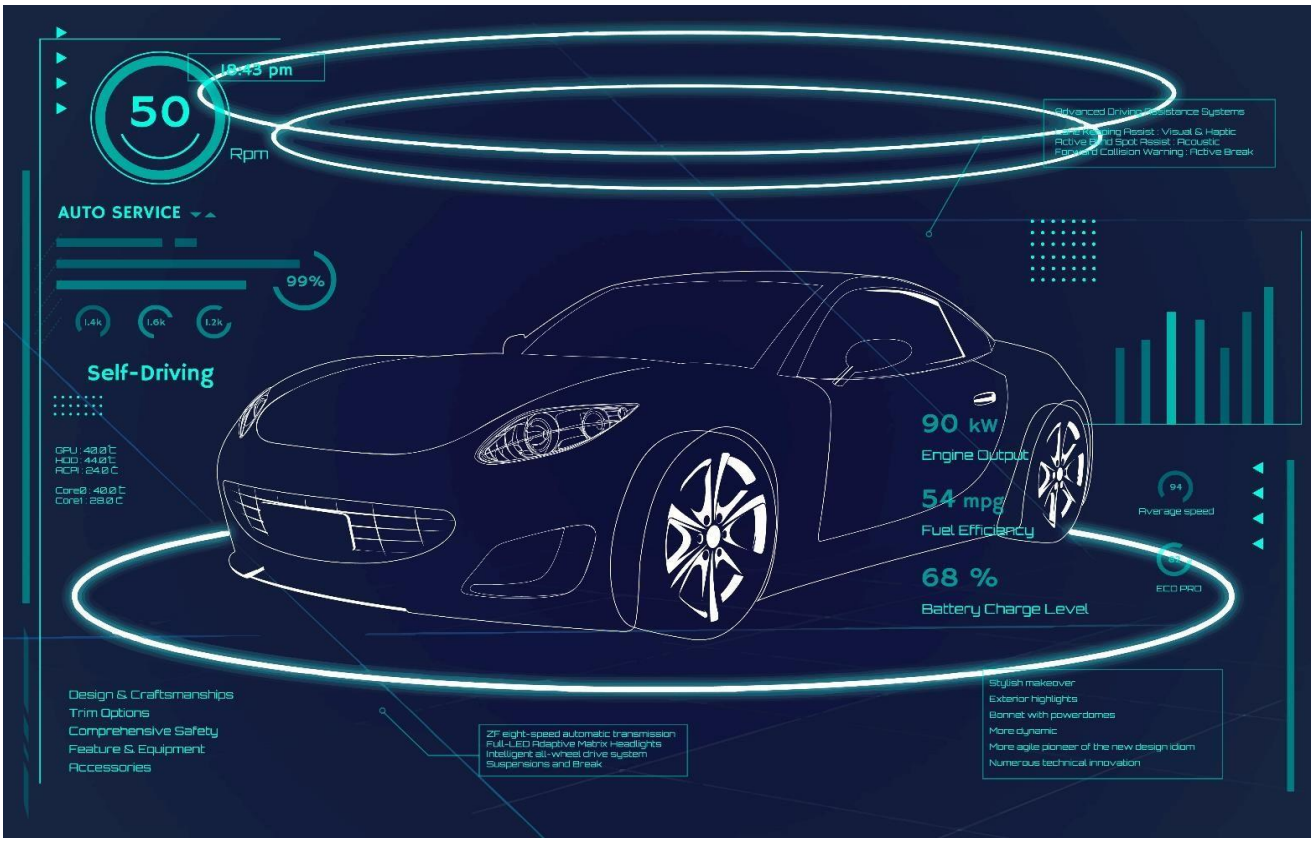

Model Curriculum

QP Name: Automotive Open System (AUTOSAR) Engineer

QP Code: ASC/Q8309

QP Version: 1.0

NSQF Level: 6

Model Curriculum Version: 1.0

Automotive Skills Development Council | 153, Gr Floor, Okhla Industrial Area, Phase – III, Leela Building, New Delhi – 110020

