Kathir College of Engineering
[Approved by AICTE | Affiliated to Anna University | Accredited by NAAC]
Wisdom Tree, Neelambur, Avinashi Road, Coimbatore-62

MANUFACTURING TECHNOLOGY

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Regulation – 2017 - PG

M.E. – MANUFACTURING ENGINEERING

YEAR/SEMESTER : I/I	
S.No	**Course Outcome**
C101/ MA5160-APPLIED PROBABILITY AND STATISTICS	
C101.1	Apply the concept to find moments and moment generating functions of distributions using the definition of a random variable.
C101.2	Find marginal, conditional distribution, statistical average for the standard probability function.
C101.3	For the standard probability function, find the marginal, conditional distribution, statistical average.
C101.4	Find the M.L.E. and fit curves and regression lines using the least squares principle.
C101.5	Small and large samples should be identified, and hypothesis testing should be used.
C102/MF5101-ADVANCES IN MANUFACTURING TECHNOLOGY	
C102.1	To generate useful test results in the machining of a variety of materials.
C102.2	Create hybrid machining techniques using this experience.
C102.3	Use of this experience to solve problems on the shop floor.
C102.4	To gain a better understanding of special machining methods, unconventional machining processes, and micromachining.
C102.5	To gain a better understanding of nano fabrication and rapid prototyping.
C103/MF5102 - COMPUTER INTEGRATED MANUFACTURING SYSTEMS	
C103.1	To achieve useful research results in the field of computer-assisted manufacturing.

C103.2	Make use of your skills to create programming techniques.
C103.3	Use of this expertise to make computer-aided planning more practical
C103.4	For a typical production system, design automated material handling and storage systems.
C103.5	Create a cellular manufacturing device and a manufacturing cell.
C104/MF5103-ADVANCES IN CASTING & WELDING	
C104.1	Understanding of casting style
C104.2	Understanding of casting metallurgy
C104.3	Understanding of current casting and foundry layout patterns
C104.4	Understanding of welding metallurgy and architecture
C104.5	Understanding of welding most current patterns
C105/ MF5104-METAL CUTTING THEORY AND PRACTICE	
C105.1	Ability to comprehend how material removal processes function.
C105.2	Understanding of the tool nomenclature scheme
C105.3	Understanding of machining thermal dimensions
C105.4	Awareness of tool materials, tool life, and tool wear
C105.5	Understanding of machining wear mechanisms and chatter
C106/ MF5003-MICRO MANUFACTURING (Professional Elective-I)	
C106.1	The aim is to familiarize students with the concepts, basic machine tools, and innovations in the micro manufacturing process, as well as research trends in the field.
C106.2	To disseminate information on micromachining using beam energy.
C106.3	to gain knowledge of the nano polishing process used on micro machined components
C106.4	To gain a better understanding of the micro forming and welding processes
C106.5	To gain a better understanding of the metrology and calculation methods used on

	micro machined surfaces. to learn about the most current developments in the sector
C107/ MF5111-CAD/CAM LAB	
C107.1	In sketcher mode, create complex geometries of system components.
C107.2	Ability to use modeling software to build 2D and 3D part models.
C107.3	Create complex engineering assemblies using acceptable assembly constraints.
C107.4	Ability to Understand the CNC Control in Modern Manufacturing System.
C107.5	Ability to Prepare CNC Part Programming and Produce
YEAR/SEMESTER : I/II	
C201/MF5201- OPTIMIZATION TECHNIQUES IN MANUFACTURING	
C201.1	The student has a basic understanding of the history of optimization problems, their formulation, classification, and solutions. application in a variety of engineering fields
C201.2	Ability to approach and solve linear equations in organizational research problems that apply to real-world engineering problems.
C201.3	Ability to approach and solve non-linear equations of operational research problems that are relevant to real-world engineering business problems.
C201.4	Ability to solve various experimental experiments using various optimization methods in order to achieve the best objective function value.
C201.5	The student understands various simulation methods and how to apply them to various experimental experiments in order to achieve the best objective function value.
C202/CM5251- ADVANCES IN METROLOGY AND INSPECTION	
C202.1	Ability to comprehend metrology principles and measurement errors
C202.2	Understanding of the applications of surface roughness calculation
C202.3	Ability to comprehend the fundamentals of interferometer and its significance.
C202.4	Understanding of measurement devices and laser metrology
C202.5	Image processing capability for metrology

