

# Computer Science Program

## Graduate Attributes x Program Structure

		Program Structure					
		University Requirements (Humanities, ethical and Social Sciences)	Mathematics and Basic Sciences	Faculty Requirements (Basic Computing Sciences)	Program Requirements (specialization)+Optional (Institution character-identifying subjects)	Training	Projects
		<u>15 Credit Hours</u>	<u>28 Credit Hours</u>	<u>42 Credit Hours</u>	<u>42 Credit Hours</u>	<u>5 Credit Hours</u>	<u>6 Credit Hours</u>
Graduate Attributes	1. Demonstrate knowledge and competence in fundamental areas of computer science such as: algorithms, design and analysis, computational theory, computer architecture and software-based systems.	X		X	X	X	X
	2. Apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design, implementation, evaluation and evolution of computer-based systems.			X		X	X
	3. Apply knowledge of mathematics and science to real world problems; as well as to analyze and interpret data.	X				X	X
	4. Demonstrate the analytic skills necessary to effectively evaluate the relative merits of software and computer systems, and			X		X	X

	<b>algorithmic approaches.</b>						
	<b>5. Understand and apply a wide range of principles and tools of software engineering, such as design methodologies, choice of algorithm, language, software libraries and user interface technique.</b>				<b>X</b>	<b>X</b>	<b>X</b>
	<b>6. Understand and apply a wide range of principles and tools of natural language processing and data mining.</b>		<b>X</b>			<b>X</b>	<b>X</b>
	<b>7. Have a solid understanding of the concepts used in computer science to be able to pursue further learning, whether as graduate students or on their own.</b>			<b>X</b>		<b>X</b>	<b>X</b>
	<b>8. Demonstrate an understanding of algorithms and data structures, computer organization and architecture, programming language concepts, compilers, networks, artificial intelligence, graphics, human computer interfaces, and databases, and identify and define the computing requirements for its solution.</b>	<b>X</b>				<b>X</b>	<b>X</b>
	<b>9. Design, implement, and evaluate computer-based systems, processes, components or program.</b>	<b>X</b>				<b>X</b>	<b>X</b>
	<b>10. Use knowledge and understanding in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoff involved in design choices.</b>	<b>X</b>		<b>X</b>		<b>X</b>	<b>X</b>

# Information Systems Program

## Graduate Attributes x Program Structure

		Program Structure					
		University Requirements (Humanities, ethical and Social Sciences)	Mathematics and Basic Sciences	Faculty Requirements (Basics of information systems)	Program Requirements (specialization)+Optional (Institution character-identifying subjects)	Training	Projects
		<u>15 Credit Hours</u>	<u>28 Credit Hours</u>	<u>42 Credit Hours</u>	<u>42 Credit Hours</u>	<u>5 Credit Hours</u>	<u>6 Credit Hours</u>
Graduate Attributes	1. Recognize problems that are amenable to computer information systems, and knowledge of the tools necessary for solving such problems.	X		X	X	X	X
	2. Understand fundamentals of systems development life cycle (SDLC), information networks, information security, data mining, e-commerce, geographical information systems, and crisis management.			X		X	X
	3. Managing and exploiting organizational data and information; designing data and information models, Managing information systems development resources and projects	X				X	X

	4. Implement solutions, including use of appropriate programming languages, web-based systems and tools, design methodologies, and database systems.			x		x	x
	5. Apply the principles of effective information management, information organization, information mining, and information-retrieval skills to information of various kinds, including text, images, sound, and video.				x	x	x
	6. Know the fundamentals of intelligent information systems technologies.		x			x	x
	7. Specify, design, and implement computer-based information systems, and evaluate them in terms of general quality attributes and possible tradeoffs presented within the given problem.			x		x	x
	8. Apply IS solutions to functional, inter-organizational, operational, managerial, and executive problems and opportunities.	x				x	x
	9. Describe characteristics of various components of information systems, use the appropriate tools and techniques to analyze, design, and construct information systems.	x				x	x
	10. Communicate effectively by oral, written and visual means.	x		x		x	x
	11. Work effectively as an individual and as a member of a team.	x				x	x
	12. Perform independent and efficient time management.	x				x	x

	13. Aware of key ethical issues affecting information systems and their responsibilities as information science professionals.	x		x		x	x
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