# COURSES

## COMPUTER SCIENCE

### ARTC 1302 DIGITAL IMAGING

2 Lec/4 Lab (3 Cr.) Digital imaging using raster image editing and/or image creation software: scanning, resolution, file formats, output devices, color systems, and image-acquisitions.

**Credits**
3

**Distribution**
ARTC

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

### ARTC 1313 DIGITAL PUBLISHING

2 Lec/4 Lab (3 Cr.) The fundamentals of using digital layout as a primary publishing tool an the basic concepts and terminology associated with typography and page layout.

**Credits**
3

**Distribution**
ARTC

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

### ARTC 1359 VISUAL DESIGN FOR NEW MEDIA

2 Lec/4 Lab (3 Cr.) Visual design elements as they relate to new media. Emphasizes aesthetics and visual problem solving such a typographic issues, color management, hierarchy of information, image optimization, and effective layout.

**Credits**
3

**Distribution**
ARTC

**Course Fee**
Lab Fee: $24.00; Internet Course Fee (if applicable): $38.00

### BCIS 1305 BUSINESS COMPUTER APPLICATIONS

3 lec/1 lab (3 Cr.) Introduces and develops foundational skills in applying essential and emerging business productivity information technology tools. The focus of this course is on business productivity software applications, including word processing, spreadsheets, databases, presentation graphics, data analytics, and business-oriented utilization of the internet.

**Credits**
3

**Distribution**
BCIS

**Course Fee**
Lab Fee $24; Internet Course Fee (if applicable) $38

### COSC 1301 INTRODUCTION TO COMPUTING

3 lec/1 lab (3 Cr.) Overview of computer systems-hardware, operating systems, and microcomputer application software, including the internet, word processing, spreadsheets, presentation graphics, and databases. Current issues such as the effect of computers on society, and the history and use of computers in business, educational, and other modern settings are also studied. This course is not intended to count toward a student's major field of study in business or computer science.

**Credits**
3

**Distribution**
COSC

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

## COSC 1320 C PROGRAMMING

2 Lec/4 Lab (3 Cr.)  Introduces the fundamental concepts of structured programming in the C language.  Topics include data types, control structures, functions, structures, arrays, pointers, pointer arithmetic, unions, and files; the mechanics of running, testing, and debugging programs; introduction to programming; and introduction to the historical and social context of computing.

**Credits**
3

**Distribution**
COSC

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

## COSC 1420 C PROGRAMMING

3 Lec/3 Lab(4 cr) Introduces the fundamental concepts of structured programming in the C language. Topics include data types; control structures; functions, structures, arrays, pointers, pointer arithmetic, unions, and files; the mechanics of running, testing, and debugging programs; introduction to programming; and introduction to the historical and social context of computing.

**Credits**
4

**Distribution**
COSC

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

## COSC 1436 PROGRAMMING FUNDAMENTALS I

3 lec/3 lab (4 Cr.) Introduces the fundamental concepts of structured programming and provides a comprehensive introduction to programming for computer science an technology majors. Topics include software development methodology, data types, control structures, functions, arrays, and the mechanics of running, testing, and debugging. This Course assumes computer literacy

**Credits**
4

**Distribution**
COSC

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

## COSC 1437 PROGRAMMING FUNDAMENTALS II

3Lec/3Lab (4 Cr.) This course focuses on the object-oriented programming paradigm, emphasizing the definition and use of classes along with fundamentals of object-oriented design. The course includes basic analysis of algorithms, searching and sorting techniques, and an introduction to software engineering processes. Students will apply techniques for testing and debugging software.

**Credits**
4

**Prerequisite**
COSC 1436 - Programming Fundamentals I

**Distribution**
COSC

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

## COSC 2325 COMPUTER ORGANIZATION

2 Lec/4 Lab (3 Cr) The organization of computer systems is introduced using assembly language. Topics include basic concepts of computer architecture and organization, memory hierarchy, data types, computer arithmetic, control structures, interrupt handling, instruction sets, performance metrics, and the mechanics of testing and debugging computer systems. Embedded systems and device interfacing are introduced.

