

CBSE | DEPARTMENT OF SKILL EDUCATION

CURRICULUM FOR SESSION 2021-2022

AUTOMOTIVE (SUBJECT CODE - 804)

JOB ROLE : AUTOMOTIVE SERVICE TECHNICIAN
Class – XI & XII

COURSE OVERVIEW:

This course is a planned sequence of instructions consisting of Units meant for developing employability and vocational competencies of students of Class XI opting for vocational subject along with general education subjects. The unit-wise distribution of hours and marks for Class XI is as follows

OBJECTIVES OF THE COURSE:

In this course, followings are the main objectives of this course.

- Communicate effectively with the customers.
- Identify the principal components of a computer system
- Identify and control hazards in the workplace that pose a danger or threat to their safety or, or that of others.
- Demonstrate self-management skills.
- Demonstrate the ability to provide a self-analysis in context of entrepreneurial skills and abilities.
- Demonstrate the knowledge of the importance of green skills in meeting the challenges of sustainable development and environment protection.
- Identify and demonstrate safe use of hand and power tools/equipment used in vehicle service station / workshop
- Recognize the benefits of great customer service;
- Provide customers necessary information appropriately and systematically;
- Use techniques to provide services based on customer's needs and wants;
- Administer first aid to a casualty with small cuts, grazes, bruises, external bleeding, minor burns and scalds

SALIENT FEATURES:

- Automotive as a vehicle unit.
- Systems/sub systems & components.
- Automotive electronics for safety, pollution control, fuel efficiency and comforts.
- Other related areas of automotive electronics for engine management, diagnostics, repair etc.

LIST OF EQUIPMENT AND MATERIALS:

The list given below is suggestive and an exhaustive list should be prepared by the vocational teacher. Only basic tools, equipment and accessories should be procured by the Institution so that the routine tasks can be performed by the students regularly for practice and acquiring adequate practical experience.

Teaching/Training Aids:

- | | |
|--|---|
| 1. Two Post lift | 21. Fender covers/kits |
| 2. Air compressor | 22. Floor mats |
| 3. Wheel balancer | 23. Cotton gloves |
| 4. Bench vice | 24. Hard toed boots |
| 5. Work tables | 25. Sun glasses (3 m) |
| 6. Bench grinder | 26. Bump caps |
| 7. Oil draining & filling equipment | 27. Air filter testing machine |
| 8. Cooling system tester | 28. Hydraulic press |
| 9. Multi meter | 29. Hydraulic jacks |
| 10. Hydro meter | 30. Vehicle safety stands |
| 11. BC clamp meter | 31. Parts washing station car |
| 12. Coolant tester | 32. Pullers |
| 13. Battery & charging system tester (Megatronics) | 33. Sliding hammer |
| 14. Diagnostic tool (genesis Evo) | 34. Wheel aligner |
| 15. General hand tools | 35. Head Light beam aligner (optical type) |
| 16. Pneumatic tools | 36. A/c Machine |
| 17. Torque wrenches | 37. Air Inflator /Tyre Inflating machine (Digital Type) |
| 18. Car seat covers | 38. A/c Leakage Tester |
| 19. Steering covers | 39. Old car |
| 20. Gear Knob covers | |

CAREER OPPORTUNITIES:

Automobile engineering is a huge industry. There is great number of employment opportunities in the following fields:

1. Private national and multinational automobile companies
2. Service stations
3. Private transport companies

VERTICAL MOBILITY:

After 12th standard, student can opt for graduation in commerce and take Automotive as specialization, following career options are available in field.

CURRICULUM:

This course is a planned sequence of instructions consisting of Units meant for developing employability and Skills competencies of students of Class XI and XII opting for Skills subject along with other subjects

AUTOMOTIVE (SUBJECT CODE -804)

CLASS –XI

Total Marks: 100 (Theory-60+Practical-40)

	TERM	UNITS	NO. OF HOURS for Theory and Practical	MAX. MARKS for Theory and Practical
Part A		Employability Skills		
	TERM I	Unit 1 : Communication Skills-III	13	05
		Unit 2 : Self-Management Skills-III	07	
		Unit 3 : ICT Skills-III	13	
	TERM II	Unit 4 : Entrepreneurial Skills-III	10	05
		Unit 5 : Green Skills-III	07	
		Total	50	10
Part B		Subject Specific Skills		
	TERM I	Unit 1: Regular Maintenance of an Engine	45	20
		Unit 2: Regular Maintenance of Transmission System	20	05
	TERM II	Unit 2: Regular Maintenance of Transmission System	5	02
		Unit 3: Regular Maintenance of Gear	20	05
		Unit 4: Service of Wheels	10	05
		Unit 5: Regular Maintenance of Tubes and Tires	10	05
		Unit 6: Regular Maintenance of Brakes	20	08
		Total	130	50
Part C		Practical Work		
		Project	20	10
		Viva		05
		Practical File		15
		Demonstration of skill competency via Lab Activities	60	10
			Total	80
		GRAND TOTAL	260	100

NOTE: Detailed Curriculum/ Topics to be covered under Part A: Employability Skill can be downloaded from CBSE website.

