VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
Ibrahimbagh, Hyderabad-31

Approved by A.I.C.T.E., New Delhi and
Affiliated to Osmania University, Hyderabad-07

Sponsored by
VASAVI ACADEMY OF EDUCATION
Hyderabad

SYLLABI UNDER CBCS FOR M.E (ADM) III - IV SEMESTERS OF MECHANICAL ENGINEERING (R-24) WITH EFFECT FROM 2025-26 (For the students admitted in 2024-25)

DEPARTMENT OF MECHANICAL ENGINEERING

+91-40-23146060, 23146061
Fax: +91-40-23146090
Website: www.vce.ac.in

VISION OF THE INSTITUTE

Striving for a symbiosis of technological excellence and human values.

MISSION OF THE INSTITUTE

To arm young brains with competitive technology and nurture holistic development of the individuals for a better tomorrow.

VISION OF THE DEPARTMENT

To establish global leadership in the field of mechanical engineering and develop competent human resources with values and ethics

MISSION OF THE DEPARTMENT

To nurture an environment of research, innovation and knowledge through the latest teaching-learning practices in mechanical engineering

PROGRAM OUTCOMES (POs)	
1	An ability to independently carry out research / investigation and development work to solve practical problems.
2	An ability to write and present a substantial technical report / document.
3	An ability to demonstrate a degree of mastery over the area of Advanced Design and Manufacturing.
4	An ability to apply appropriate techniques and modern engineering tools in the design and development of solutions for complex mechanical engineering design and manufacturing problems.
5	An ability to apply engineering and management principles as a member and leader in a team, to manage projects in a multi-disciplinary environment with life-long learning capabilities.
PROGRAM EDUCATIONAL OBJECTIVES (PEOs)	
1	To have an in-depth technical knowledge in the chosen field of specialization in mechanical engineering
2	To demonstrate commitment to solve technical problems and to work in multi disciplinary teams
3	To exhibit the skills to contribute to their organization and make well informed decisions
4	To advance professionally through publications in the form of reports and technical papers.
5	To have life long learning.

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031
Department of Mechanical Engineering

Scheme of instruction and examination (R-24)
M.E. (ADM) : THIRD SEMESTER 2025-26

M.E. (ADM) III-SEMESTER									
S. No	Course Code	Course Title	Scheme of Examination			Scheme of Examination			
			Hours per Week			Duration in Hrs	Maximum Marks		Credits
			L	T	P		SEE	CIE	
Theory									
1	PI24PEXXXME	Professional Elective-IV	3	-	-	3	60	40	3
2	PI24PEXXXME	Professional Elective-V	3	-	-	3	60	40	3
LABS									
3	PI24PW319ME	Dissertation – Phase I / Internship	0	0	20	-	-	100	10
		Total	6	-	20		120	180	16
		Grand Total	26				300		16

PE: Professional Electives		
Professional Elective-IV (Design Group)		
1	PI24PE300ME	Advanced Finite Element Analysis
2	PI24PE310ME	Computer Aided Mechanical Design and Analysis
3	PI24PE320ME	Mechanics of Composite Materials
Professional Elective-V (Manufacturing Group)		
1	PI24PE330ME	Advanced Non-Destructive Evaluation Techniques
2	PI24PE340ME	Additive Manufacturing
3	PI24PE350ME	Mechatronics

PROFESSIONAL ELECTIVES
DESIGN GROUP

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031
Department of Mechanical Engineering

ADVANCED FINITE ELEMENT ANALYSIS

(PROFESSIONAL ELECTIVE-IV)
SYLLABUS FOR M.E. (ADM) III-SEMESTER

L:T:P(Hrs/week):3:0:0	SEE Marks:60	Course Code:PI24PE300ME
Credits :03	CIE Marks:40	Duration of SEE:03Hours

COURSE OBJECTIVES	COURSE OUTCOMES
The objectives of this course is to: 1. understand basic theory of plates and shells 2. interpret the concept of non-linearity 3. familiarize with the numerical methods in dynamic analysis 4. understand fluid flow and heat transfer analysis 5. familiarize with adaptive meshing and error estimates	On completion of the course, the Students will be able to: 1. identify the FE formulations for plates and shells 2. formulate the non-linear problems. 3. calculate dynamic characteristics using numerical methods 4. formulate the fluid flow and heat transfer analysis. 5. estimate the errors and convergence rates

Unit-I: BENDING OF PLATES AND SHELLS

Review of Elasticity Equations – Bending of Plates and Shells – Finite Element Formulation of Plate and Shell Elements - Conforming and Non Conforming Elements – C0 and C1 Continuity Elements –Degenerated shell elements-Application and Examples.

