



**C. U. SHAH UNIVERSITY**  
**Wadhwan City**

**FACULTY OF:** - Technology and Engineering  
**DEPARTMENT OF:** -Automobile Engineering  
**SEMESTER:** -VII  
**CODE:** - 4TE07VCM1  
**NAME:** –Vehicle Control System and Management

**Teaching and Evaluation Scheme:-**

Subject Code	Name of the Subject	Teaching Scheme (Hours)				Credits	Evaluation Scheme							
		Th	Tu	Pr	Total		Theory				Practical (Marks)			Total
							Sessional Exam		University Exam		Internal		University	
							Marks	Hrs	Marks	Hrs	Pr/Viva	TW	Pr	
4TE07VCM1	Vehicle Control System and Management	3	0	2	5	4	30	1.5	70	3	---	20	30	<b>150</b>

**Objectives:**

To explain the principle of chassis management system and different sensors used in the vehicle control systems.

**Prerequisite:**

Basic knowledge of Automotive Electrical and Electronics control system.

**Course Outline:**

Sr. No.	Course Content	Hours
1	<b>Introduction:</b> Components of chassis management system – role of various sensors and actuators pertain to chassis system – construction – working principle.	<b>08</b>
2	<b>Driveline Control System:</b> Speed control – cylinder cut - off technology, Gear shifting control – Traction /braking control, brake by wire – Adaptive cruise control, throttle by wire. Steering -power steering, collapsible and tillable steering column – steer by wire.	<b>10</b>
3	<b>Safety and Security System:</b> Airbags, seat belt tightening system, collision warning systems, child Lock, anti-lock braking systems, Vision enhancement, road recognition system, Anti-theft technologies, smart card system, number plate coding, central locking system.	<b>09</b>
4	<b>Comfort System:</b> Active suspension systems, requirement and characteristics, different types, Vehicle Handling and Ride characteristics of road vehicle, pitch, yaw, bounce control, power Windows, thermal management system, and adaptive noise control.	<b>08</b>
5	<b>Intelligent Transportationsystem:</b> Traffic routing system - Automated highway systems - Lane warningsystem – DriverInformation System, driver assistance systems - Data communication within the car, Driver conditioning warning - Route Guidance and Navigation Systems – visionenhancement system - In-Vehicle Computing – Vehicle Diagnostics system – Hybrid/ Electric and Future Cars – Case studies.	<b>10</b>

**Learning Outcomes:**

- Student will be able to understand about vehicle control system, management and transport regulation.
- The subject helps the students to understand the latest developments in the field of vehicle control system and management also modern trend of electronics in automobile.

**Text Books:**

1. Automotive Control Systems by **U. Kiencke, and L. Nielsen**, SAE and Springer-Verlag, 2000
2. Intelligent Vehicle Technologies by **Ljubo Vlacic, Michel Parent**, Fumio Harashima Butterworth-Heinemann publications, Oxford, 2001

**Reference Books:-**

1. Automotive Mechanics by Crouse, **W.H. & Anglin, D.L.**, Intl. Student edition, 9 edition, TMH, New Delhi, 2002.
2. Understanding Automotive Electronics by **William B. Ribbens**, 5th edition, Butterworth Heinemann Woburn, 1998.
3. Automotive HandBook, **Bosch**, 6th edition, SAE, 2004