

**GUJARAT TECHNOLOGICAL UNIVERSITY (GTU)**  
**Competency-focused Outcome-based Green Curriculum-2021 (COGC-2021)**  
**Semester -VI**  
**Course Title: Transport management & Motor Industry**  
**(Course Code: 4360205)**

Diploma Programme in which this course is offered	Semester in which offered
Automobile Engineering	6th

### 1. RATIONALE

Transport Management & Motor Industry is a comprehensive course that delves into key aspects of the dynamic motor industry. Students build a solid foundation in transportation systems, supply chain management, and fleet management, understanding their interconnectedness for optimal efficiency. The course progresses to explore intricate processes of motor vehicle licensing and registration, integrating the latest e-governance advancements. A dedicated segment illuminates the crucial role of surveyors in auto insurance, ensuring participants grasp assessment procedures. Finally, participants gain insights into prominent transport research organizations and current industry trends, fostering adaptability and innovation within this ever-evolving sector."

### 2. COMPETENCY

The content of the course and the curriculum should be designed to cultivate a range of competencies, ultimately leading to the attainment of the following competencies:

- **Work successfully in the motor industry by applying knowledge of numerous sectors, such as insurance, surveyors, resale, and scraping, as well as transport management, and organization.**

### 3. COURSE OUTCOMES (COs)

The underpinning knowledge and the relevant skills associated with this competency are to be developed in the student to display the following COs:

- CO 1** Acquire understanding of transportation systems, supply chain management, and fleet management principles.
- CO 2** Describe the processes and laws pertaining to the licensing and registration of motor vehicles and acquaint with e-governance services.
- CO 3** Explain the surveyor's responsibilities in relation to auto insurance.
- CO 4** Acquire an understanding of transport research organizations and recent trends in the motor industry.

### 4. TEACHING AND EXAMINATION SCHEME

Teaching Scheme (In Hours)			Total Credits (L+T+P/2)	Examination Scheme				Total Marks
L	T	P		Theory Marks		Practical Marks		
			C	CA	ESE	CA	ESE	
2	0	0	2	30*	70	00	00	100

(\*): Out of 30 marks under the theory CA, 10 marks are for assessment of the micro-project to facilitate integration of COs and the remaining 20 marks is the average of 2 tests to be taken

during the semester for the assessing the attainment of the cognitive domain UOs required for the attainment of the COs.

**Legends:** *L*-Lecture; *T* – Tutorial/Teacher Guided Theory Practice; *P* - Practical; *C* – Credit, *CA* - Continuous Assessment; *ESE* - End Semester Examination.

## 5. SUGGESTED PRACTICAL EXERCISES

**Not Applicable**

## 6. MAJOR EQUIPMENT/ INSTRUMENTS REQUIRED

**Not Applicable**

## 7. AFFECTIVE DOMAIN OUTCOMES

The following *sample* Affective Domain Outcomes (ADOs) are embedded in many of the above-mentioned COs. More could be added to fulfil the development of this course competency.

- a) Work as a leader/a team member.
- b) Follow ethical practices.
- c) **Practice environmentally friendly methods and processes. (Environment related)**

The ADOs are best developed through the field based exercises/project work. Moreover, the level of achievement of the ADOs according to Krathwohl's 'Affective Domain Taxonomy' should gradually increase as planned below:

- i. 'Valuing Level' in 1<sup>st</sup> year
- ii. 'Organization Level' in 2<sup>nd</sup> year.
- iii. 'Characterization Level' in 3<sup>rd</sup> year.

## 8. UNDERPINNING THEORY

The major underpinning theory is given below based on the higher level UOs of *Revised Bloom's taxonomy* that are formulated for development of the COs and competency. If required, more such higher level UOs could be included by the course teacher to focus on attainment of COs and competency.

Unit	Unit Outcomes (UOs) (4 to 6 UOs at different levels)	Topics and Sub-topics
<b>Unit I Introduction of Transport Management.</b>	1.a Describe various terms used in the Transport vehicles. 1.b Explain factors to be consider while selecting mode of transport and transport vehicle. 1.c Understand structure and work of Transport Organization structure. 1.d Differentiate structure, and role of transport organizations i.e. GSRTC and BRTS. 1.e Explain supply chain management in the transportation context. 1.f Demonstrate understanding of fleet management system and	1.1. Introduction to various transport vehicles 1.1.1. Terms used in transportation: Transport vehicle, public service vehicle, Goods vehicle, Public place, Depot, Route, Trip, crew, Time table, Vehicle schedule, Fare, FAW, RAW, UW, RLW, LMV, HMV public carrier, private carrier, etc. 1.1.2. Modes of transportation and their comparison. 1.1.3. Selection of Transport vehicle based on load, Class of passenger, Types of Service 1.2. Transport organization structure

