

CO ATTAINMENT ACTION TAKEN REPORT

Program: M.Tech.
Course Name: ADVANCED CAD
Course Code: 2214001
Course Coordinator: DR. JANI S


Year / Sem: I-I
Academic Year: 2022-2023
Regulation: MLRS-R22
Section: A/

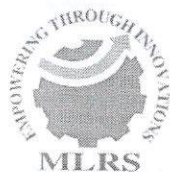
| Course Outcome | CO-Statement | CIE + SEE(a) | CES (d) | Final CO Attained | Target | Remarks |
|----------------|--|--------------|---------|-------------------|--------|--------------|
| 1 | Apply the CAD process and geometric modelling concepts to effectively perform design tasks. | 3.00 | 3 | 3.00 | 2.10 | Attained |
| 2 | Develop and manipulate wireframe models, parametric curves using analytic and synthetic curve representations. | 2.40 | 2 | 2.32 | 2.10 | Attained |
| 3 | Evaluate surface entities and parametric surface representation methods using analytic and synthetic approaches. | 2.40 | 2 | 2.32 | 2.10 | Attained |
| 4 | Analyze solid modeling techniques including boundary representation, CSG, sweeping methods, and feature modeling for effective 3D representation | 2.40 | 3 | 2.52 | 2.10 | Attained |
| 5 | Utilize CAD transformations, visualization, data exchange and dimensioning concepts in design problems. | 1.80 | 3 | 2.04 | 2.10 | Not Attained |
| | | Final CO | | 2.44 | 2.10 | 2.10 |

- Action Taken:
1. Demonstrations on data exchange standards and file interoperability.
 2. Assignment-based learning to improve practical proficiency.
 3. Industry-oriented mini-projects and visualization tasks involving 2D/3D transformations, projections, and rendering were implemented to improve real-world application and visual representation skills.


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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.

Course Name : ADDITIVE MANUFACTURING

Course Code : 2214002

Course Coordinator : DR. GURRAM SURYA PRAKASH RAO

Year / Sem : I-I

Academic Year : 2022-2023

Regulation : MLRS-R22

Section : A/

| Course Outcome | CO-Statement | CIE + SEE(a) | CES (d) | Final CO Attained | Target | Remarks |
|----------------|--|--------------|---------|-------------------|--------|--------------|
| 1 | Understand the fundamentals of automated process and distinct between AM and CNC, other related technologies. | 3.00 | 2.00 | 2.80 | 2.25 | Attained |
| 2 | Analyse the utility and application of liquid and solid based AM systems | 2.40 | 2.00 | 2.32 | 2.25 | Attained |
| 3 | Apply the concepts of powder based AM systems and Rapid tooling in manufacturing process. | 2.40 | 3.00 | 2.52 | 2.25 | Attained |
| 4 | Utilize the AM Data formats and software's for effective additive manufacturing applications. | 1.80 | 3.00 | 2.04 | 2.25 | Not Attained |
| 5 | Explore various practical applications of AM in design collaboration, simulation, and distributed manufacturing. | 2.40 | 2.00 | 2.32 | 2.25 | Attained |
| Final CO | | | | 2.40 | 2.25 | |

Action Taken: 1. Used **video demonstrations and recent research articles** to improve application-level understanding. 2. Practice exercises on file preparation, slicing, and simulation. 3. Demonstrations on AM data formats such as STL, AMF, and 3MF.


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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.
Course Name : FINITE ELEMENT AND BOUNDARY ELEMENT METHODS
Course Code : 2214011
Course Coordinator : DR. SRAVANTHI KUNDURU

