

Computer Science (CS) Integrated Program Matrix

(Spring 2007: BS in CS)

I. University Student Learning Goals & Outcomes	II. College Core Competencies (Graduates will:)	III. Program Student Learning Outcomes	IV. Assessment Criteria and Measures	V. Use of Assessment Results for Continuous Improvement
See below	See below	<p>Students completing the BS in CS will be prepared for positions in the information technology (IT) field. They will be equipped with the following :</p> <p>Discipline Specific Knowledge An understanding of programming methodology, algorithms, and data structures</p> <p>An understanding of important programming paradigms such as object oriented programming, procedural programming, procedural programming, and key hardware paradigms such as structured design</p> <p>An understanding of digital logic circuits</p> <p>An understanding of sequential and parallel computer architecture and microarchitecture</p> <p>An understanding of operating system software</p> <p>An awareness of the variety of information resource systems in computer science</p> <p>An understanding of biological (wetware) systems</p> <p>An understanding of networking systems</p> <p>Design and Analysis Skills The ability to design hardware and software systems from a set of cost/performance specifications.</p>	<p>100% of the courses in the CS curriculum will have syllabi showing evidence of linkage to the “Program Student Learning Outcomes.”</p> <p>COP 2006 - http://itech.fgcu.edu/faculty/zalewski/COP2006/COP2006.html</p> <p>COP 3003 - http://itech.fgcu.edu/faculty/zalewski/COP3003/COP3003.html</p> <p>COP 2532 http://itech.fgcu.edu/faculty/zalewski/COP2532/COP2532.html</p> <p>COP 2001 http://itech.fgcu.edu/faculty/zalewski/COP2001/COP2001.html</p> <p>COP 3003 http://itech.fgcu.edu/faculty/zalewski/COP3003/COP3003.html CEN 4516 http://itech.fgcu.edu/faculty/zalewski/CEN4516/syllabusCEN4516Fall05.html</p> <p>CEN 4935 http://itech.fgcu.edu/faculty/zalewski/COP4935/COP4935.html</p> <p>CDA 3104, COP 4610, COP 4935 (printed materials)</p>	<p>In response to recommendations from the business community and the Advisory Council for Information Technology and Engineering, the CS program was adjusted to include less of a business focus and more focused toward Computer Science with an eye toward future accreditation by ABET.</p> <p>The program needs to be more focused on small-business/community needs: + small hand-held devices + operating systems and programming (more Java, C++, Linux)</p> <ul style="list-style-type: none"> • We have been reviewing the CS program to address small-business needs. In the meantime, we are encouraging students to take electives in the above areas and pursue internships. • The department revised the programming sequence to incorporate two courses in Java. • Added a new intro. to programming course (COP 1500) • The department hired one new faculty member specializing in simulation and software engineering. •

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		<p>The ability to test the performance of systems</p> <p>The ability to conduct supervised research in computer science and engage in new approaches to specific design problems</p> <p><u>Discipline Specific Content Knowledge</u></p> <p>The ability to design, analyze and document hardware and software systems (All courses).</p> <p>An understanding of programming methodology, programming abstractions, algorithms, important programming paradigms, software engineering, and operating systems (COP 2006, COP 2532, COP 3003, and COP 4610).</p> <p>An understanding of digital logic, digital systems, computer organization, and computer architecture (CDA 3200).</p> <p>Elective: An understanding of the computations performed by biological systems, and the implications of these computations in the design of advanced computing (CAP 3611).</p> <p>The ability to complete and document an integrated computer science project of substantial scope (CEN 4935 – Senior Project).</p> <p>An awareness of the resources available to computer scientists both in print and on-line form (All courses).</p> <p>The ability to work in groups in order</p>		
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		to collect, analyze, and synthesize computing systems (All courses).		
Aesthetic Sensibility: know and understand the variety of aesthetic frameworks; analyze and evaluate aesthetic principles at work; and collaborate in projects involving aesthetics awareness and/or analysis.		Discipline Specific Knowledge An understanding of important programming paradigms such as object oriented programming, procedural programming, and key hardware paradigms such as structured design. Understand user interfaces and design. [COP 1500; COP 2001, COP 3003]	Solve assigned problems. Develop web-based portfolio Projects and/or examinations Problem solving exercises Solve assigned problems involving computer equipment selection, facility and e-commerce design. Design user interface of IS and evaluated by the outside audience of presentations	
Culturally Diverse Perspective: know and understand diversity in local/global communities; analyze and evaluate the impact of cultural differences; and participate in projects involving interaction with diverse people, ideas and values.		Covered in GenEd and in web-based courses. [CEN 4516]	Projects and/or examinations	
Ecological Perspective: know issues of ecological/economic sustainability; analyze and evaluate local and global ecological issues; and participate in ecological/environmental projects		Those covered in Gen Ed, plus understanding of sustainability issues involved in the computer system function. [COP 1500]	Projects and/or examinations	
Effective Communication: know principles for effective communication; organize thoughts and compose ideas; and participate in collaborative communication projects.	Communication Skills: be able to give and exchange information within meaningful contexts and with appropriate delivery and interpersonal skills.	Communicate effectively using oral, written and media skills. [CEN 3031, CEN 4935] Effective Communication The ability to compose specific technical documents such as executive summaries, system specifications, users manuals, cost/performance analysis documents, test results documents, and progress reports The ability to present material serving	Projects External practitioners and faculty The projects will be evaluated by faculty and ITE Board members, during their capstone course. 95% of projects will be rated "very good" to "excellent."	

