

2024

Curriculum
Master of Technology
M.Tech. (Railway Engineering)



SCHOOL OF TECHNOLOGY
GATI SHAKTI VISHWAVIDYALAYA
Central University, Sponsored by Ministry of Railways
Lalbaug, Vadodara - 390 004, Gujarat, India

Curriculum

M.Tech. (Railway Engineering)

L-T-P (Lecture-Tutorial-Practice)

Lecture (L): 1 Credit = 15 Hrs.

Tutorial (T): 1 Credit = 15 Hrs.

Practice (P) [(Practical / Project Work): 1 Credit = 30 Hrs.

Semester	Subjects	Lecture (L) Hrs./week	Tutorial (T) Hrs./week	Practice (P) Hrs./week	Credits	Hours	Page No.
I	Data Analysis Using Inferential Statistics and Modelling	2	1	0	3	45	
	AI/ML in Transportation	2	1	0	3	45	
	Intelligent Transportation Systems and Architecture	2	1	0	3	45	
	Introduction to Multimodal Transportation Ecosystem	2	0	0	2	30	
	Information Technology for Business Transformation	2	1	0	3	45	
	Total Credits				14		
II	Rolling Stock	2	1	0	3	45	
	Railway Operations Management	2	1	0	3	45	
	Introduction to Electrical and Electronics systems in Railways	2	1	0	3	45	
	Research Methodology	2	1	0	3	45	
	Transportation Data and Analysis Lab	0	0	2	1	30	
	Total Credits				13		
	Total First-Year Credits				27		
	Summer Internship - I (6 Weeks)			8	4		
	Total First-Year Credits including Summer Internship - I (6 Weeks)				31		
III	Rail Track Technology	2	1	0	3	45	
	Maintenance Engineering and Tribology	2	1	0	3	45	
	Rail Vehicle Dynamics	2	1	0	3	45	
	Railway Station and Cargo Terminal Design	2	1	0	3	45	
	Elective 1	2	0	0	2	30	
	Total Credits				14		
IV	Railway Safety, Accidents and Disaster Management	2	1	0	3	45	
	High Speed Rail Infrastructure Systems	2	1	0	3	45	
	Railway Geotechnics	2	0	0	2	30	
	Railway Bridge & Tunnel Engineering	2	1	0	3	45	
	Elective 2	2	0	0	2	30	
	Total Credits				13		
	Total Two-Years Credits				27		
	Summer Internship - II (6 Weeks)			8	4	120	
	Total Second Year Credits including Summer Internship - II (6 Weeks)				31		

V	Master's Thesis Project -Part I	0	0	12	6	120	
	Advanced Railway Materials and Structures	2	1	0	3	45	
	Total Credits				9		
VI	Elective 3	2	0	0	2	30	
	Master's Thesis Project - Part II	0	0	16	8	300	
	Total Credits				10		
	Total Third Year Credits				21		
	Total Program Credits				81		

List of Electives for M.Tech. (Railway Engineering)

Sl. No.	Name of the Elective	Credits	Hrs.
1	Cyber Security	2	30
2	Electronic Interlocking Maintenance And Troubleshooting	2	30
3	Urban Transportation and Planning	2	30
4	Public Transport Systems planning	2	30
5	Railway Infrastructure Projects and Construction Practices	2	30
6	Engineering Economics, Estimation, Costing and Tendering in Railways	2	30
7	Energy sustainability in Railways	2	30
8	Urban Rail Management	2	30

Students must choose at least two electives from the list indicated above and one elective from the other variants of M.Tech./MBA Programs.