

**माधव प्रौद्योगिकी एवं विज्ञान संस्थान, ग्वालियर (म.प्र.), भारत**  
**MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR (M.P.),**  
**INDIA**

Deemed University  
 (Declared under Distinct Category by Ministry of Education, Government of India)  
 NAAC ACCREDITED WITH A++ GRADE



**DEPARTMENT OF CIVIL ENGINEERING (B.Tech)**

**COURSE STRUCTURE**

*(Tentative)*

I SEMESTER	II SEMESTER
Civil Engineering Materials & Construction	Surveying
Engineering Mechanics	Strength of Material
Building, Design & Drawing	Concrete Technology
Computer Programming Lab	Fluid Mechanics – I
Electrical & Electronics Engineering Lab	Building Materials & Construction Lab
Computer Programming	Problem Solving through Python Programming
Basic Electrical & Electronics Engineering	Engineering Physics Lab
Engineering Chemistry Lab	Matrices & Calculus
Novel Engaging Course (Activity Based Learning)	Novel Engaging Course (Activity Based Learning)
Semester Proficiency	Semester Proficiency
Micro Project-I	Micro Project-II
Universal Human Values & Professional Ethics (UHVPE)	Sustainability & Environmental Science
Mandatory Workshop on Report Writing at Department Level	Mandatory Workshop on Indian Knowledge System at Department Level
Mandatory Workshop on Indian Constitution and Cultural Values at Department Level	Mandatory Workshop on Career Planning & Goal Setting at Department Level
	Language Lab
	Skill Internship Program (Soft Skills)

	Departmental Core Courses
	Departmental Lab Course
	Engineering Science Course
	Novel Engaging Course
	Self-learning Presentation
	Semester Proficiency
	Project Based Learning
	Mandatory Audit Course
	Mandatory Workshop
	Basic Science Courses
	Humanities and Social Sciences including Management Courses
	Skill Internship Program
	Departmental Elective
	Open Category
	Professional Certification
	Professional Skills & Competencies
	Skill Enhancement Program
	Professional Development Component

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III SEMESTER	IV SEMESTER
Data Structures	Transportation Engineering – I
Fluid Mechanics – II	Water Supply Engineering
Geotechnical Engineering – I	Estimating Costing & Contracting
Structural Analysis – I	Geotechnical Engineering – II
Fluid Mechanics Lab	Structural Analysis - II
Survey Practice Lab	Transportation Engineering Lab
Self-learning/Presentation (SWAYAM/NPTEL/MOOC)	Transportation Engineering Lab
Transforms & Vector Calculus	Transportation Engineering Lab
Novel Engaging Course (Activity Based Learning)	Novel Engaging Course (Activity Based Learning)
Semester Proficiency	Semester Proficiency
Macro Project-I	Macro Project-II
Cyber Security	Project Management, Economics & Financing
Mandatory Workshop on Mastering Competitive Success at Department Level	Mandatory Workshop on Writing Research Articles: Idea to Publication at Department Level
	Mandatory Workshop on Intellectual Property Rights at Department Level
	Skill Internship Program (Institute Level)

	Departmental Core Courses
	Departmental Lab Course
	Engineering Science Course
	Novel Engaging Course
	Self-learning Presentation
	Semester Proficiency
	Project Based Learning
	Mandatory Audit Course
	Mandatory Workshop
	Basic Science Courses
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V SEMESTER	VI SEMESTER
Waste Water Engineering	Engineering Hydrology & Irrigation
Structural Design & Drawing (RCC)	Structural Design & Drawing (Steel)
Data Science	Artificial Intelligence & Machine Learning
Transportation Engineering - II	Open Category Course (OC-1)
Environmental Lab	Structure Engineering Lab
Data Science Lab	Artificial Intelligence & Machine Learning Lab
Departmental Elective (DE-1)	Departmental Elective (DE-2)
Professional Skills & Competencies - I	Professional Skills & Competencies - II
Semester Proficiency	Semester Proficiency
Cornerstone Project	Capstone Project
Supply Chain Management	Disaster Management
Mandatory Workshop on Internships: Explore, Apply and Excel at Department Level	Mandatory Workshop on Placement Readiness: Building Resume and Mastering Interview at Department Level
	Professional Certification

	Departmental Core Courses
	Departmental Lab Course
	Engineering Science Course
	Novel Engaging Course
	Self-learning Presentation
	Semester Proficiency
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**COURSE STRUCTURE**

*(Tentative)*

VII SEMESTER	VIII SEMESTER
Departmental Elective (DE-3)	Departmental Elective (DE-5)
Departmental Elective (DE-4)	Open Category Course (OC-3)
Open Category Course (OC-2)	Industry Internship/ Research Internship / Innovation & Start-up
Skill Enhancement Program / Research Internship / On Job Training	Professional Development
Creative Problem Solving	

	Departmental Core Courses
	Departmental Lab Course
	Engineering Science Course
	Novel Engaging Course
	Self-learning Presentation
	Semester Proficiency
	Project Based Learning
	Mandatory Audit Course
	Mandatory Workshop
	Basic Science Courses
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***Departmental Elective Courses***

1. Hydraulic Structure
2. Railway Airport & Tunnel Engineering
3. Traffic Engineering & Design
4. Engineering Geology
5. Pavement Management System
6. Applied Stress Analysis
7. Green Buildings
8. Advanced Surveying
9. Bridge Engineering
10. Groundwater Development
11. River Hydraulics
12. Design of Earthquake Resistant Structures
13. Remote Sensing & GIS Applications in Civil Engineering
14. Ground Improvement Techniques
15. Rock Engineering
16. Building Information Modelling
17. Seismic Hazard Analysis
18. Watershed Management
19. Hydropower Engineering
20. Rehabilitation of Structures
21. Ecology and Stream Pollution
22. Finite Element Methods
23. Strategic Management in Construction
24. Energy Efficient Buildings

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25. Design of Bridges

26. Sustainable Construction & Practices

27. Lean Construction

28. Photogrammetry and UAV

29. Geodesy and GNSS

***Open Category Courses***

1. Maintenance Management

2. Integrated Waste Management System

3. Air Pollution & Noise Pollution

4. Sustainable Materials & Green Buildings

5. Safety & Quality Management

6. Ecology and Stream Pollution

7. Environmental Impact Assessment

8. Greenfield Projects

9. Engineering Economics and Project Appraisal

10. Entrepreneurship for Engineers