Year / Sem : I-I
Academic Year : 2022-2023
Regulation : MLRS-R22
Section : A/

| Course Outcome | CO-Statement | CIE + SEE(a) | CES (d) | Final CO Attained | Target | Remarks |
|----------------|---|--------------|---------|-------------------|--------|--------------|
| 1 | Understand the mathematical foundation behind the equations used in solving 1D problems. | 3.00 | 3.00 | 3.00 | 2.10 | Attained |
| 2 | Identify appropriate mathematical models for solving common 2D and 3D engineering problems. | 3.00 | 2.00 | 2.80 | 2.10 | Attained |
| 3 | Solve dynamic and thermal engineering problems using numerical method. | 2.40 | 2.00 | 2.32 | 2.10 | Attained |
| 4 | Demonstrate knowledge of plate bending analysis and nonlinear finite element methods for plate element applications. | 2.40 | 3.00 | 2.52 | 2.10 | Attained |
| 5 | Make use of professional-level finite element software in solving engineering problems involving the boundary element method. | 1.80 | 3.00 | 2.04 | 2.10 | Not Attained |
| | | Final CO | | 2.54 | 2.10 | |

Action Taken: 1. Step-by-step demonstrations of boundary element problem setup and solution. 2. Continued hands-on sessions using commercial FEM/BEM software. 3. Additional assignments on professional BEM software tools.

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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.
Course Name : AUTOMATION IN MANUFACTURING
Course Code : 2214014
Course Coordinator : Dr. K. CHAITHANYA

Year / Sem : I-I
Academic Year : 2022-2023
Regulation : MLRS-R22
Section : A/

| Course Outcome | CO-Statement | CIE + SEE(a) | CES (d) | Final CO Attained | Target | Remarks |
|-----------------|--|--------------|---------|-------------------|-------------|--------------|
| 1 | Describe automation principles, strategies, and levels in production systems. | 2.40 | 3.00 | 2.52 | 2.40 | Attained |
| 2 | Understand the principles, strategies, and levels of automation in modern production systems. | 1.80 | 3.00 | 2.04 | 2.40 | Not Attained |
| 3 | Analyze assembly line balancing using standard methods. | 3.00 | 3.00 | 3.00 | 2.40 | Attained |
| 4 | Evaluate transfer line performance with and without buffers. | 2.40 | 2.00 | 2.32 | 2.40 | Not Attained |
| 5 | Design efficient automated assembly systems for production. | 3.00 | 2.00 | 2.80 | 2.40 | Attained |
| Final CO | | | | 2.54 | 2.40 | |

- Action Taken:
1. Concept-oriented discussions on automation principles and production strategies will be conducted. More visual demonstrations, video lectures, and industrial examples will be incorporated to strengthen conceptual understanding.
 2. Case studies on modern automated production systems.
 3. More practice problems and simulation-based exercises related to transfer line analysis and buffer systems will be introduced.

K. Chaitanya
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K. Chaitanya
COURSE COORDINATOR

S. J.
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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.
Course Name : RESEARCH METHODOLOGY& IPR
Course Code : 2215502
Course Coordinator : Mr. B. SATYANARAYANA

Year / Sem : I-I
Academic Year : 2022-2023
Regulation : MLRS-R22
Section : A/

| Course Outcome | CO-Statement | CIE + SEE(a) | CES (d) | Final CO Attained | Target | Remarks |
|----------------|---|--------------|---------|-------------------|--------|--------------|
| 1 | Describe the meaning, sources, and key characteristics of a good research problem and common errors in its selection. | 2.40 | 2.00 | 2.32 | 2.25 | Attained |
| 2 | Conduct a comprehensive literature review and demonstrate ethical standards in research for the avoidance of plagiarism. | 2.40 | 2.00 | 2.32 | 2.25 | Attained |
| 3 | Write structured research reports and proposals effectively and present research ideas before review panels. | 1.80 | 2.00 | 1.84 | 2.25 | Not Attained |
| 4 | Explain forms of intellectual property with national, international patenting and IPR procedures. | 2.40 | 3.00 | 2.52 | 2.25 | Attained |
| 5 | Analyze the scope and rights associated with patents, and explore recent trends in IPR across domains like biotechnology, software and traditional knowledge. | 3.00 | 3.00 | 3.00 | 2.25 | Attained |
| Final CO | | | | 2.40 | 2.25 | Attained |

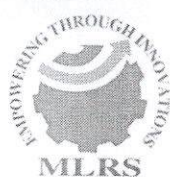
Action Taken: 1. Additional assignments on research report and proposal writing formats. 2. Workshops on technical writing and presentation skills. 3. Mock review panel presentations with faculty feedback

