

Computer Science Information Systems		Course to Program Map					
Program Outcomes: Upon completion of the program, graduates will be able to...	Institutional Skills	apply appropriate knowledge of computing and mathematics.	analyze a problem, and identify and define the appropriate computing requirements.	design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities.	communicate effectively with a range of audiences.	use current techniques, skills, and tools necessary for computing practice.
Courses							
CSCI 101 Introduction to Management Information Systems	15	I	I	I	IRMA	IR	I
CSCI 102 Introduction to Programming	3	IRMA	IRMA	IRMA			IRMA
CSCI 107 Advanced Programming	3	IRMA	IRMA	IRMA			IRMA
CSCI 110 Intro to Computer Concepts and Applications	15	IRA	I	I	I	I	IRA
CSCI 125 IT Essentials: Hardware (A+)	3	IRMA	IR	IR			IRMA
CSCI 126 IT Essentials: Software (A+)	3	IRMA	IR	IR			IRMA
CSCI 130 Introduction to Cybersecurity	1235	IRMA	IR	IR	IRMA	IRMA	IR
CSCI 140 Overview of Computer Science	12345	IRMA	IR	IR	IRMA	IRMA	IR
CSCI 150 Network Essentials (Network+)	3	IR	IRMA	IRMA			IRMA
CSCI 190 Computer Ethics	12345				IRMA	IR	
CSCI 230 Security Essentials (Security+)	1235	IRMA	IR	IR	IRMA	IRMA	IR
CSCI 262 Project Management	12345	IR		IR	IRMA	IRMA	IR

Mapping	
I	Introduced
R	Reinforced
M	Mastered
A	Assessed/Artifact

Essential Skills	
1	written communication
2	oral communication
3	critical thinking
4	cultural diversity
5	social responsibility

Employability Skills	
C	communication
P	problem solving
W	work ethic

CSCI 101 Introduction to Management Information Systems	<i>Curriculum Map</i>					
Program Outcomes	apply appropriate knowledge of computing and mathematics.	analyze a problem, and identify and define the appropriate computing requirements.	design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities.	communicate effectively with a range of audiences.	use current techniques, skills, and tools necessary for computing practice.
<b>Course SLO: Students will be able to</b>						
describe the major components of an information system.						
describe how information systems and technologies are used.						
describe the components of a computer system.						
describe the process of writing a computer program.						
describe how data is stored.						
describe networks and how the Internet works.						
describe how to secure a computer from malware.				IRMA	IR	
discuss ethical dilemmas that arise in modern computing.				IRMA	IR	

CSCI 102 Introduction to Programming	Curriculum Map					
Program Outcomes	apply appropriate knowledge of computing and mathematics.	analyze a problem, and identify and define the appropriate computing requirements.	design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities.	communicate effectively with a range of audiences.	use current techniques, skills, and tools necessary for computing practice.
<b>Course SLO: Students will be able to</b>						
identify and describe general computer and programming topics such as operating systems, networking, databases, algorithms, control structures, data types, data storage, files and arrays.	IR	IR	IR			IR
demonstrate structured programming principles, such as top-down modular design and proper program documentation and style.	IRMA	IRMA	IRMA			IRMA
demonstrate the use of certain basic tools and algorithms, such as data validation, defensive programming, calculating sums and averages, and searching and sorting lists.	IRMA	IRMA	IRMA			IRMA
describe and articulate other programming paradigms, such as object-oriented and event-driven programming.	IR	IR	IR			IR

CSCI 107 Advanced Programming	<i>Curriculum Map</i>					
Program Outcomes	apply appropriate knowledge of computing and mathematics.	analyze a problem, and identify and define the appropriate computing requirements.	design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities.	communicate effectively with a range of audiences.	use current techniques, skills, and tools necessary for computing practice.
Course SLO: Students will be able to						
demonstrate an understanding of file structure, creation and management	IRMA	IRMA	IRMA			IRMA
demonstrate an understanding of logic methods of data file use.	IR	IR	IR			IR
demonstrate the ability to use utility programs	IR	IR	IR			IR
demonstrate an understanding of various file types within a specific language	IR	IR	IR			IR

