



A POLYTECHNIC INSTITUTION

School of Manufacturing & Industrial Mechanical  
Program: Mechanical Engineering Technology  
Option:

**ROBT 4455**  
**PLC Applications for Robotics**

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<b>Start Date:</b>	Jan/2006	<b>End Date:</b>	Mar/2006
<b>Total Hours:</b>	40	<b>Total Weeks:</b>	10
<b>Hours/Week:</b>	4	<b>Lecture:</b>	2
		<b>Lab:</b>	2
		<b>Term/Level:</b>	4
		<b>Course Credits:</b>	4
		<b>Shop:</b>	
		<b>Seminar:</b>	
		<b>Other:</b>	

**Prerequisites**

Course No.	Course Name
ROBT3356	Controller Systems

**is a Prerequisite for:**

Course No.	Course Name
ROBT3351	Automation Equipment

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- **Course Description**

This course covers the application and programming of programmable logic controllers (PLC). Topics include a description of the basic components of a PLC system, the fundamentals of ladder diagrams, PLC timers and counters, data manipulation, control and math functions, sequences and PLC programming methods. Throughout the course various industrial control examples are used for demonstrating the use of the PLC instructions.

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- **Evaluation**

Labs/Projects:	30%	Comments:
Midterm:	20%	
Final Exam	50%	
<b>TOTAL</b>	<hr/> 100%	

- **Course Learning Outcomes/Competencies**

Upon successful completion, the student will be able to:

1. Programmable logic controller architecture
  - Produce a block diagram of a typical PLC
  - Describe the function of the components of a typical PLC
  - Describe the steps in a scan sequence of a PLC
  - Discuss the significance of the scan sequence
  - Describe the types of memory used in a PLC and the organization of the program memory and data tables
2. Allen Bradley addressing concepts.
  - Describe the Allen Bradley addressing format
  - Explain the purpose of I/O addresses
3. Allen Bradley PLC-5 programming instructions.
  - Implement PLC-5 ladder logic such as relay type, timer, counter, reset, compare, compute, logical, bit modify, move, file and program control instructions
4. PLC sequencers.
  - Apply sequencers
  - Use PLC-5 sequencer instructions
5. PLC programming methods.
  - Write programs using modular methods

- **Verification**

I verify that the content of this course outline is current.

\_\_\_\_\_  
Authoring Instructor

\_\_\_\_\_  
Date

I verify that this course outline has been reviewed.

\_\_\_\_\_  
Program Head/Chief Instructor

\_\_\_\_\_  
Date

I verify that this course outline complies with BCIT policy.

\_\_\_\_\_  
Dean/Associate Dean

\_\_\_\_\_  
Date

Note: Should changes be required to the content of this course outline, students will be given reasonable notice.

- **Instructor(s)**

Pavlos Paleologou

Office Location: sw3 2930

Office Phone: 604 8926

Office Hrs.:

E-mail Address:

- **Learning Resources**

- *Required:*

Text: Handout notes will be given as required.

- *Recommended:*

Programmable Controllers (Theory and Implementation) second Edition, L.A. Bryan, E.A. Bryan.

- **Information for Students**

**Assignments:** Late assignments, lab reports or projects will be devalued 10% per day late. Assignments, lab reports or projects must be done on an individual basis unless otherwise specified by the instructor.

**Makeup Tests, Exams or Quizzes:** There will be **no** makeup tests, exams or quizzes. If you miss a test, exam or quiz, you will receive zero marks. Exceptions may be made for **documented** medical reasons or extenuating circumstances. In such a case, it is the responsibility of the student to inform the instructor **immediately**.

**Ethics:** BCIT assumes that all students attending the Institute will follow a high standard of ethics. Incidents of cheating or plagiarism may, therefore, result in a grade of zero for the assignment, quiz, test, exam, or project for all parties involved and/or expulsion from the course.

**Attendance:** The attendance policy as outlined in the current BCIT Calendar will be enforced. Attendance will be taken at the beginning of each session. Students not present at that time will be recorded as absent.

**Illness:** A doctor's note is required for any illness causing you to miss assignments, quizzes, tests, projects, or exam. At the discretion of the instructor, you may complete the work missed or have the work prorated.

**Attempts:** Students must successfully complete a course within a maximum of three attempts at the course. Students with two attempts in a single course will be allowed to repeat the course only upon special written permission from the Associate Dean. Students who have not successfully completed a course within three attempts will not be eligible to graduate from the appropriate program.

**Course Outline Changes:** The material or schedule specified in this course outline may be changed by the instructor. If changes are required, they will be announced in class.

**Advancement:** Students who fail three or more courses in a term cannot advance to the next term and may be asked to discontinue from the program.

**Completion of labs:** Satisfactory completion of both the laboratory component and the theory component of this course is a requirement for a passing grade. The Lab portion of the course must be passed in order to pass the course.

- **Assignment Details**

**Schedule**

<b>Week of/ Number</b>	<b>Outcome/Material Covered</b>	<b>Reference/ Reading</b>	<b>Assignment</b>	<b>Due Date</b>