Table of Contents

Training Parameters

Sector	Automotive
Sub-Sector	Manufacturing
Occupation	Automotive Product Development
Country	India
NSQF Level	6
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7213.0201
Minimum Educational Qualification and Experience	3 years diploma (Mechanical/Automobile/ Electrical / Electronics/ Computer Science/ IT) after class 10th or BCA from recognized regulatory body with 5 years of relevant (like Automotive embedded system) experience OR B.E./B.Tech/ MCA in the relevant field with 1 Year of relevant experience, OR M.E./M.Tech in the relevant field OR Certificate-NSQF (Automotive Prototype Manufacturing Lead Technician/ Electric Vehicle Product Design Engineer Level 5) with 3 Years of relevant experience
Pre-Requisite License or Training	Basic of Microcontrollers Automobile ECU functionality Embedded C Course
Minimum Job Entry Age	22 years
Last Reviewed On	17/11/2022
Next Review Date	17/11/2025
NSQC Approval Date	17/11/2022
QP Version	1.0
Model Curriculum Creation Date	17/11/2022
Model Curriculum Valid Up to Date	17/11/2025

Model Curriculum Version	1.0
Minimum Duration of the Course	630 Hours
Maximum Duration of the Course	630 Hours

Program Overview

This section summarizes the end objectives of the program along with its duration.

Training Outcomes

At the end of the program, the learner should have acquired the listed knowledge and skills.

- Perform steps to build AUTOSAR architecture and its architecture.
- Perform steps to configure software components as per the project requirements.
- Perform steps to develop and validate codes of AUTOSAR tools and project.
- Implement safety practices.
- Use resources optimally to ensure less wastage and maximum conservation.
- Communicate effectively and develop interpersonal skills.

Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
Bridge Module					
Module 1: Introduction to the role of an Automotive Open System (AUTOSAR) Engineer	5:00	0:00			5:00
ASC/N9810: Manage work and resources (Manufacturing) **NOS Version No. – 1.0** **NSQF Level – 5**	**20:00**	**40:00**			**60:00**
Module 2: Manage work and resources according to safety and conservation standards	20:00	40:00			60:00
DGT/VSQ/N0103 - Employability Skills (90 hours) **NOS Version No. – 1.0** **NSQF Level – 5**	**36:00**	**54:00**			**90:00**
Module 5: Introduction to Employability Skills	1:00	2:00			3:00
Module 6: Constitutional values - Citizenship	0.5:00	1:00			1.5:00
Module 7: Becoming a Professional in the 21st Century	2:00	3:00			5:00
Module 8: Basic English Skills	4:00	6:00			10:00

Module 9: Career Development & Goal Setting	1.5:00	2.5:00			4:00
Module 10: Communication Skills	4:00	6:00			10:00

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Module 11: Diversity & Inclusion	1:00	1.5:00			2.5:00
Module 12: Financial and Legal Literacy	4:00	6:00			10:00
Module 13: Essential Digital Skills	8:00	12:00			20:00
Module 14: Entrepreneurship	3:00	4:00			7:00
Module 15: Customer Service	4:00	5:00			9:00
Module 16: Getting ready for apprenticeship & Jobs	3:00	5:00			8:00
ASC/N8346 – Develop AUTOSAR Architecture NOS Version No. –1.0 NSQF Level - 6	**41:00**	**74:00**	**120:00**		**235:00**
Module 3: Build AUTOSAR Architecture	41:00	74:00	120:00		235:00
ASC/N8347 – Configure and execute AUTOSAR project NOS Version No. –1.0 NSQF Level - 6	**30:00**	**90:00**	**120:00**		**240:00**
Module 4: Configure and execute AUTOSAR project	30:00	90:00	120:00		240:00
Total Duration	**132:00**	**258:00**	**240:00**		**630:00**

Module Details

Module 1: Introduction to the role of an Automotive Open System (AUTOSAR) Engineer

Bridge module

Terminal Outcomes:

- Discuss the role and responsibilities of an Automotive Open System (AUTOSAR) Engineer.

