

B.N.M. Institute of Technology

An Autonomous Institution under VTU

Department Mechanical Engineering

Innovative Teaching Methods

Academic Year: 2023-24

Sl. No.	Sem.	Course	Name of Faculty	Innovative Teaching Method	Description	Impact Analysis
1	I	Engineering Graphics (23EGD114)	Dr. B. S. Anil Kumar	Problem-Based Learning	Students are given real-world design problems to interpret and create engineering drawings	Improved visualization, analytical thinking, and problem-solving skills
2	I	Engineering Graphics and Design Lab (23EGD114)	Vishwanath B. R	Subject-Based Learning	Practice sessions on drawing and design models to strengthen understanding of engineering graphics	Enhanced precision, visualization, and design interpretation skills
3	II	Engineering Graphics and Design Lab (23EGD124)	Vishwanath B. R	Experiential Learning	Students develop 2D and 3D, CAD models through hands-on practice.	Improved practical skills, CAD proficiency, and design visualization
4	II	Basic Engineering Science (23BES124)	Madhushree K J	Concept Reinforcement through Word Search and Crossword Puzzles	This creative teaching method integrated word search and crossword puzzles into classroom learning to make concept revision interactive and engaging	Improved recall and understanding of subject-specific terminology
5	III	Fluid Mechanics and Pneumatics (22MEC134)	Dr. B. S. Anil Kumar	Experiential Learning	Live demonstrations and lab experiments used to explain fluid mechanics and pneumatic system principles	Enhanced conceptual understanding and ability to correlate theory with practical applications

6	IV	Hybrid and Electric Vehicles (22MEC146)	Bapugowda C M	Interactive Discussion and Demonstration Sessions in Electric Vehicle (EV) Laboratory (Experiential Learning)	This innovative method involved conducting interactive discussion-based learning sessions inside the Electric Vehicle (EV) Laboratory , where students explored the working principles, components, and design of electric vehicles	Improved understanding of EV architecture and system integration through practical exposure
7	VI	Finite Element Analysis (21MEC163)	Dr. D. Shivalingappa	Problem-Based Learning	Students solve engineering analysis problems using FEA concepts and simulation tools	Strengthened analytical and computational skills; improved design validation capability
8	VI	AI & ML for Mechanical Engineers (21MEC162)	Dr. Harish	Problem-Based Learning	Students apply AI/ML algorithms to mechanical datasets to solve real-world engineering problems	Fostered innovation, data-driven analysis, and interdisciplinary problem-solving ability
9	VI	Reverse Engineering (21MEC1671)	Dr Raghavendra N	Peer Teaching Learning	Students Presentation on Current topics on application of Reverse engineering in sports, Health care, Cyber security	The Reverse Engineering presentation activity provided students with a practical platform to analyze real-world products, bridge the gap between theory and application, and explore innovation beyond the curriculum
10	VI	Reverse Engineering (21MEC1671)	Dr Raghavendra N	Project Based Learning	The activity “Reverse Engineering an Object through Scanning and 3D Printing” was conducted to expose students to	Students gained hands-on experience in 3D scanning, CAD reconstruction, and additive manufacturing,

					modern digital manufacturing technologies and enhance their understanding of product development cycles	bridging the gap between design and production
11	VII	Control Engineering (18ME71)	Dr. Harish	Experiential Learning	Hands-on experiments and MATLAB simulations used to analyze system stability and control parameters	Developed practical understanding of control systems and dynamic response behavior
12	VII	Additive Manufacturing (18ME741)	Shwethashree B	Project-Based Learning	Students undertake mini-projects involving 3D printing and additive manufacturing design	Improved creativity, design thinking, and hands-on experience with modern manufacturing technologies
13	IV	Python Programming for Mechanical Engineers (25PPA115)	Dr Harish	ICT-Enabled Learning through CodeTantra	CodeTantra was used as a cloud-based practical learning platform to integrate classroom teaching with laboratory activities.	CodeTantra significantly improved students' practical programming skills, analytical ability, and understanding of data analytics concepts. Auto-evaluation and instant feedback helped students identify and correct errors independently, while real-time progress tracking encouraged continuous learning.
14	IV	Python Programming for Mechanical Engineers (22MEC144)	Dr Harish	Quiz	MCQ quizzes were conducted periodically to assess students' understanding of key concepts, reinforce classroom	Regular MCQ-based assessments improved students' conceptual clarity, knowledge

					learning, and provide immediate feedback.	retention, and critical thinking skills.
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