



BOARD OF SCHOOL EDUCATION HARYANA

Syllabus and Chapter wise division of Marks (2023-24)

Class- 12th

Subject: Automotive

Code:AUT 926

General Instructions:

1. There will be an Annual Examination based on the entire syllabus.
2. The Annual Examination will be of 60/2=30 marks, Practical Examination will be of 50 marks and 20 marks weightage shall be for Internal Assessment.
3. For External Assessment (Practical) Examination:
 - (i) External Assessment- Hand on Skill of 25 (Written 10, Practical 15).
 - (ii) External Assessment- Portfolio of 10.
 - (iii) External Assessment- Viva of 15.

4. For Internal Assessment:

There will be Periodic Assessment that would include:

- i) For 6 marks- Three SAT exams will be conducted and will have a weightage of 06 marks towards the final Internal Assessment.
- ii) For 2 marks- One half yearly exam will be conducted and will have a weightage of 02 marks towards the final Internal Assessment.
- iii) For 2 marks- Subject teacher will assess and give maximum 02 marks for CRP (Class room participation).
- iv) For 5 marks- A project work to be done by students and will have a weightage of 05 marks towards the final Internal Assessment.
- v) For 5 marks- Attendance of student will be awarded 05 marks as:

75% to 80%	- 01 Marks
Above 80% to 85%	- 02 Marks
Above 85% to 90%	- 03 Marks
Above 90% to 95%	- 04 Marks
Above 95% to -	- 05 Marks



Course Structure (2023-24)

Class- 12th

Subject: Automotive

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Unit. No.	Unit Name	Unit Marks
1	Service Manual	05
2	Serviceability, Replacement or Repair of Engine	10
3	Transmission System	10
4	Suspension System	10
5	Auto Electrical	15
Unit. No.	Employability Skill Units	Unit Marks
1.	Communication Skills	2
2.	Self-Management Skills	2
3.	Information and Communication Technology Skills	2
4.	Entrepreneurship Skills	2
5.	Green Skills	2
Total		60/2=30
Practical Examination		50
Internal Assessment		20
Grand Total		100



Unit 1: Service Manual

- Reading of Service Manual ,Content of Service Manual.

Unit 2: Serviceability and Replacement or Repair of Engine

- Reconditioning of Valve Mechanism , OHC, OHV, Valve lapping operation .
- Replacement of piston ring.
- Inspection and replacement of cylinder liner/bore sleeve, connecting rod and engine bearing .
- Testing of cooling system and replacement of defective components
- Regular Servicing of MPFI System ,advantage of MPFI.
- CRDI And Non CRDI System.
- Service workshop Equipment

Unit3: Transmission System

- Overhauling of Clutch ,Diaphragm Clutch.
- Servicing of Propeller shaft, Universal and slip Joints .
- Servicing of differential unit and adjustments.
- Introduction to the Automatic Transmission system.

Unit 4: Suspension System

- Maintenance of Suspension system
- Suspension check –up.
- Service and Replacement of Leafs
- Cambering of leaf springs , shackle, shackle pin and centre Bolt.
- Replacement of Strut/Shock absorbers, inspection of steering linkage .
- Manual and Power Steering, Steering system Adjustments

Unit5: Auto Electrical

- Automotive Electrical and Electronics Symbol, Reading of Circuit Diagram, Cables Specifications and colour code ,wiring Harness .
- Electrical test Equipment's, Jumper wire, Digital multimeter Etc.
- Battery and its Maintenance ,Battery inspection , Battery testing.
- Checking of electrical connections of lighting system in a vehicle
- Application and replacement of fuses ,type of fuses.
- Circuit diagram of charging system of Automobile and checking of charging system.
- Circuit Diagram of starting system of Automobile and checking of starter circuit, starting motor trouble shooting.
- Circuit Diagram of ignition System and Checking of Ignition Circuit
- Maintenance and servicing of major Electrical Accessories
- Introduction to Climate control system Heating Ventilation and Air Conditioning in a vehicle .



Unit 6 : Employability Skill –

- Communication skill.
- Self-managementskill.
- Information and Communication Technology skill (ICT)
- Entrepreneurship Skill.
- Green skills

Practical's: -

1. **Service Manual .**
2. **Valve Mechanism.**
3. **Piston Rings.**
4. **cylinder liner/bore sleeve, connecting rod and engine bearing.**
5. **Replacement of defective components.**
6. **Servicing of MPFI.**
7. **CRDI and non CRDI system.**
8. **Overhauling of Clutch.**
9. **Propeller shaft, universal and slip joints.**
10. **Differential unit and adjustment.**
11. **Automatic transmission system.**
12. **Suspension system.**
13. **Service and repair of leaf spring set etc.**
14. **Replacement of strut/shock absorber.**
15. **Electronics symbol.**
16. **Electrical test equipment.**
17. **Battery.**
18. **Circuit diagram of charging system of automobile.**
19. **Circuit diagram of ignition system.**
20. **Major electrical accessories.**



Monthwise Syllabus Teaching Plan (2023-24)