Duration: *<05:00>*	**Duration**: *<00:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• List the role and responsibilities of an Automotive Open System (AUTOSAR) Engineer. • Discuss the job opportunities for an Automotive Open System (AUTOSAR) Engineerin the automobile industry. • Explain about Indian automobile manufacturing market. • List various automobile Original Equipment Manufacturers (OEMs) and different products/ models manufactured by them. • Discuss AUTOSAR standards followed in the industry.	
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Module 2 Manage work and resources according to safety and conservation standards

Mapped to ASC/N9810, v1.0

Terminal Outcomes:

- Employ appropriate ways to maintain safe and secure working environment
- Apply material and energy conservation practices at the workplace.

Duration: *<20:00>*	**Duration**: *<40:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss organisational procedures for health, safety and security and individual role and responsibilities related to the same. • List the potential workplace related risks, threats and hazards, their causes and preventions. • List personal protective equipment like safety gloves, glasses, shoes and mask used at the workplace. • List various types of fire extinguisher. • Identify various safety boards/ signs placed on the shop floor. • Explain 5S standards, procedures and policies followed at workplace. • Discuss organisational procedures to deal with emergencies and accidents at the workplace and importance of following them. • State the importance of conducting safety drills or training sessions. • Explain the process of filling daily check sheet for reporting to the concerned authorities about improvements done and risks identified. • Discuss how and when to report about potential hazards identified in the workplace and limits of responsibility for dealing with them. • Outline the importance of keeping workplace, equipment, restrooms etc. clean and sanitised. • Explain the importance of following hygiene and sanitation regulations developed by organisation at the workplace. • Discuss the importance of maintaining the availability of running water, hand wash and alcohol-based sanitizers at the	• Apply appropriate ways to implement safety practices to ensure safety of people at the workplace. • Display the correct way of wearing and disposing PPE. • Demonstrate the use of fire extinguisher. • Demonstrate how to provide first aid procedure in case of emergencies. • Demonstrate how to evacuate the workplace in case of an emergency. • Employ various techniques for checking malfunctions in the machines with the support of maintenance team and as per Standard Operating Procedures (SOP). • Demonstrate to arrange tools/ equipment/ fasteners/ spare parts into proper trays, cabinets, lockers as mentioned in the 5S guidelines/work instructions. • Apply appropriate ways to organise safety drills or training sessions for others on the identified risks and safety practices. • Prepare a report about the health, safety and security breaches. • Apply appropriate ways to check that workplace, equipment, restrooms etc. are cleaned and sanitised. • Role play a situation to brief the team about the hygiene and sanitation regulations developed by organisation. • Demonstrate the correct way of washing hands using soap and water and alcoholbased hand rubs. • Apply appropriate methods to support the employees to cope with stress, anxiety etc. • Demonstrate proper waste collection and disposal mechanism depending upon types of waste.

workplace. • Discuss the significance of conforming to basic hygiene practices such as washing hands, using alcohol based hand sanitizers or soap. • Recall ways of reporting advanced hygiene and sanitation issues to the concerned authorities. • Elucidate various stress and anxiety management techniques. • Discuss the significance of greening. • Classify different categories of waste for the purpose of segregation. • Differentiate between recyclable and nonrecyclable waste. • Discuss various methods of waste collection and disposal. • List the various materials used at the workplace. • Explain organisational recommended norms for storage of tools, equipment and material. • Discuss the importance of efficient utilisation of material and water. • Explain basics of electricity and prevalent energy efficient devices. • Explain the processes to optimize usage of material and energy/electricity. • Enlist common practices for conserving electricity at workplace.	• Perform the steps involved in storage of tools, equipment and material after completion of work. • Employ appropriate ways to resolve malfunctioning (fumes/ sparks/ emission/ vibration/ noise) and lapse in maintenance of equipment as per requirements. • Perform the steps to prepare a sample material and energy audit reports. • Employ practices for efficient utilization of material and energy/electricity.
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	
• Housekeeping material: Cleaning agents, cleaning cloth, waste container, dust pan and brush set, liquid soap, hand towel, fire extinguisher • Safety gears: Safety shoes, ear plug, goggles, gloves, helmet, first-aid kit	

Module 5 Introduction to Employability Skills

Mapped to DGT/VSQ/N0103

Terminal Outcomes:

