



ARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(AN AUTONOMOUS INSTITUTION)

(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)

Accredited by NAAC with 'A' Grade & Recognized Under Section 2(f) & 12(B) of the UGC act, 1956


CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.
Course Name : Advanced CAD
Course Code : 2014001
Course Coordinator : DR. JANI S P

Year / Sem : I-I
Academic Year : 2021-2022
Regulation : MLRS-R20
Section : CAD/CAM-A/

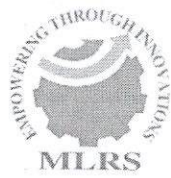
Course Outcome	CO-Statement	CIE + SEE(a)	CES (d)	Final CO Attained	Target	Remarks
1	Demonstrate fundamental concepts of computer graphics, and geometric transformations in 2D and 3D modeling.	2.30	3.00	2.44	2.10	Attained
2	Develop and modify analytical and synthetic curves and surfaces for geometric modeling applications.	2.30	2.00	2.24	2.10	Attained
3	Apply NURBS and solid modeling techniques to construct complex 3D parts using standard geometric representations.	2.70	3.00	2.76	2.10	Attained
4	Integrate visual realism through rendering algorithms and create parametric and variational models using CAD tools.	2.00	2.00	2.00	2.10	Not Attained
5	Evaluate assembly constraints, analyze mechanical interferences and utilize standard data exchange formats for effective product design communication.	2.40	3.00	2.52	2.10	Attained
		Final CO		2.39	2.10	Attained

Action Taken: 1. Special attention will be given to rendering algorithms, parametric modeling, and variational modeling through additional classes,
2. Assignment-based learning activities on rendering, shading, and parametric design will be conducted


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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.

Course Name : Advanced CAM

Course Code : 2014002

Course Coordinator : DR. GURRAM SURYA PRAKASH RAO

Year / Sem : I-I

Academic Year : 2021-2022

Regulation : MLRS-R20

Section : CAD/CAM-A/

Course Outcome	CO-Statement	CIE + SEE(a)	CES (d)	Final CO Attained	Target	Remarks
1	Develop APT and CAD/CAM-based NC programs for 2D machining operations, including post-processor design and implementation.	2.70	2.00	2.56	1.95	Attained
2	Demonstrate knowledge of CNC tooling systems, quick-change setups, and adaptive control strategies for enhanced machining automation.	2.30	3.00	2.44	1.95	Attained
3	Design and evaluating post-processors for CNC applications including communication handling and variable management in DAPP-based systems.	2.70	2.00	2.56	1.95	Attained
4	Interpret and implementing microcontroller and PLC hardware and software concepts for real-time control in manufacturing systems.	2.30	2.00	2.24	1.95	Attained
5	Integrate computer-aided process planning and intelligent inspection systems using CMM, AI, and expert systems to ensure product quality and automation.	2.00	3.00	2.20	1.95	Attained
		Final CO		2.40	1.95	Attained

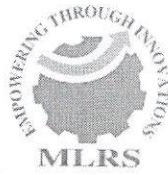
Action Taken: 1. Additional practice in APT programming, CAD/CAM-based NC programming, will be continued to strengthen practical skills. 2. More industrial case studies, demonstrations, and hands-on exercises on CNC tooling systems. 3. Additional laboratory sessions, assignments, and mini-projects on CAPP, CMM inspection.


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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.
Course Name: Computer Aided Processes Planning
Course Code: 2014012
Course Coordinator: DR. SRAVANTHI KUNDURU


Year / Sem : I-I
Academic Year : 2021-2022
Regulation : MLRS-R20
Section : CAD/CAM-A/

