Marathwada Shikshan Prasarak Mandal's
DEOGIRI INSTITUTE OF ENGINEERING AND MANAGEMENT STUDIES
(An Autonomous Institute)
Affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere, Raigad | B.Tech. | M.Tech.
Affiliated to Dr. Babasaheb Ambedkar Marathwada University, CSN | MBA
Approved by AICTE/UGC-Govt. of India & DTE-Govt. of Maharashtra
Deogiri College Campus, Railway Station Road, Chhatrapati Sambhajinagar- 431 005 (M.S.)
DTE CODE : 2114 0240-2367567, 2367577 www.dietms.org director@dietms.org

Department of Mechanical Engineering

M.TECH (AUTOMOTIVE TECHNOLOGY) PROGRAM STRUCTURE (2025-27)

Course Category			I	II	III	IV	Total Credits
Program Courses	Program Core Course (PCC)	-	12	04	04		24
		MOOC		04			
	Program Elective Course (PEC)		06	06			12
Vocational and Skill Enhancement Courses (VSE)	Seminar		01				02
	PG Lab		01				
Humanities, Social Science and Management (HSSM)	Indian Knowledge System (IKS)			02			02
Experiential Learning Courses (EL)	Research Methodology			03			34
	Mini Project			01			
	Project				10	20	
Open Elective Courses (OE)	Open Elective (OE)				03		03
Multi-Disciplinary Minor Courses (MDM)	Multi-Disciplinary Minor (MDM)				03		03
Liberal Learning Courses (LLC)	Co-Curricular Courses (CC)					AU	Audit
Total Credits			**20**	**20**	**20**	**20**	**80**

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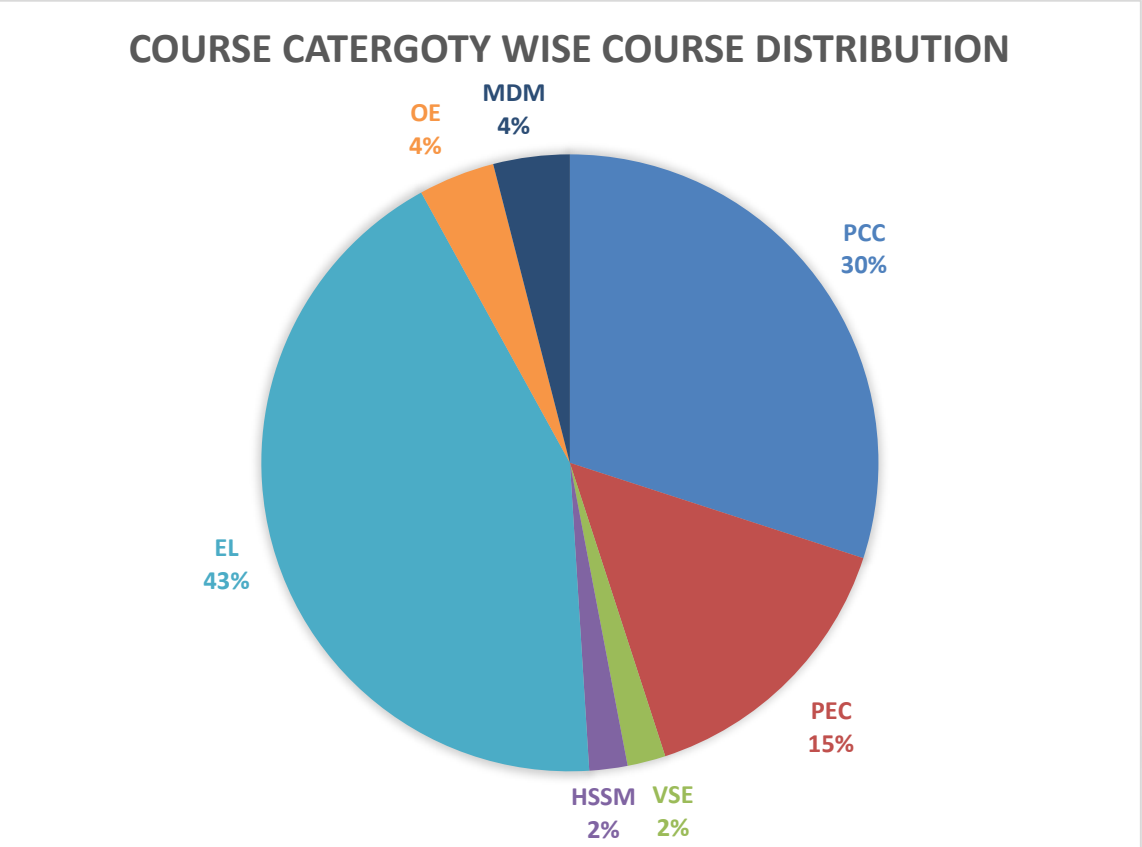
M.Tech in Automotive Technology		
Course Category	**Credits**	**% Credits**
Program Core Courses **(PCC)**	24	30
Program Elective Courses **(PEC)**	12	15
Vocational & Skill Enhancement **(VSE)**	2	2
Humanity, Social Science & Management (AEC, EM, IKS, VEC) HSSM	2	2
Experiential Learning **(EL)**	34	43
Open Electives **(OE)**	3	4
Multi-Disciplinary Minor (MDM)	3	4
Total Credits	**80**	