- Discuss about Employability Skills in meeting the job requirements

Duration: *<1:00>*	**Duration**: *<2:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Outline the importance of Employability Skills for the current job market and future of work	• List different learning and employability related GOI and private portals and their usage • Research and prepare a note on different industries, trends, required skills and the available opportunities
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Terminal Outcomes:

Module 6 Constitutional values - Citizenship

Mapped to DGT/VSQ/N0103

Terminal Outcomes:

- Discuss about constitutional values to be followed to become a responsible citizen

Duration: *<0.5:00>*	**Duration**: *<1:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain constitutional values, civic rights, duties, citizenship, responsibility towards society etc. that are required to be followed to become a responsible citizen.	• Practice different environmentally sustainable practices
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Module 7 Becoming a Professional in the 21st Century

Mapped to DGT/VSQ/N0103

Terminal Outcomes:

- Demonstrate professional skills required in 21st century

Duration: *<2:00>*	**Duration**: *<3:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss 21st century skills required for employment	• Highlight the importance of practicing 21st century skills like Self-Awareness, Behavior Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn etc. in personal or professional life • Create a pathway for adopting a continuous learning mindset for personal and professional development
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Module 8 Basic English Skills

Mapped to DGT/VSQ/N0103

Terminal Outcomes:

- Practice basic English speaking.

Duration: *<4:00>*	**Duration**: *<6:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe basic communication skills • Discuss ways to read and interpret text written in basic English	• Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone • Read and understand text written in basic English • Write a short note/paragraph / letter/e mail using correct basic English
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Module 9 Career Development & Goal Setting

Mapped to DGT/VSQ/N0103

- Demonstrate Career Development & Goal Setting skills.

Duration: *<1.5:00>*	**Duration**: *<2.5:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Identify well-defined short- and long-term goals	• Create a career development plan
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Module 10 Communication Skills

Mapped to DGT/VSQ/N0103

Terminal Outcomes:

- Practice basic communication skills.

Duration: *<4:00>*	**Duration**: *<6:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the importance of communication etiquette including active listening for effective communication	• Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette • Write a brief note/paragraph on a familiar topic • Role play a situation on how to work collaboratively with others in a team
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Module 11 Diversity & Inclusion

Mapped to DGT/VSQ/N0103

- Describe PwD and gender sensitisation.

Duration: *<1:00>*	**Duration**: *<1.5:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss the significance of reporting sexual harassment issues in time	• Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Module 12 Financial and Legal Literacy

Mapped to DGT/VSQ/N0103

Terminal Outcomes:

- Describe ways of managing expenses, income, and savings.

Duration: *<4:00>*	**Duration**: *<6:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss various financial institutions, products, and services • Explain the common components of salary such as Basic, PF, Allowances (HRA, TA, DA, etc.), tax deductions • Discuss the legal rights, laws, and aids	• Demonstrate how to conduct offline and online financial transactions, safely and securely and check passbook/statement • Calculate income and expenditure for budgeting
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Module 13 Essential Digital Skills

Mapped to DGT/VSQ/N0103

- Demonstrate procedure of operating digital devices and associated applications safely.

Duration: *<8:00>*	**Duration**: *<12:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the role of digital technology in day-to-day life and the workplace • Discuss the significance of displaying responsible online behavior while using various social media platforms	• Demonstrate how to operate digital devices and use the associated applications and features, safely and securely • Demonstrate how to connect devices securely to internet using different means • Follow the dos and don'ts of cyber security to protect against cyber crimes • Create an e-mail id and follow e- mail etiquette to exchange e -mails • Show how to create documents, spreadsheets and presentations using appropriate applications • Utilize virtual collaboration tools to work effectively
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Module 14 Entrepreneurship

Mapped to DGT/VSQ/N0103

Terminal Outcomes:

- Describe opportunities as an entrepreneur.

Duration: *<3:00>*	**Duration**: *<4:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the types of entrepreneurship and enterprises • Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan • Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement	• Create a sample business plan, for the selected business opportunity
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Module 15 Customer Service

Mapped to DGT/VSQ/N0103

Terminal Outcomes:

- Describe ways of maintaining customer.

