

| Information of every subject | |
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| 1 | Unit name: -Manufacturing System and Automation |
| 2 | Code: ME-41032 |
| 3 | Classification: Engineering subject |
| 4 | Credit value: 3 |
| 5 | Semester/ Year Offered: 1/2 |
| 6 | Pre-requisite: |
| 7 | Mode of delivery: Lecture, Practical, |
| 8 | Practical 20% |
| | Tutorials |
| | Viva |
| | Mid-term/ final Examination 40% / 40% |
| 9 | Academic staff teaching unit: |
| 10 | <p>Course outcome of unit: In this course, students will be able</p> <p>Semester (I)</p> <ol style="list-style-type: none"> 1. Provide introduction to the manufacturing processes, materials selections, computer integrated manufacturing and quality assurance and total quality management. 2. Provide introduction to computer numerical control (CNC) ,coordinate system, components of NC machine tools, programming machining centers. 3. Describe the technologies associated with rapid prototyping , sharing the characteristics of computer integration, production without the use of traditional tools and dies, and the ability to rapidly produce a single part on demand; they all have the basic characteristics of producing individual parts layer by layer. <p>Semester (II)</p> <ol style="list-style-type: none"> 1. Describe advanced machining processes that are based on nonmechanical means of materials removal. Examining chemical machining and blanking and photochemical blanking processes, in which material is removed through the corrosive action of fluid. 2. Comprehensive description of fixturing and assembly systems in manufacturing and their design considerations. |

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| | <p>3. Description of group technology is presented-an approach that is often built into CAD software , allowing the rapid recovery of previous design and manufacturing experience.</p> <p>4. Describes how computer system and communications networks affect product development and manufacturing through the integration of all of their activities.</p> |
| 11 | <p>Synopsis of unit: Manufacturing system, Manufacturing processes, Manufacturing operations, Computer Control Machining,</p> |

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| 12 | <p>Topic:</p> <p>Semester (I)</p> <p>1. General Introduction</p> <p>1.1 What Is Manufacturing?</p> <p>1.2 Product Design and Concurrent Engineering</p> <p>1.3 Design for Manufacture, Assembly, Disassembly, and Service</p> <p>1.4 Green Design and Manufacturing</p> <p>1.5 Selection of Materials</p> <p>1.6 Selection of Manufacturing Processes</p> <p>1.7 Computer-integrated Manufacturing</p> <p>1.8 Quality Assurance and Total Quality Management</p> <p>1.9 Lean Production and Agile Manufacturing</p> <p>1.10 Manufacturing Costs and Global Competition</p> <p>1.11 General Trends in Manufacturing</p> |
| 14 | <p>Main reference</p> <p>Manufacturing Engineering and Technology sixth edition in SI units</p> |
| 15 | <p>Additional references:</p> |