

B.N.M. Institute of Technology

An Autonomous Institution under VTU

Department Mechanical Engineering

Innovative Teaching Methods

Academic Year: 2022-23

Sl. No.	Sem.	Course	Name of Faculty	Innovative Teaching Method	Description	Impact Analysis
1	II	Innovation and Design Thinking (21IDT118)	Dr. Raghavendra N	Project-Based Learning	Students design and execute innovative prototypes addressing real-life problems	Fostered creativity, teamwork, and problem-solving through practical innovation
2	II	Engineering Graphics Design Lab (22EGD124)	Dr. B. S. Anil Kumar	Subject-Based Learning	Students practice 2D and 3D drawing exercises to master projection and sectioning techniques	Improved visualization, drafting accuracy, and interpretation of engineering drawings
3	III	Machine Drawing and GD &T (21MEC135)	Dr. Raghavendra N	Subject-Based Learning	Students learn machine component drawing using CAD tools and apply design standards	Improved understanding of drawing standards, component assembly, and CAD proficiency
4	IV	Thermal Engineering (21MEC143)	Dr. Raghavendra N	Experiential Learning	Concepts of heat transfer and thermodynamics demonstrated through lab experiments and case studies	Enhanced conceptual clarity and ability to link theory with real-world thermal systems
5	VI	Design of Machine Elements – II (18ME62)	Dr. D. Shivalingappa	Problem-Based Learning	Students solve mechanical design problems considering strength, material, and safety factors	Enhanced design thinking, analytical reasoning, and practical application of design principles
6	VI	Heat Transfer (18ME63)	Bapugowda C. M.	Subject-Based Learning	In-depth study of conduction, convection, and radiation with problem-solving sessions	Strengthened analytical skills and theoretical understanding of heat transfer phenomena
7	VI	Finite Element Methods (18ME61)	Vishnu P	Simulation-Based Learning using	The innovative teaching method introduced the SimScale simulation	Enhanced proficiency in simulation-based problem-solving

				SimScale (Experiential Learning)	tool to help students perform real-time engineering analysis through a cloud-based platform	using a real-world engineering platform
8	VII	Control Engineering (18ME71)	Dr. Harish	Experiential Learning	MATLAB-based simulations and lab experiments conducted to analyze control system behavior	Strengthened understanding of feedback systems, stability, and control concepts
9	IV	Python Programming for Mechanical Engineers (21MEC144)	Dr Harish	Quiz	MCQ quizzes were conducted periodically to assess students' understanding of key concepts, reinforce classroom learning, and provide immediate feedback. The quizzes covered fundamental and application-oriented topics, encouraging students to identify knowledge gaps and strengthen conceptual understanding.	Regular MCQ-based assessments improved students' conceptual clarity, knowledge retention, and critical thinking skills. Immediate feedback enabled self-assessment and continuous improvement, resulting in enhanced academic performance, higher student engagement, and better preparedness for university examinations and competitive tests.