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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.
Course Name : ADVANCED COMPUTER AIDED DESIGN LAB
Course Code : 2214040
Course Coordinator : SRIDEVI CHAGANTIPATI

Year / Sem : I-I
Academic Year : 2022-2023
Regulation : MLRS-R22
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 | 3.00 | 3.00 | 2.70 | Attained |
| 3 | Analyse FEA analysis on trusses, beams, and composite components to determine deflections and stresses. | 3.00 | 3.00 | 3.00 | 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 | | | | 2.96 | 2.70 | Attained |

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 : 3D PRINTING LAB
Course Code : 2214041
Course Coordinator : Mr. SATYA KRISHNA

Year / Sem : I-I
Academic Year : 2022-2023
Regulation : MLRS-R22
Section : A/

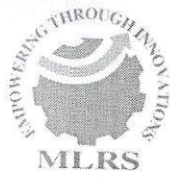
| Course Outcome | CO-Statement | CIE + SEE(a) | CES (d) | Final CO Attained | Target | Remarks |
|----------------|---|--------------|---------|-------------------|--------|----------|
| 1 | Prepare 3D CAD models and convert them into printable formats. | 3.00 | 2.00 | 2.80 | 2.70 | Attained |
| 2 | Operate and calibrate different types of additive manufacturing machines. | 3.00 | 3.00 | 3.00 | 2.70 | Attained |
| 3 | Select appropriate materials and parameters for specific applications. | 3.00 | 3.00 | 3.00 | 2.70 | Attained |
| 4 | Inspect and evaluating the quality of printed parts through dimensional and visual checks. | 3.00 | 3.00 | 3.00 | 2.70 | Attained |
| 5 | Understand practical challenges and applications of additive manufacturing in real-world scenarios. | 3.00 | 2.00 | 2.80 | 2.70 | Attained |
| Final CO | | | | 2.92 | 2.70 | |

Action Taken: 1. Continued hands-on training using CAD software and slicing tools. 2. Encouraged repeated machine operation practice to improve confidence and accuracy. 3. Encouraged mini-projects addressing real-life additive manufacturing challenges.


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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.
Course Name : ENGLISH FOR RESEARCH PAPER WRITING
Course Code : 2210401
Course Coordinator : Mr. PRAKASH


Year / Sem : I-I
Academic Year : 2022-2023
Regulation : MLRS-R22
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 | Attained |

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 : COMPUTER INTEGRATED MANUFACTURING
Course Code : 2224003
Course Coordinator : Dr. K. CHAITHANYA

Year / Sem : I-II
Academic Year : 2022-2023
Regulation : MLRS-R22
Section : A/

| Course Outcome | CO-Statement | CIE + SEE(a) | CES (d) | Final CO Attained | Target | Remarks |
|-----------------|---|--------------|---------|-------------------|-------------|--------------|
| 1 | Understand the fundamentals and evolution of CIM and concurrent engineering concepts. | 2.40 | 3.00 | 2.52 | 2.40 | Attained |
| 2 | Apply SQL commands to generate and manipulate manufacturing databases. | 2.40 | 2.00 | 2.32 | 2.40 | Not Attained |
| 3 | Analyze product plan and planning strategies like DFM, MRP, and FMS layouts. | 3.00 | 2.00 | 2.80 | 2.40 | Attained |
| 4 | Evaluate different CIM network architectures and enterprise-wide integration models. | 2.40 | 2.00 | 2.32 | 2.40 | Not Attained |
| 5 | Develop lean manufacturing strategies to minimize waste and enhance productivity. | 3.00 | 2.00 | 2.80 | 2.40 | Attained |
| Final CO | | | | 2.55 | 2.40 | |

Action Taken:

1. Strengthened learning through practice-based assignments and exercises on SQL.
2. Continued analytical problem-solving using real-world manufacturing scenarios.
3. Sustained analytical discussions on CIM network architectures and integration frameworks.


