

LEARNING OUTCOME BASED VOCATIONAL CURRICULUM

JOB ROLE: Auto Service Technician L4

(QUALIFICATION PACK: Ref. Id. ASC/Q1402)

SECTOR: Automotive

CLASS 11



PSS CENTRAL INSTITUTE OF VOCATIONAL EDUCATION

(a constituent unit of NCERT, under MHRD, Government of India)

Offered by

Assam Higher Secondary Education Council

In Association with

Rastriya Madhyamik Shiksha Abhijan, Assam

COURSE OVERVIEW

COURSE TITLE: Automotive- Automotive Service Technician

The present curriculum Automotive Service Technician job role is related to Level L-3. This course fulfills the needs of the students willing to learn activities relating to the Automotive Service Technician job role. Any student/ entrepreneur willing to start an Automobile Service Centre can acquire the desired competencies with the help of this curriculum. Automobile or Automotive Engineering has gained recognition and importance ever since motor vehicles capable for transporting passengers has been in vogue. Now due to the rapid growth of auto component manufacturers and automobile industries, there is a great demand for Automobile technicians. Automobile Engineering alias Automotive Engineering or Vehicle Engineering is one of the most challenging careers in the field of engineering with a wide scope.

COURSE OBJECTIVES: On completion of the course, students should be able to:

- 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 health, 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.
- Communicate effectively with the customers
- Greet, escort, seat the customers and offer refreshments(tea/ coffee)
- Enquire and understand customer queries related to vehicle type, model, specifications
- Identify features of different elements of Engineering such as mechanical, electrical, electronic, software and safety engineering
- Repairing and servicing automobiles such as cars, trucks, motorcycles, scooters etc
- Understanding the mechanism of vehicle chassis, internal combustion engine, electrical systems, motor transport affairs, workshop technology

COURSE REQUIREMENTS: The learner should have the basic knowledge of science.

COURSE LEVEL: This is a course for class XI and XII. On completion of this course, a student can take up a higher level course in the area of Automotive Sector.

COURSE DURATION: **600 hrs**

Class 11 : 300 hrs

Class 12 : 300 hrs

Total : 600 hrs

SCHEME OF UNITS

This course is a planned sequence of instructions consisting of Units meant for developing employability and vocational competencies of students of Class 9 and 10 opting for vocational subject along with general education subjects. The unit-wise distribution of hours and marks for Class 9 is as follows:

CLASS 11			
Units		No. of Hours for Theory and Practical 300	Max. Marks for Theory and Practical 100
Part A	Employability Skills		
	Unit 1 : Communication Skills-III	25	10
	Unit 2 : Self-management Skills-III	25	
	Unit 3 : Information and Communication Technology Skills-III	20	
	Unit 4 : Entrepreneurial Skills-III	25	
	Unit 5 : Green Skills-III	15	
		110	10
Part B	Vocational Skills		
	Unit 1: Introduction to Engineering Geometrics and drawing	20	40
	Unit2:Fasteners	15	
	Unit3: Materials for construction of automotive components	20	
	Unit 4: Measuring instrument	20	
	Unit 5: Regular maintenance of an engine	15	
	Unit 6: Regular maintenance of Transmission system	20	
	Unit7:Regular maintenance of Gear box	20	
	Unit 8: Service of wheels	15	
	Unit 9 : Regular maintenance of Tubes and Tyres	10	
	Unit 10 : Regular Maintenance of Brakes	10	
		165	40
Part C	Practical Work		
	Practical Examination	06	15
	Written Test	01	10
	Viva Voce	03	10
		10	35
Part D	Project Work/Field Visit		

	Practical File/Student Portfolio	10	10
	Viva Voce	05	05
		15	15
	Grand Total	300	100

1. ASSESSMENT AND CERTIFICATION

Upon successful completion of the course by the candidate, the Central/ State Examination Board for Secondary Education and the respective Sector Skill Council will certify the competencies.

The National Skills Qualifications Framework (NSQF) is based on outcomes referenced to the National Occupation Standards (NOSs), rather than inputs. The NSQF level descriptors, which are the learning outcomes for each level, include the process, professional knowledge, professional skills, core skills and responsibility. The assessment is to be undertaken to verify that individuals have the knowledge and skills needed to perform a particular job and that the learning programme undertaken has delivered education at a given standard. It should be closely linked to certification so that the individual and the employer could come to know the competencies acquired through the vocational subject or course. The assessment should be reliable, valid, flexible, convenient, cost effective and above all it should be fair and transparent. Standardized assessment tools should be used for assessment of knowledge of students. Necessary arrangements should be made for using technology in assessment of students.