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SEMESTER I												
Category	Course Code	Name of the Course	Teaching Scheme				Evaluation Scheme					Credits
			L	T	PR	Total	CA-I	CA-II	MSE	ESE	Total	
PCC	PA251001	Automotive Systems	4			4	10	10	20	60	100	4
PCC	PA251002	Vehicle Dynamics	4			4	10	10	20	60	100	4
PCC	PA251003	Automotive Materials	4			4	10	10	20	60	100	4
PEC	PA251101-103	Program Elective I	3			3	10	10	20	60	100	3
PEC	PA251104-106	Program Elective II	3			3	10	10	20	60	100	3
SC-SEC	PA251401	Seminar			2	2	15	15		20	50	1
SC-SEC	PA251402	PG Lab			2	2	15	15		20	50	1
Total			**18**		**4**	**22**					**600**	**20**

SEMESTER II												
Category	Course Code	Name of the Course	Teaching Scheme				Evaluation Scheme					Credits
			L	T	PR	Total	CA-I	CA-II	MSE	ESE	Total	
PCC	PA252004	Advanced Automotive Engine Technology	4			4	10	10	20	60	100	4
PCC	PA252005	MOOC/SWAYAM	4			4	10	10	20	60	100	4
PEC	PA252107-109	Program Elective III	3			3	10	10	20	60	100	3
PEC	PA252110-112	Program Elective IV	3			3	10	10	20	60	100	3
#HSSM-IKS	PG252501	Interdisciplinary Perspective on Indian Science and Technology	2			2	10	10	20	60#	100	2
ELC	PG252601	Research Methodology	3			3	10	10	20	60	100	3
ELC	PA252602	Mini Project			2	2	15	15		20	50	1
Total			**19**		**2**	**21**					**650**	**20**

SEMESTER III												
Category	Course Code	Name of the Course	Teaching Scheme				Evaluation Scheme					Credits
			L	T	PR	Total	CA-I	CA-II	MSE	ESE	Total	
PCC	PA253006	Alternative Fuels and Emissions	4			4	10	10	20	60	100	4
*OE	PA253351	Open Elective	3			3	10	10	20	60	100	3
*MDM	PA253201	Multi-Disciplinary Minor	3			3	10	10	20	60	100	3
ELC	PA253603	Dissertation Part I			10	10	25	25		50	100	10
Total			**10**		**10**	**20**					**400**	**20**

SEMESTER IV												
Category	Course Code	Name of the Course	Teaching Scheme				Evaluation Scheme					Credits
			L	T	PR	Total	CA-I	CA-II	MSE	ESE	Total	
ELC	PA254604	Dissertation Part II			20	20	50	50		100	200	20
CC	PG254701	Communication Skills and Technical Writing	2			2	25	25			AU	AU
Total					**20**	**22**					**200**	**20**