Course Outcome	CO-Statement	CIE + SEE(a)	CES (d)	Final CO Attained	Target	Remarks
1	Describe the significance of process planning within manufacturing systems and its integration with CAPP and concurrent engineering principles.	2.70	3.00	2.76	2.10	Attained
2	Utilize CAD data, geometric modeling, and GT coding systems for effective part design representation and process planning.	2.30	2.00	2.24	2.10	Attained
3	Develop process plans using experience-based, variant, and generative methodologies supported by decision-making tools and process analysis.	2.00	3.00	2.20	2.10	Attained
4	Evaluate existing CAPP systems, their logical design implementation considerations, and applicability across manufacturing environments.	2.30	2.00	2.24	2.10	Attained
5	Construct an integrated or expert process planning framework incorporating data structures, modular design, and automated documentation.	2.30	3.00	2.44	2.10	Attained
		Final CO		2.38	2.10	Attained

Action Taken: 1. Additional practice in process planning concepts, CAPP applications, and concurrent engineering will be continued to strengthen conceptual understanding. 2. More hands-on exercises on CAD data utilization, geometric modeling, GT coding, to improve practical application skills
3. Additional case studies, assignments, and mini-projects on CAPP system evaluation


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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.
Course Name : Additive Manufacturing Technologies
Course Code : 2014016
Course Coordinator : SUNIL CHINTHA


Year / Sem : I-I
Academic Year : 2021-2022
Regulation : MLRS-R20
Section : CAD/CAM-A/

Course Outcome	CO-Statement	CIE + SEE(a)	CES (d)	Final CO Attained	Target	Remarks
1	Understand the need, evolution, and classification of rapid prototyping processes and their role in digital and rapid product development.	2.70	2.00	2.56	2.25	Attained
2	Demonstrate knowledge of liquid-based additive manufacturing technologies (SLA, SGC), including principles of photopolymerization and layering methods.	2.30	3.00	2.44	2.25	Attained
3	Examine solid-based AM systems (LOM, FDM) by comparing process techniques, machine models, and industrial case studies.	2.70	3.00	2.76	2.25	Attained
4	Evaluate powder-based AM processes (SLS, LENS) with emphasis on material compatibility, precision, and production feasibility.	1.60	3.00	1.88	2.25	Not Attained
5	Assess emerging RP technologies such as 3DP, SDM, SLM, and EBM in terms of their applications in rapid manufacturing and tooling.	2.30	2.00	2.24	2.25	Not Attained
Final CO				2.38	2.25	Attained

Action Taken: 1. Additional case studies on rapid prototyping processes and additive manufacturing applications. 2 More hands-on demonstrations and comparative analysis of liquid-based and solid-based AM systems will be incorporated to strengthen practical understanding 3 Focused assignments, and additional problem-solving sessions on powder-based AM processes such as Selective Laser Sintering


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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.
Course Name : ADVANCED COMPUTER AIDED DESIGN LAB
Course Code : 2014040
Course Coordinator : SRIDEVI CHAGANTIPATI


Year / Sem : I-I
Academic Year : 2021-2022
Regulation : MLRS-R20
Section : A/

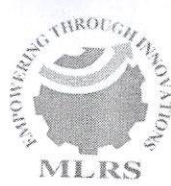
Course Outcome	CO-Statement	CIE + SEE(a)	CES (d)	Final CO Attained	Target	Remarks
1	Develop 3D parts from 2D profiles using CAD tools	3.00	3.00	3.00	2.70	Attained
2	Model complex machine components using part and assembly module features.	3.00	2.00	2.80	2.70	Attained
3	Analyse FEA analysis on trusses, beams, and composite components to determine deflections and stresses.	3.00	2.00	2.80	2.70	Attained
4	Evaluate the structural behaviour and performance of mechanical components.	3.00	2.00	2.80	2.70	Attained
5	Examine the performance of mechanical components through dynamic and thermal analyses	3.00	3.00	3.00	2.70	Attained
Final CO				2.88	2.70	2.70

Action Taken: 1. Given additional assembly modeling tasks involving constraints and feature-based design. 2. Maintained analytical and simulation-based evaluations of mechanical components. 3. Strengthened understanding through validation of analytical and simulation results.