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		<p>diverse purposes in a variety of forms (oral, written, and technological)</p> <p>The ability to interact respectfully with others who hold divergent perspectives</p> <p>The ability to work in groups in order to collect, analyze, and synthesize information</p>		
<p>Ethical Responsibility, Community Awareness and Involvement: know and understand ethical issues; analyze and evaluate ethical issues in a variety of contexts; and participate in collaborative projects involving ethical analysis and/or discussions; know and understand relationships between individuals and their communities; analyze, evaluate and assess human needs and practices; and participate collaboratively in community service projects</p>	<p>Ethical Framework: be aware of their general ethical responsibilities to clients, customers, employers, and the environment, as well as the specific of ethical standards of the profession.</p> <p>Teamwork and Interpersonal Skills: be able to work with others in diverse and cross-functional environments, and to both follow and lead as the need arises.</p> <p>Systems Orientation Understand the inter-related nature of the various functional areas of business and the information needs and flows of the various parts of an organization; and be able to function within systems that are constantly adapting to changes in the internal and external environment.</p>	<p>Recognize IT security and ethical issues. [COP 1500, CEN 3031, CEN 4935]</p> <p>Ethical Responsibility An awareness of the ethical issues associated with a given technology, and the impact of that technology on contemporary society The ability to rationally consider diverse perspectives on a given issue</p> <p>Teamwork and Interpersonal Skills Be able to work with others in diverse and cross-functional environments, and to both follow and lead as the need arises. [all CS courses]</p> <p>Systems Orientation Use multiple paradigms and frameworks to understand organizational processes and design appropriate information systems solutions.</p>	<p>Projects External practitioners and faculty</p> <p>The projects will be evaluated by faculty and ITE Board members, during their capstone course. 95% of projects will be rated “very good” to “excellent.”</p>	
<p>Information Literacy: identify and locate sources of information; analyze and evaluate information in variety of contexts; and participate in collaborative</p>	<p>Systems Orientation: understand the information needs and flows of the various parts of an organization (see full text of “System Orientation”</p>	<p>Evaluate and employ IT to solve information-related problems. [ISM 3212]</p>	<p>Course Examinations, Assignments and Projects</p>	

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<p>analysis/application of information</p>	<p>outcome on the next page)</p>	<p>Discipline Specific Knowledge An awareness of the variety of information resource systems in computer science [all CS courses]</p> <p>Design and Analysis Skills The ability to design and implement Computer Science/Software Engineering solutions of scientific and engineering problems. The ability to conduct supervised research in computer science and engage in new approaches to specific design problems [ISM 3212, CEN 3031, CEN 4935]</p> <p>Technological Literacy The ability to search databases and resource systems in order to collect useful information The ability to communicate using technology (word processing, email, Web, etc.) [COP 1500] The ability to evaluate the usefulness of a variety of technological systems and resources [COP 1500; CEN 4935]</p>		
<p>Problem-Solving Abilities: understand multi/interdisciplinary nature of knowledge; apply critical, analytical, creative and systems thinking; and work individually and collaboratively to recognize and solve problems.</p>	<p>Critical and Analytical Thinking: be able to link data, knowledge and insight together to make quality strategic decisions on a timely basis</p>	<p>Use multiple paradigms and frameworks to understand engineering processes and design appropriate information systems solutions. [all CS courses]</p>	<p>Projects External practitioners and faculty</p> <p>The projects will be evaluated by faculty and ITE Board members, during their capstone course. 95% of projects will be rated “very good” to “excellent.”</p>	
<p>Technological Literacy: develop knowledge of modern technology; process information through use of technology; and collaborate with others using technology tools.</p>	<p>Technological Proficiency: be able to use technology to facilitate life-long learning and professional development and to add value to clients, customers and employers</p>	<p>Apply hardware and software tools to create solutions to information problems, including programming, database, communication and networking. [3000 and 4000-level CS courses]</p>	<p>Projects External practitioners and faculty</p> <p>The projects will be evaluated by faculty and ITE Board members, during their capstone course. 95% of projects will be rated “very good” to “excellent.”</p>	