CSCI 110 Intro to Computer Concepts and Applications	<i>Curriculum Map</i>					
Program Outcomes	apply appropriate knowledge of computing and mathematics.	analyze a problem, and identify and define the appropriate computing requirements.	design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities.	communicate effectively with a range of audiences.	use current techniques, skills, and tools necessary for computing practice.
<b>Course SLO: Students will be able to</b>						
identify the specifications and configurations of computer hardware.	I					
identify the role of an operating system.	I					
use the Internet to find information and determine its credibility.	I	I				
use word processing software to create, edit, and produce professional documents.	IRA	I	I		I	IRA
create spreadsheets and charts for problem-solving.	IRA	I	I		I	IRA
utilize a database.	I	I	I			I
use presentation software to create, edit, and produce professional presentations.	IRA	I	I		I	IRA
identify the ethical and social standards of conduct regarding the use of information and technology.	I			I		
identify security threats and solutions.	I			I		

CSCI 125 IT Essentials: Hardware (A+)	<i>Curriculum Map</i>					
Program Outcomes	apply appropriate knowledge of computing and mathematics.	analyze a problem, and identify and define the appropriate computing requirements.	design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities.	communicate effectively with a range of audiences.	use current techniques, skills, and tools necessary for computing practice.
<b>Course SLO: Students will be able to</b>						
illustrate the installation, configuration and troubleshooting of current operating systems.	IRMA	IR	IR			IRMA
identify basic computer components.	IRMA	IR	IR			IRMA
identify, install and troubleshoot computer processors.	IRMA	IR	IR			IRMA
identify, install and troubleshoot memory.	IRMA	IR	IR			IRMA
identify, install and troubleshoot peripherals.	IR	IR	IR			IR
identify, install and troubleshoot video components.	IR	IR	IR			IR
identify, install and troubleshoot storage media.	IR	IR	IR			IR
identify, install and troubleshoot input and output ports and cables.	IR	IR	IR			IR
identify, install and troubleshoot printers.	IR	IR	IR			IR
identify, install, troubleshoot and configure basic networks and components.	IR	IR	IR			IR

CSCI 126 IT Essentials: Software (A+)	<i>Curriculum Map</i>					
Program Outcomes	apply appropriate knowledge of computing and mathematics.	analyze a problem, and identify and define the appropriate computing requirements.	design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities.	communicate effectively with a range of audiences.	use current techniques, skills, and tools necessary for computing practice.
Course SLO: Students will be able to						
illustrate the installation, configuration and troubleshooting of current operating systems.	IRMA	IR	IR			IRMA
compare and contrast the features and requirements of various Microsoft Operating Systems.	IRMA	IR	IR			IRMA
demonstrate use of networking, OS and recovery console command line tools.	IRMA	IR	IR			IRMA
configure and troubleshoot a network client/desktop device.	IRMA	IR	IR			IRMA
perform preventative maintenance procedures.	IR	IR	IR			IR
demonstrate use of basic network, OS and data security.	IR	IR	IR			IR
identify and integrate mobile devices.	IR	IR	IR			IR
demonstrate common troubleshooting methods.	IR	IR	IR			IR
demonstrate common troubleshooting methods.	IR	IR	IR			IR

CSCI 130 Introduction to Cybersecurity	Curriculum Map					
Program Outcomes	apply appropriate knowledge of computing and mathematics.	analyze a problem, and identify and define the appropriate computing requirements.	design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities.	communicate effectively with a range of audiences.	use current techniques, skills, and tools necessary for computing practice.
<b>Course SLO: Students will be able to</b>						
describe the importance of cybersecurity.	IRMA	IR	IR	IRMA	IRMA	IR
discuss access control models.	IRMA	IR	IR	IRMA	IRMA	IR
explain cryptographic concepts.	IRMA	IR	IR	IRMA	IRMA	IR
design the protections to ensure physical security.	IRMA	IR	IR	IRMA	IRMA	IR
explain the role of authentication technologies.	IRMA	IR	IR	IRMA	IRMA	IR
distinguish physical intrusion, process security, memory and file system security issues.	IRMA	IR	IR	IRMA	IRMA	IR
discuss application program security.	IRMA	IR	IR	IRMA	IRMA	IR
examine the threat of insider attacks, viruses, malware and privacy invasive software.	IRMA	IR	IR	IRMA	IRMA	IR
discuss network security concepts.	IRMA	IR	IR	IRMA	IRMA	IR
define denial-of-service attacks and discuss their potential impact.	IRMA	IR	IR	IRMA	IRMA	IR
describe the application layer and DNS.	IRMA	IR	IR	IRMA	IRMA	IR
explain the role of firewalls and tunneling.	IRMA	IR	IR	IRMA	IRMA	IR
discuss intrusion detection and attacks on clients and servers.	IRMA	IR	IR	IRMA	IRMA	IR
explain how digital signatures work.	IRMA	IR	IR	IRMA	IRMA	IR
discuss the role of security standards and evaluation.	IRMA	IR	IR	IRMA	IRMA	IR
design a software vulnerability assessment.	IRMA	IR	IR	IRMA	IRMA	IR



