MET 481: Robotic Systems, 3 semester hours
Spring 2017

Instructor: Dave Hunter  Email: GD-Hunter@wiu.edu
Office: Knoblauch Hall 340  Phone: (309) 298-1091
Office Hours: Monday 10-12  Call, email or ask for an appointment. Anytime I am in my
Tuesday 10-12  office you may ask to see me. But, if I am busy, please
Wednesday 3-4  respect my time and ask to schedule an appointment.
Thursday 3-4

**481 Robotic Systems. (3)** A comprehensive study of the mechanics, electronic and computer
technologies required to design and implement robotic systems.

*Prerequisite:* PHYS 114; CS 114, CS 212, CS 214, CS 255, CS 488, or permission of instructor.

**Text:** 481 Robotic Systems Laboratory Manual, 2015 ed. G. Hunter
Provided in class

**Reference Text:**

**Required Materials:** Safety glasses, calculator, wire strippers, #1 straight screwdriver

**Last Drop Date:** 10th week of class

**Department Outcomes and Assessment**

*By graduation, Engineering Technology students should be able to:*

1. Think critically and creatively,
2. Understand the theoretical principles of the profession,
3. Understand and apply relevant technology in the solution of technical problems,
4. Organize, manage, and maintain projects,
5. Develop an appreciation for ethical and professional practices,
6. Develop and refine oral, written, and visual communication skills, and
7. Demonstrate an overall competency in the program objectives.

**Course Objectives:**

Upon successful completion of this course each student will be able to:

1. Function safely and efficiently in a simulated manufacturing environment.
2. Describe the construction, operation and application of modern industrial robots, associated equipment and integrated workcells.
3. Design, construct, program and test integrated robotic workcells using computer simulations.
4. Design, construct, program and test integrated robotic workcells using lab robots and associated laboratory equipment.

5. Develop reports and powerpoint presentations illustrating cost-benefit comparisons of robotic workcell applications and select an appropriate alternative.

6. Develop reports detailing robotic workcell system installations including; 
   Hardware and software guides, BOM's, timelines, drawings, diagrams, schematics, robot and plc programs, etc.

7. Develop operator’s manuals for robotic workcells.

ATTENDANCE

This course is a lecture/lab exercise. Students are expected to attend every lecture and laboratory session. Students having an unexcused absence from an activity will lose 3 points for that day. If you are going to miss a class, notify the instructor in person, by phone or email. You must provide written evidence if an absence is to be excused (if ill, get note from health center). No work may be turned in if unexcused.

LATE

NO ASSIGNMENT WILL BE COLLECTED LATE IF UNEXCUSED.

If you know you will miss a class period, make arrangements with the instructor to insure your work is turned in on-time. If you are ill and cannot make it to class, notify the instructor immediately by email or phone. Get a written note from the health center or professional health care provider. Bring homework to class following period with written notice.

STUDENTS WHO ARRIVE LATE TO CLASS MAY LOSE UP TO 2 POINTS PER OFFENSE.

If a student is late to class twice in one month, s/he will be warned. If the student is late a third time, six (6) points will be deducted for the three tardys. Additional tardys will lose additional points at the rate of 2 points per tardy.

LAB EXERCISES:

There is limited equipment to support this course. Lab time will be scheduled and it is every student’s responsibility to be at their scheduled lab appointment. If you miss your scheduled time, contact the instructor immediately. You may lose up to 20% of that period’s points.

Due to safety hazards and to prevent damaging the robots:

All students must pass all General and Equipment Specific Safety Quizzes prior to being allowed to work on the laboratory equipment. Students who fail to pass an Equipment Specific Quiz will not be allowed to use that equipment. If a student is caught using that piece of equipment, the student will receive a failing grade for the project being completed.
GRADES:

YOU MAY ASK TO SEE YOUR GRADE AT ANY TIME DURING THE SEMESTER.
THERE WILL BE NO EXTRA CREDIT OR "WAYS TO IMPROVE YOUR SCORE"

This course is graded by points. To calculate your grade, divide the total number of points you have accumulated by the total number of points possible. This percentage corresponds to the following:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
<th>Points</th>
</tr>
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<tbody>
<tr>
<td>A+</td>
<td>not allowed</td>
<td>B+ 87 – 89</td>
</tr>
<tr>
<td>A</td>
<td>94 and above</td>
<td>B 84 – 86</td>
</tr>
<tr>
<td>A-</td>
<td>90 – 93</td>
<td>B- 80 – 83</td>
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<tr>
<td>B+</td>
<td>87 – 89</td>
<td>C 77 – 79</td>
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<tr>
<td>B</td>
<td>84 – 86</td>
<td>C- 74 – 76</td>
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<td>B-</td>
<td>80 – 83</td>
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<td>C+</td>
<td>77 – 79</td>
<td>D- 60 - 63</td>
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<td>C</td>
<td>74 – 76</td>
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<tr>
<td>C-</td>
<td>70 – 73</td>
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<td>D+</td>
<td>67 -69</td>
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<td>D</td>
<td>64 - 66</td>
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</tr>
<tr>
<td>D-</td>
<td>60 - 63</td>
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</tbody>
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A grade of Incomplete (I) may be assigned for special occurrences when a student is unable to complete the assigned work during the regular course semester and/or when a course cost has not been paid. When the student completes the assignments and/or pays the course cost, the earned grade will be released. If the work/course cost is not completed within one calendar year, the incomplete grade will automatically be converted to a F.