Unit-II: NON-LINEAR PROBLEMS

Introduction – Iterative Techniques – Material non-linearity – Elasto Plasticity – Plasticity – Visco Plasticity – Geometric Non linearity – large displacement Formulation –Solution procedure- Application in Metal Forming Process and Contact Problems.

Unit-III: DYNAMIC PROBLEM

Direct Formulation – Free, Transient and Forced Response – Solution Procedures – Eigen solution-Subspace Iterative Technique – Response analysis-Houbolt, Wilson, Newmark – Methods – Explicit &Implict Methods-Lanchzos, Reduced method for large size system equations.

Unit-IV: FLUID MECHANICS AND HEAT TRANSFER

Governing Equations of Fluid Mechanics – Solid structure interaction - Inviscid and Incompressible Flow – Potential Formulations – Slow Non-Newtonian Flow – Metal and Polymer Forming – Navier Stokes Equation – Steady and Transient Solution.

Unit-V: ERROR ESTIMATES AND ADAPTIVE REFINEMENT

Error norms and Convergence rates – h-refinement with adaptivity – Adaptive refinement.

Learning Resources:

1. Zienkiewicz, O.C. and Taylor, R.L., "The Finite Element Method", Fourth Edition, Volumes 1 & 2, McGraw Hill International Edition, Physics Services, 1991.
2. Cook R.D., "Concepts and Applications of Finite Element Analysis",John Wiley and Sons Inc., Newyork, 1989.
3. Bathe K.J., "Finite Element Procedures in Engineering Analysis", Prentice Hall, 1990
4. S.S.Rao, "Mechanical Vibrations" Addison-Wesley publishing co. 1998
5. V. Rammurti "computer aided mechanical design and analysis" Tata Mc-Grawhill 1992

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1	No. of Internal Tests:	02	Max. Marks for each Internal Test:	30
2	No. of Assignments:	03	Max. Marks for each Assignment:	05
3	No. of Quizzes:	03	Max. Marks for each Quiz Test:	05

Duration of Internal Test: 1 Hour 30 Minutes

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Mechanical Engineering

COMPUTER AIDED MECHANICAL DESIGN AND ANALYSIS

(PROFESSIONAL ELECTIVE-IV)

SYLLABUS FOR M.E. (ADM) III-SEMESTER

L:T:P(Hrs/week):3:0:0	SEE Marks:60	Course Code: PI24PE310ME
Credits :04	CIE Marks:40	Duration of SEE:03Hours

Course Objectives	Course Outcomes
The objectives of this course are to: understand the design of pressure vessels, plate bending theory, fracture mechanics concepts, analyze Eigen value problems and perform dynamic analysis.	On completion of the course, the student will be able to: 1. analyse the pressure vessels 2. formulate the plate bending equations 3. interpret the behaviour of crack and crack propagation 4. formulate an Eigen value problem and develop its solution 5. apply various methods to obtain solutions in Dynamic analysis

UNIT-I

Design of pressure Vessels: Introduction and constructional features of pressure vessels, stresses in pressure vessels, shrink fit stresses in built up cylinders, autofrettage of thick cylinders, thermal stresses and their significance.

UNIT-II

Stresses in flat plates: Introduction, Bending of plate in one direction, Bending of plate in two perpendicular directions, Thermal stresses in plates, Bending of circular plates of constant thickness, Bending of uniformly loaded plates of constant thickness.

