

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR
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CO Attainment & Gap Analysis Jan – June 2025

Table.1: CO Attainment & Gap Analysis of I Year, II SEM

Course Code & Name	Course Outcomes	Direct CO Attainment	Indirect CO Attainment	Overall CO Attainment	Target Attainment	Gap in Attainment	Status of CO Attainment	Action Taken
11241201: Surveying	CO1	1.34	1.58	1.38	2.25	0.87	Not Attained	Extra tutorials will be conducted on basic surveying concepts.
	CO2	2.00	1.75	1.95	2.25	0.30	Not Attained	Additional exercises will be given on levelling and contouring.
	CO3	2.00	1.83	1.97	2.25	0.28	Not Attained	Hands-on field practice will be organized on surveying methods.
	CO4	2.03	1.67	1.96	2.25	0.29	Not Attained	Extra sessions will be conducted
	CO5	1.13	1.83	1.27	2.25	0.98	Not Attained	Remedial Classes will be conducted
11241202: Strength of Material	CO1	1.00	2.07	1.21	2.25	1.04	Not Attained	Revision sessions will be conducted on basic stress and strain concepts.
	CO2	1.00	1.98	1.20	2.25	1.05	Not Attained	Extra numerical practice will be provided on bending and shear stress.
	CO3	1.00	1.89	1.18	2.25	1.07	Not Attained	Problem-solving sessions will be organized on torsion and deflection.
	CO4	1.00	1.96	1.19	2.25	1.06	Not Attained	Complex beam and column problems will be explained through examples.
	CO5	0.77	1.86	0.99	2.25	1.26	Not Attained	Additional exercises will be assigned on strain energy and related topics.
11241203: Concrete Technology	CO1	1.36	2.17	1.52	2.25	0.73	Not Attained	Extra sessions will be conducted on properties and behavior of fresh and

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								hardened concrete.
	CO2	1.47	2.13	1.60	2.25	0.65	Not Attained	Additional practice will be provided on mix design and proportioning methods.
	CO3	1.71	2.04	1.78	2.25	0.47	Not Attained	Lab demonstrations will be organized on testing of concrete ingredients and strength.
	CO4	1.11	2.15	1.32	2.25	0.93	Not Attained	Durability and quality control aspects will be explained through case examples.
	CO5	1.20	2.02	1.36	2.25	0.89	Not Attained	Remedial Classes will be conducted
11241204: Fluid Mechanics-I	CO1	1.60	2.00	1.68	2.25	0.57	Not Attained	More problem-solving sessions will be conducted.
	CO2	1.60	1.98	1.68	2.25	0.57	Not Attained	Additional tutorials and examples will be provided.
	CO3	1.00	1.98	1.20	2.25	1.05	Not Attained	Remedial classes and quizzes will be held.
	CO4	1.60	1.96	1.67	2.25	0.58	Not Attained	Demonstration-based learning will be implemented.
	CO5	1.20	2.13	1.39	2.25	0.86	Not Attained	More assignment & problems will be conducted.
11241206: Matrices & Calculus	CO1	2.04	2.35	2.10	2.25	0.15	Not Attained	Additional problem-solving sessions will be conducted.
	CO2	2.08	2.46	2.16	2.25	0.09	Not Attained	Concept-based tutorials will be provided.
	CO3	1.94	2.39	2.03	2.25	0.22	Not Attained	Remedial classes and practice quizzes will be held.
	CO4	2.10	2.52	2.19	2.25	0.06	Not Attained	Remedial classes and quizzes will be held.
	CO5	1.20	2.42	1.44	2.25	0.81	Not Attained	more assignments will be given.
11241206: Building Material & Construction Lab	CO1	3.00	2.43	2.89	2.25	-0.64	Attained	
	CO2	3.00	2.38	2.88	2.25	-0.63	Attained	
	CO3	3.00	2.46	2.89	2.25	-0.64	Attained	
	CO4	3.00	2.39	2.88	2.25	-0.63	Attained	