KNOWLEDGE ASSESSMENT (THEORY)

Knowledge Assessment should include two components: one comprising of internal assessment and second an external examination, including theory examination to be conducted by the Board.

The assessment tools shall contain components for testing the knowledge and application of knowledge. The knowledge test can be objective paper based test or short structured questions based on the content of the curriculum.

WRITTEN TEST

It allows candidates to demonstrate that they have the knowledge and understanding of a given topic. Theory question paper for the vocational subject should be prepared by the subject experts comprising group of experts of academicians, experts from existing vocational subject experts/teachers, and subject experts from university/colleges or industry. The respective Sector Skill Council should be consulted by the Central/State Board for preparing the panel of experts for question paper setting and conducting the examinations.

The blue print for the question paper may be as follows:

Exam Duration: 2 hours

Marks (Theory): 50

	Typology of Question	No. of Questions			Marks
		Very Short Answer (1 mark)	Short Answer (2 Marks)	Long Answer (3 Marks)	
1.	Remembering – (Knowledge based simple recall questions, to know specific facts, terms, concepts, principles, or theories; identify, define or recite, information)	5	2	2	15
2.	Understanding – (Comprehension – to be familiar with meaning and to understand conceptually, interpret, compare, contrast, explain, paraphrase, or interpret information)	3	4	2	17
3.	Application – (Use abstract information in concrete situation, to apply knowledge to new situations: Use given content to interpret a situation, provide an example, or solve a problem)	0	3	1	09
4.	High Order Thinking Skills – (Analysis & Synthesis – Classify, compare, contrast, or differentiate between different pieces of information; Organize and/ or integrate unique pieces of information from a variety of sources)	0	2	1	04
5.	Evaluation – (Appraise, judge, and/ or justify the value or worth of a decision or outcome, or to predict outcomes based on values)	0	1	1	05
	Total	08x1=8	12x2=24	6x3=18	50 (26 questions)

SKILL ASSESSMENT (PRACTICAL)

Assessment of skills by the students should be done by the assessors/examiners on the basis of practical demonstration of skills by the candidate, using a competency checklist. The competency checklist should be developed as per the National Occupation Standards (NOSs) given in the Qualification Pack for the Job Role to bring about necessary consistency in the quality of assessment across different sectors and institutions. The student has to demonstrate competency against the performance criteria defined in the National Occupation Standards and the assessment will indicate that they are 'competent', or are 'not yet competent'. The assessors assessing the skills of the students should possess a current experience in the industry and should have undergone an effective training in assessment principles and practices. The Sector Skill Councils should ensure that the assessors are provided with the training on the assessment of competencies.

Practical examination allows candidates to demonstrate that they have the knowledge and understanding of performing a task. This will include hands-on practical exam and viva voce. For practical, there should be a team of two evaluators - the subject teacher and the expert from the relevant industry

certified by the Board or concerned Sector Skill Council. The same team of examiners will conduct the viva voce.

Project Work (individual or group project) is a great way to assess the practical skills on a certain time period or timeline. Project work should be given on the basis of the capability of the individual to perform the tasks or activities involved in the project. Projects should be discussed in the class and the teacher should periodically monitor the progress of the project and provide feedback for improvement and innovation. Field visits should be organised as part of the project work. Field visits can be followed by a small-group work/project work. When the class returns from the field visit, each group might be asked to use the information that they have gathered to prepare presentations or reports of their observations. Project work should be assessed on the basis of practical file or student portfolio.

Student Portfolio is a compilation of documents that supports the candidate's claim of competence. Documents may include reports, articles, photos of products prepared by students in relation to the unit of competency.

Viva voce allows candidates to demonstrate communication skills and content knowledge. Audio or video recording can be done at the time of viva voce. The number of external examiners would be decided as per the existing norms of the Board and these norms should be suitably adopted/adapted as per the specific requirements of the vocational subject. Viva voce should also be conducted to obtain feedback on the student's experiences and learning during the project work/field visits.