सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP

कौशल गुणवत्ता प्रगति

**Qualification Pack**

# Assistant Electrician (Domestic cum Industrial)

QP Code: MSME/PSS/Q0201

Version: 1.0

NSQF Level: 3.0

MSME TECHNOLOGY CENTRE ||
B-36 CHANDAKA INDUSTRIAL AREA || email:msmeexamcell@gmail.com

# Contents

MSME/PSS/Q0201: Assistant Electrician (Domestic cum Industrial) ..... 3
*Brief Job Description* ..... 3
Applicable National Occupational Standards (NOS) ..... 3
*Compulsory NOS* ..... 3
*Qualification Pack (QP) Parameters* ..... 3
MSME/PSS/N0203: Acquire the concepts of Basic Electrical ..... 5
MSME/PSS/N0206: Measure Electrical Parameters (Voltage,Current, Power etc.) ..... 9
MSME/PSS/N0215: Repair and Maintenance of Electrical Machines ..... 12
MSME/PSS/N0214: Power Equipment Testing and Maintenance ..... 16
MSME/PSS/N0213: Power Equipment Testing and Maintenance ..... 21
MSME/PSS/N0212: Perform Transformer Testing and Maintenance ..... 26
MSME/PSS/N0211: Perform Transformer Testing and Maintenance ..... 30
MSME/PSS/N0210: Prepare for Domestic and Industrial Electrical Wiring ..... 34
MSME/PSS/N0209: Prepare for Domestic and Industrial Electrical Wiring ..... 38
MSME/PSS/N0207: Measure ElectricalParameters (Voltage,Current, Power etc.) ..... 42
MSME/PSS/N0216: EmployabilitySkills ..... 45
Assessment Guidelines and Weightage ..... 50
*Assessment Guidelines* ..... 50
*Assessment Weightage* ..... 50
Acronyms ..... 52
Glossary ..... 53

Qualification Pack

# MSME/PSS/Q0201: Assistant Electrician (Domestic cum Industrial)

## Brief Job Description

Learners who attain this qualification are competent to carry out electrical installation, maintenance at domestic and industrial site. Learned candidates are qualified to work as Assistant Electrician. Qualified learner can also start their own electrical workshop or choose to be an entrepreneur.

## Personal Attributes

electrical installation, maintenance at domestic and industrial site.

## Applicable National Occupational Standards (NOS)

### Compulsory NOS:

1. MSME/PSS/N0203: Acquire the concepts of Basic Electrical
2. MSME/PSS/N0206: Measure Electrical Parameters (Voltage,Current, Power etc.)
3. MSME/PSS/N0215: Repair and Maintenance of Electrical Machines
4. MSME/PSS/N0214: Power Equipment Testing and Maintenance
5. MSME/PSS/N0213: Power Equipment Testing and Maintenance
6. MSME/PSS/N0212: Perform Transformer Testing and Maintenance
7. MSME/PSS/N0211: Perform Transformer Testing and Maintenance
8. MSME/PSS/N0210: Prepare for Domestic and Industrial Electrical Wiring
9. MSME/PSS/N0209: Prepare for Domestic and Industrial Electrical Wiring
10. MSME/PSS/N0207: Measure ElectricalParameters (Voltage,Current, Power etc.)
11. MSME/PSS/N0216: EmployabilitySkills

## Qualification Pack (QP) Parameters

| | |
|---|---|
| **Sector** | Power |
| **Sub-Sector** | Distribution |

## Qualification Pack

| | |
|---|---|
| **Occupation** | ELECTRICAL REPAIR |
| **Country** | India |
| **NSQF Level** | 3.0 |
| **Credits** | 20 |
| **Aligned to NCO/ISCO/ISIC Code** | NCO 7411.0100 |
| **Minimum Educational Qualification & Experience** | 10th Class with NA of experience<br>OR<br>Previous relevant Qualification of NSQF Level 2 with 3 Years of experience<br>OR<br>Previous relevant Qualification of NSQF Level 2.5 with 1.5 years of experience |
| **Minimum Level of Education for Training in School** | 10th Class |
| **Pre-Requisite License or Training** | NA |
| **Minimum Job Entry Age** | 15 Years |
| **Last Reviewed On** | NA |
| **Next Review Date** | 30/04/2027 |
| **NSQC Approval Date** | 30/04/2024 |
| **Version** | 1.0 |
| **Reference code on NQR** | QG-03-PW-02422-2024-V1-MSME |
| **NQR Version** | 1.0 |

Qualification Pack

# MSME/PSS/N0203: Acquire the concepts of Basic Electrical

## Description

After completion of course learner should be able to observe safety precautions while working with electricity. Describe advantage of electricity.

## Scope

The scope covers the following :

- After completion of course learner should be able to observe safety precautions while working with electricity.

## Elements and Performance Criteria

*MSME/DIE/01Acquire the concepts of Basic Electrical*

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

**PC1.** Observe safety precautions while working with electricity.

**PC2.** Describe advantage of electricity.

**PC3.** Explain Ohm's law.

**PC4.** • Explain DC series and DC parallel circuits and its utility in
• electrical technology.

**PC5.** • Measure power and consumed electrical energy in any electric
• load.

**PC6.** Describe basic principles of electro statics and electro dynamics.

**PC7.** Describe properties of the natural magnet and electro magnet.

**PC8.** • Define magnetic flux, leakage flux, magnetomotive force,
• magnetizing force and flux density.

**PC9.** • Define hysteresis losses and eddy current losses in magnetic
• materials.

**PC10.** Explain the working principles of cells and batteries.

**PC11.** • Identify the direction of mechanical force between current
• carrying conductor and magnetic field.

**PC12.** • Explain fundamental of AC, sinusoidal curve, alternating
• quantity, cycle, time period, frequency, instantaneous value,
• maximum value, average value, RMS value form factor.

