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**SEMBODAI RUKMANI VARATHARAJAN ENGINEERING COLLEGE**

(Approved by AICTE, New Delhi | Affiliated to Anna University, Chennai)

**SEMBODAI – 614 809 VEDRANYAM TAMILNADU INDIA**

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**DEPARTMENT OF**

**MECHANICAL ENGINEERING**

**COURSE FILE**

**VII SEMESTER**

**ME8793 PROCESS PLANNING & COST ESTIMATION**

**(Regulation 2017-Anna University)**

**SEMBODAI RUKMANI VARATHARAJAN ENGINEERING COLLEGE**

**Vision of Institution**

Striving willfully with might to develop and nurture the younger generation to emerge as better technocrats for development of the state and the country as a whole.

**Mission of Institution**

Minting out skillfully competent, Socially-Committed and Versatile Knowledge personalities to encounter the challenges of the society in the field of Engineering and Technology as a whole.

**DEPARTMENT OF MECHANICAL ENGINEERING**

**Vision of Department**

To create excellent professionals in the field of Mechanical Engineering and to uplift the quality of technical education on par with the International Standards.

**Mission of Department**

1. To reinforce the fundamentals of Science and Mathematics to Mechanical Engineering and critically and relatively investigate complex mechanical systems and processes.

2. To engage in the production, expansion and practice of advanced engineering applications through knowledge sharing activities by interacting with global communities and industries.

3. To equip students with engineering ethics, professional roles, corporate social responsibility and life skills and apply them for the betterment of society.

**PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)**

Bachelor of Mechanical Engineering curriculum is designed to impart Knowledge, Skill and Attitude on the graduates to

1. Have a successful career in Mechanical Engineering and allied industries.

2. Have expertise in the areas of Design, Thermal, Materials and Manufacturing.

3. Contribute towards technological development through academic research and industrial practices.

4. Practice their profession with good communication, leadership, ethics and social responsibility.

5. Graduates will adapt to evolving technologies through life-long learning.

**PROGRAMME OUTCOMES (POs)**

1. An ability to apply knowledge of mathematics and engineering sciences to develop mathematical models for industrial problems.

2. An ability to identify, formulates, and solve complex engineering problems. with high degree of competence.

3. An ability to design and conduct experiments, as well as to analyze and interpret data obtained through those experiments.

4. An ability to design mechanical systems, component, or a process to meet desired needs within the realistic constraints such as environmental, social, political and economic sustainability.

5. An ability to use modern tools, software and equipment to analyze multidisciplinary problems.

6. An ability to demonstrate on professional and ethical responsibilities.

7. An ability to communicate, write reports and express research findings in a scientific community.

8. An ability to adapt quickly to the global changes and contemporary practices.

9. An ability to engage in life-long learning.

**PROGRAMME SPECIFIC OUTCOMES (PEOs)**

1. To understand the basic concept of various mechanical engineering field such as design, manufacturing, thermal and industrial engineering.

2. To apply the knowledge in advanced mechanical system and processes by using design and analysis techniques.

3. To develop student’s professional skills to meet the industry requirements and entrepreneurial skills for improving nation’s economy stronger.

**COURSE SYLLABUS:**

# ME8793 PROCESS PLANNING & COST ESTIMATION L T P C

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# OBJECTIVES:

1. To introduce the process planning concepts to make cost estimation for various products after process planning.
2. To introduce the process planning concepts to make cost estimation for various products after process planning.
3. To perform estimation of machining time for various manufacturing operations

**UNIT I INTRODUCTION TO PROCESS PLANNING 9**

Introduction- methods of process planning-Drawing interpretation-Material evaluation – steps in process selection-.Production equipment and tooling selection

**UNIT II PROCESS PLANNING ACTIVITIES 9**

Process parameters calculation for various production processes-Selection jigs and fixtures election of quality assurance methods - Set of documents for process planning-Economics of process planning- case studies

**UNIT III INTRODUCTION TO COST ESTIMATION 9**

Importance of costing and estimation –methods of costing-elements of cost estimation –Types of estimates – Estimating procedure- Estimation labor cost, material cost- allocation of over head charges- Calculation of depreciation cost

**UNIT IV PRODUCTION COST ESTIMATION 9**

Estimation of Different Types of Jobs - Estimation of Forging Shop, Estimation of Welding Shop, Estimation of Foundry Shop

**UNIT V MACHINING TIME CALCULATION 9**

Estimation of Machining Time - Importance of Machine Time Calculation- Calculation of Machining Time for Different Lathe Operations ,Drilling and Boring - Machining Time Calculation for Milling, Shaping and Planning -Machining Time Calculation for Grinding.

**TOTAL: 45 PERIODS**

**COURSE OUTCOMES (COs)**

At the end of the course, students would:

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| --- | --- |
| **CO-1** | Select the process, equipment and tools for various industrial products. |
| **CO-2** | Prepare process planning activity chart. |
| **CO-3** | Explain the concept of cost estimation. |
| **CO-4** | Compute the job order cost for different type of shop floor. |
| **CO-5** | Calculate the machining time for various machining operations. |

**TEXTBOOKS**

**TEXT BOOK-1:**

Peter scalon, “Process planning, Design/Manufacture Interface”, Elsevier science

Technology Books, Dec 2002 .

**TEXT BOOK-2:**

Sinha B.P, “Mechanical Estimating and Costing”, Tata-McGraw Hill publishing co, 1995.

# REFERENCES:

**RB.1.** Chitale A.V. and Gupta R.C., “Product Design and Manufacturing”, 2nd Edition, PHI, 2002.th

**RB.2.** Ostwalal P.F. and Munez J., “Manufacturing Processes and systems”, 9 1998.

Edition, John Wiley,

**RB.3.** Russell R.S and Tailor B.W, “Operations Management”, 4th Edition, PHI, 2003.

**RB.4.** Mikell P. Groover, “Automation, Production, Systems and Computer Integrated

Manufacturing”, Pearson Education 2001.

**RB.5.** Dr.V.Jeyakumar., “Process planning and cost estimation”, 12th Edition, Lakshmi Publications,

2017

**Question Bank:**

**ME8793 PROCESS PLANNING & COST ESTIMATION**