UNIT-III

Fracture Mechanics: Introduction, Modes of fracture failure Griffith Analysis, Energy release rate, Energy release rate of DCB specimen; Stress Intensity Factor: SIF"s for edge and centre line crack, Fracture toughness, Elastic plastic analysis through J-integral method: Relevance and scope, Definition of J-integral, Path independence, stress strain relation, Strain Energy Release Rate Vs J-integral.

UNIT-IV

Eigen Value Problems: Properties of Eigen values and Eigen Vectors, Torsional, Longitudinal vibration, lateral vibration, Sturm sequence. Subspace iteration and Lanczo"s method, Component mode synthesis, Eigen value problems applied to stepped beams and bars.

UNIT-V

Dynamic Analysis: Direct integration method, Central difference method, Wilson- method, Newmark method, Mode superposition, Single degree of freedom system response, Multi degree of freedom system response, Rayleigh damping, Condition for stability.

Learning Resources:

1. John, V. Harvey, "Pressure Vessel Design: Nuclear and Chemical Applications", Affiliated East West Press Pvt. Ltd., 1969.
2. Prasanth Kumar, "Elements of Fracture Mechanics", Wheeler Publishing, New Delhi-1999.
3. V. Rammurti, "Computer Aided Mechanical Design and Analysis", Tata Mc Graw Hill-1992.
4. Bathe, J., " Finite Element Procedures", Prentice Hall of India-1996.

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1	No. of Internal Tests:	02	Max. Marks for each Internal Test:	30
2	No. of Assignments:	03	Max. Marks for each Assignment:	05
3	No. of Quizzes:	03	Max. Marks for each Quiz Test:	05

Duration of Internal Test: **1 Hour 30 Minutes**

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Mechanical Engineering

MECHANICS OF COMPOSITE MATERIALS (PROFESSIONAL ELECTIVE-IV)

SYLLABUS FOR M.E. (ADM) III-SEMESTER

L:T:P(Hrs/week):3:0:0	SEE Marks:60	Course Code:PI24PE320ME
Credits :03	CIE Marks:40	Duration of SEE:03Hours

COURSE OBJECTIVE	COURSE OUTCOMES
The objective of this course are to: discuss the basic structure of composites, elastic constants and Hygro-thermal stresses. Identify stress-strain relations in composites, design with composites and demonstrate the basic equations of plate bending	On completion of the course, the student will be able to: 1. demonstrate knowledge of composites and their structure 2. predict the Elastic constants and Hygrothermal stresses 3. analyse the stress - strain relationship in composites 4. summarise and apply the Design procedure and the failure criteria. 5. formulate Plate bending equations for various Boundary conditions of composite plates.

Unit-I: INTRODUCTION

Fibres, Matrix materials, interfaces, polymer matrix composites, metal matrix composites, ceramic matrix composite, carbon fibre composites.

Unit-II:

Micromechanics of Composites: Mechanical Properties: Prediction of Elastic constant, micromechanical approach, Halpin-Tsai equations, Transverse stresses.

Hygrothermal stresses, mechanics of load transfer from matrix to fibre.

Unit-III: MACRO-MECHANICS OF COMPOSITES

Elastic constants of a lamina, relations between engineering constants and reduced stiffness and compliances, variation of lamina properties with orientation, analysis of laminated composites, stresses and strains with orientation, inter-laminar stresses and edge effects. Simplified composite beam solutions. Bending of laminated beams.

Unit-IV:

Strength, fracture, fatigue and design: Tensile and compressive strength of unidirectional fibre composites, fracture modes in composites: Single and

multiple fracture, de-bonding, fibre pullout and de-lamination failure, fatigue of liminate composites, Effect of variability of fibre strength.

Strength of an orthotropic lamina: Max stress theory, max strain criteria, maximum work (Tsai-Hill) criterion, T Sai – Wu criteria. Designing with composite materials.

Unit-V: ANALYSIS OF PLATES

Plate equilibrium equations, Bending of composite plates, Levy and Navier solution for plates of composite material. Analysis of composite cylindrical shells under axially symmetric loads.

