HUMANITIES

HUMA-238 Leadership & Group Dynamics 3 cr.
Designed to provide a basic understanding of leadership and group dynamics to help the student develop a personal philosophy of leadership and an awareness of the moral and ethical responsibilities of leadership. Students will engage in a variety of experiential learning exercises in order to develop leadership skills. Also listed as BADM 238. Offered: On Demand.

INSTRUMENTATION AND CONTROLS TECHNOLOGY

INST-140 Applied Basic DC Circuits 3 cr.
Introduction to electrical fundamentals, energy sources, Ohm's law, series, parallel, and series -parallel circuit analysis, Kirchoff's law. Use of digital multimeters and other electronics instruments will be examined. Prerequisites: Completion of MATH-096 or appropriate Math Accuplacer score. Offered: All. Faculty Permission Required.

INST-144 National Electric Code 3 cr.
This course offers an introduction to the National Electrical Code with a focus on the general portion of the code up to sections 100-400, plus 900. Corequisites: INST-145 or Instructor Permission. Offered: Fall and Spring.

INST-145 Applied Basic AC Circuits 3 cr.
Alternating current theory to include impedance, capacitive reactance, and inductive reactance in series, parallel, and series-parallel combination, resonance and impedance in RLC circuits. Prerequisites: INST-140. Corequisites: MATH-113 or MATH-115 or MATH-185. Offered: All.

INST-160 Digital Electronics 5 cr.
An introduction to combinational and sequential logic circuits, logic gates, Data Bus Control, binary codes, analog to digital and digital to analog conversions. Theory is tested using Field Programmable Gate Arrays (FPGA). Prerequisites: INST-140. Offered: Spring.

INST-171 Motors and Controls 5 cr.
This course offers an introduction to motors and motor controls. Various kinds of AC/DC machines will be investigated including AC motors and alternator, as well as DC motors and generators. Prerequisites: INST-145. Offered: Fall & Spring.

INST-175 Renewable Energy Instrumentation 3 cr.
An introduction to the basic principles of instrumentation and control for renewable energy applications. Includes techniques for measuring mechanical, thermal and electrical quantities. Corequisites: INST-145. Offered: Fall.

INST-180 Semiconductor Circuits 5 cr.
An introduction to semiconductor devices, semiconductor theory, characteristic curves, diodes, zener diodes, bipolar transistors, thyristors and op-amps. Prerequisites: INST-145. Offered: Fall.

INST-190 Principles of Industrial Measurement 5 cr.
An introduction to the basic principles of process measurement, including techniques for the measurement of flow, level, temperature, pressure, and analytical process variables. Prerequisites: INST-140. Offered: Fall & Spring.

INST-215 Renewable Energy AC and DC Machines 3 cr.
This course offers an introduction to DC motors and generators, and AC motors and alternators. Also covered in the program; principles of operation, motor controls, wiring, and testing. Prerequisites: INST-145. Offered: Spring.

INST-220 Process Control 5 cr.
Introduction to automatic process control systems that includes tuning: Feed forward, Feedback and Cascade loops. Also covers calibration of valves, positioners and actuators. Prerequisites: INST-190. Offered: Spring & Summer.

INST-235 ElectroMechanical Devices 5 cr.
Covers theory and applications of electro-mechanical devices and their associated control circuits. Topics include transducers, pneumatics, and AC motor and controls. Prerequisites: INST-145. Offered: All.

INST-265 Industrial Wiring 4 cr.
This course is designed to develop a student's understanding and skills in the installation and wiring of industrial electrical equipment, in compliance with the National Electric Code. Prerequisites: INST-144, INST-235. Offered: Fall & Spring.

INST-271 PLC Applications 5 cr.
Introduction to Programmable Logic Controller (PLC) functions including digital and analog applications. Prerequisites: INST-160. Offered: Fall.

INST-284 Print Interpretation 3 cr.
This course covers industrial prints and schematics as used in the industry. Also covered are the basic fundamentals of pumps and compressors. Prerequisites: INST-190, INST-235. Offered: Spring.

INDUSTRIAL PROCESS OPERATOR

IPOP-110 Intro to Process Technology 4 cr.
Introduces students to energy plant operations. Topics include: Process technician duties, responsibilities and expectations, plant organizations, industrial economics, plant process and utility systems, and the physical and mental requirements of the process technician. Corequisites: IPOP-130,IPOP-133. Offered: Fall. Faculty Permission Required.

IPOP-130 Safety, Health & Environment 4 cr.
Develop knowledge and skills to reinforce the attitudes and behaviors required for safe and environmentally sound work habits. There will be an emphasis on safety, health and environmental issues in the performance of all job tasks and regulatory compliance issues. Corequisites: IPOP-110,IPOP-133. Offered: Fall.Faculty Permission Required.

IPOP-133 Process Technology I-Equipment 4 cr.
Instructs students on the usage of common process equipment. The student will use appropriate terminology and identify process equipment components such as piping and tubing, valves, pumps, compressors, turbines, motors and engines, heat exchangers, cooling towers, heaters and furnaces, boilers, filters and dryers,