**PC13.** • Explain behavior of AC with resistive load, inductive load and
• capacitor load.

**PC14.** Describe star and delta connection in three phase system.

**PC15.** Identify phase and neutral in three phase four wire system.

**PC16.** • Describe different types of electrical engineering materials and
• their uses.

## Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| *MSME/DIE/01Acquire the concepts of Basic Electrical* | **100** | **-** | **-** | **-** |
| **PC1.** Observe safety precautions while working with electricity. | - | - | - | - |
| **PC2.** Describe advantage of electricity. | - | - | - | - |
| **PC3.** Explain Ohm's law. | - | - | - | - |
| **PC4.**<br>• Explain DC series and DC parallel circuits and its utility in<br>• electrical technology. | - | - | - | - |
| **PC5.**<br>• Measure power and consumed electrical energy in any electric<br>• load. | - | - | - | - |
| **PC6.** Describe basic principles of electro statics and electro dynamics. | - | - | - | - |
| **PC7.** Describe properties of the natural magnet and electro magnet. | - | - | - | - |
| **PC8.**<br>• Define magnetic flux, leakage flux, magnetomotive force,<br>• magnetizing force and flux density. | - | - | - | - |
| **PC9.**<br>• Define hysteresis losses and eddy current losses in magnetic<br>• materials. | - | - | - | - |
| **PC10.** Explain the working principles of cells and batteries. | - | - | - | - |
| **PC11.**<br>• Identify the direction of mechanical force between current<br>• carrying conductor and magnetic field. | - | - | - | - |

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| **PC12.**<br>• Explain fundamental of AC, sinusoidal curve, alternating<br>• quantity, cycle, time period, frequency, instantaneous value,<br>• maximum value, average value, RMS value form factor. | - | - | - | - |
| **PC13.**<br>• Explain behavior of AC with resistive load, inductive load and<br>• capacitor load. | - | - | - | - |
| **PC14.** Describe star and delta connection in three phase system. | - | - | - | - |
| **PC15.** Identify phase and neutral in three phase four wire system. | - | - | - | - |
| **PC16.**<br>• Describe different types of electrical engineering materials and<br>• their uses. | - | - | - | - |
| **NOS Total** | **100** | **-** | **-** | **-** |

## National Occupational Standards (NOS) Parameters

| | |
|---|---|
| **NOS Code** | MSME/PSS/N0203 |
| **NOS Name** | Acquire the concepts of Basic Electrical |
| **Sector** | Power |
| **Sub-Sector** | |
| **Occupation** | ELECTRICAL REPAIR |
| **NSQF Level** | 3.0 |
| **Credits** | 2 |
| **Version** | 1.0 |
| **Last Reviewed Date** | 30/04/2024 |
| **Next Review Date** | 30/04/2027 |
| **NSQC Clearance Date** | 30/04/2024 |

# MSME/PSS/N0206: Measure Electrical Parameters (Voltage,Current, Power etc.)

## Description

After completion of course learner should be able to Explain safety precautions in handling tools and equipment.

## Scope

The scope covers the following :

- After completion of course learner should be able to Explain safety precautions in handling tools and equipment.

## Elements and Performance Criteria

*MSME/DIE/02Measure Electrical Parameters (Voltage, Current, Power etc.)*

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

**PC1.** Explain safety precautions in handling tools and equipment.

**PC2.** Identify the various tools used by an electrician.

**PC3.** Select the proper tool.

**PC4.** Use and maintain the tools used by an electrician.

**PC5.** Give the specification of tools for different applications.

**PC6.** • Measure the length and diameter with Vernier Calipers and
• Micrometer.

**PC7.** Select and use AC/DC voltmeter, Ammeter as per requirements.

**PC8.** State the working principle of CT & PT and describe their use.

**PC9.** Measure power using wattmeter.

**PC10.** • Describe the use of DC regulated power supply, auto
• transformer/variacs.

**PC11.** • Use electronic measuring instruments such as multimeter and
• CRO etc. for electrical measurements.

## Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| *MSME/DIE/02Measure Electrical Parameters (Voltage, Current, Power etc.)* | **100** | **-** | **-** | **-** |
| **PC1.** Explain safety precautions in handling tools and equipment. | - | - | - | - |
| **PC2.** Identify the various tools used by an electrician. | - | - | - | - |
| **PC3.** Select the proper tool. | - | - | - | - |
| **PC4.** Use and maintain the tools used by an electrician. | - | - | - | - |
| **PC5.** Give the specification of tools for different applications. | - | - | - | - |
| **PC6.**<br>• Measure the length and diameter with Vernier Calipers and<br>• Micrometer. | - | - | - | - |
| **PC7.** Select and use AC/DC voltmeter, Ammeter as per requirements. | - | - | - | - |
| **PC8.** State the working principle of CT & PT and describe their use. | - | - | - | - |
| **PC9.** Measure power using wattmeter. | - | - | - | - |
| **PC10.**<br>• Describe the use of DC regulated power supply, auto<br>• transformer/variacs. | - | - | - | - |
| **PC11.**<br>• Use electronic measuring instruments such as multimeter and<br>• CRO etc. for electrical measurements. | - | - | - | - |
| **NOS Total** | **100** | **-** | **-** | **-** |

## National Occupational Standards (NOS) Parameters

| | |
|---|---|
| **NOS Code** | MSME/PSS/N0206 |
| **NOS Name** | Measure Electrical Parameters (Voltage,Current, Power etc.) |
| **Sector** | Power |
| **Sub-Sector** | |
| **Occupation** | ELECTRICAL REPAIR |
| **NSQF Level** | 3.0 |
| **Credits** | 1 |
| **Version** | 1.0 |
| **Last Reviewed Date** | 30/04/2024 |
| **Next Review Date** | 30/04/2027 |
| **NSQC Clearance Date** | 30/04/2024 |

# MSME/PSS/N0215: Repair and Maintenance of Electrical Machines

## Description

After completion of course Learner should be able to Explain the construction and operating principle of DC generator.

## Scope

The scope covers the following :

- After completion of course Learner should be able to Explain the construction and operating principle of DC generator.

