

Planning of Metro Rail Systems

Course Name	Planning of Metro Rail Systems
Course Name as on Certificate	Planning of Metro Rail Systems
Certificate Type	Certificate of Completion by IITM Pravartak and L&T EduTech
Certificate Issued by	IIT MADRAS and L&T EduTech
Course Overview	<p><u>Course Overview</u></p> <p>The "Planning of metro rail systems" course offers a comprehensive exploration of Mass Rapid Transit Systems (MRTS) with modules covering fundamental principles, Transit-Oriented Development, feasibility studies, and planning and integration of metro systems. The course includes detailed insights into metro station planning, MEP systems, and critical aspects of contracts and quality control. With a focus on practical knowledge, the learners gain skills for successful metro system planning and management, contributing to sustainable urban development and enhancing public transportation efficiency. The course provides valuable insights for those seeking a thorough understanding of the complexities involved in metro planning.</p> <p><u>Course Objectives</u></p> <ul style="list-style-type: none"> • Understand the principles and benefits of Transit-Oriented Development (TOD) through case studies from Indian cities, highlighting its role in urban planning and sustainable development. • Explain the feasibility studies for Mass Rapid Transit Systems (MRTS), covering demand forecasting, analysis, and financial assessment to evaluate the viability and potential impact of such projects on urban mobility. • Examine the fundamental principles of alignment in metro systems, including factors influencing alignment decisions, span configuration, and foundation selection, with a focus on addressing urban constraints and planning restrictions. • Explore the components and erection techniques of metro viaducts, and planning of Metro station layouts • Investigate various methods of metro tunnel construction, emphasizing

	<p>engineering considerations, safety measures, and the role of MEP Systems in Metros .</p> <ul style="list-style-type: none"> Emphasize the significance of FIDIC standards and quality control throughout the Metro Rail project lifecycle. 		
Eligibility	Students pursuing Diploma/ UG / PG Programs in Civil Engineering		
Pre Requisites	Basics of Transportation, Soil mechanics and structural Engineering		
Target Segment	Students pursuing Diploma/ UG / PG Programs in Civil Engineering Faculties / Working Professionals in the above domain & other aspiring learners		
Course Content	See Enclosed Program details - as Annexure 1		
Pedagogy	Online Self paced E-Learning Content		
Assessment	One Final Assessment		
Programme Faculty	L&T Industry Experts		
Duration	Units : 6 Hours : 14 hours		
Class Schedule	Self Paced		
Programme Highlights/USPs	<ul style="list-style-type: none"> Planning of Station layouts FIDIC standards used in Metro Rail projects MEP systems Erection of Metro Vaiducts Construction methods for Tunnels 		
Programme Mentor	<p>T Cibin Engineering Manager -Metros, Heavy Civil Infrastructure, L&T Construction</p> <p>A Professionally motivated Structural Engineer with 12 years of experience in Design of Reinforced Concrete, Structural Steel, Composite, Timber and Masonry structures. Possess a diverse experience in Heavy Civil Engineering including Underground Metros, Tunnels, Defence & Marine Structures</p>		
Total Fees		Total Fees (Rs.)	
	Total Programme Fee	Rs 1,900 /- inclusive of Tax	

ANNEXURE 1

Proposed Course outline / program / plan - Unit wise syllabus details.

Unit - I : Introduction to mass rapid transit systems
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Necessity of MRTS, Transit Oriented Development, feasibility studies, sustainable and smart technologies, and the historical evolution of metros, it equips learners with a holistic understanding of modern urban transit challenges and solutions.
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Unit - II : Planning of metros

Essential principles for interface design, emphasizing Urban Planning intricacies, constraints, and restrictions, integration of diverse metro systems and gives an overview of Building Information Modeling (BIM) for comprehensive planning
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Unit - III : Elevated Metro Rail Systems

Planning considerations involved in constructing elevated metro viaducts, span configuration and foundation selection, techniques for erecting metro viaducts, overall layout of elevated metro stations.

Unit - IV : Underground Metro Rail Systems

Construction of metro tunnels, overview of underground station layouts , tunnel failures and safety considerations.

Unit - V : MEP Systems in Metros

HVAC systems, Tunnel ventilation systems, Public health engineering aspects, electric systems, Fire safety, alarms, prevention, and emergency response
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Unit - VI : Contracts and Quality systems in Metros
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FIDIC standards and the implementation of quality control measures in metro projects.
