Qualification Pack

VLSI Design Engineer

QP Code: ELE/Q1201

Version: 3.0

NSQF Level: 5

Electronics Sector Skills Council of India || 155, 2nd Floor, ESC House Okhla Industrial Area-Phase 3
New Delhi- 110020 || email:rakhi@essc-india.org

Contents

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ELE/Q1201: VLSI Design Engineer

Brief Job Description

The individual at work designs SOC-module function using software and design tools as per the given specifications. The individual is also responsible for coordinating with other design teams involved in the SOC design.

Personal Attributes

The job requires the individual to have attention to details, good eye sight, logical thinking and ability to work for long hours on computer.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. ELE/N1201: Develop function design of SOC module
2. ELE/N1002: Apply health and safety practices at the workplace
3. DGT/VSQ/N0102: Employability Skills (60 Hours)

Qualification Pack (QP) Parameters

Sector	Electronics
Sub-Sector	
Occupation	Product Design-S&C
Country	India
NSQF Level	5
Credits	26
Aligned to NCO/ISCO/ISIC Code	NCO-2015/2512.0501

Minimum Educational Qualification & Experience	Diploma (after 10th (Electrical/Electronics)) with 1 Year of experience relevant experience OR 12th grade pass with 1 year NTC/ NAC with 1 Year of experience relevant experience OR 12th grade Pass with 2 Years of experience relevant experience OR Previous relevant Qualification of NSQF Level (4) with 3 Years of experience relevant experience OR 10th grade pass with 4 Years of experience relevant experience
Minimum Level of Education for Training in School	10th Class
Pre-Requisite License or Training	NA
Minimum Job Entry Age	21 Years
Last Reviewed On	NA
Next Review Date	30/04/2025
NSQC Approval Date	24/02/2022
Version	3.0
Reference code on NQR	QG-05-EH-00428-2023-V1.1-ESSC
NQR Version	1.0

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ELE/N1201: Develop function design of SOC module

Description

This OS unit is about designing the functions of modules of the system-on-chip or integrated circuit chip, using software and design tools and as per input/output specifications

Scope

The scope covers the following :

- Identifying the work requirement
- Interpreting the module design mandate
- Develop design specifications for the module's functions
- Coordinate with verification and testing engineer

Elements and Performance Criteria

Identifying work requirement

To be competent, the user/individual on the job must be able to:

PC1. interact with the lead engineer for understanding the work schedules, shifts and delivery dates

PC2. dentify and plan the work activities based on the work flow and deliverables

Interpreting the design mandate

To be competent, the user/individual on the job must be able to:

PC3. interact with project lead and design lead to understand the project specific design requirement for system-on-chip (SOC) or integrated circuit chip.

PC4. identify the type of design required such as digital or analogue and their respective design flow

PC5. select the design type involved such as Application Specific Integrated Circuit (ASIC) or Field Programmable Gate Arrays (FPGA) based on the factors such as design cycle time, expense and custom design requirement

PC6. check the complete system architecture including memory, microcontroller, microprocessor, memory blocks, timers and oscillators, interfaces and power management

PC7. segregate the design partitioning in different blocks and assess the placement of blocks and functions of each block of the SOC

PC8. select the languages for designing such as Hardware Design Language (HDL) i.e. Verilog, VHDL and high level language i.e. C, C plus plus

PC9. select the coding required for designing in coordination with the architect

PC10. identify IP core block and its use in the system design

Designing for specification

To be competent, the user/individual on the job must be able to:

PC11. use organisation recommended tools, software and applications to perform designing.

PC12. coordinate with different design teams to finalise the design flow for suitability of verification and testing of software

PC13. specify the blocks in the system design (using concepts of hierarchy and regularity) as per system requirement to enable faster results during synthesis and lower process time

PC14. demonstrate designing of reusable blocks

PC15. take inputs from the architecture team for specifying the behavioural requirements for the design and tasks to be performed by the module of the chip

PC16. define the external interfaces to the design system

PC17. write the hardware description of the integrated circuit (IC) using HDL

PC18. build a simulated model, e.g. VHDL model for ASIC design as per the system specification

PC19. interpret and specify the different types of design as per sections in VLSI processor such as high level design, operative part design, control part design, memory design and others

PC20. design the logic for the system which includes structuring of blocks, interconnection pattern, structure of data path and its control sequences

Coordinating with verification and testing engineer

To be competent, the user/individual on the job must be able to:

PC21. coordinate with verification engineers after the coding of design system and analyse the verification results from engineers

PC22. coordinate with back end department of physical design and design for test engineers to make changes in design as per the verification process result and system requirement

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. company policies on incentives, personnel management, documentation policy, IPR and code of conduct

KU2. the importance of individuals role in the work flow

KU3. company reporting structure

KU4. company different department and concerned authority need to communicate during the work

KU5. company license on IP core library, usage of software and design tools

KU6. the basics of system-on-chip (SOC) design

KU7. the system design modules and concepts of circuit design

KU8. semiconductor physics, CMOS transistors, diodes, triodes, etc.