Learning Resources:

1. Jones, R.M., 'Mechanics of Composite Materials', Mc-Graw Hill Co., 1967.
2. Calcote, L.R., 'The Analysis of Laminated Composite Structures', Van Nostrand, 1969.
3. Whitney. I.M., Daniel, R.B. Pipes, 'Experimental Mechanics of Fibre Reinforced Composite Materials', Prentice Hall, 1984.
4. Hyer. M.W., 'Stress Analysis of Fibre-Reinforced Composite Materials', McGraw Hill Co., 1998.
5. Carl. T.Herakovich, 'Mechanics of Fibrous Composites', John Wiley Sons Inc., 1998.

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1	No. of Internal Tests:	02	Max. Marks for each Internal Test:	30
2	No. of Assignments:	03	Max. Marks for each Assignment:	05
3	No. of Quizzes:	03	Max. Marks for each Quiz Test:	05

Duration of Internal Test: **1 Hour 30 Minutes**

PROFESSIONAL ELECTIVES
MANUFACTURING GROUP

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Mechanical Engineering

ADVANCED NON-DESTRUCTIVE EVALUATION TECHNIQUES (PROFESSIONAL ELECTIVE-V)

SYLLABUS FOR M.E. (ADM) III-SEMESTER

L:T:P(Hrs/week):3:0:0	SEE Marks:60	Course Code:PI24PE330ME
Credits :03	CIE Marks:40	Duration of SEE:03Hours

COURSE OBJECTIVES	COURSE OUTCOMES
The objectives of this course are to: 1. study the importance of various non-destructive testing method. 2. study different methods to find the surface and subsurface defects in the components 3. study different methods of finding surface, internal defects and properties of the components. 4. study computer aided inspection processes to find defects in components used in medical field 5. study inspection method using light source.	On completion of the course, the student will be able to: 1. Understand the importance and practical applications of various non-destructive methods in industry 2. Evaluate the surface and sub surface defects of the components produced in industry. 3. Apply the methods for inspecting surface, internal defects and to find mechanical properties of the components. 4. Select appropriate computer aided method of inspection of the components and methods based on light as source of inspection. 5. Apply computer aided advanced method for sorting of components produced in industry.

Unit-I

Types of defects and characteristics, Quantification aspects relevant for NDE including fracture aspects and stress intensity factors - NDT overview – quality assurance–visual inspection–comparative features of conventional Non destructive Testing and Evaluation Methods including Optical, Radiography, Ultrasonic Testing, Dye penetrate testing, Eddy current testing etc.

Unit-II

Leak testing – liquid penetrant testing – penetrant used – equipment – penetration, emulsification, solvent removal. Eddy current testing – material conductivity – coil impedance–coils and instruments–testing in non-ferromagnetic conducting materials and Ferro magnetic materials – skin effect – frequency used – inspection probes – phase analysis.

Unit-III

Radiography–sources of radiation–shadow formation, enlargement and distortion – recording media – exposures, markers.

Infrared and thermal testing – imaging systems – detectors – analysis methods.

Ultrasonic testing – generation of ultrasound – methodologies – transducers and equipment used – flaw detection - sensitivity and calibration.

Magnetic particle testing–magnetization methods–continuous and residual methods – sensitivity – demagnetization.

Unit-IV

Computer aided image processing methods for radiography and ultrasonic's, tomography in these areas.

Optical techniques of nondestructive evaluation: Principles of Photo elasticity, holographic Interferometry and Laser speckle techniques; use of fibre optics, non-invasive techniques in medical field and NDT.

Unit-V

Machine Vision-system components, Sensors, specifications for resolution & range.

Grid and Moire NDT, acoustic, shearography, Principles of Microwave, acoustic emission techniques.

Learning Resources:

1. Barry Hull, 'Non-Destructive Testing' –Vernon John, ELBS/ Macmillan, 1988.
2. Baldev Raj, T.JayaKumar, M.Thavansimuthee, 'Practical Non-Destructive Testing', - Narosa Publishing House, New Delhi, 1997.
3. Journals: British Journal of NDT, Materials Evaluation, ISNDT Journal.
4. ASM Handbook: Non-Destructive Evaluation and Quality Control, ASM International, Vol. 17, 1989.
5. Ravi Prakash, Non-Destructive Testing Techniques, New Age Science, 2009.