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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.
Course Name: ADVANCED COMPUTER AIDED MANUFACTURING LAB
Course Code: 2014041
Course Coordinator: P. SATYA KRISHNA


Year / Sem : I-I
Academic Year: 2021-2022
Regulation: MLRS-R20
Section: A/

Course Outcome	CO-Statement	CIE + SEE(a)	CES (d)	Final CO Attained	Target	Remarks
1	Develop CNC part programs and simulate tool paths for various turning operations to ensure machining accuracy.	3.00	3.00	3.00	2.70	Attained
2	Generate CNC programs for milling operations such as face, slot, pocket, thread, and profile milling using CAM software.	3.00	3.00	3.00	2.70	Attained
3	Demonstrate setup, operation, and parameter selection on CNC turning and milling machines to achieve optimal machining performance.	3.00	3.00	3.00	2.70	Attained
4	Evaluate machined components for dimensional accuracy, surface finish, and geometric conformity using simulation and inspection tools.	3.00	3.00	3.00	2.70	Attained
5	Simulate robotic pick-and-place operations using AristoSim software for automation integration.	3.00	2.00	2.80	2.70	Attained
Final CO				2.96	2.70	

Action Taken: 1. Continue hands-on CNC programming exercises and introduce advanced turning cycles and industrial case studies to further strengthen programming skills 2. Maintain current teaching practices and incorporate complex milling projects involving multi-feature components and CAM optimization techniques. 3. Enhance Learning through integration of robotic simulation with automation projects.


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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.

Course Name : Research Methodology and IPR

Course Code : 2015502

Course Coordinator: Mr. SATYANARAYANA

Year / Sem : I-I

Academic Year : 2021-2022

Regulation : MLRS-R20

Section : CAD/CAM-A/

Course Outcome	CO-Statement	CIE + SEE(a)	CES (d)	Final CO Attained	Target	Remarks
1	Identify appropriate research problems by understanding their characteristics, scope, and investigative approaches.	2.30	2.00	2.24	2.10	Attained
2	Apply ethical principles in literature review, plagiarism prevention, and research practices.	2.30	3.00	2.44	2.10	Attained
3	Develop effective research proposals and technical reports using proper structure, formatting, and presentation techniques.	2.30	2.00	2.24	2.10	Attained
4	Understand the procedures related to Intellectual Property Rights (IPR), including patents, copyrights, trademarks, and designs.	2.30	3.00	2.44	2.10	Attained
5	Analyse the application of patent rights, licensing, and recent developments in IPR across diverse fields such as biotechnology and software.	1.60	3.00	1.88	2.10	Not Attained
Final CO				2.25	2.10	Attained

Action Taken: 1. The current teaching methodology will be continued with additional exercises on research problem identification, literature review, and technical report writing. 2. More case studies and classroom discussions on research ethics, plagiarism prevention, and intellectual property rights will be incorporated to strengthen application-oriented understanding. 3. Focused assignments, recent patent case analyses, and sessions on patent rights, licensing, and IPR applications will be conducted to improve attainment.

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CO ATTAINMENT ACTION TAKEN REPORT

Program: M.Tech.
Course Name: ENGLISH FOR RESEARCH PAPER WRITING
Course Code: 2015508
Course Coordinator: DR. S.P. JANI

Year / Sem : I-I
Academic Year : 2021-2022
Regulation : MLRS-R20
Section : A/

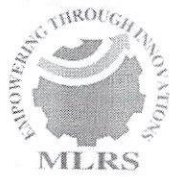
Course Outcome	CO-Statement	CIE + SEE(a)	CES (d)	Final CO Attained	Target	Remarks
1	Apply principles of clarity and conciseness to structure sentences and paragraphs effectively	3.00	3.00	3.00	2.70	Attained
2	Analyze different sections of a research paper in understanding their purpose and construction.	3.00	3.00	3.00	2.70	Attained
3	Evaluate research findings and arguments using appropriate hedging, critical language, and paraphrasing techniques to avoid plagiarism.	3.00	3.00	3.00	2.70	Attained
4	Create well-structured sections of a research paper by applying appropriate academic writing skills.	3.00	3.00	3.00	2.70	Attained
5	Make use of standard academic phrases and editing techniques to prepare a research paper that meets the criteria for first-time submission.	3.00	2.00	2.80	2.70	Attained
		Final CO		2.96	2.70	