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Program Elective Courses (PEC)

Semester	Course Category	No. of Credits		Course A	Course B	Course C
SEM-I	Program Elective I	3	**Course Code**	PA251101	PA251102	PA251103
			Course	Automotive Electronics	Vehicle Maintenance and Diagnostics	Automotive HVAC
	Program Elective II	3	**Course Code**	PA251104	PA251105	PA251106
			Course	Vehicle Aerodynamics	Finite Element Method	Automotive Safety and Crashworthiness
SEM-II	Program Elective III	3	**Course Code**	PA252107	PA252108	PA252109
			Course	Electric and Hybrid Vehicles	CAD-CAE	Automotive System Design
	Program Elective IV	3	**Course Code**	PA252110	PA252111	PA252112
			Course	Automated Guided Vehicles	Computational Fluid Dynamics	Automotive Testing and Certification

*Courses offered by the Mechanical Engineering department for other department students.

#End semester Evaluation will be done at department level.

Note: OE and MDM Minor courses shall be offered through the SWAYAM/NPTEL online learning platform. The Board of Studies (BoS) shall identify, approve, and recommend the course based on its relevance to the program curriculum, academic quality, and prevailing industry standards.

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Course Title: Alternative Fuels and Emissions **Course Code: PA253006**	**Course Category: PCC**	
Teaching Scheme	**Examination Scheme**	
Lectures: 04 hrs/ week	CA-1	10 Marks
Tutorial: - -	CA-2	10 Marks
Credits: 04	MSE	20 Marks
Semester: Second Year (Semester III)	ESE	60 Marks

Course Prerequisite: Fundamentals of Internal Combustion Engines, Basics of Thermodynamics and Heat Transfer, Knowledge of Automotive Systems and Fuels

Course Description: This course focuses on fuels, their properties, and their impact on automotive engine performance and emissions. It introduces alternative fuels, their preparation, and their use in spark ignition (SI) and compression ignition (CI) engines. Dual fuel engine operations and emission control techniques are explored in depth, along with emission testing methods and regulatory norms. Special emphasis is given to modern strategies like EGR, SCR, catalytic converters, diesel particulate filters, and noise pollution reduction techniques. The course aims to equip students with the knowledge of sustainable automotive fuel technologies and environmental considerations.

Course Objectives:

1. To explain the properties and refining processes of petroleum-based fuels used in IC engines.
2. To study the need, production, and performance of alternative fuels and biodiesels.
3. To describe the principles, modifications, and performance of dual fuel engines.
4. To examine emissions from SI and CI engines, and their impact on the environment.
5. To identify noise pollution sources in vehicles and techniques for noise reduction.

Course Outcomes:

COs	**After completion of the course: Student will be able to**	**Bloom's Level**
CO1	**Explain** the structure, properties, refining process, and combustion characteristics of petroleum fuels used in SI and CI engines.	Remember (Level 1)
CO2	**Explain** the combustion phenomena, engine performance, and emission characteristics in dual-fuel and alternative fuel engines.	Understand (Level 2)
CO3	**Compare** the properties, performance, combustion, and emission characteristics of conventional fuels, alternative fuels, and biodiesels.	Apply (Level 3)
CO4	**Assess** emission formation mechanisms, emission measurement techniques, automotive emission regulations, and emission control methods such as EGR, SCR, catalytic converters, and DPF systems.	Evaluate (Level 4)
CO5	**Identify** sources of automotive noise and apply suitable noise and emission reduction techniques for IC engines and vehicles.	Analyse (Level 5)

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PSO1**	**PSO2**
CO1	3	2			1	1						1	
CO2	3	3	1	1		2							
CO3	3	3	2	2	2								1
CO4	2	3	2	2		3	1					3	2
CO5	2	2	2	1	2	3	1					3	2

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Assessment	
CA-1 (a)	Subjective Test / Open book test / etc
CA-2 (b)	Model Making / Assignment / Presentation / etc
MSE (c)	Subjective Test
ESE (d)	End Semester Exam

