

ROBOTICS/INTEGRATED MANUFACTURING

Robotics/Integrated Manufacturing Major

TECHNOLOGY & WORKFORCE DEVELOPMENT DIVISION

Program of Study

The Robotics/Integrated Manufacturing Program prepares students in industrial automation in applications (engineering) positions as well as a service (maintenance) type positions.

Students use robotics with programmable controllers, as well as conventional control systems, to solve problems in an industrial flexible manufacturing laboratory.

Robotic students train on electrical equipment such as DC and AC motors, controllers such as VFDs, servo and stepper systems, and Allen-Bradley, and Siemens programmable controllers with Rockwell RSLinx and RSLogix software.

Troubleshooting hardware and software systems of an automated system, along with concepts of how they are integrated, are important parts of the training.

The faculty has identified the following Learning Outcomes for all graduates:

- Safe start-up, synchronize and jog ABB, ASEA, FANUC and GMF robots.
- Design, install and troubleshoot multiple robot systems.
- Become familiar with commonly used robotic terminology for several prominent robotic systems.
- Understand the electronic and mechanical parts of a robotic system.
- Install and troubleshoot a robotic system.
- Integrate a robotics system with commonly used programmable logic controllers (PLC).
- Be exposed to basic and advanced electrical wiring schemes.
- Read and interpret electrical wiring diagrams and symbols.
- Install, program and troubleshoot PLCs

POTENTIAL OCCUPATIONS:

- Automation Technician
- Integrated Manufacturing Technician
- Field Service Representative
- Flexible Manufacturing Technician

Associate of Applied Science

TECHNICAL CONCENTRATION

		Credit Hrs.
EET 1320	AC/DC Machines	3
EET 2440	Programmable Controllers I	4
EET 2790	Programmable Controllers II	4
MET 2200	Hydraulics	3
ROB 1010	Introduction to Robotics	3
ROB 1020	Robotics Operations	3
ROB 2020	Flex Cell Design and Robotic Interfacing	3
ROB 2030	Robotic Troubleshooting	3
ROB 2230	Servo Systems	3
Choose:	ROB 2900 Capstone <i>or</i> EBE 2980 Cooperative Education Seminar <i>and</i> ROB 2980 Cooperative Work Experience	1-5
Total Technical Credit Hours		30-34

GENERAL EDUCATION AND RELATED COURSES

GEN 1000	First-Year Seminar	1
CIT 1090	Computer Fundamentals	3
EET 1050	Electricity	3
Choose:	EET 1510 Industrial Computing <i>or</i> CIT 1241 Microcomputers	3
EET 2400	Motor Controls	4
ENG 1050	College Composition I	3
ENG 1900	Technical Writing	3
MFG 1020	Safety	1
MTH 1310	Intermediate Algebra I	4
SPE 2010	Effective Speaking	3
	*Humanities Elective	3
	*Science Elective	3
	*Social Science Elective	3
Total General Education & Related Credit Hours		34
TOTAL CREDIT HOURS		64-68

- * See page 95 for a listing of specific electives.
See your advisor for appropriate course selection.

For available Certificate Program options, see catalog pages 97-103.

- ** All students graduating from Terra State Community College with an Associate degree of any kind will be functionally proficient in common computer operations and applications. Please see your academic advisor or academic division office for further details.

To determine when courses are scheduled, see program curriculum sheet which is available from the Enrollment Services office in Building A/Room 100, from the Technology and Workforce Development Division office, Building E, Room 107 or on the web at www.terra.edu.