Action Taken: 1. Continued emphasis on sentence construction exercises and paragraph organization tasks. 2. Encouraged section-wise breakdown and discussion of published articles. 3. Continued practice sessions on paraphrasing, summarizing, and plagiarism avoidance.


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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.
Course Name : Advanced Finite Element Methods
Course Code : 2024003
Course Coordinator: DR. SRAVANTHI KUNDURU


Year / Sem : I-II
Academic Year : 2021-2022
Regulation : MLRS-R20
Section : CAD/CAM - A/

Course Outcome	CO-Statement	CIE + SEE(a)	CES (d)	Final CO Attained	Target	Remarks
1	Describe the basic principles, mathematical foundations, and advantages of FEM over traditional analytical and numerical methods.	2.30	2.00	2.24	2.10	Attained
2	Make use of shape functions to obtain the stiffness matrix in determining stresses and strains for bars, truss and beam.	3.00	2.00	2.80	2.10	Attained
3	Formulate and analyzing 2D solid elements using isoparametric mapping and Jacobian transformation.	2.30	3.00	2.44	2.10	Attained
4	Solve steady-state and transient heat conduction problems using finite element techniques.	2.30	2.00	2.24	2.10	Attained
5	Perform dynamic finite element analysis in determining eigenvalues, eigenvectors, and mode shapes for mechanical systems.	2.30	2.00	2.24	2.10	Attained
Final CO				2.39	2.10	Attained

Action Taken: 1. Continued with additional problem-solving practice on FEM fundamentals, element formulation, and engineering applications. 2. More numerical exercises on iso parametric mapping, and heat conduction analysis will be incorporated to strengthen analytical skills. 3. Additional assignments and software-based practice on dynamic finite element analysis,


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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.
Course Name : Modeling and Simulation of Manufacturing Systems
Course Code : 2024004
Course Coordinator : DR. JANI S P

Year / Sem : I-II
Academic Year : 2021-2022
Regulation : MLRS-R20
Section : CAD/CAM - A/

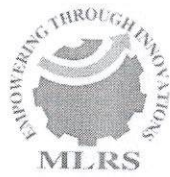
Course Outcome	CO-Statement	CIE + SEE(a)	CES (d)	Final CO Attained	Target	Remarks
1	Understand the fundamental concepts of systems, models, and simulation techniques, including estimation and confidence intervals.	3.00	2.00	2.80	1.95	Attained
2	Develop and validate simulation models using appropriate verification and credibility testing methods with suitable statistical procedures.	2.30	2.00	2.24	1.95	Attained
3	Generate and evaluating random variates using different methods and selecting appropriate simulation languages or tools.	1.60	3.00	1.88	1.95	Not Attained
4	Analyze simulation output data using techniques such as warm-up period adjustment, replication, and steady-state analysis.	3.00	3.00	3.00	1.95	Attained
5	Apply simulation techniques to practical systems such as queuing models, inventory systems, and manufacturing processes.	2.30	3.00	2.44	1.95	Attained
Final CO				2.47	1.95	Attained

Action Taken: 1. Teaching methodology will be continued with additional practice on system modeling, simulation concepts, and output analysis techniques.
2. More case studies and hands-on exercises on simulation model development, verification, validation, will be incorporated to strengthen practical understanding.
3. Focused assignments, and additional laboratory practice on random variate generation methods and simulation tools will be conducted to improve attainment.