Duration: *<4:00>*	**Duration**: *<5:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Classify different types of customers • Discuss various tools used to collect customer feedback • Discuss the significance of maintaining hygiene and dressing appropriately	• Demonstrate how to identify customer needs and respond to them in a professional manner
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Module 16 Getting ready for apprenticeship & Jobs

Mapped to DGT/VSQ/N0103

Terminal Outcomes:

- Describe ways of preparing for apprenticeship & Jobs appropriately.

Duration: *<3:00>*	**Duration**: *<5:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss the significance of maintaining hygiene and dressing appropriately for an interview • List the steps for searching and registering for apprenticeship opportunities	• Draft a professional Curriculum Vitae (CV) • Use various offline and online job search sources to find and apply for jobs • Role play a mock interview
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	

Module 3: Build AUTOSAR Architecture

Mapped to ASC/N8346, v1.0

Terminal Outcomes:

- Perform the steps of building an AUTOSAR architecture and its components.

Duration: *<41:00>*	**Duration**: *<74:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe need of AUTOSAR • Discuss history of AUTOSAR and evolutions brought in AUTOSAR • List objectives of AUTOSAR • Discuss motivation for AUTOSAR development • Describe vision behind AUTOSAR • Describe principles of AUTOSAR • Illustrate AUTOSAR organization structure • Elaborate different standard description formats used in AUTOSAR • Discuss the information obtained from technical specification document and AUTOSAR standards. • Describe various AUTOSAR components i.e. Virtual Functional Bus, ports and interfaces, runtime environment, operating system, abstraction layer and service layer etc. • Describe architecture with SW-C (standard description format) • List AUTOSAR development tools, coding language, development platform, OS etc. available for project development • Elaborate different protocols used for ECU's communication in Automobile. E.g., CAN, Flexray • Describe AUTOSAR system constraints and ECU descriptions • Describe atomic software component • Describe API • Describe various vehicle ECU's functional domains (Body Control, Security systems, Power train). • Describe Client Server relationship and Describe Sender Receiver relationship • Describe Communication attributes and Application attributes • Describe functioning of various sensor and actuator components used in a vehicle.	• Show how to select appropriate AUTOSAR development tools, coding language, development platform, OS etc. as per the project requirements • Show how to interpret ECU architecture and extract SW-C (standard description format) product specifications from vehicle specifications • Demonstrate code writing for development of Virtual functional bus (VFB) as per the requirement • Show how to build code and configure Runtime Environment (RTE) for the project • Show how to build code and configure software, its components and their oriented design • Show how to configure ports an interfaces, Sender-Receiver communication and Client- Server communication as per the requirement • Apply appropriate ways to validate codes of all the components of architecture • Apply appropriate ways to analyse and validate components communication behavior • Show how to write code to develop and configure ECU Layered Software Architecture, Microcontroller Abstraction Layer and service layer as per the requirement Show how to develop complex drivers for running the system

• List non-standardized drivers available Illustrate ECU Layered Software Architecture and Microcontroller • Abstraction Layer and service layer	

Classroom Aids:
Whiteboard, marker pen, projector
Tools, Equipment and Other Requirements
AUTOSAR tools, development platform, OS, software

Module 4: Configure and execute AUTOSAR project

Mapped to ASC/N8347, v1.0

Terminal Outcomes:

- Perform steps to choose configure AUTOSAR components as per the requirement
- Perform steps to execute and validate AUTOSAR project

