2023-24 ACADEMIC PROGRAMS

2023-2024 MECHATRONICS (APMETR)

Description

This program prepares students for entry-level positions as an automated equipment technician who assembles, installs, programs, troubleshoots and maintains robotic and automated equipment. Students have a choice to follow any of three different specialty tracks which will prepare them for the various applications of automation. Each track features a variety of application level classes where the student performs lab-oriented practice for required skills. It is highly recommended that beginning students take at least one technical class during their first semester. See an advisor in the Industrial Technology department for assistance. Students must select one of the concentrations to complete as a program requirement. Program Concentrations Fluid Power Specialty (FPWR) FLP 110 Fluid Power Fundamentals - II FLP 214 Hydraulic Circuits and Controls FLP 225 Fluid Power Motion Control FLP 226 Pneumatics Industrial Electronics Specialty (IELC) ELE 211 Basic Electronics ELE 254 PLC Applications FLP 226 Pneumatics Numerical Control Specialty (NCTL) NCT 110 Introduction to Computerized Machining (CNC) - II NCT 120 2D CAD CAM for Shape Cutting NCT 121 Manual Programming and NC Tool Operation NCT 123 2D CAD CAM CNC Programming for Mills and Lathes NCT 221 Advanced Manual Programming and NC Tool Operation

Articulation

Eastern Michigan University, several BS degrees; Wayne State University, several BS degrees. Copies can be obtained from the Counseling Office, a program advisor, or from the Curriculum and Assessment Office Web site: https://www.wccnet.edu/learn/transfer-wcc-credits/articulation-agreements.php .

Concentrations

Fluid Power Specialty (FPWR)

First Fall Semester

Class	Title	Minimum Credits
FLP 101	Fluid Power Fundamentals - I	2
FLP 110	Fluid Power Fundamentals - II*	2
NCT 101	Introduction to Computerized Machining (CNC) - I	2
NCT 110	Introduction to Computerized Machining (CNC) - II**	2
ROB 101	Robotics I - I	2
ROB 110	Robotics I - II	2
Elective	Math Elective(s)	3
Total		15

First Winter Semester

Class	Title	Minimum Credits
ELE 111	Electrical Fundamentals	4
ROB 212	Robotics II	4
MEC 100	Materials and Processes	3
MTT 102	Machining for the Technologies	2
Elective	Writing Elective(s)	3
Total		16

First Spring/Summer Semester

Class	Title	Minimum Credits
FLP 226	Pneumatics	3
MEC 101	Blueprint Reading for Manufacturing	2
Elective	Speech/Comp. Elective(s)	3
Elective	Soc. Sci Elective(s)	3
Total		11

Second Fall Semester

Class	Title	Minimum Credits
ELE 224	Programmable Controllers (PLCs) I	4
FLP 214	Hydraulic Circuits and Controls	4
ROB 222	Robotics Simulation	2
ROB 223	Robotics III	2
MEC 201	Mechanisms	2
Total		14

Second Winter Semester

Class	Title	Minimum Credits
FLP 225	Fluid Power Motion Control	3
MEC 224	Robotics IV	4
Elective	Arts/Human. Elective(s)	3
Elective	Nat. Sci. Elective(s)	3
Total		13

Total Credits Required: 69

Industrial Electronics Specialty (IELC)

First Fall Semester

Class	Title	Minimum Credits
ELE 111	Electrical Fundamentals	4
FLP 101	Fluid Power Fundamentals - I	2
FLP 110	Fluid Power Fundamentals - II*	2
ROB 101	Robotics I - I	2
ROB 110	Robotics I - II	2
Elective	Math Elective(s)	3
Total		15

First Winter Semester

Class	Title	Minimum Credits
ELE 211	Basic Electronics	4
ROB 212	Robotics II	4
MEC 100	Materials and Processes	3
Elective	Writing Elective(s)	3
Total		14

First Spring/Summer Semester

Class	Title	Minimum Credits
FLP 226	Pneumatics	3
MEC 101	Blueprint Reading for Manufacturing	2
Elective	Arts/Human. Elective(s)	3
Elective	Soc. Sci. Elective(s)	3
Total		11

Second Fall Semester

Class	Title	Minimum Credits
ROB 222	Robotics Simulation	2
ROB 223	Robotics III	2
ELE 224	Programmable Controllers (PLCs) I	4
NCT 101	Introduction to Computerized Machining (CNC) - I	2
NCT 110	Introduction to Computerized Machining (CNC) - II**	2
MEC 201	Mechanisms	2
MTT 102	Machining for the Technologies	2
Total		16

Second Winter Semester

Class	Title	Minimum Credits
MEC 224	Robotics IV	4
ELE 254	Programmable Controllers (PLCs) II	4
Elective	Speech/Comp. Elective(s)	3
Elective	Nat. Sci. Elective(s)	3
Total		14

Total Credits Required: 70

Numerical Control Specialty (NCTL)

First Fall Semester

Class	Title	Minimum Credits
FLP 101	Fluid Power Fundamentals - I	2
FLP 110	Fluid Power Fundamentals - II*	2
NCT 101	Introduction to Computerized Machining (CNC) - I	2
NCT 110	Introduction to Computerized Machining (CNC) - II**	2
ROB 101	Robotics I - I	2
ROB 110	Robotics I - II	2
Elective	Math Elective(s) Academic Math Level 4 or higher	3
Total		15

First Winter Semester

Class	Title	Minimum Credits
ELE 111	Electrical Fundamentals	4
ROB 212	Robotics II	4
NCT 120	Introduction to 2D CAD CAM Programming and Applications	2

MEC 100	Materials and Processes	3
MTT 102	Machining for the Technologies	2
Total		15

First Spring/Summer Semester

Class	Title	Minimum Credits
NCT 123	2D CAD CAM CNC Programming for Mills and Lathes	2
MEC 101	Blueprint Reading for Manufacturing	2
Elective	Arts/Human Elective(s)	3
Elective	Writing Elective(s)	3
Elective	Soc. Sci. Elective(s)	3
Total		13

Second Fall Semester

Class	Title	Minimum Credits
ELE 224	Programmable Controllers (PLCs) I	4
NCT 121	Manual Programming and NC Tool Operation	4
ROB 222	Robotics Simulation	2
ROB 223	Robotics III	2
MEC 201	Mechanisms	2
Total		14

Second Winter Semester

Class	Title	Minimum Credits
MEC 224	Robotics IV	4
NCT 221	Advanced Manual Programming and NC Tool Operation	4
Elective	Speech/Comp. Elective(s)	3
Elective	Nat. Sci. Elective(s)	3
Total		14

Total Credits Required: 71

Footnotes

*Students who have successfully completed FLP 110 as part of their certificate do not need to take this course as a semester requirement. Course can only be taken once for credit. **Students who have successfully completed NCT 110 as part of their certificate do not need to take this course as a semester requirement. Course can only be taken once for credit. See an advisor to assist in scheduling and planning for each semester as some classes have limited offering.

Accurate as of 02/15/2024 Information is subject to change without notice.