## Elements and Performance Criteria

*MSME/DIE/06 Repair and Maintenance of Electrical Machines*

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

**PC1.** • Explain the construction and operating principle of DC • generator.

**PC2.** Explain the construction and operating principle of DC motor.

**PC3.** Carry out, servicing and repair of DC generators.

**PC4.** Carry out, servicing and repair of DC motors.

**PC5.** Explain construction, operating principle of transformer.

**PC6.** Explain construction and operating principle of alternator.

**PC7.** Repair faults in alternator and install the alternator.

**PC8.** • Explain construction and operating principle of three phase • induction motor.

**PC9.** Test and identify the terminal of a DC generator.

**PC10.** Test and identify the terminal of a DC motor.

**PC11.** Test and identify the terminals of three phase induction motor.

**PC12.** • Test a three-phase induction motor for insulation resistance and • earth effectiveness.

**PC13.** Connect with suitable starter, to start and run the DC motor.

**PC14.** • Connect with suitable starter to start and run three phase • induction motor.

**PC15.** • Explain the construction, operating principle of different single • phase or fractional horsepower (HP) motors.

**PC16.** • Identify the parts for repairing and servicing the fractional HP • motor.

**PC17.** Troubleshoot different type of starter for DC motor.

## Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| *MSME/DIE/06 Repair and Maintenance of Electrical Machines* | **100** | **-** | **-** | **-** |
| **PC1.** • Explain the construction and operating principle of DC • generator. | - | - | - | - |
| **PC2.** Explain the construction and operating principle of DC motor. | - | - | - | - |
| **PC3.** Carry out, servicing and repair of DC generators. | - | - | - | - |
| **PC4.** Carry out, servicing and repair of DC motors. | - | - | - | - |
| **PC5.** Explain construction, operating principle of transformer. | - | - | - | - |
| **PC6.** Explain construction and operating principle of alternator. | - | - | - | - |
| **PC7.** Repair faults in alternator and install the alternator. | - | - | - | - |
| **PC8.** • Explain construction and operating principle of three phase • induction motor. | - | - | - | - |
| **PC9.** Test and identify the terminal of a DC generator. | - | - | - | - |
| **PC10.** Test and identify the terminal of a DC motor. | - | - | - | - |
| **PC11.** Test and identify the terminals of three phase induction motor. | - | - | - | - |
| **PC12.** • Test a three-phase induction motor for insulation resistance and • earth effectiveness. | - | - | - | - |

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| **PC13.** Connect with suitable starter, to start and run the DC motor. | - | - | - | - |
| **PC14.**<br>• Connect with suitable starter to start and run three phase<br>• induction motor. | - | - | - | - |
| **PC15.**<br>• Explain the construction, operating principle of different single<br>• phase or fractional horsepower (HP) motors. | - | - | - | - |
| **PC16.**<br>• Identify the parts for repairing and servicing the fractional HP<br>• motor. | - | - | - | - |
| **PC17.** Troubleshoot different type of starter for DC motor. | - | - | - | - |
| **NOS Total** | **100** | **-** | **-** | **-** |

## National Occupational Standards (NOS) Parameters

| | |
|---|---|
| **NOS Code** | MSME/PSS/N0215 |
| **NOS Name** | Repair and Maintenance of Electrical Machines |
| **Sector** | Power |
| **Sub-Sector** | |
| **Occupation** | ELECTRICAL REPAIR |
| **NSQF Level** | 3.0 |
| **Credits** | 2 |
| **Version** | 1.0 |
| **Last Reviewed Date** | 30/04/2024 |
| **Next Review Date** | 30/04/2027 |
| **NSQC Clearance Date** | 30/04/2024 |

# MSME/PSS/N0214: Power Equipment Testing and Maintenance

## Description

After completion of course Learner should be able to Design, manufacture of multi tapping auto transformer.

## Scope

The scope covers the following :

- After completion of course Learner should be able to Design, manufacture of multi tapping auto transformer.

## Elements and Performance Criteria

*MSME/DIE/05 Power Equipment Testing and Maintenance*

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

**PC1.** Design, manufacture of multi tapping auto transformer.

**PC2.** • Explain construction and working principle of auto cut voltage
• stabilizer.

**PC3.** Assembly of auto cut voltage stabilizer circuit using DPDT switch.

**PC4.** Fault finding and repairing of auto cut voltage stabilizer.

**PC5.** Auto transformer designing for automatic voltage stabilizer.

**PC6.** • Working principle of automatic voltage stabilizer using DC
• supply.

**PC7.** Setting or alignment of automatic voltage stabilizer with variacs.

**PC8.** Fault finding and repairing of automatic voltage stabilizer.

**PC9.** • Explain different types of power rectification circuit with silicon
• diodes.

**PC10.** • Explain different types of power rectification circuit with
• different types of filter circuits.

**PC11.** • Explain definitions of cell and battery, primary battery,
• secondary battery.

**PC12.** Reconditioning of lead acid battery.

**PC13.** Design and assemble different types of battery charger.

**PC14.** Fault finding and repairing of different types of battery charger.

**PC15.** Explain circuit diagram of an UPS.

**PC16.** Repair and maintenance of UPS.

**PC17.** Explain of basic working principle of inverter.

**PC18.** • Explain different type of 500W MOSFET based inverter circuit
• with charger.

**PC19.** Assemble different types of inverter circuit with charger.

**PC20.** Install different types of inverter circuit with charger.

**PC21.** Fault finding of different types of inverter circuit with charger.

## Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| *MSME/DIE/05 Power Equipment Testing and Maintenance* | - | 100 | - | - |
| **PC1.** Design, manufacture of multi tapping auto transformer. | - | - | - | - |
| **PC2.**<br>• Explain construction and working principle of auto cut voltage<br>• stabilizer. | - | - | - | - |
| **PC3.** Assembly of auto cut voltage stabilizer circuit using DPDT switch. | - | - | - | - |
| **PC4.** Fault finding and repairing of auto cut voltage stabilizer. | - | - | - | - |
| **PC5.** Auto transformer designing for automatic voltage stabilizer. | - | - | - | - |
| **PC6.**<br>• Working principle of automatic voltage stabilizer using DC<br>• supply. | - | - | - | - |
| **PC7.** Setting or alignment of automatic voltage stabilizer with variacs. | - | - | - | - |
| **PC8.** Fault finding and repairing of automatic voltage stabilizer. | - | - | - | - |
| **PC9.**<br>• Explain different types of power rectification circuit with silicon<br>• diodes. | - | - | - | - |
| **PC10.**<br>• Explain different types of power rectification circuit with<br>• different types of filter circuits. | - | - | - | - |
| **PC11.**<br>• Explain definitions of cell and battery, primary battery,<br>• secondary battery. | - | - | - | - |
| **PC12.** Reconditioning of lead acid battery. | - | - | - | - |