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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.
Course Name : MANUFACTURING SYSTEMS: SIMULATION MODELLING & ANALYSIS
Course Code : 2224004
Course Coordinator : DR. JANI S P

Year / Sem : I-II
Academic Year : 2022-2023
Regulation : MLRS-R22
Section : A/

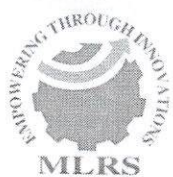
| Course Outcome | CO-Statement | CIE + SEE(a) | CES (d) | Final CO Attained | Target | Remarks |
|----------------|--|--------------|---------|-------------------|--------|--------------|
| 1 | Understand the fundamentals of systems, types of models, and the role of simulation in analyzing complex problems. | 2.40 | 3.00 | 2.52 | 2.10 | Attained |
| 2 | Develop simulation model for the said system. | 2.40 | 3.00 | 2.52 | 2.10 | Attained |
| 3 | Generate random variates and learning various simulation languages. | 1.80 | 2.00 | 1.84 | 2.10 | Not Attained |
| 4 | Analyse through simulation the model and present the results to specified confidence level. | 3.00 | 3.00 | 3.00 | 2.10 | Attained |
| 5 | Apply simulation for flow shop systems and job shop systems. | 3.00 | 2.00 | 2.80 | 2.10 | Attained |
| Final CO | | | | 2.54 | 2.10 | |

Action Taken: 1. Demonstrations of probability distributions used in simulation. 2. Provided **Hands-on exposure to simulation languages and tools.**
3. Assignment-based practice to improve proficiency.

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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.
Course Name : INTELLIGENT MANUFACTURING SYSTEMS
Course Code : 2224017
Course Coordinator : DR. SRAVANTHI KUNDURU

Year / Sem : I-II
Academic Year : 2022-2023
Regulation : MLRS-R22
Section : A/

| Course Outcome | CO-Statement | CIE + SEE(a) | CES (d) | Final CO Attained | Target | Remarks |
|-----------------|--|--------------|---------|-------------------|-------------|--------------|
| 1 | Explain the structure and components of Computer Integrated Manufacturing (CIM) systems. | 3.00 | 2.00 | 2.80 | 2.25 | Attained |
| 2 | Analyze the architecture of intelligent manufacturing and knowledge-based systems. | 2.40 | 2.00 | 2.32 | 2.25 | Attained |
| 3 | Apply machine learning and neural networks in intelligent manufacturing applications. | 2.40 | 2.00 | 2.32 | 2.25 | Attained |
| 4 | Develop process plans using generative and feature-based planning methods. | 1.80 | 2.00 | 1.84 | 2.25 | Not Attained |
| 5 | Evaluate group technology methods and clustering algorithms for manufacturing cell design. | 2.40 | 2.00 | 2.32 | 2.25 | Attained |
| Final CO | | | | 2.32 | 2.25 | |

Action Taken: 1. Step-by-step demonstrations of process plan development. 2. Practical examples linking design features to manufacturing operations.
3. Strengthened learning through case studies and industrial examples.


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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.

Course Name : MECHATRONICS

Course Code : 2224020

Course Coordinator : DR. GURRAM SURYA PRAKASH RAO

Year / Sem : I-II


Academic Year : 2022-2023

Regulation : MLRS-R22


Section : A/

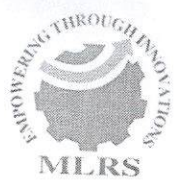
| Course Outcome | CO-Statement | CIE + SEE(a) | CES (d) | Final CO Attained | Target | Remarks |
|-----------------|---|--------------|---------|-------------------|--------|--------------|
| 1 | Design mechatronic subsystems by integrating appropriate sensors, transducers, and control elements for automation tasks. | 2.40 | 3.00 | 2.52 | 2.25 | Attained |
| 2 | Explain working principles of solid-state electronic devices, signal conditioning, and MEMS technologies with their engineering applications. | 2.40 | 2.00 | 2.32 | 2.25 | Attained |
| 3 | Analyze various actuation systems, including electro-hydraulic and electro-pneumatic servo mechanisms for control applications. | 1.80 | 3.00 | 2.04 | 2.25 | Not Attained |
| 4 | Apply digital electronics, microprocessors, microcontrollers, and PLCs to design and implement control strategies for automated systems. | 2.00 | 3.00 | 2.52 | 2.25 | Attained |
| 5 | Evaluate mechatronic systems through interfacing, data acquisition, system modeling, and simulation, considering future technological trends. | 3.00 | 2.00 | 2.80 | 2.25 | Attained |
| Final CO | | | | 2.44 | 2.25 | 2.10 |