**Credits**
3

**Prerequisite**
COSC 1436 - Programming Fundamentals I
**Distribution**
COSC

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

## COSC 2436 PROGRAMMING FUNDAMENTALS III

3 Lec/3 Lab (4 Cr) Further applications of programming techniques, introducing the fundamental concepts of data structures and algorithms. Topics include data structures (including stacks, queues, linked lists, hash table, trees and graphs), searching, sorting, recursion and algorithmic analysis. Programs will be implemented in an appropriate object oriented language.
**Credits**
4
**Prerequisite**
COSC 1437 - Programming Fundamentals II

**Distribution**
COSC

**Offered**
Fall

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

## IMED 1345 INTERACTIVE DIGITAL MEDIA I

2 Lec/4 Lab (3 Cr.) Exploration of the use of graphics and sound to create interactive digital media applications and/or animations using industry standard authoring software.
**Credits**
3

**Distribution**
IMED

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

## IMED 2359 INTERACTIVE WEB ELEMENTS

2 Lec/4 Lab (3 Cr.) Production of projects using current web development tools that may incorporate dynamic data, web graphics, animation, video and audio streaming.
**Credits**
3

**Distribution**
IMED

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

## INEW 1340 ASP.NET

2 Lec/4 Lab (3 Cr.) Server side web programming concepts to implement solutions for common web programming tasks. Includes Basic ASP.NET web controls, user management and authentication, state management, and development of database-driven web applications.
**Credits**
3

**Prerequisite**
ITSE 2313 - Web Authoring

**Distribution**
INEW

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

## ITNW 1309 FUNDAMENTALS OF CLOUD COMPUTING

2 Lec/4 Lab (3 Cr) Introduction to Cloud computing from a business and technical perspective, including Cloud concepts, services, architecture, system integration, connectivity, data center migration, administration, security, compliance and technical support. Coverage includes preparation for industry certifications. Topics may adapt to changes in industry practices.

**Credits**
3

**Prerequisite**
ITNW 1325 - Fundamentals of Networking

**Distribution**
ITNW

**Offered**
Spring

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

## ITNW 1313 COMPUTER VIRTUALIZATION

  2 Lec/4 Lab (3 Cr.) Implement and support virtualization of client servers in a networked computing environment. This course explores installation, configuration, and management of computer virtualization workstation and servers.

**Credits**
3

**Distribution**
ITNW

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable) $38

## ITNW 1325 FUNDAMENTALS OF NETWORKING TECHNOLOGIES

2 lec/4 lab (3 Cr.) Instruction in networking technologies and their implementation. Topics include the OSI reference model, network protocols, transmission media, and networking hardware and software.

**Credits**
3

**Distribution**
ITNW

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable) $38

## ITNW 1335 INFORMATION STORAGE & MANAGEMENT

2 Lec/4 Lab (3 Cr.)  An introduction to date storage-related technologies.  Topics include data storage for cloud, Big Data, mobile, social media, and software-defined data centers. Provides a strong understanding of storage technologies and prepares students for advanced concepts, technologies, and processes.
Prerequisite: ITNW 1325

**Credits**
3

**Prerequisite**
ITNW 1325 - Fundamentals of Networking

**Distribution**
ITNW

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable) $38

## ITNW1336 CLOUD DEPLOYMENT AND INFRASTRUCTURE

2Lec/4Lab (3 Cr) Focus on Cloud infrastructure,deployment, security models, and key considerations in migrating to Cloud computing. Includes the technologies and processes required to build on premise and Cloud environments, including computation, storage, networking, virtualization, business continuity, security, and management.

**Credits**
3

**Prerequisite**
ITNW 1309 - Fundamentals of Cloud Computing

**Distribution**
ITNW

**Offered**
Fall

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

# ITNW 1354 IMPLEMENTING AND SUPPORTING SERVERS

2 Lec/4 Lab (3 Cr.) Implement, administer, and troubleshoot information systems that incorporate servers in a networked computing environment.

**Credits**
3

**Distribution**
ITNW

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

# ITNW 1373 CLOUD COMPUTING SECURITY

2 Lec/4 Lab (3 Cr) Introduction to Cloud Security including tools which monitor data moving to and from the cloud and between cloud platforms, identification of fraudulent use of data in the Cloud and its financial and performance impact. Third party cloud security solutions including cloud security gateways, centralized cloud management, and native IaaS/PaaS platform security will be presented.