	vehicle trip scheduling metrics.	<p>and work division like Planning, Scheduling and Control</p> <p>1.3 Overview of State Government Undertakings and Bus Transport Organizations' (GSRTC/BRTS): System structure and role.</p> <p>1.4 Supply Chain management</p> <p>1.4.1 Define Supply chain management</p> <p>1.4.2 Stages of supply chain management</p> <p>1.4.3 Importance of supply chain Management.</p> <p>1.4.4 Correlation of transportation with supply chain management.</p> <p>1.5 Introduction to fleet management</p> <p>1.5.1 Purpose of fleet management</p> <p>1.5.2 Roles and responsibility of fleet manager</p> <p>1.5.3 Structure of fleet organization</p> <p>1.5.4 Vehicle Trip schedule: EPKM (Earnings Per Kilo Meter) and CPKM (Cost Per Kilometer route)</p>
<b>Unit II Motor Vehicle Acts.</b>	<p>2.a Explain the procedure for registration of vehicle.</p> <p>2.b Explain the provisions related to vehicle registration.</p> <p>2.c Justify need, eligibility criteria and other provision regarding driver and conductor license.</p> <p>2.d Explain the procedure for issuing a driving license.</p> <p>2.e Explain duties of driver and conductor of motor vehicle.</p> <p>2.f Describe the procedure for penalty regarding offences.</p> <p>2.g Effectively utilize RTO e-governance services like SARTHI &amp; VAHAN.</p>	<p>2.1 Procedure for Registration of motor vehicle.</p> <p>2.2 The provision regarding</p> <p>2.2.1 Refusal of registration of vehicle Suspension and cancellation of registration of Vehicle.</p> <p>2.2.2 Motor vehicle travelling temporarily through or outside of India.</p> <p>2.2.3 Vehicle ownership transfer.</p> <p>2.2.4 Necessity of vehicle fitness Certificate.</p> <p>2.3 Driving and conductor license. Necessity and Eligibility for obtaining the driving License and Conductor license.</p> <p>2.4 Provisions Regarding Offences</p> <p>2.4.1 Offences related to license.</p> <p>2.4.2 Disobedience, obstruction and refusal of information.</p> <p>2.4.3 Allowing Driving of vehicle by unauthorized person.</p> <p>2.4.4 Using the vehicle without registration of permit and motor insurance.</p>

		<p>2.4.5 Driving the vehicle exceeding permissible weight.</p> <p>2.4.6 Driving the vehicle under the influence of drink or drugs.</p> <p>2.4.7 Driving dangerously and taking parts in authorized race.</p> <p>2.4.8 Failing to stop on occurrence of accident.</p> <p>2.5 RTO E-Governance services</p> <p>2.5.1 SARATHI</p> <p>2.5.2 VAHAN</p>
<b>Unit III Motor Insurance and Surveyor work.</b>	<p>3.a Describe different types of motor vehicle insurance.</p> <p>3.b Describe duties and responsibilities of a surveyor in the given condition.</p> <p>3.c Prepare accident survey report in the given situation.</p> <p>3.d Describe role of licensing authority and tribunal of motor insurance</p>	<p>3.1 Introduction of Motor Insurance and its types.</p> <p>3.1.1 Zero Depreciation policy.</p> <p>3.1.2 Comprehensive policy.</p> <p>3.1.3 Third party policy.</p> <p>3.1.4 Return to Invoice policy.</p> <p>3.2 Role and responsibilities of Surveyor.</p> <p>3.2.1 Eligibility for surveyor.</p> <p>3.2.2 Procedure to obtain surveyor's license</p> <p>3.2.3 Functions of surveyor.</p> <p>3.2.4 Loss assessment – Types &amp; Procedure.</p> <p>3.2.5 Finalization of IDV based on age and material of the vehicle.</p> <p>3.3 Procedure of claim settlement done by surveyor.</p> <p>3.3.1 Intimation.</p> <p>3.3.2 Site visit or spot survey.</p> <p>3.3.3 Garage Visit.</p> <p>3.3.4 Checking of Documents.</p> <p>3.3.5 Estimation and claim form.</p> <p>3.3.6 Preparation of survey report and submission.</p> <p>3.4 Role of IRDA in motor insurance and MACT.</p>
<b>Unit IV Motor Industry.</b>	<p>4.a Understand the role of automobile engineer in the motor industry.</p> <p>4.b Describe role of road transport research organizations.</p> <p>4.c Describe role of road safety council in transportation sector.</p> <p>4.d Justify importance of sustainable development in road transport organization.</p> <p>4.e Outline “vehicle scrapping process”</p> <p>4.f Describe factors to be</p>	<p>4.1 Role of diploma automobile engineer in Motor Transport Industry.</p> <p>4.2 Functions and Role of Research Organizations.</p> <p>4.2.1 Central Institute of Road Transport.</p> <p>4.2.2 Automotive Research Association of India.</p> <p>4.2.3 Vehicle Research Development and Establishment.</p> <p>4.3 National Road Safety Council</p> <p>4.3.1 Introduction of Road safety</p>

