Reference Books:-

1. Automotive Mechanics; Crouse & Anglin; TMH.
2. Automotive Mechanics; J. Heitner; East West Press.
3. Automotive Mechanics; S. Srinivasan; TMH.
4. James Larminie, ñElectric Vehicle Technology Explainedò, John Wiley & Sons, 2003.

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6ME08 COMPUTER AIDED DESIGN & SIMULATION -LAB. [Only Practical]

Course Learning Objectives (CLOs):

1. To understand fundamentals of CAD.
2. To study the solid modeling techniques.
3. To study the geometric transformation techniques.
4. To demonstrate Simulation of Mechanical Systems.

Course Outcomes (COs):

1. Understand the concept of CAD and simulation.
2. Apply knowledge using CAD modeling for component design
3. Apply the knowledge of geometric transformation.
4. Analyse the Mechanical & Manufacturing systems through simulation.

Practicals:- Any six practicals from the list should be performed.

1. Creation of 2D drawing (Sketching Module) of any mechanical machine component using any modeling/drawing software.
2. Creation of isometric view from given orthographic view of any mechanical machine part using any modeling software.
3. Creation of 3D drawing of any mechanical machine part using any modeling software.
4. Creation of assembly of Knuckle joint/ Cotter joint using any modeling software.
5. Creation of sheet metal component using any modeling software.
6. Simulation of Four bar chain mechanism using any modeling software.
7. Simulation of Slider crank chain mechanism using any modeling software.
8. Simulation of Cam and Follower mechanism.
9. Simulation of Spring-mass system.
10. Thermal Analysis of a 2D component
11. Stress analysis of plate with circular hole
12. Stress analysis of beams(cantilever or simply supported)

Practical Examination:-The practical examination shall consist of oral on the term work and syllabus.

Text Books:

1) P. N. Rao; CAD/CAM Principles and Applications; Mc-Graw Hills Publications.
2) Mikel P. Groover and Emory W. Zimmers: Computer Aided Design and Manufacturing, Prentice hall.
3) Ibrahim Zeid: Mastering in CAD- CAM, Tata McGraw Hill Publication.
4) Geoffrey Gordon, System Simulation; Prentice Hall.

Reference Books:

1) Mikell P. Groover: ñAutomation, Production systems & Computer Integrated Manufacturingò, Prentice Hall.
2) Robert E. Shannon; ñSystem Simulation: The Art and Scienceò; Prentice Hall.
3) J. Schwarzenbach and K.F. Gill Edward Arnold; óSystem Modelling and Controlô
4) P. Radhakrishnan and Subramaniam: ñCAD/CAM/CIMò, wiley Eastern Ltd.

SEMESTER VII

7ME09 TECHNICAL SEMINAR AND PROJECT

Course Learning Objectives (CLOs):

1. To collect information on novel and latest development in core and allied area of the subject.
2. To encourage the process of independent thinking and working together in a group.
3. To implement innovative ideas for social benefit
4. To develop the ability to describe, interpret and analyze technical issues.

Course Outcomes (COs): After completion of course, student will be able to:

1. Prepare a well-organized report employing elements of technical writing and critical thinking.
2. Demonstrate the ability to describe, interpret and analyze technical issues.
3. Apply principles of ethics and standards, skill of presentation and communication techniques.
4. Work in a group to develop the leadership/interpersonal skills for finishing task within timeframe.

Brief Guidelines:

Student shall select a topic of seminar which is not covered in curriculum. Topics shall be approved by the concerned guide and Program in charge as per the department policy . Students should know the functional and technical details of selected topic after carrying out the conceptual study. Before the end of semester, student shall deliver a seminar and required to submit the seminar report in concerned with guide, Program in charge as per department policy Student shall deliver a seminar based on submitted report. The presentation and oral examination on selected seminar topic shall be assessed by panel of examiners mentioned in syllabus scheme.

B.E. (MECHANICAL ENGINEERING SEMESTER - VIII (C.B.C.S.)

8ME07 PROJECT

Course Learning objectives (CLOs):

1. To understand the basic concepts & broad principles of projects.
2. To understand the value of achieving perfection in project implementation & completion.
3. To apply the theoretical concepts to solve problems with teamwork and multidisciplinary approach.
4. To demonstrate professionalism with ethics; present effective communication skills and relate engineering issues to broader societal context.

Course outcomes (COs):

1. Apply creative process techniques in synthesizing information, problem-solving and critical thinking to demonstrate a sound technical knowledge of their selected project topic.
2. Undertake problem identification, formulation and solution.
3. Design engineering solutions to complex problems utilizing a systems approach.
4. Conduct an engineering project, use sustainable materials and manufacturing processes & Carry out cost and benefit analysis through various cost models.
5. Demonstrate the knowledge, skills and attitudes of a professional engineer.

Brief Guideline: Earlier knowledge and experience of Research Skill-Lab (6ME09) and Technical seminar &Project (7ME09) , the student should complete implementation of ideas as formulated in Project . It may involve coding, experimentation, data analysis within realistic constraints such as economic, environmental, social, ethical, health and safety, and sustainability. It may also include testing, results and report writing. Each student group should submit complete project report at the end of Semester-VIII in the form of Hard bound. The Internal Continuous assessment shall be done throughout the VII and VIII semester under the observance of supervisor/guide as per department policy. The Final External Assessment and evaluation for the project shall also include presentation and demonstration by the students as per the syllabus scheme.

Suggestive outline for the complete project report is as follows (depends on the topic, objectives and scope of the project) :-

ABSTRACT :

Chapter 1: Introduction Background • Motivation• Scope• Objective• Organization of Report• Summary•

Chapter 2: Literature Review, Critical literature Review analysis ,Drawback and salient feature ,Research Gap ,Problem identification and Problem definition .

Chapter 3. Methodology : Design & development / Experimentation & observation / Survey & Data collection ,Data arrangement, Data Analysis as per the scope and limitations of the study.

Chapter 4: Testing, Analysis & Validation, Data interpretation ,optimization ,etc.

Chapter 5: Result and Discussion

Chapter 5: Conclusion

- Scope for Future Work
- References/Bibliography
- Index
- Appendix/annexure, etc.
- Publications/copy right/patent, if any.

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