Action Taken: 1. Use of schematics, animations, and numerical examples to enhance understanding. 2. Provided additional assignments and case studies related to industrial actuation systems. 3. Assignment-based reinforcement to improve analytical skills on various actuation systems


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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.

Course Name : MINI PROJECT WITH SEMINAR

Course Code : 2224044

Course Coordinator : DR. JANI S P

Year / Sem : I-II

Academic Year : 2022-2023

Regulation : MLRS-R22

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 | 2.00 | 2.80 | 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 | 2.00 | 2.80 | 2.70 | Attained |
| 5 | Collaborate efficiently in teams to manage project tasks and integrate multidisciplinary insights. | 3.00 | 3.00 | 3.00 | 2.70 | Attained |
| Final CO | | | | 2.88 | 2.70 | 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 : SIMULATION OF MANUFACTURING SYSTEMS LAB
Course Code : 2224042
Course Coordinator : P.SATYA KRISHNA

Year / Sem : I-II
Academic Year : 2022-2023
Regulation : MLRS-R22
Section : A/

| Course Outcome | CO-Statement | CIE + SEE(a) | CES (d) | Final CO Attained | Target | Remarks |
|----------------|--|--------------|---------|-------------------|--------|----------|
| 1 | Make use of Automod and FlexSim for manufacturing system simulation. | 3.00 | 3.00 | 3.00 | 2.70 | Attained |
| 2 | Design and analysing hydraulic and pneumatic circuits. | 3.00 | 2.00 | 2.80 | 2.70 | Attained |
| 3 | Implement PLC-based automation using ladder logic. | 3.00 | 2.00 | 2.80 | 2.70 | Attained |
| 4 | Evaluate AJM process parameters and material removal rate. | 3.00 | 3.00 | 3.00 | 2.70 | Attained |
| 5 | Perform pocket and slot milling operations on CNC machines | 3.00 | 3.00 | 3.00 | 2.70 | Attained |
| | | Final CO | | 2.92 | 2.70 | Attained |

Action Taken: 1. Continued PLC programming exercises with real-time execution and debugging. 2. Provided additional sessions on circuit design and operation.
3. Strengthened understanding through troubleshooting exercises and simulations.


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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.
Course Name : COMPUTER AIDED MANUFACTURING LAB
Course Code : 2224043
Course Coordinator : P. SATYA KRISHNA

Year / Sem : I-II
Academic Year: 2022-2023
Regulation: MLRS-R22
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 | 2.00 | 2.80 | 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 | 2.00 | 2.80 | 2.70 | Attained |
| 5 | Simulate robotic pick-and-place operations using AristoSim software for automation integration. | 3.00 | 3.00 | 3.00 | 2.70 | Attained |
| Final CO | | | | 2.92 | 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 : PEDAGOGY STUDIES
Course Code : 2220006
Course Coordinator : DR. SRAVANTHI KUNDURU

Year / Sem : I-II
Academic Year : 2022-2023
Regulation : MLRS-R22
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: COMPOSITE MATERIALS
Course Code: 2234024
Course Coordinator: DR. SRAVANTHI KUNDURU