TURNING IN WORK

All assignments except test, quizzes and exams, are due at the beginning of class the following Monday after assigned unless previously announced. Due dates will seldom be extended but, if exceptions are made, all students will be notified in class. It is expected that every student does his/her own homework – see academic integrity policy below.

Students may turn in assignments for partial credit up through midnight of the Tuesday it is due by:

1. emailing the assignment as a PDF file to GD-Hunter@wiu.edu
   (Please limit all email attachments to 2.0 Mbyte in size, or
2. emailing the assignment as a Word document with a .doc or .docx extension, or
3. at the Department Office. Give the assignment to the secretary and ask that it be time & date stamped and placed in my mailbox. Do not enter the mailroom unattended.

SCHEDULE

The course schedule will be provided on a separate document during the first week of class.

SPECIAL COSTS

Students of this course are required to pay a special course charge of $25 for each lab-related course in the Engineering Technology Department. This money is used to support the consumable items used during the course.
Payment of the course cost is a required portion of the class and must be paid after the second week of the semester but prior to your final exam. If you fail to pay your course cost, you will receive a grade of "I" for the course until the lab fee is paid or the university automatically changes the grade from "I" to "F" according to the University Policy. If the grade is changed to an "F", the grade will remain an F on your permanent transcript, regardless of payment.

Payments can be made to the Engineering Technology department office (Knoblauch Hall 135) any time after the beginning of the third week of classes. Also, for the convenience of the students, the instructor will announce one date that a staff member will visit the classroom to collect course charges en masse.

It is recommended that students pay by check made out to "WIU". Likewise, the student should expect a receipt to serve as proof of payment.

If you have questions or concerns, please direct them to the staff in Knoblauch Hall 135 or call 309/298-1091.

INCOMPLETE GRADES

A temporary symbol of I (incomplete) for a course may be given only when a student, due to circumstances beyond his or her control, has been unable to complete the course requirements within the official limits of the term. The circumstances must be documented to the instructor’s satisfaction.

ACADEMIC INTEGRITY

Preamble

Western Illinois University, like all communities, functions best when its members treat one another with honesty, fairness, respect, and trust. Students have rights and responsibilities and students should realize that deception for individual gain is an offense against the members of the entire community, and it is the student's responsibility to be informed and to abide by all University regulations and policies on Academic Integrity. (http://www.wiu.edu/provost/students/)

Plagiarism, cheating, and other forms of academic dishonesty constitute a serious violation of University conduct regulations. Students who engage in dishonesty in any form shall be charged with academic dishonesty.

It is a duty of faculty members to take measures to preserve and transmit the values of the academic community in the learning environment that they create for their students and in their own academic pursuits. To this end, they are expected to instill in their students a respect for integrity and a desire to behave honestly. They are also expected to take measures to discourage student academic dishonesty, to adjust grades appropriately if academic dishonesty is encountered, and, when warranted, to recommend that additional administrative sanctions be considered. Grading policies are the exclusive prerogative of the faculty; administrative sanctions are under the authority of the Director of Student Judicial Programs. This document provides policies and procedures to be followed when academic dishonesty is encountered.

Definitions of Academic Dishonesty

The following definitions and examples are not meant to be exhaustive. The University reserves the right to determine, in a given instance, what action constitutes a violation of academic integrity. (See www.wiu.edu/policies/acintegrity.php for complete descriptions of the following topics:

Plagiarism, Fabrication and Falsification, Cheating, Complicity in Academic Dishonesty, Abuse of Academic Materials, Multiple Submissions
Reporting Academic Dishonesty

All members of the University community share the responsibility and authority to challenge and make known acts of apparent academic dishonesty. Any student, faculty member, or staff person who has witnessed an apparent act of student academic dishonesty, or has information that reasonably leads to the conclusion that such an act has occurred or has been attempted, has an ethical responsibility for reporting said act(s). Confronting and reporting academic dishonesty can be done in a variety of ways, and people should choose the manner most appropriate for the circumstances. Acts of apparent academic dishonesty that occur in the classroom should be reported directly to the course instructor, and/or the course instructor's Department Chair, and/or the instructor's College Dean. The Council on Admission, Graduation, and Academic Standards (CAGAS) or the Graduate Council will not accept or act upon anonymous reports, but will hold in strict confidence the identity of any person reporting a suspected instance of academic dishonesty, unless that person consents to having his/her identity revealed.

ACCESS & DISABILITIES

In accordance with University policy and the Americans with Disabilities Act (ADA), academic accommodations may be made for any student who notifies the instructor of the need for an accommodation. For the instructor to provide the proper accommodation(s), you must obtain documentation of the need for an accommodation through Disability Support Services and provide it to the instructor. It is imperative that you take the initiative to bring such needs to the instructor's attention, as he/she is not legally permitted to inquire about such particular needs of students. Students who may require special assistance in emergency evacuations (i.e. fire, tornado, etc.) should contact the instructor as to the most appropriate procedures to follow in such an emergency. Contact Disability Support Services at 298-2512 for additional services.

If you have emergency medical information to share with me, if you need special arrangements in case the building must be evacuated, or if you need accommodations in this course because of a disability, please make an appointment with me as soon as possible. My office location and hours are at the top of this syllabus. If you plan to request disability accommodations, you are expected to register with the Disability Support Services (DSS) at 298-2512.

RESOLUTION OF PROBLEMS

Should a problem occur, students should speak to their instructor first. If the problem is not resolved, meet with the chair of the department. If the problem continues to be unresolved, go to the College of Business and Technology's Dean.

Students should observe the following sequence for the resolution of problems:

Student --- Instructor --- Chairperson --- Dean