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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.
Course Name : Advanced Manufacturing Processes
Course Code : 2024018
Course Coordinator: SUNIL CHINTHA

Year / Sem : I-II
Academic Year : 2021-2022
Regulation : MLRS-R20
Section : CAD/CAM - A/

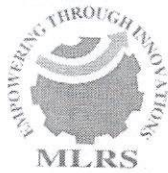
Course Outcome	CO-Statement	CIE + SEE(a)	CES (d)	Final CO Attained	Target	Remarks
1	Understand the principles, mechanisms, and process parameters of mechanical, chemical, and electrochemical micro machining techniques.	2.30	2.00	2.24	2.10	Attained
2	Analyze beam energy-based micromachining methods and hybrid processes for precision material removal.	3.00	2.00	2.80	2.10	Attained
3	Examine nano-finishing techniques to achieve high surface quality and dimensional accuracy in micro/nano components.	3.00	2.00	2.80	2.10	Attained
4	Apply micro forming and welding processes for advanced micro-manufacturing and surface structuring.	3.00	2.00	2.80	2.10	Attained
5	Evaluate recent trends, metrology techniques, and applications in micro/nano machining including ductile regime machining and tool wear compensation.	2.30	2.00	2.24	2.10	Attained
Final CO				2.58	2.10	Attained

Action Taken: 1. Present teaching methodology will be continued with additional practice on micromachining principles, process parameters, and material removal mechanisms. 2. More case studies and application-oriented discussions on beam energy-based machining, hybrid processes, and nano-finishing techniques will be incorporated to strengthen analytical understanding. 3. Additional assignments and demonstrations on recent trends in micro/nano machining will be conducted to further enhance attainment.


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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.

Course Name : Metrology and Non-Destructive Testing

Course Code : 2024021

Course Coordinator : DR. GURRAM SURYA PRAKASH RAO

Year / Sem : I-II

Academic Year : 2021-2022

Regulation : MLRS-R20

Section : CAD/CAM - A/

Course Outcome	CO-Statement	CIE + SEE(a)	CES (d)	Final CO Attained	Target	Remarks
1	Understand the working principles and applications of modern measuring machines and machine vision systems in metrology.	3.00	2.00	2.80	2.25	Attained
2	Apply statistical quality control methods for quality improvement in manufacturing processes.	2.30	3.00	2.44	2.25	Attained
3	Analyze liquid penetrant and magnetic particle testing methods for surface and near-surface defect detection.	2.30	3.00	2.44	2.25	Attained
4	Evaluate radiographic testing techniques including X-ray sources, film properties, and contrast for internal defect detection.	2.30	2.00	2.24	2.25	Not Attained
5	Inspect ultrasonic and acoustic emission techniques for the detection and characterization of flaws in materials.	2.30	3.00	2.44	2.25	Attained
Final CO				2.47	2.25	Attained

Action Taken: 1. Current teaching methodology will be continued with additional practice on modern measuring machines, machine vision systems, and metrology applications. 2. More numerical exercises and case studies on statistical quality control and non-destructive testing methods will be incorporated to strengthen analytical and practical understanding. 3. Additional demonstrations and assignments on radiographic, ultrasonic, and acoustic emission testing techniques will be conducted to further enhance attainment.


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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.
Course Name : MINI PROJECT WITH SEMINAR
Course Code : 2024045
Course Coordinator : DR. JANI S P

Year / Sem : I-II
Academic Year: 2021-2022
Regulation: MLRS-R20
Section: A/

Course Outcome	CO-Statement	CIE + SEE(a)	CES (d)	Final CO Attained	Target	Remarks
1	Investigate complex domain engineering problems using core and interdisciplinary knowledge.	3.00	3.00	3.00	2.70	Attained
2	Apply advanced analytical and design techniques to develop viable structural solutions.	3.00	3.00	3.00	2.70	Attained
3	Evaluate the effectiveness and feasibility of proposed designs through simulations and modeling.	3.00	2.00	2.80	2.70	Attained
4	Communicate technical concepts and project results effectively through oral and written presentations.	3.00	3.00	3.00	2.70	Attained
5	Collaborate efficiently in teams to manage project tasks and integrate multidisciplinary insights.	3.00	2.00	2.80	2.70	Attained
Final CO				2.92	2.70	

Action Taken: 1. Encouraged use of advanced tools and methods in project work. 2. Strengthened result interpretation during review presentations. 3. Sustained structured reviews, presentations, and report evaluations.


