

ITT Technical Institute

AM425

Automation for Manufacturing II

Onsite Course

SYLLABUS

Credit hours: 4

Contact/Instructional hours: 50 (30 Theory Hours, 20 Lab Hours)

Prerequisite(s) and/or Corequisite(s):

Prerequisites: AM355 Pneumatics and Hydraulics, AM425 Automation for Manufacturing I

Course Description:

This course emphasizes the applications and techniques of automation and robotics in industry. Students will have the opportunity to apply their skills in a group project.

Outside Work:

For purposes of defining an academic credit hour for Title IV funding purposes, ITT Technical Institute considers a quarter credit hour to be the equivalent of: (a) at least 10 clock hours of classroom activities and at least 20 clock hours of outside preparation; (b) at least 20 clock hours of laboratory activities; or (c) at least 30 clock hours of externship, practicum or clinical activities. ITT Technical Institute utilizes a "time-based option" for establishing out-of-class activities which would equate to two hours of out-of-class activities for every one hour of classroom time. The procedure for determining credit hours for Title IV funding purposes is to divide the total number of classroom, laboratory, externship, practicum and clinical hours by the conversion ratios specified above. A clock hour is 50 minutes.

A credit hour is an artificial measurement of the amount of learning that can occur in a program course based on a specified amount of time spent on class activities and student preparation during the program course. In conformity with commonly accepted practice in higher education, ITT Technical Institute has institutionally established and determined that credit hours awarded for coursework in this program course (including out-of-class assignments and learning activities described in the "Course Outline" section of this syllabus) are in accordance with the time-based option for awarding academic credit described in the immediately preceding paragraph.

Instructor

Class hours

I. MAJOR TOPICS

- Material Transfer, machine loading and unloading
- Processing operations
- Assembly and inspection
- Robot Training and Maintenance
- Implementing Robotics and economic justifications
- Automated work cell and its future

II. COURSE OBJECTIVES

1. Describe the automation of material transfer processes, including machine loading and unloading.
2. Describe various automated assembly processes and the use of robots in assembly and inspection.
3. Report how robots are used in welding applications.
4. Provide descriptions of automated spray coating and other finishing processes.
5. Define AGVs, explain how they operate and report their common uses.
6. Work in teams to provide a detailed report of an automated warehouse operation.
7. Program and safely operate an industrial grade robot.

TEACHING STRATEGIES

Curriculum is designed to promote a variety of teaching strategies that support the outcomes described in the course objectives and that foster higher cognitive skills. Delivery makes use of various media and delivery tools in the classrooms.

III. STUDENT TEXT

Groover, et.al. Industrial Automation and Robotics, custom edition, McGraw-Hill, 1999. ISBN 0-07-232523-2

IV. EVALUATION

Homework 10%

Research papers..... 10%

Exams (2)	20%
Lab exercises	40%
Final project	20%

Final grades will be calculated from the percentages earned in class as follows:

A	90 - 100%	4.0
B+	85 - 89%	3.5
B	80 - 84%	3.0
C+	75 - 79%	2.5
C	70 - 74%	2.0
D+	65 - 69%	1.5
D	60 - 64%	1.0
F	<59%	0.0

