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**g) Course Content**

<b>UNIT I</b>	<b>Introduction to Intelligent Transportation Systems (ITS)</b>	<b>9</b>
Definition of ITS and Identification of ITS Objectives, Historical Background, Benefits of ITS - ITS Data collection techniques – Detectors, Automatic Vehicle Location (AVL), Automatic Vehicle Identification (AVI), Geographic Information Systems (GIS), video data collection.		
<b>UNIT II</b>	<b>Telecommunications in ITS</b>	<b>9</b>
Importance of telecommunications in the ITS system, Information Management, Traffic Management Centres (TMC). Vehicle – Road side communication – Vehicle Positioning System		
<b>UNIT III</b>	<b>ITS functional areas</b>	<b>9</b>
Advanced Traffic Management Systems (ATMS), Advanced Traveler Information Systems (ATIS), Commercial Vehicle Operations (CVO), Advanced Vehicle Control Systems (AVCS), Advanced Public Transportation Systems (APTS), Advanced Rural Transportation Systems (ARTS).		
<b>UNIT IV</b>	<b>ITS User Needs and Services</b>	<b>9</b>
Travel and Traffic management, Public Transportation Management, Electronic Payment, Commercial Vehicle Operations, Emergency Management, Advanced Vehicle safety systems, Information Management		
<b>UNIT V</b>	<b>ITS implementation</b>	<b>9</b>
Automated Highway Systems- Vehicles in Platoons – Integration of Automated Highway Systems. ITS Programs in the World – Overview of ITS implementations in developed countries, ITS in developing countries		

**Total 45 Hrs**

**h) Learning Resources**

**Reference Books**

1. Jon D. Fricker, Robert K. Whitford, "Fundamentals of Transportation Engineering: A Multimodal Systems Approach", Prentice Hall, 2004
2. Mashrur A. Chowdhury, Adel W. Sadek, "Fundamentals of Intelligent Transportation Systems Planning", Artech Print on Demand, 2003

**Text Books**

1. Kan Paul Chen, John Miles "Recommendations for World Road Association (PIARC)", ITS Hand Book, 2000
2. Joseph M Sussman, "Perspective on Intelligent Transportation Systems", Artech House Publishers, 2005
3. National ITS Architecture Documentation, US Department of Transportation, 2007

**Online Resources**

1. <https://nptel.ac.in/courses/105101008/48>
2. <https://ocw.mit.edu/courses/civil-and-environmental-engineering/1-221j-transportation-systems-fall-2004/lecture-notes/>