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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.
Course Name : COMPUTER AIDED ENGINEERING LAB
Course Code : 2024042
Course Coordinator : SRIDEVI CHAGANTIPATI

Year / Sem : I-II
Academic Year : 2021-2022
Regulation : MLRS-R20
Section : A/

Course Outcome	CO-Statement	CIE + SEE(a)	CES (d)	Final CO Attained	Target	Remarks
1	Perform 2D plane stress and plane strain analysis on structural components using FEA tools.	3.00	3.00	3.00	2.70	Attained
2	Analyze static behavior of beams under various loading conditions using finite element simulation..	3.00	2.00	2.80	2.70	Attained
3	Calculate stresses and deformation in truss structures under applied loads.	3.00	2.00	2.80	2.70	Attained
4	Determine natural frequencies and mode shapes of 3D components using modal analysis.	3.00	3.00	3.00	2.70	Attained
5	Evaluate the critical buckling load and mode shapes of structures through buckling analysis using FEA tools	3.00	2.00	2.80	2.70	Attained
Final CO				2.88	2.70	

Action Taken: 1. Given additional assembly modeling tasks involving constraints and feature-based design. 2. Maintained analytical and simulation-based evaluations of mechanical components. 3. Strengthened understanding through validation of analytical and simulation results.


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CO ATTAINMENT ACTION TAKEN REPORT


Program : M.Tech.
Course Name : MSMA LAB
Course Code : 2024043
Course Coordinator : P. SATYA KRISHNA

Year / Sem : I-II
Academic Year : 2021-2022
Regulation : MLRS-R20
Section : A/

Course Outcome	CO-Statement	CIE + SEE(a)	CES (d)	Final CO Attained	Target	Remarks
1	Demonstrate proficiency in modelling, and simulating manufacturing systems using software tools.	3.00	3.00	3.00	2.70	Attained
2	Analyse and implementing hydraulic and pneumatic circuits, for effective automation and control in industrial operations.	3.00	2.00	2.80	2.70	Attained
3	Evaluate machining processes and condition monitoring using tool maker's microscope, roughness testers, in assessing product quality.	3.00	3.00	3.00	2.70	Attained
4	Investigate and conduct experiments on unconventional machining processes, and understanding their working principles and applications.	3.00	2.00	2.80	2.70	Attained
5	Develop programs for CNC machines, PLC systems, demonstrating automation integration and real-time control in advanced manufacturing systems.	3.00	3.00	3.00	2.70	Attained
Final CO				2.92	2.70	

Action Taken:

- Continued PLC programming exercises with real-time execution and debugging operation.
- Provided additional sessions on circuit design and
- Strengthened understanding through troubleshooting exercises and simulations.


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CO ATTAINMENT ACTION TAKEN REPORT

Program: M.Tech.

Course Name : PEDAGOGY STUDIES

Course Code : 2021234

Course Coordinator : DR. SRAVANTHI KUNDURU

Year / Sem : I-II


Academic Year : 2021-2022

Regulation : MLRS-R20

Section : A/

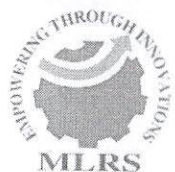
Course Outcome	CO-Statement	CIE + SEE(a)	CES (d)	Final CO Attained	Target	Remarks
1	Explain key concepts related to curriculum, teacher education, and learning theories.	3.00	3.00	3.00	2.70	Attained
2	Outline various pedagogical practices used by teachers in formal and informal classrooms in developing countries.	3.00	3.00	3.00	2.70	Attained
3	Analyze the strengths of evidence supporting effective pedagogical strategies and teacher attitudes impacting classroom learning.	3.00	2.00	2.80	2.70	Attained
4	Assess the alignment of professional development programs with classroom practices, including barriers such as resources and class size.	3.00	2.00	2.80	2.70	Attained
5	Apply knowledge of research design and pedagogy to identify future directions and gaps in teacher education and curriculum research.	3.00	3.00	3.00	2.70	Attained
Final CO				2.92	2.70	