Course Contents		
Unit 1	**Fuels and its Properties:** Introduction to Petroleum Fuels, Structure of Petroleum, Refining Processes and Products of Refining; Fuels for Spark Ignition (SI) and Compression Ignition (CI) Engines; Knock Rating of SI Engine Fuels, Octane Number Requirement, Octane Number, Performance Number, Cetane Number, Physical and Chemical Properties of Fuels; Emulsification, Oxidation Stability, Acid Value/Acid Number, Distillation Range, and Sulphur Content of Fuels .	6 Hours
Unit 2	**Alternative Fuels:** Need for Alternative Fuels Such as Ethanol, Methanol, LPG, CNG, Hydrogen, Biogas, and Producer Gas; Manufacturing Methods and Properties of Alternative Fuels; Biodiesel: Need, Production Methods, Properties, Performance, Combustion, and Emission Characteristics of Biodiesel Compared with Conventional Petrol and Diesel Fuels.	6 Hours
Unit 3	**Dual Fuel Engines:** Need, Advantages, and Working Principle of Dual Fuel Engines; Combustion Phenomena and Factors Affecting Combustion in Dual Fuel Engines; Application of Alcohols, LPG, CNG, Hydrogen, Biogas, and Producer Gas in CI Engines Operating in Dual Fuel Mode; Engine Modifications Required for Dual Fuel Operation; Comparative Analysis of Performance and Emission Characteristics of Alternative Fuels in Dual Fuel Mode with Conventional Diesel Operation.	6 Hours
Unit 4	**Emissions from SI and CI Engines:** NOx Formation Kinetics in SI and CI Engines, CO and Particulate Matter Formation, Flame Quenching, Oxidation Processes, Types of Smoke and Their Ecological Effects, Bharat Stage Emission Norms, NOx-HC Trade-Off, Measurement Techniques: NDIR (CO, CO2), FID (HC), Chemiluminescent Detectors (NOx), Smoke Meters, Dilution Tunnel Technique, Emission Test Cycles.	6 Hours
Unit 5	**Emission Control Techniques** Exhaust Gas Recirculation (EGR), Selective Catalytic Reduction (SCR), Urea Dosing Systems, NOx Adsorbers, Catalytic Converters, Diesel Oxidation Catalyst (DOC), Diesel Particulate Filter (DPF), Lean Burn Strategies, and Combustion Temperature Control Techniques for Emission Reduction. .	6 Hours
Unit 6	**Automotive Noise and Control:** Sources of Automotive Noise Include Engine Noise, Transmission Noise, Aerodynamic Noise, Exhaust Noise, and Structural Noise; Techniques for Automotive Noise Reduction Such as Encapsulation, Silencer Design, and Damping Materials; Noise Pollution Standards, Norms, and Regulations Related to Automotive Applications. .	6 Hours

Text Books	
1.	John B Heywood, "Internal Combustion Engine Fundamentals", (2011), McGraw Hill Education.
2	V. Ganesan, "Internal Combustion Engine", (2012), 4th Edition, McGraw Hill Education.
3	James D Halderman, "Automotive Fuel and Emissions Control Systems", (2015), Prentice Hall, 4th Edition.

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4	H.N.Gupta "Fundamentals of IC engine", Prentice Hall, 2nd edition.
Reference Books	
1	R. K. Rajput, Thermal Engineering, Laxmi Publications.
2	Obert, Internal Combustion Engines and Air Pollution, Harper and Row.
3	Bosch Automotive Handbook, SAE International.
4	Heywood, J.B., Internal Combustion Engine Fundamentals, McGraw-Hill.