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	CO5	3.00	2.51	2.90	2.25	-0.65	Attained	
11241207: Python Programming Through Python	CO1	3.00	2.58	2.92	2.25	-0.67	Attained	
	CO2	3.00	2.47	2.89	2.25	-0.64	Attained	
	CO3	3.00	2.36	2.87	2.25	-0.62	Attained	
	CO4	3.00	2.55	2.91	2.25	-0.66	Attained	
	CO5	3.00	2.39	2.88	2.25	-0.63	Attained	
11241209: Micro Project-II	CO1	2.30	2.25	2.29	2.25	-0.04	Attained	
	CO2	2.30	2.31	2.30	2.25	-0.05	Attained	
	CO3	2.30	2.28	2.30	2.25	-0.05	Attained	
	CO4	2.30	2.35	2.31	2.25	-0.06	Attained	
	CO5	2.30	2.40	2.32	2.25	-0.07	Attained	
11241210: Engineering Physics Lab	CO1	3.00	2.61	2.92	2.25	-0.67	Attained	
	CO2	3.00	2.71	2.94	2.25	-0.69	Attained	
	CO3	3.00	2.78	2.96	2.25	-0.71	Attained	
	CO4	3.00	2.64	2.93	2.25	-0.68	Attained	
	CO5	3.00	2.81	2.96	2.25	-0.71	Attained	
11241211: Language Lab	CO1	3.00	2.77	2.95	2.25	-0.70	Attained	
	CO2	3.00	2.70	2.94	2.25	-0.69	Attained	
	CO3	3.00	2.58	2.92	2.25	-0.67	Attained	
	CO4	3.00	2.83	2.97	2.25	-0.72	Attained	
	CO5	3.00	2.81	2.96	2.25	-0.71	Attained	
11241212: Sustainability & Environmental Science	CO1	2.17	2.06	2.15	2.25	0.10	Not Attained	Awareness sessions and case studies will be conducted.
	CO2	2.15	2.11	2.14	2.25	0.11	Not Attained	Additional tutorials and discussions will be provided.
	CO3	1.73	1.97	1.78	2.25	0.47	Not Attained	Remedial classes and practical examples will be held.
	CO4	1.20	2.06	1.37	2.25	0.88	Not Attained	Field visits and demonstration sessions will be organized.
	CO5	1.20	2.00	1.36	2.25	0.89	Not Attained	Interactive group activities will be conducted.

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Table.2: CO Attainment& Gap Analysis of II Year, IV SEM

Course Code & Name	Course Outcomes	Direct CO Attainment	Indirect CO Attainment	Overall CO Attainment	Target Attainment	Gap in Attainment	Status of CO Attainment	Action Taken
3110421: Fluid Mechanics-II	CO1	1.84	2.76	2.95	2.25	-0.70	Attained	
	CO2	1.79	2.79	2.96	2.25	-0.71	Attained	
	CO3	2.43	2.74	2.95	2.25	-0.70	Attained	
	CO4	2.36	2.81	2.96	2.25	-0.71	Attained	
	CO5	2.38	2.80	2.96	2.25	-0.71	Attained	
3110422: Theory of Structures-II	CO1	1.73	2.74	2.95	2.25	-0.70	Attained	
	CO2	1.74	2.69	2.94	2.25	-0.69	Attained	
	CO3	2.31	2.71	2.94	2.25	-0.69	Attained	
	CO4	2.19	2.76	2.95	2.25	-0.70	Attained	
	CO5	2.30	2.73	2.95	2.25	-0.70	Attained	
3110423: Water Supply Engineering	CO1	1.77	2.83	2.97	2.25	-0.72	Attained	
	CO2	1.79	2.85	2.97	2.25	-0.72	Attained	
	CO3	2.48	2.86	2.97	2.25	-0.72	Attained	
	CO4	2.53	2.79	2.96	2.25	-0.71	Attained	
3110423: Water Supply Engineering Lab				2.17	2.25	0.08	Not Attained	Conducted additional lectures and tutorials with examples and quizzes to strengthen conceptual understanding of Water Supply Engineering.
	CO1	3.00	2.17					
	CO2	3.00	2.37	2.37	2.25	-0.12	Attained	
	CO3	3.00	2.45	2.45	2.25	-0.20	Attained	
3110424: Water Resource Engineering	CO1	1.77	2.73	2.95	2.25	-0.70	Attained	
	CO2	1.76	2.79	2.96	2.25	-0.71	Attained	
	CO3	2.43	2.73	2.95	2.25	-0.70	Attained	
	CO4	2.48	2.76	2.95	2.25	-0.70	Attained	

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	CO5	2.33	2.72	2.94	2.25	-0.69	Attained	
3110425: Civil Drawing Lab				0.48	2.25	1.77	Not Attained	Additional drawing practice sessions were conducted to help students accurately draw different components of a building.
	CO1	3.00	2.38					
	CO2	3.00	2.46	0.49	2.25	1.76	Not Attained	Extra classes and hands-on exercises were organized to improve preparation of plan, elevation, and section drawings of buildings.
	CO3	3.00	2.37	0.47	2.25	1.78	Not Attained	Additional lab sessions were conducted to enhance student proficiency in using AutoCAD software for civil engineering drawings.
	CO4	3.00	2.21	0.44	2.25	1.81	Not Attained	Practice assignments and project-based learning activities were given to prepare complete drawing sheets of residential, institutional, and commercial buildings.
3110426: Cyber Security	CO1	1.96	2.78	2.96	2.25	-0.71	Attained	
	CO2	1.93	2.85	2.97	2.25	-0.72	Attained	
	CO3	2.48	2.76	2.95	2.25	-0.70	Attained	
	CO4	2.49	2.74	2.95	2.25	-0.70	Attained	

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Table.3: CO Attainment& Gap Analysis of III Year, VI SEM