KU9. the computer architecture

KU10. the concepts of hierarchy and regularity

KU11. the digital and analogue design and their implications

KU12. the circuit design, network analysis, control theory for analogue design requirement

KU13. the design flow involved in design stages

KU14. the Register transfer level (RTL) design methodologies

KU15. the IP block and library

KU16. the Hardware description language (HDL) such as Verilog, VHDL

KU17. the basics on HDL simulation and synthesis

KU18. the high level language for design such as C, C plus plus
KU19. the process design requirement for FPGA, ASIC
KU20. the UNIX and specific design tools such as Perl
KU21. the end-product application, i.e. industry for which chip is designed

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. read job sheets and process documents
GS2. interpret design drawings
GS3. communicate with team members over email
GS4. fill in documentation reports in English or regional language
GS5. interact effectively with lead and project head to understand the work requirement and consult for the issues
GS6. interact effectively with co employees in order to co-ordinate work processes
GS7. improve work processes
GS8. organize work processes and reduce repetition of errors for better time management
GS9. analyse the complexity of work to determine if it can be successfully carried out or needs to be referred to a superior/specialist

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Identifying work requirement	**3**	**5**	**-**	**-**
PC1. interact with the lead engineer for understanding the work schedules, shifts and delivery dates	1	2	-	-
PC2. dentify and plan the work activities based on the work flow and deliverables	2	3	-	-
Interpreting the design mandate	**18**	**20**	**-**	**-**
PC3. interact with project lead and design lead to understand the project specific design requirement for system-on-chip (SOC) or integrated circuit chip.	2	2	-	-
PC4. identify the type of design required such as digital or analogue and their respective design flow	2	2	-	-
PC5. select the design type involved such as Application Specific Integrated Circuit (ASIC) or Field Programmable Gate Arrays (FPGA) based on the factors such as design cycle time, expense and custom design requirement	3	3	-	-
PC6. check the complete system architecture including memory, microcontroller, microprocessor, memory blocks, timers and oscillators, interfaces and power management	2	2	-	-
PC7. segregate the design partitioning in different blocks and assess the placement of blocks and functions of each block of the SOC	2	3	-	-
PC8. select the languages for designing such as Hardware Design Language (HDL) i.e. Verilog, VHDL and high level language i.e. C, C plus plus	3	3	-	-
PC9. select the coding required for designing in coordination with the architect	2	3	-	-
PC10. identify IP core block and its use in the system design	2	2	-	-
Designing for specification	**15**	**27**	**-**	**-**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. use organisation recommended tools, software and applications to perform designing.	2	3	-	-
PC12. coordinate with different design teams to finalise the design flow for suitability of verification and testing of software	1	2	-	-
PC13. specify the blocks in the system design (using concepts of hierarchy and regularity) as per system requirement to enable faster results during synthesis and lower process time	2	3	-	-
PC14. demonstrate designing of reusable blocks	1	2	-	-
PC15. take inputs from the architecture team for specifying the behavioural requirements for the design and tasks to be performed by the module of the chip	2	3	-	-
PC16. define the external interfaces to the design system	1	3	-	-
PC17. write the hardware description of the integrated circuit (IC) using HDL	2	3	-	-
PC18. build a simulated model, e.g. VHDL model for ASIC design as per the system specification	1	3	-	-
PC19. interpret and specify the different types of design as per sections in VLSI processor such as high level design, operative part design, control part design, memory design and others	2	3	-	-
PC20. design the logic for the system which includes structuring of blocks, interconnection pattern, structure of data path and its control sequences	1	2	-	-
Coordinating with verification and testing engineer	**4**	**8**	**-**	**-**
PC21. coordinate with verification engineers after the coding of design system and analyse the verification results from engineers	2	4	-	-
PC22. coordinate with back end department of physical design and design for test engineers to make changes in design as per the verification process result and system requirement	2	4	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	**40**	**60**	**-**	**-**

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National Occupational Standards (NOS) Parameters

NOS Code	ELE/N1201
NOS Name	Develop function design of SOC module
Sector	Electronics
Sub-Sector	Semiconductor and Active components
Occupation	Design
NSQF Level	5
Credits	TBD
Version	2.0
Last Reviewed Date	24/02/2022
Next Review Date	03/05/2026
NSQC Clearance Date	03/05/2023

ELE/N1002: Apply health and safety practices at the workplace

Description

This OS unit is about knowledge and practices relating to health, safety and security that candidates need to use in the workplace.