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1	No. of Internal Tests:	02	Max. Marks for each Internal Test:	30
2	No. of Assignments:	03	Max. Marks for each Assignment:	05
3	No. of Quizzes:	03	Max. Marks for each Quiz Test:	05

Duration of Internal Test: **1 Hour 30 Minutes**

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Mechanical Engineering

ADDITIVE MANUFACTURING (PROFESSIONAL ELECTIVE-V)

SYLLABUS FOR M.E. (ADM) III-SEMESTER

L:T:P(Hrs/week):3:0:0	SEE Marks:60	Course Code:PI24PE340ME
Credits :03	CIE Marks:40	Duration of SEE:03Hours

COURSE OBJECTIVES	COURSE OUTCOMES
The objectives of this course are to: 1. understand the importance of RPT 2. Apply various liquid and solid based RPT Systems 3. Apply various powder based RPT systems and rapid tooling 4. Recognize various STL formats and slicing methods and tessellation 5. Application of RPT in Engineering, Jewelry and Bio medical etc.	On completion of the course the student will be able to: 1. understand the developments of RPT and its terminology, Advantages and limitations of RPT 2. understand mechanism involved in stereo lithography apparatus system, and terminated object manufacturing, fused deposition modeling and their applications. 3. understand mechanism in selective laser interims and its application. Understand the importance of Rapid tooling 4. recognize various types of file format and slicing methods in RP and various software available to convert 3D models. 5. apply RPT in various fields like Engineering, Jewelry, medical and Bio – Medical Engineering

Unit-I: INTRODUCTION

Prototyping fundamentals, Historical development, fundamentals of Rapid Prototyping, Advantages and Limitations of Rapid Prototyping, Commonly used terms, classification of RP process, Rapid prototyping process chain: Fundamental Automated processes, process chain.

Unit-II

Liquid based rapid prototyping systems: Stereo lithography apparatus (SLA): Models and specifications, process, working principle, photopolymers, photo polymerization, layering technology, laser and laser scanning, applications, advantages and disadvantages, case studies. Solid ground curing (SGC): Models and specifications, process, working principle, applications, advantages and disadvantages, case studies.

Solid based rapid prototyping systems: Laminated object manufacturing (LOM): Models and specifications, process, working principle, applications, advantages and disadvantages, case studies. Fused deposition modeling (FDM): Models and specifications, process, working principle, applications, advantages and disadvantages, case studies.

Unit-III

Powder Based Rapid Prototyping Systems: Selective laser sintering (SLS): Models and specifications, process, working principle, applications, advantages and disadvantages, case studies. Three dimensional printing (3DP): Models and specification, process, working principle, applications, advantages and disadvantages, case studies.

Relative comparison between the processes.

Rapid Tooling: Introduction to Rapid Tooling (RT), Conventional Tooling Vs Rt, Need for RT. Rapid Tooling Classification: Indirect Rapid Tooling Methods: Spray Metal Deposition, RTV Epoxy Tools, Ceramic tools, investment casting, spin casting, die csting, sand casting, 3D Keltool process. Direct Rapid Tooling: Direct AIM, LOM Tools, DTM Rapid Tool Process, EOS Direct Tool Process and Direct Metal Tooling using 3DP

Unit-IV

Rapid Prototyping Data Formats: STL Format, STL File Problems, Consequence of Building Valid and invalid tressellated models, STL file Repairs: Generic Solution, Other Translators, Newly Proposed Formats.

Rapid Prototyping Software's: Features of various RP software's like Magics, Mimics, Solid View, view expert, 3 D view, velocity 2, Rhino, STL view 3 data expert and 3 D doctor

Unit-V

RP Applications: Application – Material Relationship, application in design, application in engineering, Analysis and planning, aerospace industry, automatic industry, Jewelry industry, coin industry, GIS application, Arts and Architecture.

RP Medical and Bioengineering Application: Planning and simulation of complex surgery, customized implant and prosthesis, design and production of medical devices, forensic science and anthropology, visualization of biomolecules.

