

Curriculum For Level-V Certificate Course

VEHICLE TESTING

SYLLABUS FOR

ONE YEAR – FULL TIME

LEVEL-V CERTIFICATE COURSE IN VEHICLE TESTING

Effective From

Under Development

Prepared By

Curriculum Development Cell

Institute of Research, Development & Training, U.P.,

Kanpur

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TEACHING AND EXAMINATION SCHEME																			
COURSE NAME :VEHICLE TESTING (SECTOR AUTOMOBILE)																			
COURSE CODE : VT-LEVEL V																			
DURATION OF COURSE : ONE YEAR																			
WITH EFFECT FROM																			
Sr. No.	Subject	ST. Code	Teaching Scheme						Examination Scheme										
			T h.	TU	Pr./ WS	D R G	Total	Hrs	Theory			Th. Total		PR. Total				Grand Total	
									Max	Min	SI Test	Max	Min	Hrs.	Marks	Sl. Test	Total marks		
1	Advance Topic of Automobile	VT 5.1	4	-	3		7	2.5	50	17	20	70	24	03	20	10	30	100	
2	Advance Skills & Instrumentations.	VT 5.2	4	-	5		9	2.5	50	17	20	70	24	03	20	10	30	100	
3	Aggregate wise pass off norms as per ARAI	VT 5.3	4	-	3		7	2.5	50	17	20	70	24	03	20	10	30	100	
4	Dynamic Evaluation	VT 5.4	4	-	5		9	2.5	50	17	20	70	24	03	20	10	30	100	
5	EMPLOYABLE SKILLS	GEN 5.5	4	-	4		8	2.5	50	17	20	70	24	03	20	10	30	100	
							40												500

Student Disciplines (20)

20

OBREVIATIONS : TH-THEORY, TU-TUTORIAL, SL-SESSIONAL, PR-PRACTICALS, WS-WORKSHOP, DRG-DRAWING

NOTE :

1. Each period will be 50 minutes duration.
2. Each session will be 32 weeks.
3. Effective teaching will be at least 25 weeks.
4. Remaining periods will be utilized for revision etc.
5. SI system of units shall be used in each subject
6. Student centered activities will comprise of various co-curricular activities like seminar, extension lectures, field visits, NCC, NSS, Hobby, clubs, Games and cultural activities

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II- MAIN FEATURES OF THE CURRICULUM

Title of the course : **Level V Certificate Course in Vehicle Testing**

Duration : One Year

Pattern of the course : Annual System

Intake : 100

Type of course : Full Time

III-LIST OF EXPERTS

S.No.	Name & Designation	Name Of Organization/Institution	Date	Workshop Place
1	Sri Rituraj Mishra DGM	Tata Motors Ltd , Lucknow	26/09/18	G.P.Lucknow
2	Sri Sanjay srivastava	Tata Motors Ltd , Lucknow	26/09/18	G.P.Lucknow
3	Sri Prakash Chandra	Tata Motors Ltd , Lucknow	26/09/18	G.P.Lucknow
4	Sri Rajesh Kumar Sharma	Tata Motors Ltd , Lucknow	26/09/18	G.P.Lucknow
5	Smt Meenu Drivedi	Lecturer, Mechanical G.P.Lucknow	26/09/18	G.P.Lucknow
6	Sri Tushar Kiran	Lecturer, Mechanical G.P.Lucknow	26/09/18	G.P.Lucknow
7	Sri Himanshu Bhaskar	Lecturer, Mechanical G.P.Lucknow	26/09/18	G.P.Lucknow
8	Smt Deepshikha	Lecturer, English G.G.P.Lucknow	26/09/18	G.P.Lucknow
9	Sri Janbeag Loni	Principal, G.P.Lucknow	26/09/18	G.P.Lucknow
10	Sri Sanjeev Kumar Singh	Secretary, Board Of Technical Education, U.P	26/09/18	G.P.Lucknow
11	Sri Ashok Kushwaha	Text Book Officer, IRDT Kanpur	26/09/18	G.P.Lucknow

5.1 ADVANCE TOPICS OF AUTOMOBILE

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1. **New Changes In Automobile : (18 Hours)**

Changes due to environment, regulations, customer demands & other factors.

2. **Latest Introduction of Aggregates : (36 Hours)**

Alison, ZF Germany, Pneumatic suspension, Meritor axles etc. in detail

3. **Emission Norms & Journey: (36 Hours)**

BS3 , BS4 to BS6 migration, Urea implementation, DEF Implementation, Journey from BS 1 to BS6 in detail & requirement of same.

4. **Changes in Material Technology : (10 Hours)**

Introduction to plastics, aluminum , PP & ABS. Where, when & how can be used. Benefits of use.

List of Practicals

1. Practical on new generation vehicles. (10 Hours)
2. Practical on new generation aggregates. (40 Hours)
3. Dismantling and assembly of urea tank, Exhaust gas processing unit. (20 Hours)
4. Materials identification and properties. (10 Hours)

5.2 ADVANCE SKILL AND INSTRUMENTATION

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1. **ADVANCE INSTRUMENTS KNOWLEDGE ON VEHICLE : (18 Hours)**

Application of Software checking, trouble shooting, ABS testing, Error Codes understanding, De coding of error codes, Pressure gauges, push pull gauge steering efforts.

