Course Structure

Course Code : **SM7103**

Course Title : **Integrated Manufacturing Systems**

Credit Hours : **3**

Course Description

Automation Within Industrial Plants, Industrial Manufacturing and Production Systems, Components and Hierarchy of Automated Manufacturing, Computer Integrated Manufacturing (CIM), Material Handling and Production Lines Assembly, Numerical Control and CNC Machines, Robotics and Self-Guided Vehicle, CAD, CAM and CAT Systems, Types of Control Strategies Within Automated Manufacturing System, Networking and Communication Issues, PLC and HMI Based Manufacturing Systems, Vision and Inspection, Production Control, Planning and Analysis, Totally Integrated Automation (TIA).

Course Objectives

Enrolled students in this course will be able to understand recent technologies and topics related to automation and integrated manufacturing systems including; human machine interface, computer numerical machines, industrial robotics, vision and inspection systems, data handling and totally integrated automation.

Course Topics:

- Automation within Industrial Plants
- Types of Control Strategies Within Automated
- Industrial Manufacturing and Production Systems
- Components and Hierarchy of Automated Manufacturing
- Computer Integrated Manufacturing (CIM)
- Material Handling and Production Lines Assembly
- Numerical Control and CNC Machines
- Robotics and Self-Guided Vehicle
- CAD, CAM and CAT Systems
- Manufacturing System
- Networking and Communication Issues
- PLC and HMI Based Manufacturing Systems
- Vision Inspection Systems
- Production Control, Planning and Analysis
- Totally Integrated Automation (TIA)
- Case Studies

References:

- Automation, Production Systems, and Computer-Integrated Manufacturing", Mikell P. Groover, 2014
- Computer-integrated Manufacturing, James A. Rehg, Henry W. Kraebber, Pearson Prentice Hall, 2004