Duration: *<30:00>*	**Duration**: *<90:00>*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe AUTOSAR format for formal description via information exchange format • Describe Software components template, ECU resources, System constraints • Describe AUTOSAR system configuration tool • Describe System communication matrix • List Runnable entities • Discuss states of an Atomic software component in each runnable • List AUTOSAR services • Describe Preemption, Reentrancy and library functions • Describe ComSpec classes • Lust attributes specific to distribution of data • List communication attributes for server port • Describe interaction pattern for application of the sender receiver paradigm • Discuss internal behavior of runnable • Describe data set points of runnable entity • Describe invoking an operation • Discuss scheduling strategy • Define system configuration input • Define detailed scheduling information or the configuration data • Define RTE events • Define and configure communication attributes • List steps to be performed for configuration and execution of AUTOSAR project • Describe configuration and features of BSW configurator, RTE generator, software for BSW/ MCAL implementation, system tooling etc. • Discuss ways of basic handling of BSW	• Prepare sample design steps to go from system level configuration to generation of ECU executable • Show how to select system configuration input and customize it as per the requirement • Apply appropriate ways to identify and distinguish system constraints • Show how to configure ECU extract of system configuration • Demonstrate steps to execute detailed scheduling information or the configuration data • Show how to configure component aspect that supports proper configuration of RTE and BSW • Show how to configure component aspect that describes the communication properties of software component • Show how to configure and execute component aspect that serves as a basis for the description of detailed resource • Show how to configure component aspect that provides more detailed description of the timing behavior of atomic software component • Demonstrate steps to execute RTE events • Show how to design and investigate response to events • Show how to configure RPort attributes, PPort attributes and connector attributes • Show how to design and execute time driven activation of runnables • Apply appropriate ways to interpret resource consumption • Demonstrate use appropriate BSW configurator, RTE generator, system tooling etc. to connect all the AUTOSAR architecture components • Demonstrate execution of AUTOSAR

implementation tools, MCAL implementation tools, BSW configuration tools, RTE generator tools and system tools • Describe type of licenses and their respective usage scenario • List different hardware used as ECU • Describe testing methodologies to check the AUTOSAR system functioning as per specifications	• project as per organisational procedure Show how to set up environment and develop use cases for simulation and testing • Apply appropriate ways to test the performance of the system against product specifications • Apply appropriate ways to review codes and UTCs to identify errors and correct them as per the requirement • Demonstrate organisational procedure for submitting the corrected code to the concerned person for approval
Classroom Aids:	
Whiteboard, marker pen, projector	
Tools, Equipment and Other Requirements	
AUTOSAR tools, development platform, OS, software	

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualificatio n	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remar ks**
		Years	***Specialization***	***Yea rs***	***Specialization***	
B.E/B.Tech	Mechanical/Automobile/ Electrical / Electronics/ Computer Science/IT	4	Mechanical/ Automobile/ Electronics/ Instrumentation	1	Mechanical/ Automobile/ Electronics/ Instrumentation	NA
B.E/B.Tech	Mechanical/Automobile/ Electrical / Electronics/ Computer Science/IT	5	Mechanical/ Automobile/ Electronics/ Instrumentation	0	Mechanical/ Automobile/ Electronics/ Instrumentation	NA
Diploma	Mechanical/Automobile/ Electrical / Electronics/ Computer Science/IT	3	Mechanical/ Automobile/ Electronics	1	Mechanical/ Automobile/ Electronics	NA
Diploma	Mechanical/Automobile/ Electrical / Electronics/ Computer Science/IT	4	Mechanical/ Automobile/ Electronics	0	Mechanical/ Automobile/ Electronics	NA
M.E/M.Tec h	Mechanical/Automobile/ Electrical / Electronics/ Computer Science/IT	2	Mechanical/Aut omobile/ Electrical/ Electronics	1	Mechanical/Automo bile/ Electrical/ Electronics	NA
M.E/M.Tec h	Mechanical/Automobile/ Electrical / Electronics/ Computer Science/IT	3	Mechanical/Aut omobile/ Electrical/ Electronics	0	Mechanical/Automo bile/ Electrical/ Electronics	NA

Trainer Certification	
Domain Certification	**Platform Certification**
"Automotive Open System (AUTOSAR) Engineer, ASC/Q8309, version 1.0". Minimum accepted score is 80%.	"Trainer, MEP/Q2601 v1.0" Minimum accepted score is 80%.