Learning Resources:

1. Chua C.K., Leong K.F. and LIM C.S Rapid prototyping: Principles an Applications, World Scientific publications, 3rd Ed., 2010
2. D.T. Pham and S.S. Dimov, "Rapid Manufacturing", Springer, 2001
3. Terry Wohlers, " Wholers Report 2000", Wohlers Associates, 2000
4. Paul F. Jacobs, " Rapid Prototyping and Manufacturing"–, ASME Press, 1996
5. Ian Gibson, Davin Rosen, Brent Stucker "Additive Manufacturing Technologies, Springer, 2nded, 2014

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1	No. of Internal Tests:	02	Max. Marks for each Internal Test:	30
2	No. of Assignments:	03	Max. Marks for each Assignment:	05
3	No. of Quizzes:	03	Max. Marks for each Quiz Test:	05

Duration of Internal Test: **1 Hour 30 Minutes**

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Mechanical Engineering

MECHATRONICS (PROFESSIONAL ELECTIVE-V)

SYLLABUS FOR M.E. (ADM) III-SEMESTER

L:T:P(Hrs/week):3:0:0	SEE Marks:60	Course Code:PI24PE350ME
Credits :03	CIE Marks:40	Duration of SEE:03Hours

Course Objectives	Course Outcomes
The objectives of this course are to: 1. Understand key elements of Mechatronics system, representation into block diagram 2. understand concept of transfer function, reduction and analysis 3. understand principles of sensors, its characteristics, interfacing with DAQ microcontroller 4. understand the concept of PLC system and its ladder programming, and significance of PLC systems in industrial application 5. understand the system modeling and analysis in time domain and frequency domain	On completion of the course, the students will be able to: 1. Identification of key elements of mechatronics system and its representation in terms of block diagram 2. Understand the concept of signal processing and use of interfacing systems such as ADC, DAC, digital I/O 3. Interface the Sensors, Actuators using appropriate DAQ micro-controller 4. study time and Frequency domain analysis of system model (for control application) 5. Develop PLC ladder programming and implementation of real life system

Unit-I

Introduction to Sensors & Actuators: Introduction to Mechatronics, **Measurement characteristics:** Static and Dynamic Sensors: Position Sensors: - Potentiometer, LVDT, Encoders; Proximity sensors:- Optical, Inductive, Capacitive; **Motion Sensors:** Variable Reluctance; Temperature Sensor: RTD, Thermocouples; **Force / Pressure Sensors:** Strain gauges; Flow sensors: - Electromagnetic Actuators: Stepper motor, Servo motor, Solenoids

Unit-II: BLOCK DIAGRAM REPRESENTATION

Open and Closed loop control system, identification of key elements of mechatronics systems and represent into block diagram (Electro-Mechanical Systems), Concept of transfer function, Block diagram reduction principles,

Applications of mechatronics systems:- Household, Automotive, Shop floor (industrial).

Unit-III: DATA ACQUISITION & MICROCONTROLLER SYSTEM

Interfacing of Sensors / Actuators to DAQ system, Bit width, Sampling theorem, Aliasing, Sample and hold circuit, Sampling frequency, ADC (Successive Approximation), DAC (R-2R), Current and Voltage Amplifier.

Unit-IV: PLC Programming

Introduction, Architecture, Ladder Logic programming for different types of logic gates, Latching, Timers, Counter, Practical Examples of Ladder Programming, Introduction to SCADA system

Unit-V

Modelling and Analysis of Mechatronics System: System modeling (Mechanical, Thermal and Fluid), Stability Analysis via identification of poles and zeros, Time Domain Analysis of System and estimation of Transient characteristics: % Overshoot, damping factor, damping frequency, Rise time, Frequency Domain Analysis of System and Estimation of frequency domain parameters such as Natural Frequency, Damping Frequency and Damping Factor

Learning Resources:

1. K.P. Ramchandran, G.K. Vijyaraghavan, M.S. Balasundaram, Mechatronics: Integrated Mechanical Electronic Systems, Willey Publication, 2008
2. Bolton, Mechatronics - A Multidisciplinary approach, 4th Edition, Prentice Hall, 2009
3. Alciatore&Histand, Introduction to Mechatronics and Measurement system, 4th Edition, Mc-Graw Hill publication, 2011.
4. Bishop (Editor), Mechatronics – An Introduction, CRC Press, 2006.
5. Mahalik, Mechatronics – Principles, concepts and applications, Tata Mc-Graw Hill publication, New Delhi.