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| **PC13.** Design and assemble different types of battery charger. | - | - | - | - |
| **PC14.** Fault finding and repairing of different types of battery charger. | - | - | - | - |
| **PC15.** Explain circuit diagram of an UPS. | - | - | - | - |
| **PC16.** Repair and maintenance of UPS. | - | - | - | - |
| **PC17.** Explain of basic working principle of inverter. | - | - | - | - |
| **PC18.**<br>• Explain different type of 500W MOSFET based inverter circuit<br>• with charger. | - | - | - | - |
| **PC19.** Assemble different types of inverter circuit with charger. | - | - | - | - |
| **PC20.** Install different types of inverter circuit with charger. | - | - | - | - |
| **PC21.** Fault finding of different types of inverter circuit with charger. | - | - | - | - |
| **NOS Total** | **-** | **100** | **-** | **-** |

## National Occupational Standards (NOS) Parameters

| | |
|---|---|
| **NOS Code** | MSME/PSS/N0214 |
| **NOS Name** | Power Equipment Testing and Maintenance |
| **Sector** | Power |
| **Sub-Sector** | |
| **Occupation** | ELECTRICAL REPAIR |
| **NSQF Level** | 3.0 |
| **Credits** | 2 |
| **Version** | 1.0 |
| **Last Reviewed Date** | 30/04/2024 |
| **Next Review Date** | 30/04/2027 |
| **NSQC Clearance Date** | 30/04/2024 |

# MSME/PSS/N0213: Power Equipment Testing and Maintenance

## Description

After completion of course Learner should be able to Design, manufacture of multi tapping auto transformer.

## Scope

The scope covers the following :

- After completion of course Learner should be able to Design, manufacture of multi tapping auto transformer.

## Elements and Performance Criteria

*MSME/DIE/05 Power Equipment Testing and Maintenance*

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

**PC1.** Design, manufacture of multi tapping auto transformer.

**PC2.** • Explain construction and working principle of auto cut voltage
• stabilizer.

**PC3.** Assembly of auto cut voltage stabilizer circuit using DPDT switch.

**PC4.** Fault finding and repairing of auto cut voltage stabilizer.

**PC5.** Auto transformer designing for automatic voltage stabilizer.

**PC6.** • Working principle of automatic voltage stabilizer using DC
• supply.

**PC7.** Setting or alignment of automatic voltage stabilizer with variacs.

**PC8.** Fault finding and repairing of automatic voltage stabilizer.

**PC9.** • Explain different types of power rectification circuit with silicon
• diodes.

**PC10.** • Explain different types of power rectification circuit with
• different types of filter circuits.

**PC11.** • Explain definitions of cell and battery, primary battery,
• secondary battery.

**PC12.** Reconditioning of lead acid battery.

**PC13.** Design and assemble different types of battery charger.

**PC14.** Fault finding and repairing of different types of battery charger.

**PC15.** Explain circuit diagram of an UPS.

**PC16.** Repair and maintenance of UPS.

**PC17.** Explain of basic working principle of inverter.

**PC18.** • Explain different type of 500W MOSFET based inverter circuit
• with charger.

**PC19.** Assemble different types of inverter circuit with charger.

**PC20.** Install different types of inverter circuit with charger.

**PC21.** Fault finding of different types of inverter circuit with charger.

## Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| *MSME/DIE/05 Power Equipment Testing and Maintenance* | **100** | **-** | **-** | **-** |
| **PC1.** Design, manufacture of multi tapping auto transformer. | - | - | - | - |
| **PC2.**<br>• Explain construction and working principle of auto cut voltage<br>• stabilizer. | - | - | - | - |
| **PC3.** Assembly of auto cut voltage stabilizer circuit using DPDT switch. | - | - | - | - |
| **PC4.** Fault finding and repairing of auto cut voltage stabilizer. | - | - | - | - |
| **PC5.** Auto transformer designing for automatic voltage stabilizer. | - | - | - | - |
| **PC6.**<br>• Working principle of automatic voltage stabilizer using DC<br>• supply. | - | - | - | - |
| **PC7.** Setting or alignment of automatic voltage stabilizer with variacs. | - | - | - | - |
| **PC8.** Fault finding and repairing of automatic voltage stabilizer. | - | - | - | - |
| **PC9.**<br>• Explain different types of power rectification circuit with silicon<br>• diodes. | - | - | - | - |
| **PC10.**<br>• Explain different types of power rectification circuit with<br>• different types of filter circuits. | - | - | - | - |
| **PC11.**<br>• Explain definitions of cell and battery, primary battery,<br>• secondary battery. | - | - | - | - |
| **PC12.** Reconditioning of lead acid battery. | - | - | - | - |

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| **PC13.** Design and assemble different types of battery charger. | - | - | - | - |
| **PC14.** Fault finding and repairing of different types of battery charger. | - | - | - | - |
| **PC15.** Explain circuit diagram of an UPS. | - | - | - | - |
| **PC16.** Repair and maintenance of UPS. | - | - | - | - |
| **PC17.** Explain of basic working principle of inverter. | - | - | - | - |
| **PC18.**<br>• Explain different type of 500W MOSFET based inverter circuit<br>• with charger. | - | - | - | - |
| **PC19.** Assemble different types of inverter circuit with charger. | - | - | - | - |
| **PC20.** Install different types of inverter circuit with charger. | - | - | - | - |
| **PC21.** Fault finding of different types of inverter circuit with charger. | - | - | - | - |
| **NOS Total** | **100** | **-** | **-** | **-** |

**Qualification Pack**

## National Occupational Standards (NOS) Parameters

| | |
|---|---|
| **NOS Code** | MSME/PSS/N0213 |
| **NOS Name** | Power Equipment Testing and Maintenance |
| **Sector** | Power |
| **Sub-Sector** | |
| **Occupation** | ELECTRICAL REPAIR |
| **NSQF Level** | 3.0 |
| **Credits** | 1 |
| **Version** | 1.0 |
| **Last Reviewed Date** | 30/04/2024 |
| **Next Review Date** | 30/04/2027 |
| **NSQC Clearance Date** | 30/04/2024 |

# MSME/PSS/N0212: Perform Transformer Testing and Maintenance

## Description

After completion of course Learner should be able to Draw the symbols, abbreviations used in transformer designing.

