Mechatronics (MCT)

Prerequisites for courses in this department are not automatically waived for College Guest students and students with a bachelor's degree or higher from a U.S. institution.

MCT 1000 Integrated Systems .....2 Credit Hours
Equivalent: TSC 2006
ESL Placement Level: For English-as-a-Second-Language (ESL) students, placement into ESL 2510 or higher.
This course provides an entry level student with an overview of the technology used in automated integrated systems found in manufacturing. Included is also an overview of the typical plant networks and their associated function. Distributed and local control is examined. Analysis of sequencing machines is completed along with an introduction of how to troubleshoot these systems. Topics include: fluid power components, electrical components, conveyors, part sensing components and an overview of programmable logic controller principles. BILLABLE CONTACT HOURS: 2

MCT 1100 Fluid Power Systems .....3 Credit Hours
Equivalent: TSC 2007
ESL Placement Level: For English-as-a-Second-Language (ESL) students, placement into ESL 2510 or higher.
This course will focus on fluid power control systems for manufacturing. Students are expected to describe and demonstrate principles of logic elements, functions and assembly of logic circuits. The course will teach students how to create, modify, operate and observe simulated hydraulic and electro-hydraulic devices and circuits using hands-on training simulators. BILLABLE CONTACT HOURS: 3

MCT 1120 Advanced Fluid Power Systems .....3 Credit Hours
Equivalent: TSC 2009 | ATF 1470 | APT 8470
ESL Placement Level: For English-as-a-Second-Language (ESL) students, placement into ESL 2510 or higher.
Prerequisite: MCT 1100
Note: Prerequisites for courses in this department are not automatically waived for College Guest students and students with a bachelor's degree or higher from a U.S. institution.
This course will develop advanced skills and competencies in fluid power systems in the areas of hydraulic and pneumatic troubleshooting, repair and maintenance as it relates to machine operation, material handling and sorting systems, and participate in projects related to the course material. BILLABLE CONTACT HOURS: 3

MCT 1130 General Preventative / Predictive Maintenance .....2 Credit Hours
Equivalent: TSC 2018
ESL Placement Level: For English-as-a-Second-Language (ESL) students, placement into ESL 2510 or higher.
This course introduces students to the principles and practices used within the manufacturing industry for predictive and preventative maintenance of equipment. Preventive maintenance will introduce students to such techniques as the use of periodic lubrication schedules, part adjustment, replacement of parts, and cleaning. The students are exposed to several predictive maintenance tools including vibration analysis. BILLABLE CONTACT HOURS: 2

MCT 2000 Industrial Controls .....4 Credit Hours
Equivalent: TSC 2013
ESL Placement Level: For English-as-a-Second-Language (ESL) students, placement into ESL 2510 or higher.
Prerequisite: EEC 1020 and EEC 1040; or consent of instructor.
Note: Prerequisites for courses in this department are not automatically waived for College Guest students and students with a bachelor's degree or higher from a U.S. institution.
Industrial Controls explores automation input and output devices including AC and DC motors, variable speed drives, relays, motor starters and sizing of components for various applications. Typical control circuits are examined along with component selection and control documentation. BILLABLE CONTACT HOURS: 4

MCT 2010 Shop Floor Networking .....2 Credit Hours
Equivalent: TSC 2017
ESL Placement Level: For English-as-a-Second-Language (ESL) students, placement into ESL 2510 or higher.
Prerequisite: MCT 2000 or consent of instructor.
Note: Prerequisites for courses in this department are not automatically waived for College Guest students and students with a bachelor's degree or higher from a U.S. institution.
Shop Floor Networking will explore the various types of communication systems used in industrial systems for the transportation and exchange of data. Network topologies and specifications LAN and field bus technologies used in manufacturing are presented. The data exchange techniques and formats between typical industrial equipment for information and control will be described. BILLABLE CONTACT HOURS: 2

MCT 2020 Mechanical Drives I .....3 Credit Hours
Equivalent: TSC 2005
ESL Placement Level: For English-as-a-Second-Language (ESL) students, placement into ESL 2510 or higher.
Prerequisite: IST 1000 and IST 1300 both with a 'C' or better; or consent of instructor.
Note: Prerequisites for courses in this department are not automatically waived for College Guest students and students with a bachelor's degree or higher from a U.S. institution.
This course covers the fundamentals of mechanical transfer of power. Basic concepts of mechanical power transmission will address calculations of speed and force and how they affect a power transmission system. The ability to read mechanical drawings for the assembly of various mechanical components is a key skill to be enhanced. Emphasis will also be placed on the use of hand tools, definitions and processes associated with assembly and maintenance of mechanical drives. Assignments will be focused on hands-on activities building upon theory and concepts studied. BILLABLE CONTACT HOURS: 3

MCT 2030 Mechanical Drives II .....3 Credit Hours
ESL Placement Level: For English-as-a-Second-Language (ESL) students, placement into ESL 2510 or higher.
Prerequisite: MCT 2020
Note: Prerequisites for courses in this department are not automatically waived for College Guest students and students with a bachelor's degree or higher from a U.S. institution.
Mechanical Drives II is a continuation of Mechanical Drives I and is focused on machine and electric motor drive systems. Topics include mounting, measuring speed, torque, power, mechanical shaft bearing, coupling, and alignment, as well as v-belt, chain, spur gear, and multiple shaft drives. BILLABLE CONTACT HOURS: 3