Master of Technology

Transportation Engineering

Planning, Design and Construction of Rural Roads

01TR0112

(PEC)

Objective of the Course:

- To introduce planning and geometric design concept of rural roads.
- To introduce pavement design and construction methodology for rural roads.
- To introduce various governing bodies associated with rural roads.

Credit Earned: 3

Students learning outcomes:

1. Understand various models for rural road design
2. Analyze various geometric design criteria of rural roads
3. Apply pavement design criteria for rural road design
4. Apply pavement construction and maintenance standards

After successful completion of the course it is expected that student will be able to,

Teaching and Examination Scheme

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
Theory	Tutorial	Practical		ESE (E)	IA (M)	CSE (I)	Viva (V)	Term Work (TW)	
03	0	0	03	50	30	20	25	25	150

Detailed Syllabus

Sr No.	Title of the unit	Number of hours
1	**Planning of Rural roads**	**04**
	Classification of roads, system's approach, NATPAC model, CRRI model, FBRNP model, Concepts of PMGSY	
2	**Geometric Design**	**10**
	Geometric design standards for Rural roads with special reference to PMGSY, Hill road standards	
3	**Pavement Design**	**10**
	Pavement design methods for rural roads using IRC SP 20, IRC 72, IRC SP 62, CRRI monograms	
4	**Mix design methods**	**10**

	CRRI method, Triangular chart method, Fuller's method, Rothfuch method, PI based method	
5	**Construction and Maintenance**	**08**
	Low cost techniques for Rural road construction, Tractor bound technology, special consideration to Hill roads	
		42

Suggested Theory Distribution

The suggested theory distribution as per Bloom's taxonomy is as per follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyze	Evaluate	Create
5%	5%	20%	25%	25%	20%

Instructional Method and Pedagogy:

1. Use of Learning Management system like canvas
2. Demonstration through presentations on power point and videos and lectures
3. Brainstorming and group discussion sessions
4. Collaborative learning

Recommended Study Material:

Reference Book:

1. Rural road manual IRC SP 20
2. Document on Rural Road Development, Vol. I & II, CRRI
3. PMGSY operational manual, NRRDA, Govt. Of India
4. Khanna S.K., Justo C.E.G., Highway Engineering, Nem Chand & Bros., Roorkee, 2005
5. Quality Assurance Handbook for Rural Roads, NRRDA, Govt. Of India