## Scope

The scope covers the following :

- After completion of course Learner should be able to Draw the symbols, abbreviations used in transformer designing.

## Elements and Performance Criteria

*MSME/DIE/04 Perform Transformer Testing and Maintenance*

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

**PC1.** Draw the symbols, abbreviations used in transformer designing.

**PC2.** • Define magnetic flux, leakage flux, magnetizing force and flux • density.

**PC3.** Explain working principle of a simple transformer.

**PC4.** • Define the hysteresis losses and eddy current losses in magnetic • material.

**PC5.** Describe the properties of core material and their types.

**PC6.** Select the proper core material size & shape.

**PC7.** Explain basic considerations of winding.

**PC8.** Explain characteristics of super enamel copper wire.

**PC9.** Select the proper size of copper conductor for a transformer.

**PC10.** Select the proper insulation for winding a coil.

**PC11.** • Wind a coil for required transformer and assemble core along • with coil.

**PC12.** Explain different tests required for a transformer.

**PC13.** • Explain temperature rise and its effect on the performance of • transformer.

**PC14.** State the design equations of the transformer.

**PC15.** Design the main transformer up to 5KVA.

**PC16.** Design the transformer for voltage stabilizer.

**PC17.** Operate, repair and maintain the winding machine.

## Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| *MSME/DIE/04 Perform Transformer Testing and Maintenance* | - | 100 | - | - |
| **PC1.** Draw the symbols, abbreviations used in transformer designing. | - | - | - | - |
| **PC2.**<br>• Define magnetic flux, leakage flux, magnetizing force and flux<br>• density. | - | - | - | - |
| **PC3.** Explain working principle of a simple transformer. | - | - | - | - |
| **PC4.**<br>• Define the hysteresis losses and eddy current losses in magnetic<br>• material. | - | - | - | - |
| **PC5.** Describe the properties of core material and their types. | - | - | - | - |
| **PC6.** Select the proper core material size & shape. | - | - | - | - |
| **PC7.** Explain basic considerations of winding. | - | - | - | - |
| **PC8.** Explain characteristics of super enamel copper wire. | - | - | - | - |
| **PC9.** Select the proper size of copper conductor for a transformer. | - | - | - | - |
| **PC10.** Select the proper insulation for winding a coil. | - | - | - | - |
| **PC11.**<br>• Wind a coil for required transformer and assemble core along<br>• with coil. | - | - | - | - |
| **PC12.** Explain different tests required for a transformer. | - | - | - | - |

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| **PC13.** • Explain temperature rise and its effect on the performance of • transformer. | - | - | - | - |
| **PC14.** State the design equations of the transformer. | - | - | - | - |
| **PC15.** Design the main transformer up to 5KVA. | - | - | - | - |
| **PC16.** Design the transformer for voltage stabilizer. | - | - | - | - |
| **PC17.** Operate, repair and maintain the winding machine. | - | - | - | - |
| **NOS Total** | **-** | **100** | **-** | **-** |

**Qualification Pack**

## National Occupational Standards (NOS) Parameters

| | |
|---|---|
| **NOS Code** | MSME/PSS/N0212 |
| **NOS Name** | Perform Transformer Testing and Maintenance |
| **Sector** | Power |
| **Sub-Sector** | |
| **Occupation** | ELECTRICAL REPAIR |
| **NSQF Level** | 3.0 |
| **Credits** | 2 |
| **Version** | 1.0 |
| **Last Reviewed Date** | 30/04/2024 |
| **Next Review Date** | 30/04/2027 |
| **NSQC Clearance Date** | 30/04/2024 |

# MSME/PSS/N0211: Perform Transformer Testing and Maintenance

## Description

After completion of course Learner should be able to Draw the symbols, abbreviations used in transformer designing.

## Scope

The scope covers the following :

- After completion of course Learner should be able to Draw the symbols, abbreviations used in transformer designing.

## Elements and Performance Criteria

*MSME/DIE/04 Perform Transformer Testing and Maintenance*

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

**PC1.** Draw the symbols, abbreviations used in transformer designing.

**PC2.** • Define magnetic flux, leakage flux, magnetizing force and flux
• density.

**PC3.** Explain working principle of a simple transformer.

**PC4.** • Define the hysteresis losses and eddy current losses in magnetic
• material.

**PC5.** Describe the properties of core material and their types.

**PC6.** Select the proper core material size & shape.

**PC7.** Explain basic considerations of winding.

**PC8.** Explain characteristics of super enamel copper wire.

**PC9.** Select the proper size of copper conductor for a transformer.

**PC10.** Select the proper insulation for winding a coil.

**PC11.** • Wind a coil for required transformer and assemble core along
• with coil.

**PC12.** Explain different tests required for a transformer.

**PC13.** • Explain temperature rise and its effect on the performance of
• transformer.

**PC14.** State the design equations of the transformer.

**PC15.** Design the main transformer up to 5KVA.

**PC16.** Design the transformer for voltage stabilizer.

**PC17.** Operate, repair and maintain the winding machine.

## Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| *MSME/DIE/04 Perform Transformer Testing and Maintenance* | **100** | **-** | **-** | **-** |
| **PC1.** Draw the symbols, abbreviations used in transformer designing. | - | - | - | - |
| **PC2.**<br>• Define magnetic flux, leakage flux, magnetizing force and flux<br>• density. | - | - | - | - |
| **PC3.** Explain working principle of a simple transformer. | - | - | - | - |
| **PC4.**<br>• Define the hysteresis losses and eddy current losses in magnetic<br>• material. | - | - | - | - |
| **PC5.** Describe the properties of core material and their types. | - | - | - | - |
| **PC6.** Select the proper core material size & shape. | - | - | - | - |
| **PC7.** Explain basic considerations of winding. | - | - | - | - |
| **PC8.** Explain characteristics of super enamel copper wire. | - | - | - | - |
| **PC9.** Select the proper size of copper conductor for a transformer. | - | - | - | - |
| **PC10.** Select the proper insulation for winding a coil. | - | - | - | - |
| **PC11.**<br>• Wind a coil for required transformer and assemble core along<br>• with coil. | - | - | - | - |
| **PC12.** Explain different tests required for a transformer. | - | - | - | - |