CSCI 140 Overview of Computer Science	Curriculum Map					
Program Outcomes	apply appropriate knowledge of computing and mathematics.	analyze a problem, and identify and define the appropriate computing requirements.	design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities.	communicate effectively with a range of audiences.	use current techniques, skills, and tools necessary for computing practice.
<b>Course SLO: Students will be able to</b>						
define algorithms and give historical examples.	IRMA	IR	IR	IRMA	IRMA	IR
discuss programming and how programs are constructed.	IRMA	IR	IR	IRMA	IRMA	IR
define data storage and describe how data is stored.	IRMA	IR	IR	IRMA	IRMA	IR
evaluate Boolean operations used to construct logic gates.	IRMA	IR	IR	IRMA	IRMA	IR
discuss data compression and some of the techniques.	IRMA	IR	IR	IRMA	IRMA	IR
describe the role of the CPU, bus and motherboard.	IRMA	IR	IR	IRMA	IRMA	IR
discuss machine instructions and machine language.	IRMA	IR	IR	IRMA	IRMA	IR
explain the machine cycle: fetch, decode, execute.	IRMA	IR	IR	IRMA	IRMA	IR
state the key functions of the operating system.	IRMA	IR	IR	IRMA	IRMA	IR
describe how the operating system handles competing demands for resources.	IRMA	IR	IR	IRMA	IRMA	IR
explain fundamental network concepts.	IRMA	IR	IR	IRMA	IRMA	IR
describe the stages of the software life cycle.	IRMA	IR	IR	IRMA	IRMA	IR
discuss various software engineering methodologies.	IRMA	IR	IR	IRMA	IRMA	IR
define a database and discuss the fundamental concepts.	IRMA	IR	IR	IRMA	IRMA	IR
describe an artificial neural network.	IRMA	IR	IR	IRMA	IRMA	IR
discuss the role of artificial intelligence.	IRMA	IR	IR	IRMA	IRMA	IR

CSCI 150 Network Essentials (Network+)	<i>Curriculum Map</i>					
Program Outcomes	apply appropriate knowledge of computing and mathematics.	analyze a problem, and identify and define the appropriate computing requirements.	design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities.	communicate effectively with a range of audiences.	use current techniques, skills, and tools necessary for computing practice.
<b>Course SLO: Students will be able to</b>						
discuss computer network fundamentals including various network topologies	IR	IRMA	IRMA			IRMA
discuss the ISO/OSI reference model and the function of the different network layers.	IR	IRMA	IRMA			IRMA
describe the components of a computer network including media and network devices.	IR	IRMA	IRMA			IRMA
discuss the role of the Ethernet.	IR	IRMA	IRMA			IRMA
discuss IP address and subnets.	IR	IRMA	IRMA			IRMA
discuss the traffic routing process.	IR	IRMA	IRMA			IRMA
discuss WANs and LANs.	IR	IRMA	IRMA			IRMA
discuss the optimization of network performance.	IR	IRMA	IRMA			IRMA
discuss network management.	IR	IRMA	IRMA			IRMA
discuss network security.	IR	IRMA	IRMA			IRMA
discuss troubleshooting network issues.	IR	IRMA	IRMA			IRMA
discuss preparation for industry certification testing.	IR	IRMA	IRMA			IRMA

