



Maulana Azad

NATIONAL INSTITUTE OF TECHNOLOGY, Bhopal-462003

DEPARTMENT OF CIVIL ENGINEERING

M. Tech. in Civil Engineering

*With Specialization in: Water Resources Engineering*

SCHEME OF STUDY (Revised April 2020)

**FIRST SEMESTER**

Course No.	Subject	Scheme of Studies Periods per week			Total Credits
		L	T	P	
WR101	Computational Techniques in Water Resources Engineering	3	1	-	4
WR102	Applied Hydrology	3	1	-	4
WR103	Irrigation and Drainage Engineering	3	1	-	4
WR104	Advanced Hydraulics	3	1	-	4
	Elective1(A)	3	1	-	4
	Elective 2(B)	3	1	-	4
WR105	Lab-1	-	-	2	1
WR106	Seminar-1	-	-	2	1
WR107	Computational Skills NPTEL/MOOC/Hum Deptt	2	-	-	2
<b>Total Hours 30</b>		<b>Total Credit</b>			<b>28</b>
<b>Total Credits (Cumulative) 28</b>					

**SECOND SEMESTER**

Course No.	Subject	Scheme of Studies Periods per week			Total Credits
		L	T	P	
WR201	Hydraulic Structures	3	1	-	4
WR202	Water Resources Systems	3	1	-	4
WR203	Ground Water Engineering	3	1	-	4
	Elective 3(A)	3	1	-	4
	Elective 4(A)	3	1	-	4
	Elective 5(C)	3	1	-	4
WR204	Lab-2	-	-	2	1
WR205	Research Methodology, Technical Report and Paper Writing	-	2	-	2
WR206	Seminar-2	-	-	2	1
<b>Total Hours 30</b>		<b>Total Credit</b>			<b>28</b>
<b>Total Credits (Cumulative) 56</b>					

**Third Semester**

Course No.	Subject	Scheme of Studies Periods per week			Total Credits
		L	T	P	
WR301	Dissertation Phase-1	-	-	24	12
<b>Total Hours</b> 24 <b>Total Credits (Cumulative) 68</b>		<b>Total Credit</b>			<b>12</b>

**Fourth Semester**

Course No.	Subject	Scheme of Studies Periods per week			Total Credits
		L	T	P	
WR401	Dissertation Phase-2	-	-	24	12
<b>Total Hours</b> 24 <b>Total Credits (Cumulative) 80</b>		<b>Total Credit</b>			<b>12</b>

## LIST OF ELECTIVES

### **Group – A Program Electives**

- WR 501 Flood Measurement and Management
- WR 502 Integrated Watershed Management
- WR 503 Transient Flow Analysis
- WR 504 Modelling and Simulation in Water Resources
- WR 505 Design of spillways and Hydraulic Energy Dissipaters
- WR 506 Sediment Transportation
- WR 507 Reservoir Planning and Management
- WR 508 Finite Element Method
- WR 509 Rainwater Harvesting Recycling and Reuse
- WR 510 Impact of Climate Change on Water Resources
- WR 511 Dam Engineering

### **Group – B Department Electives (for other programs of same department only)**

- WR 601 Applied Hydrology
- WR 602 Irrigation and Drainage Engineering
- WR 603 Advanced Hydraulics
- WR 604 Integrated Watershed Management

### **Group – C Institute Electives (for other departments only)**

- WR 701 Hydraulic Structures
- WR 702 Water Resources Systems
- WR 703 Design of spillways and Hydraulic Energy Dissipaters
- WR 704 Finite Element Method
- WR 705 Rainwater Harvesting Recycling and Reuse