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| **PC13.** • Explain temperature rise and its effect on the performance of • transformer. | - | - | - | - |
| **PC14.** State the design equations of the transformer. | - | - | - | - |
| **PC15.** Design the main transformer up to 5KVA. | - | - | - | - |
| **PC16.** Design the transformer for voltage stabilizer. | - | - | - | - |
| **PC17.** Operate, repair and maintain the winding machine. | - | - | - | - |
| **NOS Total** | **100** | **-** | **-** | **-** |

## National Occupational Standards (NOS) Parameters

| | |
|---|---|
| **NOS Code** | MSME/PSS/N0211 |
| **NOS Name** | Perform Transformer Testing and Maintenance |
| **Sector** | Power |
| **Sub-Sector** | |
| **Occupation** | ELECTRICAL REPAIR |
| **NSQF Level** | 3.0 |
| **Credits** | 1 |
| **Version** | 1.0 |
| **Last Reviewed Date** | 30/04/2024 |
| **Next Review Date** | 30/04/2027 |
| **NSQC Clearance Date** | 30/04/2024 |

# MSME/PSS/N0210: Prepare for Domestic and Industrial Electrical Wiring

## Description

After completion of course learner should be able to Identify different types of wire joints and prepare different wire joints.

## Scope

The scope covers the following :

- After completion of course learner should be able to Identify different types of wire joints and prepare different wire joints.

## Elements and Performance Criteria

*MSME/DIE/03 Prepare for Domestic and Industrial Electrical Wiring*

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

**PC1.** • Identify different types of wire joints and prepare different wire • joints.

**PC2.** • Describe the specifications of different components and • materials used in house wiring installation.

**PC3.** Explain the different type of wiring system.

**PC4.** Draw the different types of electrical wiring circuits.

**PC5.** • Choose proper type of wiring system as per customer's • requirements.

**PC6.** Perform power wiring for industrial systems.

**PC7.** Design and wire up simple electrical circuit in the house.

**PC8.** Estimate the wiring installation in a house.

**PC9.** • Calculate proper size of wire as per load connected in the wiring • installation.

**PC10.** • Explain the different types of fuses and calculate the size of fuse • wire.

**PC11.** • Explain the electrical earthing system and its need for wiring • installation.

**PC12.** Draw a wiring diagram for a house.

**PC13.** Test the wiring installation with megger.

**PC14.** Identify the fault in wiring installation and repair the fault.

**PC15.** Identify the different types of power wiring accessories.

**PC16.** Describe the different types of substations.

**PC17.** Explain the provisions of Indian Electricity Rules 1956.

**PC18.** Perform electrical shock treatment.

**PC19.** Understand the Calculation of wire selection.

**PC20.** Understand types component used according to load.

## Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| *MSME/DIE/03 Prepare for Domestic and Industrial Electrical Wiring* | **100** | **-** | **-** | **-** |
| **PC1.** • Identify different types of wire joints and prepare different wire • joints. | - | - | - | - |
| **PC2.** • Describe the specifications of different components and • materials used in house wiring installation. | - | - | - | - |
| **PC3.** Explain the different type of wiring system. | - | - | - | - |
| **PC4.** Draw the different types of electrical wiring circuits. | - | - | - | - |
| **PC5.** • Choose proper type of wiring system as per customer's • requirements. | - | - | - | - |
| **PC6.** Perform power wiring for industrial systems. | - | - | - | - |
| **PC7.** Design and wire up simple electrical circuit in the house. | - | - | - | - |
| **PC8.** Estimate the wiring installation in a house. | - | - | - | - |
| **PC9.** • Calculate proper size of wire as per load connected in the wiring • installation. | - | - | - | - |
| **PC10.** • Explain the different types of fuses and calculate the size of fuse • wire. | - | - | - | - |
| **PC11.** • Explain the electrical earthing system and its need for wiring • installation. | - | - | - | - |

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| **PC12.** Draw a wiring diagram for a house. | - | - | - | - |
| **PC13.** Test the wiring installation with megger. | - | - | - | - |
| **PC14.** Identify the fault in wiring installation and repair the fault. | - | - | - | - |
| **PC15.** Identify the different types of power wiring accessories. | - | - | - | - |
| **PC16.** Describe the different types of substations. | - | - | - | - |
| **PC17.** Explain the provisions of Indian Electricity Rules 1956. | - | - | - | - |
| **PC18.** Perform electrical shock treatment. | - | - | - | - |
| **PC19.** Understand the Calculation of wire selection. | - | - | - | - |
| **PC20.** Understand types component used according to load. | - | - | - | - |
| **NOS Total** | **100** | **-** | **-** | **-** |

## National Occupational Standards (NOS) Parameters

| | |
|---|---|
| **NOS Code** | MSME/PSS/N0210 |
| **NOS Name** | Prepare for Domestic and Industrial Electrical Wiring |
| **Sector** | Power |
| **Sub-Sector** | |
| **Occupation** | ELECTRICAL REPAIR |
| **NSQF Level** | 3.0 |
| **Credits** | 1 |
| **Version** | 1.0 |
| **Last Reviewed Date** | 30/04/2024 |
| **Next Review Date** | 30/04/2027 |
| **NSQC Clearance Date** | 30/04/2024 |

# MSME/PSS/N0209: Prepare for Domestic and Industrial Electrical Wiring

## Description

After completion of course learner should be able to Identify different types of wire joints and prepare different wire joints.

## Scope

The scope covers the following :

- After completion of course learner should be able to Identify different types of wire joints and prepare different wire joints.

