

CLXXX: INTELLIGENT TRANSPORTATION SYSTEM
B. TECH 6th SEMESTER (CIVIL ENGINEERING)
SMART CITIES SPECIALIZATION COURSE

Credits and Hours:

Teaching Scheme	Theory	Tutorial	Total	Credit
Hours/week	4	2	6	5
Marks	100	50	150	

A. Outline of the Course:

Sr. No.	Title of the Unit	Minimum Number of Hours
1	Introduction to Intelligent Transportation System (ITS)	09
2	Telecommunication in ITS	12
3	ITS Functional Areas	13
4	User Needs and Services	13
5	Automated Highway Systems	13

Total Hours (Theory): 60
Total Hours (Lab): 30
Total Hours: 90

B. Detailed Syllabus:

1	Introduction to Intelligent Transportation System (ITS)	09 Hours	15%
1.1	Definition, objectives, historical background, benefits		
1.2	Data Collection techniques – detectors, automatic vehicle location, automatic vehicle identification, GIS, video data collection		
2	Telecommunication in ITS	12 Hours	20%
2.1	Importance of telecommunications, information management,		
2.2	Traffic management centres		
2.3	Vehicle roadside communication, vehicle positioning system		
3	ITS Functional Areas	13 Hours	22%
3.1	Advanced Traffic Management Systems (ATMS)		
3.2	Advanced Traveller Information Systems (ATIS)		
3.3	Commercial Vehicle Operations (CVO)		

- 3.4 Advanced Vehicle Control Systems (AVCS)
- 3.5 Advanced Public Transportation Systems (APTS)
- 3.6 Advanced Rural Transportation Systems (ARTS)
- 4 User Needs and Services 13 Hours 22%
- 4.1 Travel and Traffic management, Public Transportation Management
- 4.2 Electronic Payment, Commercial Vehicle Operations
- 4.3 Emergency Management, Advanced Vehicle safety systems, Information Management
- 5 Automated Highway Systems 13 Hours 21%
- 5.1 Vehicles in Platoons
- 5.2 Integration of Automated Highway Systems
- 5.3 ITS Programs in the World – Overview of ITS implementations in developed countries, ITS in developing countries.

C. Course Outcomes (COs):

On the successful completion of this course, the students will be able to:

- CO1 Understand the role of sensor and communication technologies in ITS
- CO2 Apply the various ITS methodologies
- CO3 State the significance of ITS under Indian conditions

Course Articulation Matrix:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	2	-	-	-	1	-	-	-	-	-	-	-	1	-	1
CO2	2	1	1	1	1	-	-	-	-	-	-	-	2	1	1
CO3	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-

D. Recommended Study Material:

References:

- ITS Hand Book 2000: Recommendations for World Road Association (PIARC) by Kan Paul Chen, John Miles.
- Sussman, J. M., Perspective on ITS, Artech House Publishers, 2005
- Chaudhary M. A. and Sadek A., Fundamentals of Intelligent Transportation Systems Planning, Artech House Publishers

- Sarkar P. K and Jain A. K., Intelligent Transportation Systems, PHI Learning Pvt. Ltd.

Web Materials:

- https://www.its.dot.gov/factsheets/benefits_factsheet.htm
- <https://www.wsp.com/en-CA/services/intelligent-transportation-systems-its>