**Credits**
3

**Prerequisite**
ITNW 1309 - Fundamentals of Cloud Computing

**Distribution**
ITNW

**Offered**
Fall

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

# ITNW 2264 PRACTICUM IN COMPUTER SYSTEMS NETWORKING AND TELECOMMUNICATIONS

ITNW 2264 (2Cr) Practicum in Computer Systems Networking and Telecommunications Practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student. (224 contact hours) Capstone course must be taken in final semester.

**Credits**
2

**Distribution**
ITNW

**Offered**
Spring

# ITNW 2327 ADVANCED CLOUD COMPUTIMG

2Lec/4Lab (3Cr) Focus on enterprise Cloud architecture, with advanced topics including multi Cloud platforms inclusive of computing, networking, storage, monitoring and database.

**Credits**
3

**Prerequisite**
ITNW 1336 - Cloud Deployment

**Distribution**
ITNW

**Offered**
Spring

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

# ITNW 2355 SERVER VIRTUALIZATION

2 Lec/ 4 Lab (3 Cr. ) An in-depth study of the installation, configuration, management and troubleshooting of a virtualized server environment.

**Credits**
3

**Prerequisite**
ITNW 1313 - Computer Virtualization

**Distribution**
ITNW

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

# ITSC 1265 PRACTICUM - COMPUTER SCIENCE

(2 Cr.) Practical, general training and experiences in the workplace. The college and employer develop and document an individualized plan for the student. The plan relates the workplace training and experiences to the student's general and technical course of study. The guided external experiences may be paid or unpaid. This course may be repeated if topics and learning outcomes vary.

**Credits**
2

**Distribution**
ITSC

**Course Fee**
Lab fee: $24

# ITSC 1305 INTRO TO PC OPERATING SYSTEMS

2 lec/4 lab (3 Cr.) A study of personal computer operating systems. Topics include installation and configuration, file management, memory and storage management, control of peripheral devices, and use of utilities.

**Credits**
3

**Distribution**
ITSC

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

# ITSC 1307 UNIX OPERATING SYSTEM I

(3 Cr.) A study of the UNIX operating system including multi-user concepts, terminal emulation, use of system editor, basic UNIX commands, and writing script files. Includes introductory system management concepts.

**Credits**
3

**Distribution**
ITSC

**Offered**
Spring

**Course Fee**
Lab Fee $24; Internet Course Fee (if applicable):$ 38

## ITSC 1309 INTEGRATED SOFTWARE APPLICATIONS I

3 lec/1 lab (3 Cr.) Integration of applications from popular business productivity software suites. Instruction in embedding data, linking and combining documents using word processing, spreadsheets, databases, and/or presentation media software. Suggested prerequisite: keyboarding proficiency. Tech Prep articulated credit.

**Credits**
3

**Distribution**
ITSC

**Offered**
Spring

**Course Fee**
Lab Fee $24; Internet Course Fee (if applicable):$ 38

## ITSC 1315 PROJECT MANAGEMENT SOFTWARE

2 Lec/4 Lab (3 Cr) Use of project management software for developing a project plan including timelines, milestones, scheduling, life cycle phases, management frameworks, skills, processes and tools.

**Credits**
3

**Distribution**
ITSC

**Course Fee**
Lab Fee $24; Internet Course Fee (if applicable):$ 38

## ITSC 1316 LINUX INSTALLATION & CONFIGURATION

2 Lec/4 Lab (3 Cr.) Introduction to Linux operating system. Includes Linux installation, basic administration, utilities and commands, upgrading, networking, security, and application installation. Emphasizes hands-on setup, administration, and management of Linux.

**Credits**
3

**Distribution**
ITSC

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

## ITSC 1325 PERSONAL COMPUTER HARDWARE

2 lec/4 lab (3 Cr.) A study of current personal computer hardware including personal computer assembly and upgrading, setup and configuration,  and troubleshooting

**Credits**
3

**Distribution**
ITSC

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

## ITSC 1409 INTEGRATED SOFTWARE APPLICATIONS I

3 lec/3 lab (4 Cr.) Integration of applications from popular business productivity software suites. Instruction in embedding data, linking and combining documents using word processing, spreadsheets, databases, and/or presentation media software. Suggested prerequisite: keyboarding proficiency. Tech Prep articulated credit.

