

## ROBOTICS AND AUTOMATED CONTROL I

Revised 08/03/2010

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<b>2</b>	-	<b>3</b>	-	<b>3</b>

**COURSE NUMBER:** AMT 105

**PREREQUISITE(S):** NONE

**CO-REQUISITE(S):** NONE

**COURSE DESCRIPTIONS** This course includes assembling, testing, and repairing equipment used in automation. Concentration is on connecting, testing, and evaluating automated controls and systems.

**TEXTBOOK(S):** *Bartelt, Terry Industrial Control Electronics Devices, Systems & Applications 3rd Edition Albany New York, Del Mar Publishing/Thomson Learning. 2002*

**REFERENCE(S):**  
1. ABB Programming Books available in the Laboratory.  
2. *Groover, Mikell Automation, Production Systems & Computer Integrated Manufacturing Prentice Hall , Upper Saddle River NJ 2007*

**OTHER REQUIRED MATERIALS, TOOLS, AND EQUIPMENT:** Safety Glasses-for use in lab  
5x8 Index Cards, 2 Binding Rings-used to create an individual programming guide

**INSTRUCTOR ASSISTANCE:** All students are encouraged to contact the instructor as course or advising needs arise. The best way to do this is to see the instructor after class to schedule an appointment and/or look at the office hours schedule posted on the instructor's office door. You can also contact the instructor using email.

**METHOD OF INSTRUCTION:** This course will be taught by instructor led discussion, lecture, small group dialogue, whole class participation, individual instruction, appropriate active learning strategies, teaming activities, and hands on lab projects.

**GRADING SYSTEM:**

90	-	100	=	A
80	-	89	=	B
70	-	79	=	C
60	-	69	=	D
Below	-	60	=	F

**GRADE  
CALCULATION  
METHOD:**

	Unit Tests	=	40%
	Projects	=	30%
Class	Participation	=	10%
	Exams	=	<u>20%</u>
	Total	=	100%

**ATTENDANCE  
POLICY:**

Students are responsible for punctual and regular attendance in all classes, laboratories, field trips, and other class activities. The College does not grant excused absences; therefore, students are urged to reserve their absences for emergencies. When illness or other emergencies occur, the student is responsible for notifying instructors and completing work missed.

If you do not attend a class session during the first week of class you will automatically be dropped by the College. If you have attended at least one session during the first week of the semester you are responsible for dropping yourself from the class.

Withdrawal Policy: During the first 75% of the course, a student may initiate withdrawal and receive a grade of "W". A student cannot initiate withdrawal during the last 25% of the course. Extenuating circumstances require documentation and approval by the appropriate department head and academic dean.

Students are tardy if not in class at the time the class is scheduled to begin. Tardy students are admitted to class at the discretion of the instructor. **Course syllabi reflect attendance policies related to tardiness.**

Absences for Religious Holidays: Students who are absent from class in order to observe religious holidays are responsible for the content of any activities missed and for the completion of assignments occurring during the period of absence. Students who anticipate their observance of religious holidays will cause them to be absent from class and do not wish such absences to penalize their status in class should adhere to the following guidelines:

1. Observance of religious holidays resulting in three or fewer consecutive absences: Discuss the situation with the instructor and provide written notice at least one week prior to the absence(s). Develop (in writing) an instructor-approved plan which outlines the make up of activities and assignments.

2. Observances of religious holidays resulting in four or more consecutive absences: Discuss the situation with the instructor and provide the instructor with written notice within the first 10 days of the academic term. Develop an instructor-approved plan which outlines the make-up of activities and assignments.

**ACADEMIC CONDUCT:**

**ACADEMIC DISHONESTY:** Students are expected to uphold the integrity of the College's standard of conduct, specifically in regards to academic honesty. All forms of academic dishonesty including, but not limited to, cheating on assignments/tests, plagiarism, collusion, and falsification of information will call for disciplinary action. Disciplinary action imposed may include one or more of the following: written reprimand, loss of credit for assignment/test, termination from course, and probation, suspension, or expulsion from the College. For further explanation of this and other conduct codes, please refer to the Student Handbook.

**CELLULAR PHONES AND PAGERS/BEEPERS:** Cellular phones, pagers and beepers are not permitted to be turned on or used within the classroom. Use of these devices during classroom time will be considered a violation of the student code as it relates to "disruptive behavior."

**CLASS/LAB PROCEDURES:**

Students are required to do original work on graded exercises. They are expected to bring all necessary equipment, texts, etc. to classes and labs. Labs conducted at scheduled times, and for appropriate credit lab reports are due at specified times. Labs and field trips are scheduled/preformed for the experience of the endeavor; therefore attendance is mandatory for a grade. Work or other conflicts that affect the student's attendance must be worked out with the instructor in advance of the scheduled lab/fieldtrip. Most labs are conducted in a teaming format wherein the students do data gathering and repetitive calculations as a group, but formal lab reports are to be original and done by the individual. Class participation is strongly encouraged in this course, therefore students in regularly scheduled classes will be awarded 5 points per class session for timely and complete attendance. (Come on time; stay till done). In this way, class participation can affect the final grade by at least a whole letter grade.

**ACCOMMODATIONS:** Students who need special accommodations in this class because of a documented disability should notify Student Disability Services. You may contact Student Disability Services by calling, (864) 592-4811, toll-free 1-800-922-3679; via email through the Spartanburg

Community College web site at [www.sccsc.edu/SDS/](http://www.sccsc.edu/SDS/); or by visiting the office located in the Dan Lee Terhune Student Services Building, room 112 of the Spartanburg Technical College campus. By contacting Student Disability Services early in the semester, students with disabilities give the College an opportunity to provide necessary support services and appropriate accommodations.

**COURSE  
COMPETENCIES  
& OBJECTIVES:**

**Upon satisfactory completion of this course, the student will be able to:**

1. Identify and explain the elements of an automated system.
2. Describe and identify the classification of robot systems.
3. Specify and demonstrate safety considerations for personal, work area, operations and maintenance.
4. Operate and adjust robots and automated systems equipment.
5. Analyze an operation and select appropriate robot sensing equipment for that operation.
6. Analyze operating difficulties of installed robots and describe the necessary corrective adjustments to return the robot to normal operations.