## Elements and Performance Criteria

*MSME/DIE/03 Prepare for Domestic and Industrial Electrical Wiring*

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

**PC1.** • Identify different types of wire joints and prepare different wire • joints.

**PC2.** • Describe the specifications of different components and • materials used in house wiring installation.

**PC3.** Explain the different type of wiring system.

**PC4.** Draw the different types of electrical wiring circuits.

**PC5.** • Choose proper type of wiring system as per customer's • requirements.

**PC6.** Perform power wiring for industrial systems.

**PC7.** Design and wire up simple electrical circuit in the house.

**PC8.** Estimate the wiring installation in a house.

**PC9.** • Calculate proper size of wire as per load connected in the wiring • installation.

**PC10.** • Explain the different types of fuses and calculate the size of fuse • wire.

**PC11.** • Explain the electrical earthing system and its need for wiring • installation.

**PC12.** Draw a wiring diagram for a house.

**PC13.** Test the wiring installation with megger.

**PC14.** Identify the fault in wiring installation and repair the fault.

**PC15.** Identify the different types of power wiring accessories.

**PC16.** Describe the different types of substations.

**PC17.** Explain the provisions of Indian Electricity Rules 1956.

**PC18.** Perform electrical shock treatment.

**PC19.** Understand the Calculation of wire selection.

**PC20.** Understand types component used according to load.

## Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| *MSME/DIE/03 Prepare for Domestic and Industrial Electrical Wiring* | - | 100 | - | - |
| **PC1.** • Identify different types of wire joints and prepare different wire • joints. | - | - | - | - |
| **PC2.** • Describe the specifications of different components and • materials used in house wiring installation. | - | - | - | - |
| **PC3.** Explain the different type of wiring system. | - | - | - | - |
| **PC4.** Draw the different types of electrical wiring circuits. | - | - | - | - |
| **PC5.** • Choose proper type of wiring system as per customer's • requirements. | - | - | - | - |
| **PC6.** Perform power wiring for industrial systems. | - | - | - | - |
| **PC7.** Design and wire up simple electrical circuit in the house. | - | - | - | - |
| **PC8.** Estimate the wiring installation in a house. | - | - | - | - |
| **PC9.** • Calculate proper size of wire as per load connected in the wiring • installation. | - | - | - | - |
| **PC10.** • Explain the different types of fuses and calculate the size of fuse • wire. | - | - | - | - |
| **PC11.** • Explain the electrical earthing system and its need for wiring • installation. | - | - | - | - |

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| **PC12.** Draw a wiring diagram for a house. | - | - | - | - |
| **PC13.** Test the wiring installation with megger. | - | - | - | - |
| **PC14.** Identify the fault in wiring installation and repair the fault. | - | - | - | - |
| **PC15.** Identify the different types of power wiring accessories. | - | - | - | - |
| **PC16.** Describe the different types of substations. | - | - | - | - |
| **PC17.** Explain the provisions of Indian Electricity Rules 1956. | - | - | - | - |
| **PC18.** Perform electrical shock treatment. | - | - | - | - |
| **PC19.** Understand the Calculation of wire selection. | - | - | - | - |
| **PC20.** Understand types component used according to load. | - | - | - | - |
| **NOS Total** | **-** | **100** | **-** | **-** |

## National Occupational Standards (NOS) Parameters

| | |
|---|---|
| **NOS Code** | MSME/PSS/N0209 |
| **NOS Name** | Prepare for Domestic and Industrial Electrical Wiring |
| **Sector** | Power |
| **Sub-Sector** | |
| **Occupation** | ELECTRICAL REPAIR |
| **NSQF Level** | 3.0 |
| **Credits** | 5 |
| **Version** | 1.0 |
| **Last Reviewed Date** | 30/04/2024 |
| **Next Review Date** | 30/04/2027 |
| **NSQC Clearance Date** | 30/04/2024 |

# MSME/PSS/N0207: Measure ElectricalParameters (Voltage,Current, Power etc.)

## Description

After completion of course learner should be able to Explain safety precautions in handling tools and equipment.

## Scope

The scope covers the following :

- After completion of course learner should be able to Explain safety precautions in handling tools and equipment.

## Elements and Performance Criteria

*MSME/DIE/02Measure Electrical Parameters (Voltage, Current, Power etc.)*

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

**PC1.** Explain safety precautions in handling tools and equipment.

**PC2.** Identify the various tools used by an electrician.

**PC3.** Select the proper tool.

**PC4.** Use and maintain the tools used by an electrician.

**PC5.** Give the specification of tools for different applications.

**PC6.** • Measure the length and diameter with Vernier Calipers and
• Micrometer.

**PC7.** Select and use AC/DC voltmeter, Ammeter as per requirements.

**PC8.** State the working principle of CT & PT and describe their use.

**PC9.** Measure power using wattmeter.

**PC10.** • Describe the use of DC regulated power supply, auto
• transformer/variacs.

**PC11.** • Use electronic measuring instruments such as multimeter and
• CRO etc. for electrical measurements.

## Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| *MSME/DIE/02Measure Electrical Parameters (Voltage, Current, Power etc.)* | - | 100 | - | - |
| **PC1.** Explain safety precautions in handling tools and equipment. | - | - | - | - |
| **PC2.** Identify the various tools used by an electrician. | - | - | - | - |
| **PC3.** Select the proper tool. | - | - | - | - |
| **PC4.** Use and maintain the tools used by an electrician. | - | - | - | - |
| **PC5.** Give the specification of tools for different applications. | - | - | - | - |
| **PC6.**<br>• Measure the length and diameter with Vernier Calipers and<br>• Micrometer. | - | - | - | - |
| **PC7.** Select and use AC/DC voltmeter, Ammeter as per requirements. | - | - | - | - |
| **PC8.** State the working principle of CT & PT and describe their use. | - | - | - | - |
| **PC9.** Measure power using wattmeter. | - | - | - | - |
| **PC10.**<br>• Describe the use of DC regulated power supply, auto<br>• transformer/variacs. | - | - | - | - |
| **PC11.**<br>• Use electronic measuring instruments such as multimeter and<br>• CRO etc. for electrical measurements. | - | - | - | - |
| **NOS Total** | - | 100 | - | - |

