MANAV RACHNA INTERNATIONAL INSTITUTE OF RESEARCH & STUDIES

(Deemed to be University under section 3 of the UGC Act 1956)

(Formerly Manav Rachna International University)

M. Tech. (Civil Engineering) Specialization: Structural Engineering/Construction Management/Transportation Engineering (2022-24)

			SEMESTER-I								
COURSE TYPE	**SUBJECT CODE**	**SUBJECT**	**PERIODS/WEEK**				**MARKS**			**Duration of Exam**	**Credits**
			L	**T**	**P**	**TOTAL**	**INT**	**EXT**	**TOTAL**		
Program Core I	MCE-SE-101/ MCE-CM-101/ MCE-TE-101	Advanced Structural Analysis/ Project Planning and Control/ Traffic Engineering	3	0	0	3	100	100	200	3 hours	**3**
Program Core II	MCE-SE-102/ MCE-CM-102/ MCE-TE-102	Advanced Solid Mechanics/ Construction Contract Management/ Urban and Regional Transport Planning	3	0	0	3	100	100	200	3 hours	**3**
Program Core III	MCE-101	Advanced Concrete Technology	3	0	0	3	100	100	200	3 hours	**3**
Program Elective-I		Elective-I	3	0	0	3	100	100	200	3 hours	**3**
Program Elective-II		Elective-II	3	0	0	3	100	100	200	3 hours	**3**
Core Lab -I	MCE-SE-151/ MCE-CM-151A/ MCE-TE-151	Structural Design Lab/Planning & Scheduling Lab/Traffic Engineering Lab	0	0	2	2	50	50	100	2 hours	**2**
Core Lab -II	MCE-151	Construction Materials Lab	0	0	2	2	50	50	100	2 hours	**2**
MLC	M- MC-100	Research Methodology and IPR	2	0	0	2	50	50	100	3 hours	**2**
Audit I	M-MC-003	Disaster Management	2	0	0	2	50	50	100	3 hours	**AP**
			19	**0**	**4**	**23**	**700**	**700**	**1400**		**21**

Program Elective – I					
MCE-SE-103	Theory of Thin Plates and Shells	MCE-CM-103	Quality Control and Safety in Construction	MCE-TE-103	Advanced Railway Engineering
MCE-SE-104	Design of Industrial Structures	MCE-CM-104	Building Serviceability and Maintenance Management	MCE-TE-104	Design and Maintenance of Pavements
MCE-SE-105	Theory of Structural Stability	MCE-CM-105A	Construction of Tall Structures	MCE-TE-105	Public Transportation Systems

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Program Elective – II					
MCE-SE-106	Analytical and Numerical Methods for Structural Engineering	MCE-CM-106	Energy Conservation Techiques in Building Construction	MCE-TE-106	Road Construction Planning and Management
MCE-SE-107	Structural Health Monitoring	MCE-CM-107	Human Resource Management in Construction	MCE-TE-107	Transportation Economics and Finance
MCE-SE-108	Structural Optimization	MCE-CM-108	Pavement Materials and Construction Techniques	MCE-CM-108	Pavement Materials and Construction Techniques

	SEMESTER-II										
Type	**SUBJECT CODE**	**SUBJECT**	**PERIODS/WEEK**				**MARKS**			**Duration of Exam**	**Credits**
			L	**T**	**P**	**TOTAL**	**INT**	**EXT**	**TOTAL**		
Program Core-IV	MCE-SE-201/ MCE-CM-201/ MCE-TE-201	FEM in Structural Engineering/ Resource Management and Control in Construction/ Geometric Design of Streets and Highways	3	0	0	3	100	100	200	3 hours	**3**
Program Core-V	MCE-SE-202A/ MCE-CM-202/ MCE-TE-202	Structural Dynamics/ Construction Economics and Finance/ Intelligent Transportation Systems	3	0	0	3	100	100	200	3 hours	**3**
Program Core-VI	MCE-201	Numerical Methods in Civil Engineering	3	0	0	3	100	100	200	3 hours	**3**
Program Elective-III		Elective – III	3	0	0	3	100	100	200	3 hours	**3**
Program Elective-IV		Elective – IV	3	0	0	3	100	100	200	3 hours	**3**
Core Lab-III	MCE-SE-251/ MCE-CM-251/ MCE-TE-251	Model Testing Lab/Computational lab/Computational lab	0	0	2	2	50	50	100	2 hours	**2**
Core Lab-IV	MCE-251	Numerical Analysis Lab	0	0	2	2	50	50	100	2 hours	**2**
Project	MCE-200	Mini Project	0	0	4	4	100	50	150	3 hours	**2**
Audit II	M-MC-002	English for Research Paper Writing	2	0	0	2	50	50	100	3 hours	**AP**
	TOTAL		**17**	**0**	**8**	**25**	**750**	**700**	**1450**		**21**