Scope

The scope covers the following :

- Deal with workplace hazards
- Apply fire safety practices
- Follow emergencies, rescue and first-aid procedures
- Effective waste management/recycling practices

Elements and Performance Criteria

Deal with workplace hazards

To be competent, the user/individual on the job must be able to:

PC1. identify job-site hazards and possible causes of accident in the workplace

PC2. perform work complying to organizational safe working practices and observing hazard signs displayed on containers, equipment and in various work areas such as inside buildings, in open areas and public spaces, etc.

PC3. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards

PC4. follow standard safety procedures while handling tool/ ,equipment, hazardous substances and while working in hazardous environments

PC5. dispose electronic waste (such as toxins; metals such as lead, cadmium, barium; flame retardant plastics, welding slag etc.) as per industry approved techniques

PC6. avoid damage of components due to negligence in electrostatic discharge (ESD) procedures

PC7. locate general health and safety equipment in the workplace such as fire extinguishers; first aid equipment; safety instruments, clothing and installations (fire exits, exhaust fans)

PC8. maintain appropriate posture while handling heavy objects

PC9. apply good housekeeping practices at all times

Apply fire safety practices

To be competent, the user/individual on the job must be able to:

PC10. take preventive measures to prevent fire hazards

PC11. • use appropriate fire extinguishers for different types of fires
• Types of fires: Class A: e.g. ordinary solid combustibles, such as wood, paper, cloth, plastic, charcoal, etc.; Class B: flammable liquids and gases, such as gasoline, propane, diesel fuel, tar, cooking oil, and similar substances; Class C: e.g. electrical equipment such as appliances, wiring, breaker panels, etc. (These categories of fires become Class A, B, and D fires when the electrical equipment that initiated the fire is no l

PC12. exhibit rescue and first-aid techniques in case of fire or electrocution

Follow emergencies, rescue and first-aid procedures

To be competent, the user/individual on the job must be able to:

PC13. administer appropriate first aid to victims in case of bleeding, burns, choking, electric shock, poisoning etc.

PC14. administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock,

PC15. participate regularly in emergency procedures such as raising alarm, safe/efficient, evacuation, correct means of taking shelter and escaping, correct assembly point, roll call, correct return to work

PC16. use correct method to move injured people and others during an emergency

Effective waste management/recycling practices

To be competent, the user/individual on the job must be able to:

PC17. identify recyclable and non-recyclable, and hazardous waste generated

PC18. segregate waste into different categories

PC19. ensure disposal of non-recyclable waste appropriately

PC20. deposit non-recyclable and reusable material at identified location

PC21. follow processes specified for disposal of hazardous waste

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. importance of working in clean and safe work environment following safety practices and procedures

KU2. health and safety roles and responsibilities of relevant personnel within and outside the organisation

KU3. key internal and external sources of health and safety information

KU4. basic knowledge of electronic devices and related health risks

KU5. meaning of hazards and risks

KU6. various types of health and safety hazards commonly present in the work environment such as physical hazards, electrical hazards, chemical hazards, fire hazards, equipment related hazards, health hazards, etc.

KU7. methods of accident prevention

KU8. importance of using protective clothing/equipment while working

KU9. general principles for identifying and controlling health and safety risks

KU10. main hazards and preventive as well as control measures while working with different types of equipment

KU11. importance of carrying out electrical and non-electrical isolation to prevent hazards from loss of machine/system/process control

KU12. main hazards and preventive as well as control measures when working with electrical systems or using electrical equipment

KU13. forms and classifications of hazardous substances

KU14. safe working practices while working at various hazardous sites

KU15. prevention and control measures to reduce risks from exposure to hazardous substances

KU16. health effects associated with exposure to noise and vibration and the appropriate control measures

KU17. precautionary activities to prevent the fire accident

KU18. various causes of fire such as heating of metal, spontaneous ignition, sparking, electrical eating, loose fires (smoking, welding, etc.) chemical fires etc.