Year / Sem: II-I
Academic Year: 2023-2024
Regulation: MLRS-R22
Section: A/

| Course Outcome | CO-Statement | CIE + SEE(a) | CES (d) | Final CO Attained | Target | Remarks |
|-----------------|--|--------------|---------|-------------------|-------------|--------------|
| 1 | Explain the fundamentals, classification, and applications of composite materials including polymer, metal, ceramic, and natural composites. | 2.40 | 2.00 | 2.32 | 2.25 | Attained |
| 2 | Compare different reinforcements, matrix materials, and manufacturing methods used in composite production. | 2.40 | 2.00 | 2.32 | 2.25 | Attained |
| 3 | Apply macro-mechanical principles in analyzing stress-strain behavior, elastic properties, and constitutive relations of a lamina. | 2.40 | 3.00 | 2.52 | 2.25 | Attained |
| 4 | Analyze laminate mechanics in determining stiffness, in-plane and flexural moduli, and effects on composite performance. | 1.80 | 3.00 | 2.04 | 2.25 | Not Attained |
| 5 | Design laminated composites considering failure criteria, warpage, and other mechanical design issues for engineering applications. | 3.00 | 2.00 | 2.80 | 2.25 | Attained |
| Final CO | | | | 2.40 | 2.25 | |

Action Taken: 1. Step-by-step numerical examples to improve analytical understanding. 2. Use of graphical and computational tools to visualize laminate response. 3. Encouraged application-oriented case studies related to real engineering components.


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CO ATTAINMENT ACTION TAKEN REPORT

Program : M.Tech.
Course Name : FUNDAMENTALS OF NANO TECHNOLOGY
Course Code : 2235503
Course Coordinator : BIYYANI SRINIVASA RAO

Year / Sem : II-I
Academic Year : 2023-2024
Regulation : MLRS-R22
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. | 2.40 | 2.00 | 2.32 | 2.10 | Attained |
| 2 | Compare various synthesis techniques, including top-down and bottom-up approaches, for the fabrication of nanomaterials. | 2.40 | 2.00 | 2.32 | 2.10 | Attained |
| 3 | Apply advanced characterization techniques such as SEM, TEM EDS, and WDS to analyze the structure and properties of nanomaterials. | 3.00 | 2.00 | 2.80 | 2.10 | Attained |
| 4 | Analyze the electronic, optical, mechanical, and thermal properties of nanomaterials to their functional advantages. | 1.80 | 2.00 | 1.84 | 2.10 | Not Attained |
| 5 | Evaluate the applications of nanomaterials in fields such as electronics, medicine, energy, and environmental science. | 2.40 | 2.00 | 2.32 | 2.10 | Attained |
| Final CO | | | | 2.32 | 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 REVIEW -I
Course Code: 2234045
Course Coordinator: Dr. S.P. JANI


Year / Sem: II-I
Academic Year: 2023-2024
Regulation: MLRS-R22
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 | 3.00 | 3.00 | 2.70 | Attained |
| 3 | Interpret results obtained from preliminary analyses or simulations | 3.00 | 2.00 | 2.80 | 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 REVIEW -II
Course Code: 2244046
Course Coordinator: Dr. K. SRAVANTHI

Year / Sem: II-II
Academic Year: 2023-2024
Regulation: MLRS-R22
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 | 2.00 | 2.80 | 2.70 | Attained |
| 2 | Summarize key findings and their implications for practice. | 3.00 | 2.00 | 2.80 | 2.70 | Attained |
| 3 | Formulate conclusions based on comprehensive data analysis. | 3.00 | 3.00 | 3.00 | 2.70 | Attained |
| 4 | Recommend improvements or future work directions grounded in research results. | 3.00 | 3.00 | 3.00 | 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: 2244047
Course Coordinator: Dr. S.P. JANI

Year / Sem: II-II
Academic Year: 2023-2024
Regulation: MLRS-R22
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 | 3.00 | 3.00 | 2.70 | Attained |
| 2 | Demonstrate technical concepts and complex data clearly to an academic panel. | 3.00 | 3.00 | 3.00 | 2.70 | Attained |
| 3 | Respond effectively to critical questions and suggestions from examiners. | 3.00 | 2.00 | 2.80 | 2.70 | Attained |
| 4 | Demonstrate comprehensive knowledge of the subject and related interdisciplinary areas. | 3.00 | 2.00 | 2.80 | 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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