PRACTICAL GUIDELINES FOR CLASS XI

Assessment of performance:

The two internal examiners, assigned for the conduct and assessment of Practical Examinations each in **Senior Secondary School Curriculum (Under NSQF)**. Question for the viva examinations should be conducted by both the examiners. Question to be more of General nature, project work or the curriculum. Investigatory Project especially those that show considerable amount of effort and originality, on the part of the student, should get suitable high marks, while project of a routine or stereotyped nature should only receive MEDIOCRE marks.

Procedure for Record of Marks in the Practical answer-books:

The examiner will indicate separately marks of practical examination on the title page of the answer-books under the following heads:-

Project -10 marks

Projects for the final practical is given below .Student may be assigned

Viva based on Project -05 marks

The teacher conducting the final practical examination may ask verbal questions related to the project, if any, done by the student. Alternatively, if no project has been assigned to the students, viva may be based on questions of practical nature from the field of subject as per theCurriculum

Practical File -15 Marks

Students to make a power point presentation / assignment / practical file / report. Instructor shall assign them any outlet to study the elements in retailing.

Suggested list of Practical –

1. Inspection of an engine.
2. Washing of an engine.
3. Tuning of an engine.
4. Tuning of the ignition system of an engine.
5. Replace engine oil and oil filter of a car.
6. Servicing of cooling systems.
7. Engine Timing and engine sound test after setting.

8. Servicing of transmission system.
9. Servicing of clutch system.
10. Adjust clutch pedal free play.
11. Overhauling of clutch.
12. Replace gear and different oil.
13. Adjust gear lever free play.
14. Servicing of wheel assembly.
15. Hub greasing and bearing play adjustments.
16. Tyre Rotation of a car.
17. Tyre puncture repair.
18. Servicing of brakes system.

Demonstration of skill competency in Lab Activities -10 marks

Guidelines for Project Preparation:

The final project work should encompass chapters on:

- a) Introduction,
- b) Identification of core and advance issues,
- c) Learning and understanding and
- d) Observation during the project period.

AUTOMOTIVE (SUBJECT CODE -804)

CLASS – XII

Total Marks: 100 (Theory-60+Practical-40)

	TERM	UNITS	NO. OF HOURS for Theory and Practical	MAX. MARKS for Theory and Practical
Part A		Employability Skills		
	TERM I	Unit 1 : Communication Skills-IV	13	05
		Unit 2 : Self-Management Skills- IV	07	
		Unit 3 : ICT Skills- IV	13	
	TERM II	Unit 4 : Entrepreneurial Skills- IV	10	05
		Unit 5 : Green Skills- IV	07	
		Total	50	
Part B		Subject Specific Skills		
	TERM I	Unit 1: Measuring & service Equipment	30	10
		Unit 2: Steering system	15	07
		Unit 3: Suspension system	15	06
		Unit 4 : Transmission and Final Drive system	05	02
	TERM II	Unit 4 : Transmission and Final Drive system	10	05
		Unit 5 : Automotive Electrical and electronic system	35	15
		Unit 6 : Motor Vehicle Act and Rules	10	05
		Total	120	50
Part C		Practical Work		
		Project	60	10
		Viva		05
		Practical File		15
		Demonstration of skill competency via Lab Activities	30	10
		Total	90	40
		GRAND TOTAL	260	100

NOTE: Detailed Curriculum/ Topics to be covered under Part A:Employability Skill can be downloaded from CBSE website.

PRACTICAL GUIDELINES FOR CLASS XII

Assessment of performance:

The two internal examiners, assigned for the conduct and assessment of Practical Examinations each in **Senior Secondary School Curriculum (Under NSQF)**. Question for the viva examinations should be conducted by both the examiners. Question to be more of General nature, project work or the curriculum. Investigatory Project especially those that show considerable amount of effort and originality, on the part of the student, should get suitable high marks, while project of a routine or stereotyped nature should only receive MEDIOCRE marks.

Procedure for Record of Marks in the Practical answer-books:

The examiner will indicate separately marks of practical examination on the title page of the answer-books under the following heads:-

Project -10 marks

Projects for the final practical is given below .Student may be assigned

Viva based on Project -05 marks

The teacher conducting the final practical examination may ask verbal questions related to the project, if any, done by the student. Alternatively, if no project has been assigned to the students, viva may be based on questions of practical nature from the field of subject as per theCurriculum

Practical File -15 Marks

Students to make a power point presentation / assignment / practical file / report. Instructor shall assign them any outlet to study the elements in retailing.

Suggested list of Practical –

1. Identify different components of outside micrometer/ venire caliper and calculate least court in metric system.
2. Measure the Crank pin/main journal diameter of given crank shaft using outside micrometer/venire caliper.
3. Measure the bore diameter of the cylinder using cylinder bore gauge.
4. Checking of voltage, specific gravity of electrolyte of a lead acid battery.
5. Servicing of given steering gear box.
6. Checking of wheel alignment of a car.

7. Replacement of lubricating oil in transmission system.
8. Servicing of propeller shaft.
9. Servicing of supervision system.
10. Smarting and assembling of gearbox assembly.
11. Servicing of self-starter assembly.
12. Servicing alternator assembly.
13. Study of catalytic convertor.
14. Identification of different type of server fitted in a modern car.

Demonstration of skill competency in Lab Activities -10 marks

Guidelines for Project Preparation:

The final project work should encompass chapters on:

- a. Introduction,
- b. Identification of core and advance issues,
- c. Learning and understanding and
- d. Observation during the project period.