**Credits**
4

**Distribution**
ITSC

**Offered**
Spring

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

## ITSC 2164 PRACTICUM-COMPUTER & INFORMATION SCIENCE

14 external learning experience (1 Cr) Practical general training and experiences in the workplace. The college and employer develop and document an individualized plan for the student. The plan relates workplace training and experiences to the student's general and technical course of study. The guided external experiences may be paid or unpaid. This course may be repeated if topics and learning outcomes vary.

**Credits**
1

**Distribution**
ITSC

**Offered**
Spring Only

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

## ITSC 2339 PERSONAL COMPUTER HELP DESK SUPPORT

2 lec/4 lab (3 Cr) Diagnosis and solution of user hardware and software related problems includes on-the-job projects in either a help desk lab or in short-term assignments for local business.

**Credits**
3

**Distribution**
ITSC

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

## ITSE 1301 WEB DESIGN TOOLS

2 Lec/4 Lab (3 Cr.) Designing and publishing Web documents according to World Wide Web Consortium (W3C) standards. Emphasis on optimization of graphics and images and exploration of tools available for creating and editing Web documents.

**Credits**
3

**Distribution**
ITSE

**Course Fee**
Lab Fee $24; Internet Course Fee (if applicable): $38

## ITSE 1302 COMPUTER PROGRAMMING

2 Lec/4 Lab (3 Cr.) Introduction to computer programming including design, development, testing, implementation, and documentation.

**Credits**
3

**Distribution**
ITSE

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

## ITSE 1306 PHP PROGRAMMING LANGUAGE

2 Lec/4 Lab (3 Cr.) Introduction to PHP including the design of web-based applications, arrays, string, regular expressions, file input/output, e-mail and database interfaces, stream and network programming, debugging, and security.
Pre-requisite: ITSE 2313 - Web Authoring

**Credits**
3

**Prerequisite**
**ITSE 2313 - Web Authoring**

**Distribution**
ITSE

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

## ITSE 1307 INTRO TO C++ PROGRAMING

2 lec/4 lab (3 Cr.) Introduction to computer programming using C++. Emphasis on the fundamentals of structured design with development, testing, implementation, and documentation. Includes language syntax, data file structures, input/output devices, and files.
**Credits**
3

**Distribution**
ITSE

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

## ITSE 1311 BEGINNING WEB PROGRAMMING

2 lec/4 lab (3 Cr.) Skill development in web page programming, including mark-up and scripting languages.
**Credits**
3

**Distribution**
ITSE

**Offered**
Fall

**Course Fee**
Lab fee: $24; Internet course fee (if applicable): $38

## ITSE 1329 PROGRAMMING LOGIC & DESIGN

3 lec (3 Cr.) A disciplined approach to problem solving with structured techniques and representation of algorithms using appropriate design tools. Discussion of methods for testing evaluation and documentation.
**Credits**
3

**Distribution**
ITSE

**Offered**
Fall

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

## ITSE 1330 INTRODUCTION TO C# PROGRAMMING

2 Lec/4 Lab (3 cr) A study of C# syntax including data types, control structures, functions, syntax and semantics of the language, classes, class relationships, and exception handling.
**Credits**
3

**Distribution**
ITSE

**Offered**
Fall

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

## ITSE 1333 MOBILE APPLICATIONS DEVELOPMENT

2 Lec/4 Lab (3Cr) An overview of different mobile platforms and their development environments. Outcomes: design, write and test small interactive programs for mobile platforms.
**Credits**
3

**Distribution**
ITSE

**Prerequisite**
**ITSE 2313 - Web Authoring**

**Corequisite**
ITSE 2302 - Intermediate Web Programming

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

# ITSE 1345 INTRODUCTION TO ORACLE SQL
(3 Cr.) An introduction to the design and creation of relational databases using Oracle. Topics include storing, retrieving, updating, and displaying data using Structured Query Language (SQL).
**Credits**
3

**Distribution**
ITSE

**Offered**
Fall

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

# ITSE 1359 INTRODUCTION TO SCRIPTING LANGUAGES
2 Lec/4 Lab (3 Cr) Introduction to scripting languages including basic data types, control structures, regular expressions, input/output, and textual analysis. Design programming solutions using scripting languages, write scripts; and test and debug scripts.
**Credits**
3