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
B.E/B.Tech	Mechanical/ Automobile/ Electrical / Electronics/ Computer Science/IT	5	Mechanical/ Automobile/ Electronics/ Instrumentation	1	Mechanical/ Automobile/ Electronics/ Instrumentation	NA
B.E/B.Tech	Mechanical/ Automobile/ Electrical / Electronics/ Computer Science/IT	6	Mechanical/ Automobile/ Electronics/ Instrumentation	0	Mechanical/ Automobile/ Electronics/ Instrumentation	NA
Diploma	Mechanical/ Automobile/ Electrical / Electronics/ Computer Science/IT	4	Mechanical/ Automobile/ Electronics	1	Mechanical/ Automobile/ Electronics	NA
Diploma	Mechanical/ Automobile/ Electrical / Electronics/ Computer Science/IT	5	Mechanical/ Automobile/ Electronics	0	Mechanical/ Automobile/ Electronics	NA
M.E/M.Tech	Mechanical/ Automobile/ Electrical / Electronics/ Computer Science/IT	3	Mechanical/Automobile/ Electrical/ Electronics	1	Mechanical/Automobile/ Electrical/ Electronics	NA
M.E/M.Tech	Mechanical/ Automobile/ Electrical / Electronics/ Computer Science/IT	4	Mechanical/Automobile/ Electrical/ Electronics	0	Mechanical/Automobile/ Electrical/ Electronics	NA

Assessor Certification	
Domain Certification	**Platform Certification**
"Automotive Open System (AUTOSAR) Engineer, ASC/Q8309, version 1.0". Minimum accepted score is 80%.	"Assessor; MEP/Q2701 v1.0" Minimum accepted score is 80%.

Assessment Strategy

1. Assessment System Overview:
    - Batches assigned to the assessment agencies for conducting the assessment on SDMS/SIP or email
    - Assessment agencies send the assessment confirmation to VTP/TC looping SSC
    - Assessment agency deploys the ToA certified Assessor for executing the assessment
    - SSC monitors the assessment process & records

2. Testing Environment:
    - Confirm that the centre is available at the same address as mentioned on SDMS or SIP
    - Check the duration of the training.
    - Check the Assessment Start and End time to be as 10 a.m. and 5 p.m.
    - If the batch size is more than 30, then there should be 2 Assessors.
    - Check that the allotted time to the candidates to complete Theory & Practical Assessment is correct.
    - Check the mode of assessment—Online (TAB/Computer) or Offline (OMR/PP).
    - Confirm the number of TABs on the ground are correct to execute the Assessment smoothly.
    - Check the availability of the Lab Equipment for the particular Job Role.

3. Assessment Quality Assurance levels / Framework:
    - Question papers created by the Subject Matter Experts (SME)
    - Question papers created by the SME verified by the other subject Matter Experts
    - Questions are mapped with NOS and PC
    - Question papers are prepared considering that level 1 to 3 are for the unskilled & semi-skilled individuals, and level 4 and above are for the skilled, supervisor & higher management
    - Assessor must be ToA certified & trainer must be ToT Certified
    - Assessment agency must follow the assessment guidelines to conduct the assessment

4. Types of evidence or evidence-gathering protocol:
    - Time-stamped & geotagged reporting of the assessor from assessment location
    - Centre photographs with signboards and scheme specific branding
    - Biometric or manual attendance sheet (stamped by TP) of the trainees during the training period
    - Time-stamped & geotagged assessment (Theory + Viva + Practical) photographs & videos

5. Method of verification or validation:
    - Surprise visit to the assessment location
    - Random audit of the batch
    - Random audit of any candidate

6. Method for assessment documentation, archiving, and access
    - Hard copies of the documents are stored

- Soft copies of the documents & photographs of the assessment are uploaded / accessed from Cloud Storage
- Soft copies of the documents & photographs of the assessment are stored in the Hard Drives

References

Glossary

Term	Description
Declarative Knowledge	Declarative knowledge refers to facts, concepts and principles that need to be known and/or understood in order to accomplish a task or to solve a problem.
Key Learning Outcome	Key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
OJT (M)	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on site
OJT (R)	On-the-job training (Recommended); trainees are recommended the specified hours of training on site
Procedural Knowledge	Procedural knowledge addresses how to do something, or how to perform a task. It is the ability to work, or produce a tangible work output by applying cognitive, affective or psychomotor skills.
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do upon the completion of the training.
Terminal Outcome	Terminal outcome is a statement of what a learner will know, understand and be able to do upon the completion of a module. A set of terminal outcomes help to achieve the training outcome.

Acronyms and Abbreviations

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
SOP	Standard Operating Procedure
WI	Work Instructions
PPE	Personal Protective equipment