CSCI 190 Computer Ethics	Curriculum Map					
Program Outcomes	apply appropriate knowledge of computing and mathematics.	analyze a problem, and identify and define the appropriate computing requirements.	design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities.	communicate effectively with a range of audiences.	use current techniques, skills, and tools necessary for computing practice.
<b>Course SLO: Students will be able to</b>						
discuss the pace of change in computer technology.				IRMA	IR	
define ethics and explain why it is relevant to computer technology.				IRMA	IR	
discuss privacy risks and threats to the rights of individuals.				IRMA	IR	
discuss free speech issues and global censorship controls.				IRMA	IR	
define intellectual property and discuss challenges to copyright and ownership.				IRMA	IR	
give examples of the impact of hacking and other computer crimes.				IRMA	IR	
describe the impact of computer technology on employment and work conditions.				IRMA	IR	
discuss the “digital divide” and the impact of computer technology on society.				IRMA	IR	
discuss concerns about the accuracy of information available on the internet.				IRMA	IR	
examine the impact of failures and errors in computer systems.				IRMA	IR	
discuss approaches to increase the reliability and safety of computer systems.				IRMA	IR	
discuss ethical guidelines for computer professionals.				IRMA	IR	

CSCI 230 Security Essentials (Security+)	<i>Curriculum Map</i>					
Program Outcomes	apply appropriate knowledge of computing and mathematics.	analyze a problem, and identify and define the appropriate computing requirements.	design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities.	communicate effectively with a range of audiences.	use current techniques, skills, and tools necessary for computing practice.
<b>Course SLO: Students will be able to</b>						
describe how to calculate risk and five approaches to managing risk	IRMA	IR	IR	IRMA	IRMA	IR
describe ways to monitor and diagnose networks	IRMA	IR	IR	IRMA	IRMA	IR
discuss the impact of devices and infrastructure on security	IRMA	IR	IR	IRMA	IRMA	IR
describe the roles of access control, authentication, and authorization	IRMA	IR	IR	IRMA	IRMA	IR
describe common vulnerabilities of wireless network security	IRMA	IR	IR	IRMA	IRMA	IR
list cloud service models, delivery models and types of hypervisors	IRMA	IR	IR	IRMA	IRMA	IR
discuss the weaknesses and vulnerabilities of the various applications the run on a network	IRMA	IR	IR	IRMA	IRMA	IR
discuss cryptography using either symmetric or asymmetric algorithms	IRMA	IR	IR	IRMA	IRMA	IR
discuss various types of attacks from malware, vulnerabilities, and threats	IRMA	IR	IR	IRMA	IRMA	IR
describe the process of social engineering and other foes	IRMA	IR	IR	IRMA	IRMA	IR
discuss the role of education and legislation on security administration	IRMA	IR	IR	IRMA	IRMA	IR
discuss backup planning, disaster recovery and incident response	IRMA	IR	IR	IRMA	IRMA	IR

CSCI 262 Project Management	<i>Curriculum Map</i>					
Program Outcomes	apply appropriate knowledge of computing and mathematics.	analyze a problem, and identify and define the appropriate computing requirements.	design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.	demonstrate an understanding of professional, ethical, legal, security and social issues and responsibilities.	communicate effectively with a range of audiences.	use current techniques, skills, and tools necessary for computing practice.
<b>Course SLO: Students will be able to</b>						
define a project, list attributes and describe the triple constraint of project management.	IR		IR	IRMA	IRMA	IR
describe project management and key elements of the project management framework.	IR		IR	IRMA	IRMA	IR
explain the relationship between project, program and portfolio management.	IR		IR	IRMA	IRMA	IR
describe the role of the project manager and the skills required.	IR		IR	IRMA	IRMA	IR
explain the critical role of stakeholder management and top management commitment.	IR		IR	IRMA	IRMA	IR
distinguish between project development and product development.	IR		IR	IRMA	IRMA	IR
describe recent trends including globalization, outsourcing and virtual teams.	IR		IR	IRMA	IRMA	IR
explain why a project charter is important.	IR		IR	IRMA	IRMA	IR
describe the integrated change control process.	IR		IR	IRMA	IRMA	IR
explain the importance of good project scope management.	IR		IR	IRMA	IRMA	IR
describe how to create a work breakdown structure.	IR		IR	IRMA	IRMA	IR

explain the use of a Gantt chart and how to determine the critical path of a project.	IR		IR	IRMA	IRMA	IR
describe different approaches to estimating cost and impact to a project.	IR		IR	IRMA	IRMA	IR
describe tools and techniques commonly used for quality control.	IR		IR	IRMA	IRMA	IR
discuss project human resource management and key concepts for managing people.	IR		IR	IRMA	IRMA	IR
assign resources, manage resource loading and achieve resource leveling.	IR		IR	IRMA	IRMA	IR
create and improve communication management plans.	IR		IR	IRMA	IRMA	IR
create a risk management plan.	IR		IR	IRMA	IRMA	IR