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Prerequisites:				20BS1101 – Engineering Mathematics – I							Continuous Evaluation:			30										
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		sful com	pletion	of the	course,	the stu	dent wi	ll be at	ole to:															
CO1 Choose the high			way development and planning in India										K3											
				tric design of highway alignment and management of traffic affic intersection and choose material for highway										K4										
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UNIT-1	F	Highway development in India–Highway Alignment- Factors affecting Alignment- Engineering Surveys – Drawings and Reports.												C01										
		HIGHWAY PLANNING																						
		Necessity for Highway Planning- Different Road Development Plans- Classification of Roads- Road Network Patterns – Planning Surveys.																						
		iighw						urveys.																
								ay Cro	ss Sec	tion Ele	ments-	Stopping	sight											
		Importance of Geometric Design- Highway Cross Section Elements- Stopping sight Distance, Overtaking Sight Distance and Intermediate Sight Distance- Design of Super												CO2										
		elevation and Extra widening- Design of Vertical alignment-Gradients- Vertical curves.																						
UNIT	2 e	levation	and Ex			ANDA	TRAFFIC ENGINEERING AND MANAGEMENT Traffic Volume Studies- Speed studies- Parking Studies - Road Accidents-Causes and																	
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	Types of Highway Construction – Construction of Gravel Roads – Construction of Water Bound Macadam Roads – Construction of Bituminous Pavements – Construction of Cement							
	Concrete Pavements.							
	ADVANCES IN HIGHWAY CONSTRUCTION							
	Soil stabilisation, Soil-Cement Stabilisation, Soil-Lime Stabilisation							
	Learning Resources							
	<ol> <li>Highway Engineering, (9th edition) by Khanna, S.K. and Justo ,C.E.G., Nem Chan Bros, Roorkee, 2010.</li> </ol>							
Text Bo	<ol> <li>Traffic Engineering and Transportation Planning, (7th edition) by Kadiyali, L.R. Khanna Publishers, New Delhi, 2010.</li> </ol>							
	<ol> <li>Specifications for Roads and Bridges - Manual for Maintenance of roads, Most publications, 1976.</li> </ol>							
	<ol> <li>Fundamentals of Transportation Engineering, (3rd edition) by Papacostas, C.S Prentice Hall of India Pvt.Ltd, New Delhi, 2009.</li> </ol>							
	<ol> <li>Principles of Highway Engineering by Kadiyali, L.R., Khanna Publishers, Nev Delhi, 2012.</li> </ol>							
Referen	9. Traffic Planning and Design by Saxena, Dhanpat Rai Publishers, New Delhi, 2010.							
BOOKS	10. Transportation Engineering - An Introduction, (3rd edition) by Jotin Khisty. C,							
	Prentice Hall, Englewood Cliffs, New Jersey, 2012.							
	11. IRC Code for flexible pavement – IRC – 37 -2001.							
	12. IRC Code for Rigid pavement – IRC – 58 – 2002.							
e-Resource	6 https://nptel.ac.in/courses/105/101/10510108/							
other dig	7. https://nptel.ac.in/courses/ 105/104/105104098							

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