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

M Tech in Hydropower Engineering

SCHEME OF STUDY (January 2021)

First Semester:

Course No.	Subject	Scheme of studies periods per week			Total Credits
		L	T	P	
HY 101	Computational Fluid Dynamics	3	-	-	3
HY 102	Advanced Fluid Mechanics	3	-	-	3
HY 103	Hydro Power Potential Assessment	3	-	-	3
HY 104	Theory of Cascades	3	-	-	3
	Elective-1 (A)	3	-	-	3
	Elective-2 (B)	3	-	-	3
HY 105	Lab-1	-	-	2	1
HY 106	Seminar-1	-	-	2	1
HY 107	Communication Skills NPTEL/ MOOC/ Humanities Deptt.	2	-	-	2
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 201	Characteristics of Hydraulic Machines	3	-	-	3
HY 202	Design of Hydraulic Turbines	3	-	-	3
HY 203	Design of Hydraulic Pumps	3	-	-	3
	Elective-3 (A)	3	-	-	3
	Elective-4 (A)	3	-	-	3
	Elective-5 (C)	3	-	-	3
HY 204	Lab-2	-	-	2	1
HY 205	Research Methodology, Technical Report and Paper Writing	-	2	-	2
HY 206	Seminar-2	-	-	2	1
Total Hours: 24 Total Credits: 44		Total Semester Credits			22

Third Semester:

Course No.	Subject	Scheme of studies periods per week			Total Credits
		L	T	P	
HY 301	Dissertation Phase-1	-	-	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 401	Dissertation Phase-2	-	-	40	20
Total Hours: 40 Total Credits: 80		Total Semester Credits			20

List of Electives A		List of Electives B	
HY501	Planning & Layout of Hydro Power Plants	ST104	Advanced Design of Structures
HY502	River Basin Planning and Management	ST507	Design of Foundation Systems
HY503	Hydro Power Structures	WR102	Applied Hydrology
HY504	Hydraulic Transients	WR511	Dam Engineering
HY505	Instrumentation and Measurements	**List of Electives C**	
HY506	Manufacturing of Hydro Equipment	ID203	Advanced Product Design
HY507	Small Hydro and Tidal Power Plants	IT202	Failure Analysis & Prevention
HY508	Design and Analysis of Piping Systems	AM202	Advanced Composite Materials
HY509	Industrial Hydraulics	SV203	Theory of Vibration II
		TH202	Thermal Environmental Engineering
		PS201	Modern Control Systems
		ED202	Advanced Control Systems
		VE202	VLSI Technology
		DC203	Digital Image Processing
		AC203	Optimization Techniques
		AI202	Deep Learning
		CN203	Graph Theory & Network Algorithm
		IS201	Applied Cryptography
		MS202	Deformation Behavior of Materials
		CH203	Industrial Safety & Hazard Management
		HS1204	Housing Finance
		UP1203	Infrastructure Planning
		NT201	Nano Structures Characterization Techniques
		BI203	Optimization Techniques & Graph
		CSB201	Mathematical Modeling & Simulation of Biological Systems
		RE202	Solar Energy Systems
		ES202	Energy Management in Buildings
		BIO201	Cheminformatics & Drug Designing

Group A: Program Electives.

Group B: Departmental Electives.

Group C: Open Electives.
{It may also be opted as NPTEL Course after approval from Chairman Senate}