Web Resources	
1	Prof. N. K. Giri, Alternative Fuels and Combustion, NPTEL - Indian Institute of Technology Guwahati (https://nptel.ac.in/courses/112103262)
2	Prof. Jayanta Kumar Basu & Prof. Sonali Sengupta, IIT Kharagpur – NPTEL: Fuel and Combustion Technology (https://nptel.ac.in/courses/103105110)
3	Prof. V. Raghavan, IIT Madras – NPTEL: Fundamentals of Combustion (http://onlinecourses.nptel.ac.in/e-learning/preview/noc25_me29)

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Course Title: Open Elective **Course Code: PA253351**		**Course Category: OE**
Teaching Scheme	**Examination Scheme**	
Lectures: 03 hrs/ week	CA-1	10 Marks
Tutorial: -----	CA-2	10 Marks
Credits: 03	MSE	20 Marks
Semester: Second Year (Semester III)	ESE	60 Marks
Course Description: This course shall be offered through the MOOC/SWAYAM/NPTEL online learning platform. The Board of Studies (BoS) shall identify, approve, and recommend the course based on its relevance to the program curriculum, academic quality, and prevailing industry standards.		

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Course Title: Multi-Disciplinary Minor **Course Code: PA253201**		**Course Category: MDM**
Teaching Scheme	**Examination Scheme**	
Lectures: 03 hrs/ week	CA-1	10 Marks
Tutorial: -----	CA-2	10 Marks
Credits: 03	MSE	20 Marks
Semester: Second Year (Semester III)	ESE	60 Marks
Course Description: This course shall be offered through the MOOC/SWAYAM/NPTEL online learning platform. The Board of Studies (BoS) shall identify, approve, and recommend the course based on its relevance to the program curriculum, academic quality, and prevailing industry standards.		

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Course Title: Dissertation Part I **Course Code: PA253603**		**Course Category: ELC**
Teaching Scheme	**Examination Scheme (As Applicable)**	
Practicals/Sessions: 10 Hours/Week	CA-I	25 Marks
Credits: 10	CA-II	25 Marks
Semester: Second Year (Semester III)	ESE	50 Marks

Course Prerequisite:

- Advanced understanding of core domain subjects within the specific engineering specialization.
- Competency in scientific literature review, technical documentation, and basic research methodologies.

Course Description:

Dissertation Part I initiates the final M.Tech dissertation, transitioning students into independent, advanced engineering research. Applicable across all engineering disciplines, this course requires students to identify a substantial technical, industrial, or scientific problem. Students will progress through an exhaustive literature survey, formulate a robust methodology, and execute the initial stages of their research—such as pilot experiments, baseline simulations, algorithm development, or software proofs-of-concept. The course emphasizes professional research practices, culminating in the drafting of a formal review article and a scalable project plan to be fully executed in Dissertation Part II.

Course Objectives:

1. To develop the ability to identify and formulate a complex, real-world engineering problem relevant to the student's specialization.
2. To conduct an exhaustive literature survey to establish a clear research gap and synthesize findings into a comprehensive review article.
3. To design a preliminary methodology to validate the feasibility of the proposed solution through pilot experiments, baseline simulations, or architectural proof-of-concepts.
4. To strengthen professional project management skills, emphasizing ethical research practices and structured milestone planning.
5. To enhance high-level technical communication through the defence of a project proposal, documented validation results, and formal report writing.

Course Outcomes:

COs	**After completion of the course:** **Students will be able to**	**Bloom's Level**
CO1	**Summarize** the current state-of-the-art and contextualize the specific engineering research problem using relevant scientific literature.	L2
CO2	**Implement** professional project management principles and ethical standards to construct a structured, actionable research execution plan.	L3
CO3	**Investigate** synthesized literature to pinpoint precise research gaps and systematically structure a comprehensive review article.	L4
CO4	**Validate** the feasibility of the proposed methodology by conducting and assessing initial pilot experiments, baseline numerical simulations, or algorithmic proof-of-concepts.	L5
CO5	**Design** a detailed research methodology and engineer the experimental, computational, or software architecture required for full-scale execution.	L6
CO6	**Compile** a formal technical report and logically defend the research proposal and preliminary validation data before an expert review committee.	L6

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CO-PO Mapping

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	2	3		1				1	1		2		
CO2							3	2	1	3	1		
CO3	2	3		2			1	1	3		2		
CO4	3	2	1	3	3			2	1		1		
CO5	3	2	3	3	3			2	1		1		
CO6								2	3		2		

