Maulana Azad National Institute of Technology, Bhopal – 462003
Civil Engineering Department

M Tech in Hydropower Engineering

SCHEME OF STUDY (wef July 2021)

First Semester:

Course No.	Subject	Scheme of studies periods per week			Total Credits
		L	T	P	
HY 511	Computational Fluid Dynamics	3	-	-	3
HY 512	Advanced Fluid Mechanics	3	-	-	3
HY 513	Hydro Power Potential Assessment	3	-	-	3
HY 514	Theory of Cascades	3	-	-	3
HUM 511	Communication Skills	2	-	-	2
	Elective-1 (A)	3	-	-	3
	Elective-2 (B)	3	-	-	3
HY 515	Lab-1	-	-	2	1
HY 516	Seminar-1	-	-	2	1
Total Hours: 24 Total Credits: 22		Total Semester Credits			22

Second Semester:

Course No.	Subject	Scheme of studies periods per week			Total Credits
		L	T	P	
HY 521	Characteristics of Hydraulic Machines	3	-	-	3
HY 522	Design of Hydraulic Turbines	3	-	-	3
HY 523	Design of Hydraulic Pumps	3	-	-	3
	Elective-3 (A)	3	-	-	3
	Elective-4 (A)	3	-	-	3
	Elective-5 (C)	3	-	-	3
MTH 524	Research Methodology	1	1	-	2
HY 525	Lab-2	-	-	2	1
HY 526	Seminar-2	-	-	2	1
Total Hours: 24 Total Credits: 44		Total Semester Credits			22

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Third Semester:

Course No.	Subject	Scheme of studies periods per week			Total Credits
		L	T	P	
HY 611	Dissertation Phase - I	-	-	32	16
Total Hours: 32 Total Credits: 60		Total Semester Credits			16

Fourth Semester:

Course No.	Subject	Scheme of studies periods per week			Total Credits
		L	T	P	
HY 621	Dissertation Phase - II	-	-	40	20
Total Hours: 40 Total Credits: 80		Total Semester Credits			20

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Civil Engineering Department

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List of Program Electives A		List of Open Electives C	
HY 551	Planning & Layout of Hydro Power Plants	ARP - 581	Introduction to Urban Planning
HY 552	River Basin Planning and Management	BSE – 581	Bioprocess Engineering
HY 553	Hydro Power Structures	BSE – 582	Biophysics Tools and Techniques
HY 554	Hydraulic Transients	CHE – 581	Analytical Techniques
HY 555	Instrumentation and Measurements	CHE – 582	Green Technology & Processes
HY 556	Manufacturing of Hydro Equipment	CSE – 581	Machine Learning
HY 557	Small Hydro and Tidal Power Plants	CSE – 582	Advanced Data Structures and Algorithms
HY 558	Design and Analysis of Piping Systems	PHY – 581	Nanotechnology and Nanoscience
HY 559	Industrial Hydraulics	EE – 581	Electric Machines & Applications
		EE – 582	Control and Instrumentation
		ECE – 581	Introduction to Fuzzy Logic
List of Departmental Electives B		ECE – 582	Neural Networks and its Applications
ST 514	Advanced Design of Structures	EC - 581	Energy Resource Technologies
ST 557	Design of Foundation Systems	HUM – 581	Intellectual Property Rights for Engineers
WR 514	Water Resources Assessment and Modeling	HUM – 582	Applied Psychology: Human Centered Design and Engineering
WR 561	Dam Engineering	MTH – 581	Advanced Operations Research
GI 512	Basics of Remote Sensing Technology	MTH – 582	Computing Technologies
		ME – 581	Value Engineering
		ME – 582	Design Thinking
		ME - 583	Mechatronics and NDT in Engineering
		MME – 581	Advanced Instrumentation Methods for Material Analysis
		MME – 582	Smart Materials and their Application
		MBA-581	Engineering Startup Management