Class- 12th

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Month	Subject- content	Teaching Periods	Revision Periods	Practical Work
April	Automobile – Unit-1 Session -1- Reading of Service Manual ,Content of Manual Employability Skill- Unit 1 Session 1 :- Active Listening Session 2:- Parts of Speech Session 3:- Writing Sentences	16	2	3
May	Automobile – Unit -2 Session -1- Reconditioning of Valve Mechanism ,OHC, OHV, Valve lapping operation Session -2- Replacement of piston ring Session-3- Inspection and replacement of cylinder liner/bore sleeve, connecting rod and engine bearing Employability Skill –Unit 2: Session 1:- Motivation and Positive Attitude Session 2:- Result Orientation Session 3:- Self Awareness	16	2	3
June	Home Work – Unit1 and 2 Practical and ES-Unit 1 All session Revision			
July	Automobile –Unit-2 Session -4- Testing of cooling system and replacement of defective components Session -5- Regular Servicing of MPFI System , advantage of MPFI Session -6- CRDI And Non CRDI System Employability Skill – Unit 03 Session 01:- Getting started with Spreadsheet Session 02:- Performing Basic Operation in a Spreadsheet Session 03:- Working with Data and Formatting Text Session Session 04:- Advanced Features in Spreadsheet	12	06	07



August	Automobile – Unit-3 Session -1- Overhauling of Clutch , Diaphragm Clutch Session -2- Servicing of Propeller shaft, Universal and slip Joints Session -3- Servicing of differential unit and adjustments Session -4- Introduction to the Automatic Transmission system Employability Skill – Unit 3 Session 05:- Presentation Software Session 06 :- Opening, Closing, Saving and Printing a Presentation Session 07:- Working with slides and text in a Presentation Session 08:- Advanced Features used in Presentation	16	04	04
Sept	Revision for Half-Yearly Exam Automobile – Unit-4 Session -1- Maintenance of Suspension system, Suspension check -up Session -2- Service and Replacement of Leafs , Cambering of leaf springs , shackle, shackle pin and centre Bolt Revision of Half yearly Exam Employability Skill – Unit 04 Session 01:- Entrepreneurship and Entrepreneur Session 02:- Barrier to Entrepreneurship	14	06	03
October	Automobile – Unit-4 Session -3- Replacement of Strut/Shock absorbers , inspection of steering linkage Session -4-Inspection of Steering Linkage Session -5- Manual and Power Steering Session -6-Steering system Adjustments. Employability Skill – Unit 04 Session 03:- Entrepreneurial Attitudes Session 04:- Entrepreneurial Competencies	12	02	06
November	Automobile –Unit-5 Session -1-Automotive Electrical and Electronics Symbol ,Reading of Circuit Diagram ,Cables Specifications and colour code ,wiring Harness Session -2- Electrical test Equipment's, Jumper wire, Digital multimeter Etc. Session -3- Battery and its Maintenance ,Battery inspection , Battery testing Employability Skill – Unit 05 Session 01:- Green Jobs Session 02:- Importance of Green Jobs	10	05	07



December	Automobile – Unit-5 Session -4- Checking of electrical connections of lighting system in a vehicle Session -5- Application and replacement of fuses , type of fuses Session -6- Circuit diagram of charging system of Automobile and checking of charging system Session -7- Circuit Diagram of starting system of Automobile and checking of starter circuit, starting motor trouble shooting Employability Skill – Project Work for Spreadsheets	15	03	06
January	Winter Vacation: 1st to 15th January Automobile – Unit-5 Session -8- Circuit Diagram of ignition System and Checking of Ignition Circuit Session -9- Maintenance and servicing of major Electrical Accessories Introduction to Climate control system Heating Ventilation and Air Conditioning in a vehicle Employability Skill – Project Work for Presentation Software.	10		02
February	Revision		10	
March	Annual Examination			

Note:

Skill Subject Teachers are advised to direct the students to prepare Practical Notebook of the Terminology/Definitional Words/ Glossary used in the Chapters for Enhancement of Vocabulary or Clarity of the Concept.

- **The PSSCIVE Skill Textbook Present Information in Boxes the book. These help Students to get Conceptual Clarity. However, the Information in these Boxes would not be Assessed in the Year- End Examination.**

Prescribed Books:

1. Security Skill Book- Text Book for Class IX, PSSCIVE Publication.
2. Employability Skill Book- Text Book for Class IX, PSSCIVE Publication.



NSQF Question Paper Design(2023-24)

Class- 12th

Subject: Automotive

Code: AUT 926

Time:- 2 Hours 30 Minutes

Competencies	Total
Knowledge	40%
Understanding	30%
Application	20%
Skill	10%
	100%

Type of Question	Marks	Number	Description	Total Marks
Objective Questions	1	15	6 Multiple Choice Questions, 3 Fill in the Blanks Questions, 3 One Word Answer Type Questions, 3 Assertion-Reason Questionstrue/false	15
Very Short Answer Type Question	2	6	Internal choice will be given in any 2 questions	12
Short Answer Type Question	3	6	Internal choice will be given in any 2 questions	18
Essay Answer Type Question	5	3	Internal options will be given in all the questions	15
Total		30		60