**Distribution**
ITSE

**Prerequisite**
**ITSE 2313 - WEB AUTHORING**
**Offered**
Fall

**Course Fee**
Lab fee: $24, Internet course fee (if applicable): $38

# ITSE 1430 INTRODUCTION TO C# PROGRAMMING
3 Lec/3 Lab (4 cr) A study of C# syntax including data types, control structures, functions, syntax and semantics of the language, classes, class relationships, and exception handling.
**Credits**
4

**Distribution**
ITSE

**Prerequisite**
**ITSE 2313 - WEB AUTHORING**

**Offered**
Fall

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

# ITSE 2302 INTERMEDIATE WEB PROGRAMMING
2 Lec/4 Lab (3 cr)Techniques for web development. Includes server-side and client-side scripting.
**Credits**
3

**Distribution**
ITSE

**Offered**
Spring

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

# ITSE 2313 WEB AUTHORING
2 lec/4 lab (3 Cr.) Instruction in designing and developing web pages that incorporate text, graphics, and other supporting elements using current technologies and authoring tools.
**Credits**
3

**Distribution**
ITSE

**Offered**
Fall

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

# ITSW 1304 INTRO TO SPREADSHEETS
2 lec/4 lab (3 Cr.) Instruction in the concepts, procedures, and application of electronic spreadsheets.
**Credits**
3

**Distribution**
ITSW

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

# ITSW 1307 INTRO TO DATABASE
2 lec/4 lab (3 Cr.) Introduction to database theory and the practical applications of a database.
**Credits**
3

**Distribution**
ITSW

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

# ITSW 1310 INTRO TO PRESENTATION GRAPHICS SOFTWARE
2 lec/2 lab (3 Cr.) Instruction in the utilization of presentation software to produce multimedia presentations. Graphics, text, sound, animation, and/or video may be used in presentation development.
Co requisite: COSC 1301
**Credits**
3

**Distribution**
ITSW

**Offered**
Spring

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

# ITSY 1342 INFORMATION TECHNOLOGY SECURITY
2 Lec/4 Lab (3 Cr. ) Instruction in security for network hardware, software, and data including physical security, backup procedures, relevant tools, encryption, and protection from viruses.
**Credits**
3

**Distribution**
ITSY

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

# ITSY 2301 FIREWALLS & NETWORK SECURITY

2 Lec/4 Lab (3 Cr.) Identify elements of firewall design, types of security threats and responses to security attacks. Use best practices to design, implement, and monitor a network security plan. Examine security incident postmortem reporting and ongoing network security activities.
**Credits**
3

**Distribution**
ITSY

**Prerequisite**
## ITSY 1342 - INFORMATION TECHNOLOGY SECURITY

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

# ITSY 2330 INTRUSION DETECTION

2Lec/4Lab (3 Cr.) Computer information systems security monitoring, intrusion detection, and crisis management. Includes alarm management, signature configuration, sensor configuration, and troubleshooting components. Emphasizes identifying, resolving, and documenting network crises and activating the response team
**Credits**
3

**Distribution**
ITSY

**Prerequisite**
ITSY 2301 - Firewalls and Network Security

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

# ITSY 2341 SECURITY MANAGEMENT PRACTICES

2 Lec, 4Lab (3 Cr.) In-depth coverage of security management practices, including asset evaluation and risk management; cyber law and ethics issues; policies and procedures; business recovery and business continuity planning; network security design; and developing and maintaining a security plan.
**Credits**
3
**Distribution**
ITSY

**Prerequisite**
ITSY 2301 - Firewalls and Network Security

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

# ITSY 2342 INCIDENTAL RESPONSE AND REPORTING

2 Lec, 4 Lab (3 Cr) ) In-depth study of system forensics including methodologies used for analysis of computer security breaches. Collect document and evaluate evidence to perform postmortem analysis of a security breach.
**Credits**
3

**Distribution**
ITSY
**Prerequisite**
ITSY 2301 - Firewalls and Network Security

**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38

## ITSY 2343 COMPUTER SYSTEMS FORENSICS

2Lec/4Lab (3Cr.) In-depth study of system forensics including methodologies used for analysis of computer security breaches. Collect document and evaluate evidence to perform postmortem analysis of a security breach.
Prerequisite: ITSY 2301

**Credits**
3

**Distribution**
ITSY

**Prerequisite**
ITSY 2301 - Firewalls and Network Security
**Course Fee**
Lab Fee: $24; Internet Course Fee (if applicable): $38