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Program Elective – III					
MCE-SE-203	Advanced Steel Design	MCE-CM-203	Formwork and Shuttering	MCE-TE-203	Highway Sub-Grade and Foundation Analysis
MCE-SE-204	Design of Formwork	MCE-CM-204	Reliability Analysis in Construction Management	MCE-TE-204	Advanced Engineering Geology
MCE-SE-205	Design of High Rise Structures	MCE-CM-205	Applied Statistics & Queuing Theory	MCE-CM-205	Applied Statistics & Queuing Theory
MCE-SE-206	Design of Masonry Structures	MCE-CM-206	Construction Project Management and BOT system	MCE-CM-206	Construction Project Management and BOT system
MCE-202	Airport Planning and Design	MCE-202	Airport Planning and Design	MCE-202	Airport Planning and Design
MCE-203	Advanced Construction Technology	MCE-203	Advanced Construction Technology	MCE-203	Advanced Construction Technology

Program Elective – IV					
MCE-SE-207	Design of Advanced Concrete Structures	MCE-CM-207	Legal Aspects in Construction Engineering	MCE-TE-207	Geographic Information Systems
MCE-SE-208	Advanced Design of Foundations	MCE-CM-208	Management Information Systems for Construction Management	MCE-TE-208	Advanced Design of Bridges
MCE-SE-209	Soil Structure Interaction	MCE-CM-209	Entrepreneurship in Construction	MCE-TE-209	Transportation Safety and Environment
MCE-204	Modern Construction Techniques	MCE-204	Modern Construction Techniques	MCE-204	Modern Construction Techniques

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	SEMESTER-III										
	SUBJECT CODE	SUBJECT	PERIODS/WEEK				MARKS			Duration of Exam	Credits
			L	T	P	TOTAL	INT	EXT	TOTAL		
Program Elective-V		Elective – V	3	0	0	3	100	100	200	3 hours	**3**
Open Elective		Open Elective	3	0	0	3	100	100	200	3 hours	**3**
Project	MCE-300	Dissertation Phase – I*	0	0	20	20	200	100	300	3 hours	**10**

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			6	**0**	**20**	**26**	**400**	**300**	**700**		**16**

***The topic of dissertation is to be approved by an internal committee at commencement of 3rd Semester**

Program Elective – V					
MCE-SE-301A	Design of Prestressed Concrete Structures	MCE-CM-301	Construction Equipments	MCE-TE-301	Transportation System Planning and Management
MCE-SE-302	Analytical and Finite Element Analysis of Laminated Composite Plates	MCE-CM-302	Total Quality Management in Construction	MCE-TE-302	Traffic Simulation Modelling and Application
MCE-SE-303	Fracture Mechanics of Concrete Structures	MCE-CM-303	Sustainable Building Construction	MCE-TE-303	Application of Geosynthetics in pavements
MCE-SE-304	Design of Plates and Shells	MCE-CM-304	Thrust Areas in Project Management	MCE-TE-304	Sustainable transportation
MCE-301	Precast Construction Technology	MCE-301	Precast Construction Technology	MCE-301	Precast Construction Technology
MCE-302	Retrofitting and Rehabilitation of Structures	MCE-302	Retrofitting and Rehabilitation of structures	MCE-302	Retrofitting and Rehabilitation of structures
MCE-303A	Environmental Impact Assessment	MCE-303A	Environmental Impact Assessment	MCE-303A	Environmental Impact Assessment

SEMESTER-IV											
	SUBJECT CODE	**SUBJECT**	**PERIODS/WEEK**				**MARKS**			**Duration of Exam**	**Credits**
			L	**T**	**P**	**TOTAL**	**INT**	**EXT**	**TOTAL**		
Project	MCE-400	Dissertation (Phase II)**	0	0	32	32	400	200	600	3 hours	16
	TOTAL		**0**	**0**	**32**	**32**	**400**	**200**	**600**		**16**
										GRAND TOTAL CREDIT =	**74**

****The student should publish atleast one research paper in reputed indexed journal based on their dissertation work**

Course Code	**Open Elective**	**L**	**T**	**P**	**Credits**
M-ID-001	Business Analytics	3	0	0	3
M-ID-002	Industrial Safety	3	0	0	3

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M-ID-003	Operations Research	3	0	0	3
M-ID-004	Cost Management of Engineering Projects	3	0	0	3
M-ID-005	Composite Materials	3	0	0	3
M-ID-006	Waste to Energy	3	0	0	3

Course Code	**Audit Course 1 & 2**	**L**	**T**	**P**	**Credits**
M-MC-001	Stress Management by Yoga	2	0	0	AP
M-MC-002	English for Research Paper Writing	2	0	0	AP
M-MC-003	Disaster Management	2	0	0	AP
M-MC-004	Sanskrit for Technical Knowledge	2	0	0	AP
M-MC-005	Value Education	2	0	0	AP
M-MC-006	Constitution of India	2	0	0	AP
M-MC-007	Pedagogy Studies	2	0	0	AP
M-MC-008	Personality Development through Life Enlightenment Skills.	2	0	0	AP

Summary Semesterwise Marks & Credits				
Semester	**MARKS**			**Credits**
	INT	**EXT**	**TOTAL**	
I	**700**	**700**	**1450**	**21**
II	**750**	**700**	**1450**	**21**
III	**400**	**300**	**700**	**16**

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IV	**400**	**200**	**600**	**16**
Total				**74**

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