

FLORIDA STATE COLLEGE AT JACKSONVILLE

COLLEGE CREDIT COURSE OUTLINE

COURSE NUMBER:	EST 1603
COURSE TITLE:	Robotics - Mechanics and Control
PREREQUISITE(S):	EST 1520
COREQUISITE(S):	None
CREDIT HOURS:	3
CONTACT HOURS/WEEK:	4
CONTACT HOUR BREAKDOWN:	
Lecture/Discussion:	3
Laboratory:	1
<u>Other</u> _____ :	
FACULTY WORKLOAD POINTS:	3.67
STANDARDIZED CLASS SIZE ALLOCATION:	24
CATALOG COURSE DESCRIPTION:	
<p>This course introduces the student to robotics and defines the uses in the Computer Integrated Manufacturing Industry. Various topics cover robotic classifications, applications, socioeconomic impact, work-cell design, and the different software packages for programming different Manufacturer's Robots, plus I/O and sensor interfacing with class projects centered on a CIM Work-cell. This course provides experiences in programming an industrial robot for applications ranging from assembly applications involving the interfacing and control for clamping, parts feeding, index table control, conveyor integration, and fault detection. A host computer will be integrated into the factory lab for just in time and flexible manufacturing for students manufacturing a product. Students gain operating and troubleshooting experience, plus application engineering and systems integration experience on dedicated machinery and assembly robots.</p>	
SUGGESTED TEXT(S):	<p><u>Introduction to Robotics in CIM Systems</u>, Latest Edition, by James A Rehg, Prentice Hall Publishing Company ISBN: 0-13-060243-4</p>
IMPLEMENTATION DATE:	Fall Term, 2002 (20031)
REVIEW OR MODIFICATION DATE:	Fall Term, 2009 (20101) - Proposal 2009-11

COURSE TOPICS	<u>CONTACT HOURS PER TOPIC</u>
I. Introduction to Industrial Robots	8
II. Robot Classification	5
III. Automated Work Cells and CIM Systems	4
IV. End of Arm Tooling	4
V. Automation Sensors	4
VI. Work Cell Support Systems	4
VII. Robot and System Integration	4
VIII. Work Cell Programming	4
IX. Justification and Applications of Work Cells	8
X. Safety	5
XI. Human Interface: Operator Training, Acceptance, and Problems	5
XII. Work Cell Design Case Study	5



NOTE: Use either the Tab key or mouse click to move from field to field. The box will expand to accommodate your entry.

Section 1	
COURSE PREFIX AND NUMBER: EST1603	SEMESTER CREDIT HOURS: 3
COURSE TITLE: Robotics – Mechanics and Control	

Section 2

TYPE OF COURSE: (Click on the box to check all that apply)

AA Elective AS Required Professional Course College Prep
 AS Professional Elective AAS Required Professional Course Technical Certificate
 Other _____
 General Education: (For General Education courses, you must also complete Section 3 and Section 7)

Section 3 (If applicable)

INDICATE BELOW THE DISCIPLINE AREA FOR GENERAL EDUCATION COURSES:

Communications Social & Behavioral Sciences Mathematics
 Natural Sciences Humanities

Section 4

INTELLECTUAL COMPETENCIES:

Reading Speaking Critical Analysis Quantitative Skills Scientific Method of Inquiry
 Writing Listening Information Literacy Ethical Judgment Working Collaboratively

Section 5		
LEARNING OUTCOMES		METHOD OF ASSESSMENT
• 1	Define the essential components of a robotic system.	Written quizzes and tests,
• 2	Choose appropriate robot equipments for specific tasks.	Hands-on application exercises, written quizzes, tests, or simulation hardware exercises
• 3	Describe methods of moving robotic parts.	Hands-on application exercises.
• 4	Choose and implement appropriate sensors for robotic applications.	Hands-on application exercises, written quizzes, tests, or simulation hardware\software exercises
• 5	Choose and install appropriate actuators for robotic applications.	Hands-on application exercises or simulation hardware\software exercises,
• 6	Program robotic devices for restricted movements	Hands-on application exercises or simulation hardware\software exercises.

Section 6 Name of Person Completing This Form: <u>Evan Kuharich</u>	Date: <u>05/6/08</u>
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