Action Taken: 1. Continued conceptual teaching supported by frameworks, models, and examples. 2. Maintained use of comparative case studies and contextual examples. 3. Strengthened critical thinking through structured review activities.


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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.

Course Name : Flexible Manufacturing Systems

Course Code : 2034025

Course Coordinator : DR. GURRAM SURYA PRAKASH RAO

Year / Sem : II-I

Academic Year : 2022-2023

Regulation : MLRS-R20


Section : CAD/CAM - A/

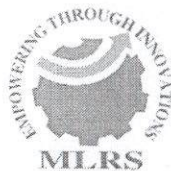
Course Outcome	CO-Statement	CIE + SEE(a)	CES (d)	Final CO Attained	Target	Remarks
1	Understand the evolution, and importance of FMS and various types of manufacturing flexibilities and scheduling strategies.	2.30	2.00	2.24	1.95	Attained
2	Apply computer control strategies and software systems for the efficient operation of FMS.	3.00	3.00	3.00	1.95	Attained
3	Develop FMS simulation models and plan database systems for manufacturing operations.	1.60	2.00	1.68	1.95	Not Attained
4	Evaluate the role of Group Technology and perform economic justification of implementing FMS.	2.30	2.00	2.24	1.95	Attained
5	Assess FMS applications in different manufacturing domains and explain advancements toward intelligent and automated factories of the future.	3.00	3.00	3.00	1.95	Attained
Final CO				2.43	1.95	Attained

Action Taken: 1 The present teaching methodology will be continued with additional case studies on FMS concepts, manufacturing flexibilities, and scheduling strategies. 2. More application-oriented exercises on group technology, and economic justification of FMS will be incorporated to strengthen practical understanding. 3. Extra sessions, focused assignments, and additional practice on FMS simulation modeling and manufacturing database planning will be conducted to improve attainment.


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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.

Course Name : FUNDAMENTALS OF NANO TECHNOLOGY

Course Code : 2035503

Course Coordinator : BIYYANI SRINIVASA RAO

Year / Sem : II-I

Academic Year : 2022-2023

Regulation : MLRS-R20

Section : A/

Course Outcome	CO-Statement	CIE + SEE(a)	CES (d)	Final CO Attained	Target	Remarks
1	Understand the unique physical and chemical properties of materials at the nanoscale and how they differ from bulk materials.	3.00	2.00	2.80	2.10	Attained
2	Compare various synthesis techniques, including top-down and bottom-up approaches, for the fabrication of nanomaterials.	3.00	2.00	2.80	2.10	Attained
3	Apply advanced characterization techniques such as SEM, TEM, EDS, and WDS to analyze the structure and properties of nanomaterials.	2.30	2.00	2.24	2.10	Attained
4	Analyze the electronic, optical, mechanical, and thermal properties of nanomaterials to their functional advantages.	3.00	2.00	2.80	2.10	Not Attained
5	Evaluate the applications of nanomaterials in fields such as electronics, medicine, energy, and environmental science.	1.60	2.00	1.68	2.10	Attained
		Final CO		2.46	2.10	Attained

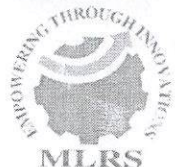
Action Taken: 1. Additional assignments focusing on structure–property relationships. 2. Use of case studies highlighting multifunctional nanomaterial behavior. 3. Concept clarification through graphical and simulation-based explanations.