KU19. techniques of using the different fire extinguishers

KU20. different methods and material to extinguish fires

KU21. different materials used for extinguishing fire such as sand, water, foam, CO2, dry powder

KU22. rescue techniques used during a fire hazard

KU23. various types of safety signs and their meaning

KU24. basic first aid treatment relevant to the common work place injuries e.g. shock, electrical shock, bleeding, breaks to bones, minor burns, resuscitation, poisoning, eye injuries

KU25. contents of written accident report

KU26. potential injuries and ill health associated with incorrect handing of tools and equipment

KU27. safe lifting and carrying practices

KU28. potential impact to a person who is moved incorrectly

KU29. personal safety, health and dignity issues relating to the movement of a person by others

KU30. ESD measures and 5S

KU31. efficient utilization and management of material and water

KU32. ways to recognize common electrical problems and practices of conserving electricity

KU33. usage of different colours of dustbins, categorization of waste into dry, wet, recyclable, nonrecyclable and items of single-use plastics

KU34. organization's procedure for minimizing waste

KU35. waste management and methods of waste disposal

KU36. common sources of pollution and ways to minimize it

KU37. names, contact information and location of people responsible for health and safety in the workplace

KU38. location of documents and equipment for health and safety compliance/practices in the workplace

KU39. safety notices, signs and instructions at workplace

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. interpret general health and safety guidelines labels, charts, signages

GS2. read operation manuals

GS3. write health and safety compliance report

GS4. write an accident/incident report in local language or English

GS5. provide an emergency or safety incident brief to seniors or relevant authorities in a calm, clear and to-the-point manner

GS6. communicate general health and safety guidelines to colleagues/co-workers

GS7. communicate appropriately with co-workers in order to clarify instructions and other issues

GS8. act in case of any potential hazards observed in the work place

GS9. plan and organize their own work schedule, work area, tools, equipment in compliance with organizational policies for health, safety and security

GS10. take adequate measures to ensure the safety of clients and visitors at the workplace

GS11. identify immediate or temporary solutions to resolve delays

GS12. evaluate the work area for health and safety risks or hazards

GS13. use cause and effect relations to anticipate potential issues, problems and their solution in the work area related to safety

GS14. recognise emergency and potential emergency situations

GS15. protect self and others from a health and safety risk or hazard

GS16. communicate and collaborate to incorporate sustainable practices (greening) in workplace processes

GS17. record data on waste disposal at workplace

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Deal with workplace hazards	**20**	**31**	**-**	**-**
PC1. identify job-site hazards and possible causes of accident in the workplace	2	3	-	-
PC2. perform work complying to organizational safe working practices and observing hazard signs displayed on containers, equipment and in various work areas such as inside buildings, in open areas and public spaces, etc.	3	4	-	-
PC3. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards	3	4	-	-
PC4. follow standard safety procedures while handling tool/ ,equipment, hazardous substances and while working in hazardous environments	3	4	-	-
PC5. dispose electronic waste (such as toxins; metals such as lead, cadmium, barium; flame retardant plastics, welding slag etc.) as per industry approved techniques	2	4	-	-
PC6. avoid damage of components due to negligence in electrostatic discharge (ESD) procedures	2	3	-	-
PC7. locate general health and safety equipment in the workplace such as fire extinguishers; first aid equipment; safety instruments, clothing and installations (fire exits, exhaust fans)	2	3	-	-
PC8. maintain appropriate posture while handling heavy objects	1	3	-	-
PC9. apply good housekeeping practices at all times	2	3	-	-
Apply fire safety practices	**4**	**9**	**-**	**-**
PC10. take preventive measures to prevent fire hazards	2	3	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. • use appropriate fire extinguishers for different types of fires • Types of fires: Class A: e.g. ordinary solid combustibles, such as wood, paper, cloth, plastic, charcoal, etc.; Class B: flammable liquids and gases, such as gasoline, propane, diesel fuel, tar, cooking oil, and similar substances; Class C: e.g. electrical equipment such as appliances, wiring, breaker panels, etc. (These categories of fires become Class A, B, and D fires when the electrical equipment that initiated the fire is no l	1	3	-	-
PC12. exhibit rescue and first-aid techniques in case of fire or electrocution	1	3	-	-
Follow emergencies, rescue and first-aid procedures	**6**	**13**	**-**	**-**
PC13. administer appropriate first aid to victims in case of bleeding, burns, choking, electric shock, poisoning etc.	1	3	-	-
PC14. administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock,	1	2	-	-
PC15. participate regularly in emergency procedures such as raising alarm, safe/efficient, evacuation, correct means of taking shelter and escaping, correct assembly point, roll call, correct return to work	2	4	-	-
PC16. use correct method to move injured people and others during an emergency	2	4	-	-
Effective waste management/recycling practices	**5**	**12**	**-**	**-**
PC17. identify recyclable and non-recyclable, and hazardous waste generated	1	3	-	-
PC18. segregate waste into different categories	1	2	-	-
PC19. ensure disposal of non-recyclable waste appropriately	1	2	-	-
PC20. deposit non-recyclable and reusable material at identified location	1	3	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC21. follow processes specified for disposal of hazardous waste	1	2	-	-
NOS Total	**35**	**65**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	ELE/N1002
NOS Name	Apply health and safety practices at the workplace
Sector	Electronics
Sub-Sector	Generic
Occupation	Generic - Health Safety
NSQF Level	4
Credits	TBD
Version	3.0
Last Reviewed Date	24/02/2022
Next Review Date	24/02/2025
NSQC Clearance Date	24/02/2022