The break-up of CIE: Internal Tests+ Assignments + Quizzes

1	No. of Internal Tests:	02	Max. Marks for each Internal Test:	30
2	No. of Assignments:	03	Max. Marks for each Assignment:	05
3	No. of Quizzes:	03	Max. Marks for each Quiz Test:	05

Duration of Internal Test: **1 Hour 30 Minutes**

VASAVI COLLEGE OF ENGINEERING (Autonomous)
IBRAHIMBAGH, HYDERABAD – 500 031
Department of Mechanical Engineering

DISSERTATION - PHASE I / INTERNSHIP
SYLLABUS FOR M.E. (ADM) III-SEMESTER

L:T:P(Hrs./week):0:0:20	SEE Marks: 0	Course Code: PI24PW319ME
Credits : 10	CIE Marks: 100	Duration of SEE: ---

COURSE OBJECTIVE	COURSE OUTCOMES
The objective of this course is to: start with a suitable Dissertation work in consultation with the supervisor in the areas of his/her specialization either in the Institute or Industry.	On completion of the course, the students will be able to: 1. apply and Solve the problems in the relevant field of specialization from the knowledge gained from theoretical and practical courses pursued during the course. 2. develop the capability to conduct investigations on the chosen problem. 3. develop flair for R&D work.

- A research project topic may be selected either from published lists or from the creative ideas of the students themselves in consultation with their project supervisor.
- To improve the student research and development activities.

The CIE marks will be awarded to the students by at least 2 faculty members and the supervisor on the basis of an oral presentation and submission of a progress report.

No. of Presentations for CIE marks	2	Max. Marks for each CIE presentation:	50
Marks are awarded based on synopsis, presentation and write-up using rubrics.			
Duration of Presentation: **20 min**			

VASAVI COLLEGE OF ENGINEERING (Autonomous)

IBRAHIMBAGH, HYDERABAD – 500 031

Department of Mechanical Engineering

Scheme of instruction and examination (R-24)

M.E. (ADM) : FOURTH SEMESTER 2025-26

M.E. (ADM) IV-SEMESTER									
S. No	Course Code	Course Title	Scheme of Instruction			Scheme of Examination			
			Hours per Week			Duration in Hrs	Maximum Marks		Credits
			L	T	P		SEE	CIE	
1	PI24PW419ME	Dissertation - Phase II / Internship	-	-	32	-	Viva-Voce (Grade)		16
		Total	-	-	32				16
		Grand Total	32						16
Students are awarded with two credits for completion of NPTEL online course.									

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IBRAHIMBAGH, HYDERABAD – 500 031

Department of Mechanical Engineering

DISSERTATION - PHASE II / INTERNSHIP

SYLLABUS FOR M.E. (ADM) IV-SEMESTER

L:T:P(Hrs./week):0:0:32	SEE Marks: Viva-voce grade	Course Code: PI24PW419ME
Credits : 16	CIE Marks: Viva-voce grade	Duration of SEE: ---

COURSE OBJECTIVE	COURSE OUTCOMES
The objective of this course is to: complete the Dissertation work in line with the chosen field in the areas of his/her specialization.	On completion of the course, the students will be able to: 1. prepare a thesis with all the findings in the chosen area. 2. present a seminar with all the results during the Viva-voce examination.

The final assessment involves presentation of the dissertation work by the student and the award of the grade by an expert of relevant specialization.

The CIE marks will be awarded to the students by at least 2 faculty members and the supervisor on the basis of an oral presentation and submission of a progress report.

No. of Presentations for CIE marks	2	Max. Marks for each CIE presentation:	50
Marks are awarded based on synopsis, presentation and write-up using rubrics.			
Duration of Presentation: **20 min**			