

**INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI**  
**PROFORMA FOR NEW COURSE**

1.	Title of the Course	Pavement Materials & Construction
2.	Course Number	CE5101
3.	Status of the Course	Elective
4.	Structure of Credits	3-0-0-3
5.	Offered to	UG/PG
6.	New Course/ Modification to	New Course
7.	To be offered by	Dr. B. Krishna Prapoorna Department of Civil Engineering
8.	To take effect from	January 2018
9.	Prerequisite	COT
10.	Whether approved by the Program	Yes
11.	Course Objective: (Max 70 words)	This course presents practices and techniques used in the construction of Hot-Mix Asphalt (HMA) and Portland Cement Concrete (PCC) pavements. The course will provide engineering students exposure to many elements of construction activities in order to aid in the analysis of solving construction-related problems. Specifically, the students will develop a working knowledge of HMA and PCC pavement construction in order to understand quality of pavement construction practices
12.	Course Content: (Max 100 words)	The course will cover the following: <ul style="list-style-type: none"> <li>• Roadway Materials, Performance Tests, &amp; Parametric Relationships</li> <li>• Soils, Geotechnical Testing, Sub-base, &amp; Base Preparation in relation to pavement pre-construction activities</li> <li>• HMA Plant Operations, Mix Delivery, Placement, Joint Construction, Compaction</li> <li>• PCC Production, Plant Operations, Paving Techniques, PCC Curing &amp; Sawing</li> <li>• Traffic Management During Pavement Construction</li> <li>• Project Organization and Quality Assurance (QA) / Quality Control (QC)</li> <li>• Documents, Preconstruction / Pre-paving Conferences, Database Management</li> <li>• Definitions, Specifications, Statistical Sampling, QC Charts</li> <li>• Problem Solving during &amp; after Construction, Performance Criteria, Sustainability</li> </ul>
13.	Text Book:	<ul style="list-style-type: none"> <li>• “Hot-Mix Asphalt Paving Handbook 2000” Prepared by the Transportation Research Board, with financial support from the American Association of State Highway and Transportation Officials, Federal Aviation Administration, National Asphalt Pavement Association and US Army Corps of Engineers</li> <li>• Roberts, F. L., Kandhal, P. S., Brown, E. R., Lee, D. Y., and Kennedy, T. W. “Hot Mix Asphalt Materials, Mixture Design, and Construction”, National Asphalt Pavement Association Education Foundation, MD, USA, Second Edition, 1996</li> </ul>
14.	References:	<ul style="list-style-type: none"> <li>• “Concrete Pavement Design and Construction Practices”, State of the Art Technical Digest, Prepared under FHWA Task Order DTFH61-98-T07007, Applied Pavement Technology, Inc, Urbana, IL, USA, May 1999</li> <li>• Mamlouk, M. S., and Zaniewski, J. P. “Materials for Civil and Construction Engineers”, , Pearson Prentice Hall, 2010</li> <li>• MoRTH Specifications for Roads and Bridge Works, New Delhi</li> <li>• AASHTO Specifications for Road Construction</li> <li>• Relevant IRC and other Codes</li> </ul>