalog description:

It is the role of the IT professional to develop, deploy, manage and integrate data and information systems to support the organization. At a fundamental level, Information Management Systems address these issues by providing mechanisms of storing, searching, updating, and retrieving information. Underlying all of these functionalities are the concepts of a file and file organization, upon which is built the concept of an information management system. This course presents the fundamental concepts of data organization architectures, database management system models and query languages, principles of data modeling, and techniques for managing a database environment. Contemporary distributed network-based data storage mechanisms are also discussed. Three lecture hours and three hours of scheduled laboratory per week.

Prerequisite: ITE100, ITE105

ITE330 Web Systems

4 cr.

Catalog description:

This course provides an introduction to web systems and technologies, including an overview of architecture of a website, implementation, evaluation and testing of web-based applications and programming aspects of web development (web content development, markup languages coding, client-side and server-side application development). Topics include understanding of Web standards, description of basic components of a website, general principles of web interface design and development, use of databases, multimedia, and structure of the interface between a website and the Internet. Social, ethical and legal issues of web usage (e-commerce, social networks, etc.) will also be discussed. Three lecture hours and three hours of scheduled laboratory per week.

Prerequisite(s): ITE100, ITE105

ITE340 Human Computer Interaction

3 cr.

Catalog description:

This course is an introduction to fundamentals of Human Computer Interaction (HCI), a discipline that focuses on designing highly usable software systems. The study of human-computer interaction enables system architects to design useful, efficient, and enjoyable computer interfaces. This course teaches the theory of human psychology, principles of computer systems, user interface design procedure, and programming practices behind effective human interaction with computer. The course considers the interdisciplinary nature of HCI and introduces various issues involved in using technologies for different purposes in the organizational and social contexts. The course will thus provide a background for students to practice system design, selection, evaluation, and use the knowledge of human characteristics, interaction styles, user and task analysis, and design and evaluation procedures. Three lecture hours per week.

Prerequisite(s): ITE100, ITE105

Catalog description:

Virtually all organizations have IT needs. It is the role of the IT professional to design, select, apply, deploy and manage computing systems to support the organization. This course presents methods, tools, and techniques used to design, build, and administer a viable IT environment. It assumes prior knowledge of computer architecture, IT fundamentals, networking, programming, and information management. Topics to be presented include Installing and configuring operating systems and applications, IT administrative activities, administrative domains, software requirements and testing, software acquisition and sourcing, Integration and deployment, project management, testing and quality assurance, and system architecture. Three lecture hours per week and three hours of scheduled laboratory per week.

Prerequisite(s): ITE 315, ITE320, ITE 330

ITE 410 Advanced Computer Networks**4 cr.**

Catalog description:

This course offers an in-depth look at the top-down approach to networks, taking into consideration the requirements and goals, and understanding the methodologies and techniques involved in a complex network infrastructure. Topics include: identifying the needs and goals for building networks, logical and physical network design, addressing and numbering, switching and routing protocols, developing network security strategies, and selecting technologies and devices for campus and enterprise networks. Four lecture hours per week.

Prerequisites: ITE 315

ITE 420 Database Administration**4 cr.**

Catalog description:

A database administrator (DBA) directs or performs all activities related to maintaining a successful database environment. This courses demonstrates the fundamental tasks and functions required of a DBA. The topics of this course include understanding the role of DBA, creating the database environment, application design, database change management, data availability, data integrity, database security, database backup and recovery, disaster planning, system and application performance techniques. While Oracle is the primary database management system utilized, the concepts and procedures presented in this course are typical for any database management system server. Four lecture hours per week.

Prerequisite: ITE 320

ITE 501 Information Technology Capstone Project Specification**1 cr.**

Catalog description:

This course sets up a typical environment for the development of a detailed proposal for a software- or hardware- Information Technology based project. The instructor will assist each student in choosing an appropriate project topic and in refining the project proposal through all stages from initial outline to final formal specification and presentation. The completed proposal will serve as the contract for the ITE 505 Information Technology Capstone Project. The course involves periodic meetings, group discussions (if appropriate), and individual conferences. A presentation of the completed proposal will be made to the department faculty and students. This course is graded on a Pass/Fail basis and is taught on a Directed Study basis. Open only to Information Technology majors.

Prerequisites: ITE 350 and permission of department chairperson (as appropriate). Additional prerequisites, which vary with the project, are at the discretion of the faculty supervisor for the project.

ITE 505 Information Technology Internship/Capstone Project**3 cr.**

Catalog description

A substantial project involving system design and implementation is carried out on an individual basis under the supervision of a faculty member. The specification for the internship must have been completed in the prerequisite course ITE 501. A presentation of the completed project will be made to the department faculty and students; writing experiences will be used to develop skills in analysis and rhetoric. The course involves periodic meetings, group discussions (if appropriate), and individual conferences. Open only to Information Technology majors.

Prerequisites: ITE 501 and permission of the chairperson.