

**INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI**  
**PROFORMA FOR NEW COURSE**

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| 1.  | Title of the Course  | Manufacturing Systems   |
| 2.  | Course Number  | ME3214  |
| 3.  | Status of the Course   | Core  |
| 4.  | Structure of Credits   | 3-0-0-3   |
| 5.  | Offered to   | UG  |
| 6.  | New Course/ Modification to existing course  | New Course  |
| 7.  | To be offered by   | ME faculty member   |
| 8.  | To take effect from  | January '18   |
| 9.  | Prerequisite   | ME2280 Manufacturing Technology<br>ME3190 Machine Tools & Metrology |
| 10. | Whether approved by the Program  | Yes   |
| 11. | <p><u>Course Objective:</u><br/>This course enables the student to recognize manufacturing organizations including job shops, flow lines, assembly lines and work cells. This course provides ways to analyze manufacturing systems in terms of material flow and storage. The student will be introduced to process planning and quality control aspects of the industry.</p>   |   |
| 12. | <p><u>Course Content:</u><br/>Introduction to manufacturing, Manufacturing system concept. Manufacturing automation, FMS, CIMS, Flow lines and assembly systems, Automated storage / retrieval systems, AGV. Introduction to CAD/CAM, NC, CNC, DNC, Adaptive control. Manual and computer assisted part programming. Introduction to robots and their application in manufacturing. Process planning and Computer Aided Process planning. Group Technology, Opitz System and GT benefits. Material Management and Inventory control, MRP and MRP II. Just in time (JIT) and Lean manufacturing. Introduction to quality assurance and control, Statistical Quality Control, control charts, sampling. Total Quality Management. Manufacturing system simulation.</p> |   |
| 13. | <p><u>Text Book:</u></p> <ol style="list-style-type: none"> <li>1. Nanua Singh, Systems Approach to Computer-Integrated Design and Manufacturing, Wiley, 1995.</li> <li>2. Chang, Wysk and Wang, Computer Aided Manufacturing, 3/e, Prentice Hall, 2007.</li> </ol>  |   |
| 14. | <p><u>References:</u></p> <ol style="list-style-type: none"> <li>1. P.N. Rao, Tewari and Kundra, Computer Aided Manufacturing, 1/e, TMH, 1998</li> <li>2. Askin and Strandridge, Modelling and Analysis of Manufacturing Systems, Wiley, 1993.</li> <li>3. Askin and Goldberg, Design and Analysis of Lean Production Systems, John Wiley and Sons, 2002</li> </ol>  |   |