2. **ADVANCE CMVR CHANGES : (12 Hours)**

Latest CMVR amendments (Regulatory compliance, ABS, BS3 to BS4, Tyre increased loads, higher tonnage, bus body codes, AIS 037, AIS 052)

3. **SIGN BOARDS IDENTIFICATION AND READING: (12 Hours)**

Detailed knowledge on sign boards , writing, reading understanding & implementation. Area wise norms (city roads, Highway, Express highway, Hills, Industrial area, township)

4. **HANDLING EMERGENCY SITUTATIONS : (18 Hours)**

Understanding test requirements, Making test plan, Contingency plan, Carry out test, Analyze results.

How to release test reports. Simulating test conditions.

5. **EMISSION REGULATIONS : (24 Hours)**

What are the present emission norms, Path way for upcoming norms, Targets for implementation

Alternate methods to achieve goals.

6. **SAFE DRIVING SKILLS: (16 Hours)**

Knowledge of safe driving skills. Proactive Vs. reactive approaches in driving. Handling undesirable situations.

List of Practicals

1. Usage of instruments on vehicle (50 Hours)
2. Measurement of CMVR parts (20 Hours)
3. Sign board identification and reading (20 Hours)
4. Measuring and trouble shooting emission failures on vehicle (20 Hours)
5. Physical verification of performance symptoms. (20 Hours)

5.3 AGGREGATE WISE PASS OF NORMS AS PER ARAI

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Accurate output required from each aggregate (Enging, gear box, Axle, different suspensions, wheels & tyres, Drive train) Tested & actual Approval process. **(20 Hours)**

1. **USE OF SPECIFIC INSTRUMENTS ON AGGREGATES : (16 Hours)**

All instruments usage, work instructions, handling , storage of instruments, calibration of instruments.

2. **ADVANCE VEHICLE TESTING SKILLS : (18 Hours)**

Building hypothesis & proving hypothesis, Verification of hypothesis results.

3. **EVALUATION OF STATIC, DYNAMIC CHECK SHEETS : (18 Hours)**

Preparing static, Dynamic check sheets. Performing test & driving results. Evaluating new or unknown product at part level, performance level.

4. **DURABILITY TEST : (14 Hours)**

What is durability, How to maximize, how to convert customer needs into product.

5. **UNDERSTANDING CUSTOMER, DEMANDS AND VEHICLE REQUIREMENTS : (14 Hours)**

What is customer, how to identify the demands, converting customer demands into product requirements. Understanding basic needs. WOW Quality Vs. must Quality.

List of Practicals

1. Measurement of pass of norms (20 Hours)
2. Usages of instruments on vehicle (10 Hours)
3. Practical on vehicle testing (10 Hours)
4. Preparing check list (10 Hours)
5. Calculating the scores. (20 Hours)

5.4 DYNAMIC EVALUATION

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1. **Auto safety (Static and Dynamic) : (24 Hours)**

Detailing on Static evaluation of product component wise Detailing on dynamic evaluation of product component wise.

2. **Advance Vehicle testing skills : (18 Hours)**

Latest equipments used for testing, Upkeep of equipments Limitations of dynamic testing.

3. **Advance technology aggregated : (14 Hours)**

BS4 & BS6 aggregates, So far development & acceptance.

4. **Advance trouble shooting of methods : (18 Hours)**

Trouble shooting on Multiplex, ECUs & phenomenon

5. **Evaluation of complete vehicle performance, capability : (26 Hours)**

Complete evaluation of product, Final Product performance, Challenging capability of product.

List of Practicals

1. Safety devices in vehicle and usage. (10 Hours)
2. Adjustment/Measurement on vehicle. (40 Hours)
3. Performance checking and troubleshooting (30 Hours)
4. Assessment of vehicle. (40 Hours)

5.5 EMPLOYABLE SKILLS

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RATIONALE

Diploma holders are required to not only possess subject related knowledge but also soft skills to get good jobs and to rise steadily at their workplace. This subject is included to develop employability skills amongst the students.

DETAILED CONTENTS

1-Industrial Scenario Engineering Education and Expectations of competences from an engineer by employer .

2- Personality types characteristics and features for a successful engineer.

3-Professional Engineer desirable values and ethics and their development. Relation between engineering profession society and environment.

4- Managing project

- Leadership
- Motivation
- Time management
- Computer Software
- Interpersonal Relationship
- Engineer economics and fundamentals

5- Effective communication

- Listening
- Speaking
- Writing
- Presentation Technique/ Seminar
- Group discussion

6-Preparing for Employment

- Searching for job/job hunting
- Resume writing

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- Interview technique in personal interview telephonic interview, panel interview, group interview. Video conference.

7- Managing Self

- Managers body, mind motion & spirit
- Stress management
- Conflict resolution

8- Continuing professional development

- Organising learning and knowledge
- Use of computer for organising knowledge resources

9- Creativity, Innovation and Intellectual property right.

- Concept and need in present time for an engineer

10- Basic rules, laws and norms to be adhered by engineers during their working

Reference:- I. R.D.T. Uttarakhand (Community College Syllabus)

List of Equipments

1.	Aggregates cut sections	2
2.	General tools, concentration checking	1
3.	Haksaw blade	1
4.	Vernier, Micrometer, Push pull gauge, Temperature sensor	1
5.	Measuring tape, Angle checking	1
6.	Traffic signage booklet, DVD	1
7.	Smoke tester	1
8.	Methane detector, Leakage detector	1
9.	Laptop with software	1
10.	Flow Meter,	1
11.	Push pull gauge	1
12.	Complete vehicle	1

Kindly mail the suggestion and comments for improvement of syllabus

Ashok Kushwaha

H.O.D.(Computer Science & Engineering)

Test Book Officer

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(Please note that all information in this survey is confidential for the use of curriculum design only)