Course Contents
Dissertation Part I is dedicated to rigorous problem formulation, literature synthesis, and the critical initial stages of methodology validation. Students must select a research topic with significant academic or industrial relevance within their branch of engineering. During this phase, students are required to: 1. Finalize their problem statement and complete a thorough literature review. 2. Write and submit at least one review article based on their literature survey, intended for publication in a peer-reviewed journal or presentation at a conference. 3. Advance their research to the initial stages of experimentation, computational modeling, or system development. This includes completing pilot experiments, proof-of-concept software testing, baseline model setups, algorithm optimization checks, or preliminary analytical validation to prove their proposed solution is viable. By the end of Semester-III, each student must submit a formal Dissertation Part I Report (inclusive of the review article draft and preliminary validation data) to the Head of the Department, authenticated by their designated faculty guide.

Assessment	
The Dissertation Part I course is worth a total of 100 marks, distributed as 50 marks for continuous internal assessment and 50 marks for the semester-end examination. Evaluation will be conducted by a committee consisting of the project guide and relevant faculty/industry experts.	
CA-I (a)	Review-I: 25 Marks (Problem Identification (05), Literature Survey (10), & Proposed Methodology & Execution Plan (10))
CA-II (b)	Review-II: 25 Marks (Pilot Experiments / Baseline Validation for Numerical Work (25))
ESE (c)	50 Marks (Final Dissertation Part I Report (15), Review Article Draft (15), & Technical Presentation/Defense (20))
Total	100 Marks

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Course Title: Dissertation Part II **Course Code: PA253603**		**Course Category: ELC**
Teaching Scheme	**Examination Scheme (As Applicable)**	
Practicals/Sessions: 10 Hours/Week	CA-I	50 Marks
Credits: 10	CA-II	50 Marks
Semester: Second Year (Semester III)	ESE	100 Marks

Course Prerequisite: Successful completion of Dissertation Part I

Academic Clearance: To appear for the End Semester Examination (ESE), a student must be "all-clear." No active backlogs from previous semesters are permitted.

Course Description:

Dissertation Part II represents the culmination of the M.Tech dissertation, focusing on the full-scale execution, comprehensive analysis, and dissemination of the independent engineering research initiated in Dissertation Part I. This course requires students to fully implement their validated methodology, whether experimental, computational, analytical, algorithmic, or architectural. The primary focus is on the rigorous extraction of data, statistical or error validation, logical interpretation of results, and the synthesis of these findings into a substantial master's thesis. Furthermore, students must navigate the academic publication process and defend their work before departmental committees to ensure their research meets established industrial and academic standards.

Course Objectives:

1. To guide the complete execution of the proposed research methodology to gather extensive, high-quality data.
2. To ensure rigorous analytical processing and interpretation of the collected experimental, computational, or algorithmic results.
3. To foster the ability to benchmark and validate final findings against existing literature or theoretical models.
4. To develop advanced technical writing skills for the synthesis of a comprehensive master's dissertation.
5. To emphasize the academic publication process by requiring the formulation of complete research manuscripts for journals or conferences.
6. To enhance professional oral defense capabilities through presentations to the departmental committee and external reviewers.

Course Outcomes:

COs	**After completion of the course:** **Students will be able to**	**Bloom's Level**
CO1	**Execute** the comprehensive experimental, analytical, or computational plan while adhering strictly to ethical and safety protocols.	Apply (Level 3)
CO2	**Analyze** the raw research data systematically to extract meaningful trends, correlations, and engineering conclusions.	Analyze (Level 4)
CO3	**Validate** the overall research outcomes by benchmarking the findings against standard theoretical models, contemporary literature, or baseline systems.	Evaluate (Level 5)
CO4	**Compose** a rigorously formatted final master's dissertation detailing the complete research methodology, findings, and conclusions.	Create (Level 6)
CO5	**Defend** the entirety of the research methodology, data analysis, and final conclusions confidently before the expert evaluation panel.	Create (Level 6)
CO6	**Author and publish** a review article and at least one original research paper in a department-approved peer-reviewed journal or high-impact conference.	Create (Level 6)

