

**VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)  
DEPARTMENT OF CIVIL ENGINEERING**

**SYLLABUS FOR B.E. VI SEMESTER  
INTELLIGENT TRANSPORTATION SYSTEMS (OPEN ELECTIVE – VII)**

Instruction : 2 hr/ Week	SEE marks : 70	Course Code : OE620CE
Credits : 2	CIE marks : 30	Duration of SEE : 3

<b>COURSE OBJECTIVES</b>	<b>COURSE OUTCOMES</b>
<i>Objectives of this course are to:</i>	<i>Upon the completion of this course the students will be expected to:</i>
1. Introduce basic transportation engineering concepts to understand ITS 2. Impart knowledge on advanced transportation concepts in the field of ITS. 3. Introduce the technologies of ITS in solving transportation problems	1. identify the functional classes of road systems and road cross sectional elements 2. present the basic traffic characteristics and the traffic data collection methods 3. Explain the concepts of ITS data collection techniques and its architectural framework. 4. Characterize ITS functional areas for transportation planning and describe the range of technologies involved in the delivery of ITS systems 5. Investigate and analyse the current applications and trends in the context of ITS

**UNIT 1:**

**Introduction to Transportation engineering**

Role of transportation development in society, Functional classification of road systems, Road cross sectional elements, Factors affecting transportation.

**UNIT 2:**

**Introduction to traffic engineering:**

Basic traffic characteristics – Volume, speed, headway, types of traffic studies, Objectives of traffic studies, Traffic data collection methods, Level of service.

**UNIT 3:**

**Introduction to Intelligent Transportation Systems (ITS):** 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, ITS architecture framework.

**UNIT 4:**

**ITS functional areas** – 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)

**Suggested Books:**

1. S.K. Khanna, C.E.G. Justo and Veeraraghavan A (2015) Highway Engineering, 10th Ed., Nem Chand & Bros.
2. ITS Hand Book 2000: Recommendations for World Road Association (PIARC) by Kan Paul Chen, John Miles.
3. L.R. Kadiyali, 2016, Traffic Engineering and Transportation Planning, Khanna Publishers
4. Sussman, J. M., Perspective on ITS, Artech House Publishers, 2005.