

**DEPARTMENT OF EARTHQUAKE ENGINEERING  
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE**

Program Code:     **22**    **M.Tech. (Soil Dynamics)**  
 Department:       **EQ**     **Earthquake Engineering**  
 Year:                **I**

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weight (%)				
S. No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE
<b>Semester- I (Autumn)</b>														
1.	EQN-501	Theory of Vibrations	PCC	4	3	1	2/2	3	-	20	20	20	40	-
2.	EQN-504	Finite Element Method	PCC	4	3	1	0	3	-	25	-	25	50	-
3.	EQN-513	Numerical Methods for Dynamic Systems	PCC	3	3	0	0	3	-	25	-	25	50	-
4.	EQN-521	Geotechnical Earthquake Engineering	PCC	4	3	1	0	3	-	25	-	25	50	-
5.		Programme Elective	PEC	4	-	-	-	-	-	-	-	-	-	-
		Total		19	12	3	1							
<b>Semester-II (Spring)</b>														
1.	EQN-524	Earthquake Resistant Design of Foundations	PCC	3	3	0	0	3	-	25	-	25	50	-
2.	EQN-700	Seminar	SEM	2	-	-	-	-	-	-	-	-	100	-
3.		Programme Elective	PEC	4	-	-	-	-	-	-	-	-	-	-
4.		Programme Elective	PEC	4	-	-	-	-	-	-	-	-	-	-
5.		Programme Elective	PEC	4	-	-	-	-	-	-	-	-	-	-
6.		Programme Elective	PEC	4	-	-	-	-	-	-	-	-	-	-
		Total		21	3	-	-							

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 Year:                **II**

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weight (%)				
S. No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE
<b>Semester- I (Autumn)</b>														
1.	EQN-701A	Dissertation Stage-I (to be continued next semester)	DIS	12	-	-	-	-	-	-	-	-	100	-
		Total		12										
<b>Note: Students can take 1 or 2 audit courses as advised by the supervisor, if required.</b>														
<b>Semester-II (Spring)</b>														
1.	EQN-701B	Dissertation Stage-II (contd. From III semester)	DIS	18	-	-	-	-	-	-	-	-	100	-
		Total		18										

<b>Summary</b>				
Semester	1	2	3	4
<b>Semester-wise Total Credits</b>	<b>19</b>	<b>21</b>	<b>12</b>	<b>18</b>
<b>Total Credits</b>	<b>70</b>			

**Program Elective Courses (Soil Dynamics)**

Teaching Scheme					Contact Hours/Week			Exam Duration		Relative Weight (%)				
S. No.	Subject Code	Course Title	Subject Area	Credits	L	T	P	Theory	Practical	CWS	PRS	MTE	ETE	PRE
1.	EQN-519	Dynamic Soil Structure Interaction	PEC	4	3	1	0	3	-	25	-	25	50	-
2.	EQN-522	Seismic Microzonation	PEC	4	3	1	0	3	-	25	-	25	50	-
3.	EQN-533	Seismotectonics	PEC	4	3	1	0	3	-	25	-	25	50	-
4.	EQN-571	Ground Improvement Techniques	PEC	4	3	1	0	3	-	25	-	25	50	-
5.	EQN-572	Machine Foundation	PEC	4	3	1	0	3	-	25	-	25	50	-
6.	EQN-576	Seismic Slope Stability: Earth Dams Retaining Walls	PEC	4	3	1	0	3	-	25	-	25	50	-
7.	EQN-577	Constitutive Modeling in Soil Dynamics	PEC	4	3	1	0	3	-	25	-	25	50	-
8.	EQN-584	Engineering Applications of Geophysical Techniques	PEC	4	3	1	0	3	-	25	-	25	50	-
9	EQN-598	Principles of Seismology	PEC	4	3	1	0	3	-	25	-	25	50	-