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CO-PO Mapping

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	2		3	3	3	2	3	2		2	1		
CO2	3	3		3	3			1	1		1		
CO3	3	3	1	3	2			1	2		2		
CO4	1	1		1			1	2	3		2		
CO5							1	2	3		2		
CO6	1	2		2			3	1	3		3		

Course Contents
Dissertation Part II is entirely dedicated to data generation, final analysis, formal academic documentation, and dissemination. During this final phase, students are required to: • Full-Scale Execution: Complete the entirety of the physical experiments, field studies, numerical simulations, or system/software developments outlined in Dissertation Part I. • Results & Discussion: Perform a rigorous scientific analysis of the acquired data, including necessary error analyses, optimization, and comparative studies. • Publication Mandate: It is compulsory to publish a review article (originating from Dissertation Part I) and at least one original research paper based on Dissertation Part II findings in a department-approved peer-reviewed journal or high-impact conference. Note: If a student fails to publish the review article during Dissertation Part I, the publication of two original research papers based on their dissertation work is compulsory to fulfill this requirement. Dissertation Compilation: Draft the final M.Tech thesis document, adhering to the institutional formatting guidelines, covering all aspects from the introduction and literature review to the methodology, results, and final conclusions.

Assessment	
The Dissertation Part II course is worth a Total of 200 Marks. The evaluation incorporates continuous assessment by the guide, a mandatory departmental screening, and a rigorous final defence. **Pre-ESE Requirement (DPAC Approval):** Before appearing for the End Semester Examination (final defence), students must deliver a comprehensive presentation before the Departmental Postgraduate Academic Committee (DPAC). Approval from the DPAC is mandatory to be eligible for the ESE.	
CA-I (a)	Review-I: 50 Marks (Execution of Full-Scale Methodology (25) & Initial Data Collection/Simulation Runs (25))
CA-II (b)	Review-II: 50 Marks (Comprehensive Data Analysis & Validation (25) & Draft of Dissertation/Manuscripts (25))
ESE (c)	100 Marks (Final Plagiarism-Free Dissertation (30), Proof of Required Publications (30), & Final Oral Defense/Presentation (40))
Total	200 Marks

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Course Title: Communication Skills and Technical Writing **Course Code: PG254701**		**Course Category: CC**
Teaching Scheme	**Examination Scheme**	
Lectures: 02 hrs/week	CA-1	25 Marks
Tutorial: -	CA-2	25 Marks
Credits: Audit	MSE	-
Semester: Second Year (Semester IV)	ESE	-
Course Prerequisite: Basic English Communication		
Course Description: This course equips students with the advanced communication and technical writing skills essential for both academic research and professional industry roles. The curriculum spans fundamental communication principles, professional business correspondence, and strategic job-seeking methods. Emphasizing rigorous scholarly standards, the course provides focused training in drafting research proposals, authoring journal papers, structuring theses, and compiling technical reports. Furthermore, students will develop practical proficiency in delivering formal academic presentations, utilizing visual aids, and participating in professional group discussions, ensuring a seamless transition from the academic environment into high-level engineering workplaces.		
Course Objectives: 1. To introduce foundational business correspondence and interpersonal communication methods, establishing a baseline for effective workplace dynamics and professional collaboration. 2. To explain the principles of academic and technical writing, focusing on the structured composition of research proposals, theses, and industry-standard reports. 3. To impart practical techniques for technical presentations and job-seeking processes, preparing postgraduates for advanced engineering roles and seamless industry integration.		

