



**Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore**  
**Shri Vaishnav Institute of Technology and Science**  
**Choice Based Credit System (CBCS) Scheme in light of NEP-2020**  
**Generic Elective (Even Semester)**  
**(2021-2025)**

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTMEGE23	GE	AUTOMOBILE TECHNOLOGY	60	20	20	0	0	3	0	0	3

**Legends:** L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;  
\***Teacher Assessment** shall be based following components: Quiz/Assignment/Project/Participation in Class, given that no component shall exceed more than 10 marks.

**Course Objectives:-**

The primary objective of the course is to develop fundamental knowledge:

- (A) Car body & Bus body construction, (B) Steering & Transmission system for driving control, (C) Suspension & Brake system for safe vehicle ride, (D) Vehicle Electrical Control system, (E). Emission norms and pollution control and automotive safety

**Course Outcomes:-**

After completion of this course the students will be able to describe the followings:

1. Students will be able to understand the fundamentals of car body & the forces acting on it.
2. Students will be able to understand the basic Steering and Transmission for ease in driving.
3. Students will be able to understand the basic Vehicle Suspension & Brake system and Tyre based on road condition for safe vehicle ride and passengers comfort.
4. Students will be able to understand the Electrical Control and Safety system for automobile
5. Students will be able to understand the basic compliance of Emission norms and pollution control for automotive engine, Automotive air-conditioning system and automotive safety.

**Syllabus**

**Unit-I**

**(9 Hrs)**

**Chassis & Body Engg:** Types of Car body, Types of Bus body, commercial vehicles chassis layout, vehicle body construction, Driver's visibility types in car, vehicle aerodynamics in driving, body materials, Location of engine in vehicle- front wheel and rear wheel drive, four wheel drive.

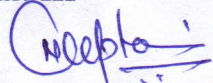
**Unit-II**

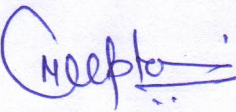
**(10 Hrs)**

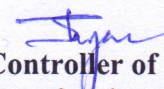
**Steering System:** front axle beam assembly, Types of front wheel alignment- camber, castor, toe-in and toe-out, Kingpin inclination adjustment, Types of steering gear box, Power steering system. **Transmission System:** Function and types of Clutch- single plate, multi-plate clutch, centrifugal clutch, Function and types of Gear Boxes- sliding mesh, constant mesh, synchromesh, automatic transmission with torque converter, Propeller shaft, Function of differential gear box in rear axle.

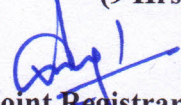
**Unit-III**

**(9 Hrs)**

  
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**Suspension & Brake System:** Basic suspension movements, Independent front & rear suspension in car, Function of shock absorber, Types of springs- leaf spring, coil spring, torsion bar, Weight transfer during braking, Types of Brakes- Drum & Disc brakes, Hydraulic and Pneumatic braking systems.

**Wheels & Tyres:** types of wheels, types of tyre construction, tyre specifications, causes of tyre wear.

**Unit-IV: (8 Hrs)**

**Vehicle Electrical Control System:** Battery construction, charging and testing of battery, Starting and Battery charging system, Alternator construction, Magneto and Coil ignition system, Lighting system, head light dazzling, electric horn, wiper, fuel level indicator, microprocessor based control system for automobile.

**Unit-V (9 Hrs)**

**Emission standards and pollution control:** Indian standards for automotive vehicles- Bharat I and II, Euro-I and Euro-II norms, fuel quality standards, environmental management systems for automotive vehicles, catalytic converters,

**Automotive Air Conditioning & Automotive Safety:** Air-conditioning system, Refrigerants, Automotive Safety requirements, Safety devices- air bags, belts, night vision system, GPS.

**Text Books:**

- 1) Kripal Singh; Automotive Engineering, Khanna Publishers, 2005.
- 2) R. B. Gupta; Automobile Technology, Satya Prakashan, 2016.
- 3) R. K. Rajpoot; Automobile Engineering, Laxmi Publications, 2017.
- 4) P. S. Gill; Automobile Engineering, Katson Books, 2013.

**Reference Books:**

1. N. K. Giri; Automobile Technology; Khanna Publishers, 2002.
2. William Crouse; Automotive Mechanics, TMH, 2017.
3. Joseph Heitner; Automotive Mechanics, CBS Pub., 2004.

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