Course Code & Name	Course Outcomes	Direct CO Attainment	Indirect CO Attainment	Overall CO Attainment	Target Attainment	Gap in Attainment	Status of CO Attainment	Action Taken
2110620: AI&ML	CO 1	1.48	2.78	2.21	2.25	-0.04	Attained	
	CO 2	1.46	2.79	2.31	2.25	0.06	Not Attained	Extra hands-on coding sessions and practice exercises were conducted
	CO 3	1.41	2.85	2.15	2.25	-0.10	Attained	
	CO 4	1.48	2.81	2.10	2.25	-0.15	Attained	
	CO 5	1.49	2.77	2.27	2.25	0.02	Not Attained	
2110621: Solid & Hazardous Waste Management	CO 1	1.32	2.54	2.27	2.25	0.02	Not Attained	Lectures, case studies, and discussions were conducted to explain the principles and concepts of waste management.
	CO 2	1.36	2.07	2.00	2.25	-0.25	Attained	
	CO 3	1.30	2.10	2.00	2.25	-0.25	Attained	
	CO 4	1.40	2.15	1.79	2.25	-0.46	Attained	
	CO 5	#DIV/0!	2.15	2.07	2.25	-0.18	Attained	
2110622: S.D.D (Steel)	CO 1	2.51	2.66	2.24	2.25	-0.01	Attained	
	CO 2	2.29	2.68	2.10	2.25	-0.15	Attained	
	CO 3	1.90	2.62	2.29	2.25	0.04	Not Attained	Problem-solving sessions and design exercises were conducted using relevant IS codes to design simple and built-up compression members.
	CO 4	1.94	2.65	2.16	2.25	-0.09	Attained	
	CO 5	#DIV/0!	2.66	2.14	2.25	-0.11	Attained	

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910110: Building Maintenance & Services	CO 1	1.59	2.68	2.39	2.25	0.14	Not Attained	Classroom discussions and field visit were conducted to identify various building services.
	CO 2	1.57	2.64	2.45	2.25	0.20	Not Attained	Practical exercises and case studies were organized to plan fire-fighting systems in buildings.
	CO 3	1.55	2.66	2.35	2.25	0.10	Not Attained	Assignments and interactive sessions were conducted to develop strategies for building services maintenance.
	CO 4	1.59	2.67	2.38	2.25	0.13	Not Attained	Design projects and workshops were organized to create sustainable building services plans.
	CO 5	1.54	2.60	2.34	2.25	0.09	Not Attained	Design projects and workshops were organized to create sustainable building services plans.
910111: Sustainable Material & Green Building	CO 1	2.50	2.79	2.18	2.25	-0.07	Attained	
	CO 2	2.52	2.83	2.21	2.25	-0.04	Attained	
	CO 3	2.44	2.74	2.11	2.25	-0.14	Attained	
	CO 4	2.33	2.80	2.29	2.25	0.04	Not Attained	Case studies and design exercises were conducted to apply ECBC, LEED, and GRIHA guidelines in building planning.
	CO 5	1.92	2.81	2.45	2.25	0.20	Not Attained	Practical examples and project assignments were given to integrate renewable energy sources in building designs.
2110623: Minor Project-II	CO 1	3.00	2.36	0.00	2.25	-2.25	Attained	
	CO 2	3.00	2.28	0.00	2.25	-2.25	Attained	

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	CO 3	3.00	2.51	0.00	2.25	-2.25	Attained	
	CO 4	3.00	2.19	0.00	2.25	-2.25	Attained	
	CO 5	3.00	2.35	0.00	2.25	-2.25	Attained	
1000007: Intellectual Property Right	CO 1	1.43	2.84	2.29	2.25	0.04	Not Attained	Interactive lectures and case studies were conducted to enhance understanding of IPR concepts and laws.
	CO 2	1.48	2.88	2.26	2.25	0.01	Not Attained	Practical assignments and real-world examples were provided to apply IPR knowledge in professional contexts.
	CO 3	1.54	2.90	2.34	2.25	0.09	Not Attained	Project-based activities were organized to develop platforms for IPR protection and compliance.
	CO 4	1.53	2.83	2.37	2.25	0.12	Not Attained	Seminars and awareness sessions were conducted to educate academia and industry on IPR and copyright compliance.
	CO 5	#DIV/0!	2.85	2.28	2.25	0.03	Not Attained	Presentations and discussions were held to explain the purpose and functions of IPR and patenting.

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Table.4: CO Attainment& Gap Analysis of IV Year, VIII SEM

Course Code & Name	Course Outcomes	Direct CO Attainment	Indirect CO Attainment	Overall CO Attainment	Target Attainment	Gap in Attainment	Status of CO Attainment	Action Taken
110821: Internship/ Project	CO 1	3.00	3.00	3.00	2.25	-0.75	Attained	
	CO 2	3.00	3.00	3.00	2.25	-0.75	Attained	
	CO 3	3.00	3.00	3.00	2.25	-0.75	Attained	
	CO 4	3.00	3.00	3.00	2.25	-0.75	Attained	
	CO 5	3.00	3.00	3.00	2.25	-0.75	Attained	