C203/ MF5202-THEORY OF METAL FORMING	
C203.1	Enable students to be exposed to the concepts of plasticity and the representation of stress states in various coordinate systems
C203.2	Understanding of the different bulk forming processes that are used
C203.3	Ability to teach students about the various sheet metal forming processes that are used
C203.4	Awareness of powder metallurgy techniques and special forming processes is transferable.
C203.5	Understanding of surface treatment for different processes
C204/MF5203-TOOLING FOR MANUFACTURING	
C204.1	To achieve practical research results in the form of tool design for various manufacturing processes.
C204.2	Ability to demonstrate how metal removal procedures are carried out using tooling
C204.3	Ability to demonstrate how metal forming processes use tooling
C204.4	To gain a better understanding of the tooling used in metal casting and joining processes
C204.5	To be able to state the state of the art in manufacturing and inspection tooling
C205/ME5009-NON DESTRUCTIVE TESTING & EVALUATION (NDT) (Professional Elective-II)	
C205.1	Be able to List and define different defects that occur in welding shown through Non-Destructive Examination/Destructive Testing.
C205.2	Be able to identify the types of equipment used for each Non-Destructive and Destructive Examination
C205.3	Be able to explain the purpose of the Equipment, Application, and standard techniques required to perform major non-destructive and destructive examinations of weld

C205.4	Be able to go to specific Code, Standard, or Specification related to each testing method
C205.5	Have the knowledge and essential skills to identify strengths and weaknesses in materials used in fabrication
C206/MF5071-LEAN MANUFACTURING (Professional Elective-III)	
C206.1	The student must have a clear understanding of manufacturing production, classification, and lean manufacturing techniques
C206.2	Understanding of the fundamental concepts of job requirements, 5S, and layouts in production and productive maintenance
C206.3	Ability to comprehend the JIT and Kanab implementation approaches with a pull method
C206.4	Understanding of the Autonomy and Poke Yoke Processes in Lean Implementation
C206.5	The student is familiar with a variety of quality principles as well as a structured planning approach
C207/MF5211-AUTOMATION AND METAL FORMING LABORATORY	
C207.1	Ability to design and implement pneumatic circuits using trainer kits
C207.2	Understanding of metal forming techniques and the evaluation of associated parameters
C207.3	Ability to use hydro-pneumatic software to plan and conduct pneumo-hydraulic circuits
C207.4	Ability to assess and understand material strain hardening
C207.5	Understanding of sheet metal formability and shaping techniques
C208/MF5212-TECHNICAL SEMINAR	
C208.1	Develop reading, writing, comprehension, and presentation skills for research papers
C208.2	To assess the breadth of knowledge and coverage of recent areas of manufacturing engineering research

C208.3	To assess the consistency of presentation content (PPT/OHP) on recent manufacturing engineering research topics
C208.4	To improve the student's communication skills by presenting topics on recent engineering/technology advances
C208.5	To establish an analysis of current research problems and developments
YEAR/SEMESTER : II/III	
C301/MF5014-MANUFACTURING MANAGEMENT (Professional Elective-IV)	
C301.1	The student must have a basic understanding of manufacturing plant layout, classification, and material handling techniques.
C301.2	Understanding of the fundamental concepts of motion economy, as well as the tools and methods used in work studies and measurements
C301.3	Understanding of process planning and forecasting models is a must
C301.4	Understanding of project management and scheduling methods
C301.5	Personnel management and marketing methods have been studied and understood by the student.
C302/MF5072-RESEARCH METHODOLOGY (Professional Elective-V)	
C302.1	Understand some basic concepts of research and its methodologies
C302.2	Identify appropriate research topics
C302.3	Select and define appropriate research problem and parameters
C302.4	Prepare a project proposal, write a research report and thesis, write a research proposal (grants)
C302.5	organize and conduct research (advanced project) in a more appropriate manner
C303/MF5016-MATERIAL TESTING & CHARACTERIZATION TECHNIQUES (Professional Elective-VI)	

C303.1	To determine the grain size and classify the crystal structure.
C303.2	Students will be able to learn about electron microscopic characterization techniques.
C303.3	Chemical and thermal analysis approaches include the ability to comprehend their working concepts and instrumentation. The characterization analysis must be deciphered
C303.4	The aim of this course is to learn how to perform mechanical testing under static loading and to recognise the various testing codes for metallic and composite materials
C303.5	Mechanical research under complex loading conditions: ability to comprehend
C304/MF5311-PROJECT PHASE - I	
C304.1	Choose a subject in Manufacturing Engineering's advanced areas. Determine how to conduct tests and what materials to use
C304.2	Review the literature to find differences and describe the work's goals and scoop
C304.3	Create and incorporate new social-benefit concepts
C304.4	Analyze and explain the findings in order to draw sound conclusions
C304.5	Restructure procedures with a focus on culture, the community, and ethics
YEAR/SEMESTER : II/IV	
C401/MF5411-PROJECT PHASE - II	
C401.1	Determine a subject in advanced Manufacturing Engineering. Determine experimental methods and materials
C402.2	Review the literature to find differences and describe the work's goals and scope
C403.3	Restructure procedures with a focus on culture, the community, and ethics
C404.4	Create and incorporate new social-benefit concepts
C405.5	Analyze and explain the findings in order to draw sound conclusions