

TECHNOLOGY 420: Computerized Integrated Manufacturing Systems

2007-08 Catalog Data: Tech 420 Computerized Integrated Manufacturing Systems (3 Credits)

Catalog Course Description: Computer-Integrated Manufacturing: Study of computer integrated manufacturing systems utilized by industry, including robotics, computer-aided manufacturing, computer-aided design/drafting, computer-aided testing/inspection, and computer-aided process planning.

Prerequisites: TECH 175, 175A, 211, 265, or consent of department

Expected pre-requisite skills: Math – Algebra/Geometry; Mechanical Systems - Kinematics/Dynamics; Electrical Systems - Basic Electronics/Sensors/Control systems; Computers – CAD/MS Office/Elementary Programming skills; Manufacturing - Basic manufacturing processes.

Co-requisites: None

Textbook:

- J A Rehg & H W Kraebber: Computer Integrated Manufacturing.. 3rd Edition, Prentice Hall.

Instructors:

- Dr. Andrew Otieno
- Dr. Rao Kilaparti

Student Learning Objectives	Relational NAIT/ABET Learning Outcomes	Test/ Performance Assessment/ Measurement
List components of a computerized integrated manufacturing environment.	A. Appropriate mastery of the knowledge, techniques, skills and modern tools of their disciplines. B. Ability to apply current knowledge and adapt to emerging applications of mathematics, science, engineering, and technology. G. Ability to communicate effectively in writing. J. Ability to understand professional, ethical and social responsibilities.	Tests Assignments
Explain various automation techniques currently used in industry.	A. Appropriate mastery of the knowledge, techniques, skills and modern tools of their disciplines. B. Ability to apply current knowledge and adapt to emerging applications of mathematics, science, engineering, and technology. G. Ability to communicate effectively in writing. J. Ability to understand professional, ethical and social responsibilities.	Tests Assignments
Design and select appropriate manufacturing processes and systems	A. Appropriate mastery of the knowledge, techniques, skills and modern tools of their disciplines. B. Ability to apply current knowledge and adapt to emerging applications of mathematics, science, engineering, and	Projects, Presentations

<p>required for a selected product.</p>	<p>technology.</p> <p>C. Ability to conduct, analyze and interpret experiments and apply experimental results to improve processes.</p> <p>D. Ability to apply creativity in the design of systems, components or processes appropriate to program objectives.</p> <p>E. Ability to function effectively on teams.</p> <p>F. Ability to identify, analyze and solve technical problems.</p> <p>G. Ability to communicate effectively in writing.</p> <p>H. Ability to communicate effectively orally.</p> <p>I. Recognition of the need for, and an ability to engage in lifelong learning.</p> <p>J. Ability to understand professional, ethical and social responsibilities.</p> <p>L. Commitment to quality, timeliness, and continuous improvement.</p> <p>M. Ability to program computers and/or utilize computer applications effectively.</p> <p>N. Ability to use modern laboratory techniques, skills, and/or equipment effectively.</p> <p>O. Ability to manage projects effectively.</p> <p>P. Ability to design, manipulate and manage industrial systems.</p> <p>Q. Ability to manage or lead personnel effectively.</p>	
<p>Model enterprise manufacturing and automation strategies that respond to national and global manufacturing demands.</p>	<p>A. Appropriate mastery of the knowledge, techniques, skills and modern tools of their disciplines.</p> <p>B. Ability to apply current knowledge and adapt to emerging applications of mathematics, science, engineering, and technology</p> <p>G. Ability to communicate effectively in writing.</p> <p>I. Recognition of the need for, and an ability to engage in lifelong learning.</p> <p>J. Ability to understand professional, ethical and social responsibilities.</p> <p>K. Respect for diversity and a knowledge of contemporary professional, societal and global issues.</p>	<p>Assignments Paper</p>