	considered while buying/selling a used vehicle.	Policy. 4.2.4 Functions of NRSC. 4.2.5 Road safety Events. 4.4 Sustainable Development in Transportation. 4.4.1 Gati Shakti Mission 4.4.2 National Electric Mobility mission Plan 4.4.3 Green Highway. 4.5 Vehicle scrapping 4.5.1 Requirement of scrapping and its benefits. 4.5.2 Reuse and recycling of materials. 4.6 Sell-purchase of used vehicle 4.6.1 Introduction to role of Dealers, used car firms, private sellers, garages and auctions. 4.6.2 Checking of legal documents of used car including modification if any done.
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*Note: The UOs need to be formulated at the 'Application Level' and above of Revised Bloom's Taxonomy' to accelerate the attainment of the COs and the competency.*

## 9. SUGGESTED SPECIFICATION TABLE FOR QUESTION PAPER DESIGN

Unit No.	Unit Title	Teaching Hours	Distribution of Theory Marks			
			R Level	U Level	A Level	Total Marks
I	Introduction of Transport Management.	9	6	7	8	21
II	Motor Vehicle Acts.	5	3	7	4	14
III	Motor Insurance and Surveyor work.	5	3	7	4	14
IV	Motor Industry.	9	6	7	8	21
	<b>Total</b>	28	18	28	24	70

**Legends:** R=Remember, U=Understand, A=Apply and above (Revised Bloom's taxonomy)

**Note:** This specification table provides general guidelines to assist student for their learning and to teachers to teach and question paper designers/setters to formulate test items/questions to assess the attainment of the UOs. The actual distribution of marks at different taxonomy levels (of R, U and A) in the question paper may slightly vary from above table.

## 10. SUGGESTED STUDENT ACTIVITIES

Other than the classroom and laboratory learning, following are the suggested student-related **co-curricular** activities which can be undertaken to accelerate the attainment of the various outcomes in this course: Students should conduct following activities in group and prepare reports of each activity. They should also collect/record physical evidences for their (student's) portfolio which will be useful for their placement interviews:

- Charts can be prepared.

- b) Small report on any topic given by concern faculty.
- c) Small groups of students can be formed for assigned work. Assigned work should be such that it covers market survey, team work, presentation, time management, quality development.

### 11. SUGGESTED SPECIAL INSTRUCTIONAL STRATEGIES (if any)

These are sample strategies, which the teacher can use to accelerate the attainment of the various outcomes in this course:

- a) Massive open online courses (*MOOCs*) may be used to teach various topics/sub topics.
- b) Guide student(s) in undertaking micro-projects.
- c) '**L**' in *section No. 4* means different types of teaching methods that are to be employed by teachers to develop the outcomes.
- d) About **20% of the topics/sub-topics** which are relatively simpler or descriptive in nature is to be given to the students for *self-learning*, but to be assessed using different assessment methods.
- e) With respect to *section No.10*, teachers need to ensure to create opportunities and provisions for *co-curricular activities*.
- f) **Guide students on how to address issues on environment and sustainability**

### 12. SUGGESTED MICRO-PROJECTS

*Only one micro-project* is planned to be undertaken by a student that needs to be assigned to him/her in the beginning of the semester. In the first four semesters, the micro-project are group-based. However, in the fifth and sixth semesters, it should be preferably being *individually* undertaken to build up the skill and confidence in every student to become problem solver so that she/he contributes to the projects of the industry. In special situations where groups have to be formed for micro-projects, the number of students in the group should *not exceed three*.