Qualification Pack

DGT/VSQ/N0102: Employability Skills (60 Hours)

Description

This unit is about employability skills, Constitutional values, becoming a professional in the 21st Century, digital, financial, and legal literacy, diversity and Inclusion, English and communication skills, customer service, entrepreneurship, and apprenticeship, getting ready for jobs and career development.

Scope

The scope covers the following :

- Introduction to Employability Skills
- Constitutional values - Citizenship
- Becoming a Professional in the 21st Century
- Basic English Skills
- Career Development & Goal Setting
- Communication Skills
- Diversity & Inclusion
- Financial and Legal Literacy
- Essential Digital Skills
- Entrepreneurship
- Customer Service
- Getting ready for Apprenticeship & Jobs

Elements and Performance Criteria

Introduction to Employability Skills

To be competent, the user/individual on the job must be able to:

PC1. identify employability skills required for jobs in various industries

PC2. identify and explore learning and employability portals

Constitutional values – Citizenship

To be competent, the user/individual on the job must be able to:

PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.

PC4. follow environmentally sustainable practices

Becoming a Professional in the 21st Century

To be competent, the user/individual on the job must be able to:

PC5. recognize the significance of 21st Century Skills for employment

PC6. practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life

Basic English Skills

To be competent, the user/individual on the job must be able to:

PC7. use basic English for everyday conversation in different contexts, in person and over the telephone

PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English

PC9. write short messages, notes, letters, e-mails etc. in English

Career Development & Goal Setting

To be competent, the user/individual on the job must be able to:

PC10. understand the difference between job and career

PC11. prepare a career development plan with short- and long-term goals, based on aptitude

Communication Skills

To be competent, the user/individual on the job must be able to:

PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings

PC13. work collaboratively with others in a team

Diversity & Inclusion

To be competent, the user/individual on the job must be able to:

PC14. communicate and behave appropriately with all genders and PwD

PC15. escalate any issues related to sexual harassment at workplace according to POSH Act

Financial and Legal Literacy

To be competent, the user/individual on the job must be able to:

PC16. select financial institutions, products and services as per requirement

PC17. carry out offline and online financial transactions, safely and securely

PC18. identify common components of salary and compute income, expenses, taxes, investments etc

PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation

Essential Digital Skills

To be competent, the user/individual on the job must be able to:

PC20. operate digital devices and carry out basic internet operations securely and safely

PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively

PC22. use basic features of word processor, spreadsheets, and presentations

Entrepreneurship

To be competent, the user/individual on the job must be able to:

PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research

PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion

PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity

Customer Service

To be competent, the user/individual on the job must be able to:

PC26. identify different types of customers

PC27. identify and respond to customer requests and needs in a professional manner.

PC28. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

To be competent, the user/individual on the job must be able to:

PC29. create a professional Curriculum vitae (Résumé)

PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively

PC31. apply to identified job openings using offline /online methods as per requirement

PC32. answer questions politely, with clarity and confidence, during recruitment and selection

PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. need for employability skills and different learning and employability related portals

KU2. various constitutional and personal values

KU3. different environmentally sustainable practices and their importance

KU4. Twenty first (21st) century skills and their importance

KU5. how to use English language for effective verbal (face to face and telephonic) and written communication in formal and informal set up

KU6. importance of career development and setting long- and short-term goals

KU7. about effective communication

KU8. POSH Act

KU9. Gender sensitivity and inclusivity

KU10. different types of financial institutes, products, and services

KU11. how to compute income and expenditure

KU12. importance of maintaining safety and security in offline and online financial transactions

KU13. different legal rights and laws

KU14. different types of digital devices and the procedure to operate them safely and securely

KU15. how to create and operate an e- mail account and use applications such as word processors, spreadsheets etc.

