

Noorul Islam Centre for Higher Education

(Deemed to be University u/s 3 of the UGC Act 1956)

Kumaracoil, Thuckalay, Kanyakumari District - 629 180

Accredited by NAAC with 'A' Grade

CM25 M.ECOMPUTER INTEGRATED MANUFACTURING



Student Performance and Learning Outcomes

CM25 M.E.COMPUTER INTEGRATED MANUFACTURING

Programme Outcome (PO)	
PO-A	Improve the ability of applying knowledge gained from subjects learned.
PO-B	Increase the ability to design and conduct experiments as well as analyzing and interpreting data.
PO-C	Increase the ability to design a system, component or process to meet desired needs.
PO-D	Increase the ability to familiarize multidisciplinary skills and ethical values.
PO-E	Improves personal and social responsibilities to respond human needs like environmental protection.
PO-F	Engages lifelong learning including the ability to show proficiency in current technologies.
PO-G	Increases the ability of communicating effectively.
PO-H	Increases the ability of working collaboratively as a team and serves the role of team leader innovatively.
PO-I	Understanding the impact of engineering solutions in global, economic, environmental & societal context.
PO-J	Ability to demonstrate critical thinking and the usage of appropriate strategies, tools to conduct investigation in appropriate manner.
PO-K	Improves the skill of applying techniques and modern engineering tools necessary for project development.
PO-L	Understanding management policies/principles and apply those to manage the projects in the context of technological change.

Programme Specific Outcomes - PSO	
PSO1	Design subsystems of Computer Integrated Manufacturing systems by integrating automation with mechanical systems in manufacturing, assembly and testing.
PSO2	Develop advanced tools for evaluating performance of automated systems and for data automation with respect to materials, machines and other resources.

No	Subject Code	Subject Name
SEMESTER II		
1.	CM2506	Production and Operation Management
2.	CM2507	Mechatronics
3.	CM2508	Manufacturing System Simulation
4.	CM2509	Robotics
5.	CM2510	Manufacturing Information System
6.	CM25B5	Concurrent Engineering
7.	CM2572	CIM Laboratory - II
SEMESTER IV		
8.	CM25P5	Project Work - Phase II

CM2506- Production and Operation Management	
CO1	Student should understand plant location, layout
CO2	Students will understand planning scheduling and sequencing in industry
CO3	Student should understand project planning and management
CO4	Student understand the modern production management tools
CO5	Students understand the optimized production technology

CM2507-Mechatronics	
CO1	Students will understand basics of mechatronics in manufacturing, sensors & transducer working
CO2	Acquire basic knowledge on microprocessor and how to program
CO3	Students will know the different hydraulic and pneumatic system
CO4	Acquire basic knowledge of condition monitoring and online tool wear monitoring
CO5	Students able to identify the technique of shop floor control, robot sensors, micro & nano sensors.

CM2508-Manufacturing System Simulation	
CO1	After successful completion of Manufacturing System Simulation course, the student will be able to: Characterize a system in terms of its essential elements, that is, its purpose, stakeholders, constraints, performance requirements, sub-systems, interconnections and environmental context.
CO2	Conceptualize real world situations related to systems development decisions, originating from source requirements and goals.
CO3	Apply the processes, procedures and techniques which are required for the successful execution of systems engineering methodology to resolve different types of complex problems faced by senior manager, at an earlier stage of system design.
CO4	These problems may relate to system specification, requirements allocation, maintenance concepts, and critical issue resolution.
CO5	Use common simulation software packages to construct and execute goal-driven system models.

CM2509-Robotics	
CO1	Be able to use matrix algebra and Lie algebra for computing the kinematics of robots.
CO2	Be able to calculate the forward kinematics and inverse kinematics of serial and parallel robots.
CO3	Be able to calculate the Jacobian for serial and parallel robot.
CO4	Be able to do the path planning for a robotic system.
CO5	Be proficient in the use of Maple or Matlab for the simulation of robots.

CM2510-Manufacturing Information System	
CO1	After successful completion of Manufacturing Information Systems course, the student will be able to: Provide an importance of databases and its application in manufacturing systems that prepare students for their engineering practice by organization by conversant with order policies, data base terminologies, designing, manufacturing considerations.
CO2	Understand/implement computer models of common engineering information types.
CO3	Understand the importance and be able to critically discuss the role of management information systems for design, engineering and manufacturing.
CO4	Understand the role of non-IT managers in information systems planning, systems development, and hardware and software selection.
CO5	Discuss and evaluate engineering data management issues across the extended enterprise.

CM25B5-Concurrent Engineering	
CO1	The graduates shall have the ability to understand the importance of product design in leveraging both manufacturing cost and product lifecycle cost.
CO2	The graduates shall have the ability to plan and implement a product development program.
CO3	The graduates shall have the ability to participate in multi-discipline Integrated Product Development teams
CO4	The graduates shall have the ability to both write effective documents and deliver effective oral presentations.
CO5	The graduates shall have the ability to benchmark competitive products and develop best industry practices.

CM2572-CIM Laboratory - II	
CO1	At the end of this course the student will be able to programme in PLC, Robot, Matlab environment and they can also inspect mechanical components using VMS and CMM. Programmable Logic Control (PLC) using PLC software Keyence ladder builder and working of PLC trainer kit.
CO2	Robot Programming.
CO3	Matlab Programming. (Matrix manipulations, plotting of functions and data, implementation of algorithms and creation of user interfaces).
CO4	Inspection of mechanical components using Video Measuring System (VMS).
CO5	Dimensional and Geometric measurements using Digital Height Gauge and Coordinate Measuring Machine (CMM).

CM25P5- PROJECT WORK –PHASE II

CO1	Demonstrate a sound technical knowledge of their selected project topic.
CO2	Undertake problem identification, formulation and solution.
CO3	Design engineering solutions to complex problems utilising a systems approach.
CO4	Conduct an engineering project
CO5	Demonstrate the knowledge, skills and attitudes of a professional engineer.