The micro-project could be industry application based, internet-based, workshop-based, laboratory-based or field-based. Each micro-project should encompass two or more COs which are in fact, an integration of PrOs, UOs and ADOs. Each student will have to maintain dated work diary consisting of individual contribution in the project work and give a seminar presentation of it before submission. The total duration of the micro-project should be about **14 - 16 (fourteen to sixteen) student engagement hours** during the course. The student ought to submit micro-project by the end of the semester to develop the industry-oriented COs. A suggestive list of micro-projects is given here. This has to match the competency and the COs. Similar micro-projects could be added by the concerned course teacher:

1) Visit any state government transport organization i.e. GSRTC, BRTS. And prepare a report on Transport management.
2) Visit any transport organization and prepare a report on fleet management.
3) Prepare a chart on Fleet management and its structure.
4) Prepare a report on registration of vehicle and licensing of vehicle for Heavy Motor Vehicle with necessary forms of RTO.

5) Visit any automobile dealership for accident survey of a vehicle and prepare a report on accident survey and about roles and responsibility of surveyor.
6) Visit any used car purchasing and selling organization, prepare a factors to be considered while buying/ selling a used car by dealers, and prepare a report on it.
7) Prepare a report on any various motor transport research organization.
8) Visit any PUC center and prepare a detail report on it considering (i) Types of fuel (Petrol, Diesel, CNG) (ii) Type of Engine (BS 4 and BS 6 engine)
9) Prepare a chart of state registration marks and Gujarat's district registration marks.
10) Prepare a chart of mandatory & other traffic signs.
11) Visit any scrapping industry and prepare a report on scrapping process.

### 13. SUGGESTED LEARNING RESOURCES

Sr. No.	Title of Book	Author	Publication with place, year and ISBN
1	Transportation Management	R.B. Gupta	Satya Publication ISBN: 9789351920472, 935192047X
2	Transport Management	S. Nagabhushana Rao	Nidhi Book Centre Publications ISBN: 9788183910231, 8183910238
3	Motor Vehicle Laws	Kannan & Vijayaraghavan	LexisNexis Publications SBN: 9788196241049
4	Fleet Management	John Dolce	McGraw Hill Higher Education ISBN-10 0070174105 : ISBN-13 0070174108-978 :
5	Bus station management	Sudarsanam P.	Manual of Central Institute of Road Transport, Pune

### 14. SOFTWARE/LEARNING WEBSITES

- <https://parivahan.gov.in/parivahan>
- <https://sarathi.parivahan.gov.in/SarathiReport/sarathiHomePublic.do>
- <https://irdai.gov.in/document-detail?documentId=386178>
- <https://gsrtc.in/site/>
- <https://parivahan.gov.in/parivahan//en/content/act-rules-and-policies>
- <https://www.aptransport.org/html/registration-statecodes.html>
- <https://cot.gujarat.gov.in/district-code.htm>
- <https://cot.gujarat.gov.in/traffic-signs.htm>

**15. PO-COMPETENCY-CO MAPPING**

Semester VI	Transport management & Motor Industry (4360205)						
	POs						
Competency & Course Outcomes	PO 1 Basic & Discipline specific knowledge	PO 2 Problem Analysis	PO 3 Design/development of solutions	PO 4 Engineering Tools, Experimentation & Testing	PO 5 Engineering practices for society, sustainability & environment	PO 6 Project Management	PO 7 Life-long learning
Work successfully in the motor industry by applying knowledge of numerous sectors, such as insurance, surveyors, resale, and scraping, as well as transport management, and organization.	3	2	-	-	3	3	3
<b>CO 1</b> Acquire understanding of transportation systems, supply chain management, and fleet management principles.	3	2	-	-	3	3	3
<b>CO 2</b> Describe the processes and laws pertaining to the licensing and registration of motor vehicles and acquaint with e-governance services.	3	2	-	-	3	3	3
<b>CO 3</b> Explain the surveyor's responsibilities in relation to auto insurance.	3	2	-	-	3	3	3
<b>CO 4</b> Acquire an understanding of transport research organizations and recent trends in the motor industry.	3	2	-	-	3	3	3

Legend: '3' for high, '2' for medium, '1' for low and '-' for no correlation of each CO with PO.



**16. COURSE CURRICULUM DEVELOPMENT COMMITTEE****GTU Resource Persons**

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1	Mr. D. A. Dave (Retd. HOD Automobile)	Sir B.P.T.I, Bhavnagar	9427182407	<a href="mailto:deven_a_dave@yahoo.co.in">deven_a_dave@yahoo.co.in</a>
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5	Mr. A.D.Thakkar Lect. Automobile	Govt. Polytechnic, Ahmedabad	9033538553	<a href="mailto:akshaythakkar.1993@gmail.com">akshaythakkar.1993@gmail.com</a>

**GTU BOS and Branch Co-ordinator Persons**

Sr. No	Name and Designation	Institute	Contact No.	Email
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