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CO ATTAINMENT ACTION TAKEN REPORT

Program: M.Tech.
Course Name: DISSERTATION WORK PHASE-I
Course Code: 2034046
Course Coordinator: Dr. S.P. JANI

Year / Sem: II-I
Academic Year: 2022-2023
Regulation: MLRS-R20
Section: A/

Course Outcome	CO-Statement	CIE + SEE(a)	CES (d)	Final CO Attained	Target	Remarks
1	Critique the progress of their research based on literature and initial findings.	3.00	3.00	3.00	2.70	Attained
2	Organize experimental or computational data to support hypothesis validation.	3.00	2.00	2.80	2.70	Attained
3	Interpret results obtained from preliminary analyses or simulations	3.00	3.00	3.00	2.70	Attained
4	Justify the chosen methodologies and their modifications as per research needs.	3.00	3.00	3.00	2.70	Attained
5	Plan subsequent research steps to achieve project objectives effectively.	3.00	3.00	3.00	2.70	Attained
Final CO				2.96	2.70	

Action Taken: 1. Continue conducting regular project reviews, technical seminars, and research presentations.
2. Encourage comparative studies of alternative methodologies and conduct technical discussions to enhance decision-making and research justification skills.


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CO ATTAINMENT ACTION TAKEN REPORT

Program: M.Tech.

Course Name: DISSERTATION WORK PHASE -II

Course Code: 2044047

Course Coordinator: Dr. S.P. JANI

Year / Sem: II-II

Academic Year: 2022-2023

Regulation: MLRS-R20

Section: A/

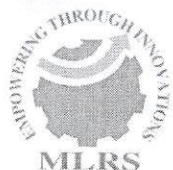
Course Outcome	CO-Statement	CIE + SEE(a)	CES (d)	Final CO Attained	Target	Remarks
1	Assess the completeness and accuracy of the research outcomes against objectives.	3.00	3.00	3.00	2.70	Attained
2	Summarize key findings and their implications for practice.	3.00	3.00	3.00	2.70	Attained
3	Formulate conclusions based on comprehensive data analysis.	3.00	2.00	2.80	2.70	Attained
4	Recommend improvements or future work directions grounded in research results.	3.00	2.00	2.80	2.70	Attained
5	Document research progress clearly and systematically for final submission.	3.00	3.00	3.00	2.70	Attained
		Final CO		2.92	2.70	

Action Taken: 1. Continue encouraging comprehensive literature surveys, critical analysis of published research, and regular progress review presentations.
2. Strengthen industry-academia interactions through expert lectures and collaborative projects.


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CO ATTAINMENT ACTION TAKEN REPORT

Program: M.Tech.

Course Name: DISSERTATION VIVA VOCE

Course Code: 2044048

Course Coordinator: Dr. SURYA PRAKASH

Year / Sem: II-II

Academic Year: 2022-2023

Regulation: MLRS-R20

Section: A/

Course Outcome	CO-Statement	CIE + SEE(a)	CES (d)	Final CO Attained	Target	Remarks
1	Defend their research methodology and findings confidently during oral examination.	3.00	2.00	2.80	2.70	Attained
2	Demonstrate technical concepts and complex data clearly to an academic panel.	3.00	2.00	2.80	2.70	Attained
3	Respond effectively to critical questions and suggestions from examiners.	3.00	3.00	3.00	2.70	Attained
4	Demonstrate comprehensive knowledge of the subject and related interdisciplinary areas.	3.00	3.00	3.00	2.70	Attained
5	Justify the significance and novelty of their research contributions.	3.00	2.00	2.80	2.70	Attained
Final CO				2.88	2.70	

- Action Taken:
1. Continue conducting mock viva sessions and research presentations to strengthen students' confidence and articulation skills.
 2. Organize interactive question-and-answer sessions and peer-review activities to enhance critical thinking and response skills.
 3. Motivate students to benchmark their work against recent literature and industry practices to further strengthen innovation and research impact.

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