Course Outcomes:		
COs	**After completion of the course:** **Students will be able to**	**Bloom's Level**
CO1	**Identify** the fundamental principles, standard formats, and structural components of interpersonal communication, business correspondence, employment documentation, academic research papers, and technical presentations.	Remember (Level 1)
CO2	**Discuss** the audience expectations, contextual barriers, and theoretical frameworks necessary for effective general workplace communication, business correspondence, career development, academic research, and technical presentations.	Understand (Level 2)
CO3	**Demonstrate** professional linguistic styles, drafting conventions, and delivery techniques to execute effective general workplace communication, business correspondence, career development, academic research, and technical presentations.	Apply (Level 3)
CO4	**Examine** diverse contextual scenarios, target audiences, and objective requirements to determine the most appropriate strategies for general workplace communication, business correspondence, career development, academic research, and technical presentations.	Analyze (Level 4)

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CO-PO Mapping

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1									3				
CO2									3				
CO3					1		1		3		1		
CO4					1		1		3		1		

Assessment	
CA-1 (a)	Résumé Writiing/Subjective Test / Assignment/ MCQ Test, etc.
CA-2 (b)	Literature Review/ Subjective Test / Assignment/ MCQ Test, etc.
MSE (c)	-
ESE (d)	-
Practical (e)	-

Course Contents		
Unit 1	**General Communication** Basics of Communication, Process of Communication: Levels of Communication; Flow of Communication, Barriers to Communication: Physical Barriers; Psychological Barriers; Cultural Barriers, Non-Verbal Communication: Kinesics; Proxemics, Listening and Speaking: Active Listening; Effective Speaking	4 Hours
Unit 2	**Business Communication** Formats of Written Correspondence: Formal Letters; Memos; Email, Business Letters: Credit Letters; Collection Letters; Sales Letters, Business Memos: Structure; Layout; Writing Strategies, Electronic Mail: Style; Structure; Email Etiquette	4 Hours
Unit 3	**Job Getting Processes** Employment Communication: Importance; Interview Preparation Techniques, Interview Stages: Face-To-Face Interviews; Online/Telephonic Interviews, Interview Conduct: Answering Strategies; Projecting A Positive Image, Résumé Design: Structure; Types of Résumés, Cover Letters: Structure; Writing Effective Job Application Letters	4 Hours
Unit 4	**Research Communication I (Proposals & Papers)** Research Proposals: Structure of Formal Proposals; Body of The Proposal, Research Papers: Characteristics; Components of A Journal Paper, Drafting The Manuscript: Developing Productive Drafting Habits; Integrating Quotations Into Your Text; Interpreting Complex Or Detailed Evidence, Elements of Effective Writing: Using Concrete And Specific Words; Avoiding Excessive Use of Jargons, Revising And Finalizing: Checking For Blind Spots In Your Argument; Revising Sentences; Proofreading	4 Hours
Unit 5	**Research Communication II (Thesis, Reports, & Citations)** Thesis Structuring: The Core Chapter; Writing A Literature Review, Technical Reports: Informative Reports; Analytical Reports, Drafting Reports: Writing the Draft; Guarding Against Inadvertent Plagiarism, Referencing Methods: Notes-Bibliography Style; Author-Date Style, Visual Evidence: Designing Tables; Designing Figures	4 Hours
Unit 6	**Presentation Skills** Formal Presentations: Planning; Outlining; Structuring, Delivery Techniques: Controlling Nervousness; Using Visual Aids Like Ms PowerPoint, Group Discussions: Promoting Optimal Participation; Handling Conflict, Alternative Forums: Poster Presentations; Conference Proposals, Seminars: Seminar Presentation; Conference Presentation	4 Hours

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Sr. No.	Textbooks
1.	Meenakshi Raman and Sangeeta Sharma, Technical Communication: Principles and Practice, Oxford University Press.
2.	M. Ashraf Rizvi, Effective Technical Communication, McGraw-Hill Education.
3.	Heather Silyn-Roberts, Writing for Science and Engineering: Papers, Presentations and Reports, Elsevier.
	Reference Books
1.	Kate L. Turabian, A Manual for Writers of Research Papers, Theses, and Dissertations, University of Chicago Press.
2.	Wayne C. Booth, Gregory G. Colomb, and Joseph M. Williams, The Craft of Research, University of Chicago Press.
3.	Michael Alley, The Craft of Scientific Presentations, Springer.
	Web Resources
1.	Purdue Online Writing Lab (OWL) (https://owl.purdue.edu/owl/index.html)

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