Integrated Industrial Technology: Associate in Science

Description

The Integrated Industrial Technology program at Leeward CC was developed in order to provide students on Oʻahu with a foundation in electronic, electrical, mechanical, and automated control systems to meet the workforce needs of an emerging industrial technology industry.

The IIT Program provides students with a theoretical and practical understanding of mechatronic systems as well as develops practical skills and systems integration. Graduates will be able to program, operate, maintain, calibrate, and repair the equipment that makes up these systems.

The degree prepares students for occupations that involve the integration of electronic, electrical, mechanical, and communications systems. Typical occupations may include: automated programmable electromechanical systems technician, robotics and manufacturing systems technician, and process control systems integration technician.

All required IIT courses must be passed with a grade of "C" or better in order to be applied to all degrees and certificates.

Learning Outcomes

- Apply the principles of mathematics, electronics, mechanical systems, and controls systems to program, maintain, calibrate, and repair advanced integrated systems in manufacturing and transportation.
- Use appropriate safety, health, and personal protection procedures applicable to an industrial working environment.
- Demonstrate an understanding of the structure and function of mechatronic systems and follow a logical sequence for isolating problems within an industrial process.
- Analyze process control system operations and select the appropriate sensing equipment for that operation.
- Analyze the operating difficulties of an automated system and perform the corrective actions needed.
- Utilize proper procedures for inspection, preventive maintenance, and corrective maintenance of integrated industrial systems.
- Demonstrate an understanding of the theory, construction, installation and operation of hydraulic and pneumatic systems in an automated controls environment.
- Demonstrate an understanding of mechanical drive systems, their function and the operation in an automated controls environment.
- Apply principles of process quality assurance to an automated control environment.
- Use CAD/CAM to create drawings of parts and assemblies to create prototypes using additive manufacturing.

Program: Integrated Industrial Technology

Type: Associate in Science (AS)

First Semester Requirements

Item #	Title	Credits
IIT 101	Industrial Safety Health & Environment	3
IIT 131	Mechanical Drive Systems	3
IIT 121	Electro Hydraulics and Pneumatics (fluid Power Systems)	3
ENG 100	Composition I	3
	MATH 103 or Higher	3
	Sub-Total Credits	**15**

Second Semester Requirements

Item #	Title	Credits
IIT 171	Principles of Process Quality	3
IIT 151	Rapid Prototyping	3
ICS 141	Discrete Mathematics for Computer Science I	3
PHYS 100	Survey of Physics	3
PHYS 100L	Survey of Physics Laboratory	1
	Social Sciences (100 level or above) - CTE	3
	Sub-Total Credits	**16**

Third Semester Requirements

Item #	Title	Credits
IIT 201	Ac/Dc Circuits	4
IIT 231	Process Control and Instrumentation	4
IIT 251	Motor and Motion Control	4
IIT 221	Programmable Logic Control	4
	Sub-Total Credits	**16**

Fourth Semester Requirements

Item #	Title	Credits
IIT 205	Digital and Analog Circuits	4
IIT 271	Distributed Control Systems	3
IIT 281	Supervisory Control and Data Acquisition (scada) Systems	4
	Arts/Humanities (100 level or above) - CTE	3
	Sub-Total Credits	**14**
	Total credits for degree:	61