KU16. how to identify business opportunities

KU17. types and needs of customers

KU18. how to apply for a job and prepare for an interview

KU19. apprenticeship scheme and the process of registering on apprenticeship portal

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. read and write different types of documents/instructions/correspondence

GS2. communicate effectively using appropriate language in formal and informal settings

GS3. behave politely and appropriately with all
GS4. how to work in a virtual mode
GS5. perform calculations efficiently
GS6. solve problems effectively
GS7. pay attention to details
GS8. manage time efficiently
GS9. maintain hygiene and sanitization to avoid infection

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Introduction to Employability Skills	**1**	**1**	**-**	**-**
PC1. identify employability skills required for jobs in various industries	-	-	-	-
PC2. identify and explore learning and employability portals	-	-	-	-
Constitutional values – Citizenship	**1**	**1**	**-**	**-**
PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.	-	-	-	-
PC4. follow environmentally sustainable practices	-	-	-	-
Becoming a Professional in the 21st Century	**2**	**4**	**-**	**-**
PC5. recognize the significance of 21st Century Skills for employment	-	-	-	-
PC6. practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life	-	-	-	-
Basic English Skills	**2**	**3**	**-**	**-**
PC7. use basic English for everyday conversation in different contexts, in person and over the telephone	-	-	-	-
PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English	-	-	-	-
PC9. write short messages, notes, letters, e-mails etc. in English	-	-	-	-
Career Development & Goal Setting	**1**	**2**	**-**	**-**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. understand the difference between job and career	-	-	-	-
PC11. prepare a career development plan with short- and long-term goals, based on aptitude	-	-	-	-
Communication Skills	**2**	**2**	**-**	**-**
PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings	-	-	-	-
PC13. work collaboratively with others in a team	-	-	-	-
Diversity & Inclusion	**1**	**2**	**-**	**-**
PC14. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC15. escalate any issues related to sexual harassment at workplace according to POSH Act	-	-	-	-
Financial and Legal Literacy	**2**	**3**	**-**	**-**
PC16. select financial institutions, products and services as per requirement	-	-	-	-
PC17. carry out offline and online financial transactions, safely and securely	-	-	-	-
PC18. identify common components of salary and compute income, expenses, taxes, investments etc	-	-	-	-
PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation	-	-	-	-
Essential Digital Skills	**3**	**4**	**-**	**-**
PC20. operate digital devices and carry out basic internet operations securely and safely	-	-	-	-
PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively	-	-	-	-
PC22. use basic features of word processor, spreadsheets, and presentations	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Entrepreneurship	**2**	**3**	**-**	**-**
PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research	-	-	-	-
PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion	-	-	-	-
PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity	-	-	-	-
Customer Service	**1**	**2**	**-**	**-**
PC26. identify different types of customers	-	-	-	-
PC27. identify and respond to customer requests and needs in a professional manner.	-	-	-	-
PC28. follow appropriate hygiene and grooming standards	-	-	-	-
Getting ready for apprenticeship & Jobs	**2**	**3**	**-**	**-**
PC29. create a professional Curriculum vitae (Résumé)	-	-	-	-
PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively	-	-	-	-
PC31. apply to identified job openings using offline /online methods as per requirement	-	-	-	-
PC32. answer questions politely, with clarity and confidence, during recruitment and selection	-	-	-	-
PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements	-	-	-	-
NOS Total	**20**	**30**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	DGT/VSQ/N0102
NOS Name	Employability Skills (60 Hours)
Sector	Cross Sectoral
Sub-Sector	Professional Skills
Occupation	Employability
NSQF Level	4
Credits	2
Version	1.0
Last Reviewed Date	18/02/2025
Next Review Date	18/02/2028
NSQC Clearance Date	18/02/2025

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Element/ Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each Element/ PC.

2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.

3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.

4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).

5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.

6. To pass the Qualification Pack assessment, every trainee should score the Recommended Pass % aggregate for the QP.

7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Minimum Aggregate Passing % at QP Level : 70

(**Please note**: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
ELE/N1201.Develop function design of SOC module	40	60	-	-	100	50
ELE/N1002.Apply health and safety practices at the workplace	35	65	-	-	100	25
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	0	0	50	25
Total	**95**	**155**	**-**	**-**	**250**	**100**

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training

Glossary

Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.

Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.