## National Occupational Standards (NOS) Parameters

| | |
|---|---|
| **NOS Code** | MSME/PSS/N0207 |
| **NOS Name** | Measure ElectricalParameters (Voltage,Current, Power etc.) |
| **Sector** | Power |
| **Sub-Sector** | |
| **Occupation** | ELECTRICAL REPAIR |
| **NSQF Level** | 3.0 |
| **Credits** | 2 |
| **Version** | 1.0 |
| **Last Reviewed Date** | 30/04/2024 |
| **Next Review Date** | 30/04/2027 |
| **NSQC Clearance Date** | 30/04/2024 |

# MSME/PSS/N0216: EmployabilitySkills

## Description

After completing this programme participants will be able to Discuss the importance of Employability Skills in meeting the job requirements

## Scope

The scope covers the following :

- After completing this programme participants will be able to Discuss the importance of Employability Skills in meeting the job requirements

## Elements and Performance Criteria

*MSME/ES/01 Employability Skills*

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

**PC1.** • Discuss the importance of Employability Skills in meeting the job • requirements.

**PC2.** • Explain constitutional values, civic rights, duties, citizenship, • responsibility towards society etc. that are required to be • followed to become a responsible citizen.

**PC3.** • Show how to practice different environmentally sustainable • practices.

**PC4.** Discuss 21st century skills.

**PC5.** • Display positive attitude, self -motivation, problem solving, time • management skills and continuous learning mindset in different • situations.

**PC6.** • Use appropriate basic English sentences/phrases while • speaking.

**PC7.** • Demonstrate how to communicate in a well -mannered way • with others.

**PC8.** Demonstrate working with others in a team.

**PC9.** • Show how to conduct oneself appropriately with all genders and • PwD

**PC10.** • Discuss the significance of reporting sexual harassment issues in • time

**PC11.** • Discuss the significance of using financial products and services • safely and securely.

**PC12.** • Explain the importance of managing expenses, income, and • savings.

**PC13.** • Explain the significance of approaching the concerned • authorities in time for any exploitation as per legal rights and • laws.

**PC14.** • Show how to operate digital devices and use the associated • applications and features, safely and securely.

**PC15.** • Discuss the significance of using internet for browsing, accessing
• social media platforms, safely and Securely.

**PC16.** • Discuss the need for identifying opportunities for potential
• business, sources for arranging money and potential legal and
• financial challenges.

**PC17.** Differentiate between types of customers.

**PC18.** • Explain the significance of identifying customer needs and
• addressing them.

**PC19.** • Discuss the significance of maintaining hygiene and dressing
• appropriately.

**PC20.** Create a biodata.

**PC21.** Use various sources to search and apply for jobs.

**PC22.** • Discuss the significance of dressing up neatly and maintaining
• hygiene for an interview.

**PC23.** • Discuss how to search and register for apprenticeship
• opportunities.

## Assessment Criteria

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| *MSME/ES/01 Employability Skills* | **100** | **-** | **-** | **-** |
| **PC1.** • Discuss the importance of Employability Skills in meeting the job • requirements. | - | - | - | - |
| **PC2.** • Explain constitutional values, civic rights, duties, citizenship, • responsibility towards society etc. that are required to be • followed to become a responsible citizen. | - | - | - | - |
| **PC3.** • Show how to practice different environmentally sustainable • practices. | - | - | - | - |
| **PC4.** Discuss 21st century skills. | - | - | - | - |
| **PC5.** • Display positive attitude, self -motivation, problem solving, time • management skills and continuous learning mindset in different • situations. | - | - | - | - |
| **PC6.** • Use appropriate basic English sentences/phrases while • speaking. | - | - | - | - |
| **PC7.** • Demonstrate how to communicate in a well -mannered way • with others. | - | - | - | - |
| **PC8.** Demonstrate working with others in a team. | - | - | - | - |
| **PC9.** • Show how to conduct oneself appropriately with all genders and • PwD | - | - | - | - |

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| **PC10.** • Discuss the significance of reporting sexual harassment issues in • time | - | - | - | - |
| **PC11.** • Discuss the significance of using financial products and services • safely and securely. | - | - | - | - |
| **PC12.** • Explain the importance of managing expenses, income, and • savings. | - | - | - | - |
| **PC13.** • Explain the significance of approaching the concerned • authorities in time for any exploitation as per legal rights and • laws. | - | - | - | - |
| **PC14.** • Show how to operate digital devices and use the associated • applications and features, safely and securely. | - | - | - | - |
| **PC15.** • Discuss the significance of using internet for browsing, accessing • social media platforms, safely and Securely. | - | - | - | - |
| **PC16.** • Discuss the need for identifying opportunities for potential • business, sources for arranging money and potential legal and • financial challenges. | - | - | - | - |
| **PC17.** Differentiate between types of customers. | - | - | - | - |
| **PC18.** • Explain the significance of identifying customer needs and • addressing them. | - | - | - | - |
| **PC19.** • Discuss the significance of maintaining hygiene and dressing • appropriately. | - | - | - | - |

| Assessment Criteria for Outcomes | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|---|---|---|---|
| **PC20.** Create a biodata. | - | - | - | - |
| **PC21.** Use various sources to search and apply for jobs. | - | - | - | - |
| **PC22.**<br>• Discuss the significance of dressing up neatly and maintaining<br>• hygiene for an interview. | - | - | - | - |
| **PC23.**<br>• Discuss how to search and register for apprenticeship<br>• opportunities. | - | - | - | - |
| **NOS Total** | **100** | **-** | **-** | **-** |

## National Occupational Standards (NOS) Parameters

| | |
|---|---|
| **NOS Code** | MSME/PSS/N0216 |
| **NOS Name** | EmployabilitySkills |
| **Sector** | Power |
| **Sub-Sector** | |
| **Occupation** | ELECTRICAL REPAIR |
| **NSQF Level** | 3.0 |
| **Credits** | 1 |
| **Version** | 1.0 |
| **Last Reviewed Date** | 30/04/2024 |
| **Next Review Date** | 30/04/2027 |
| **NSQC Clearance Date** | 30/04/2024 |

# Assessment Guidelines and Assessment Weightage

## Assessment Guidelines

As per QP

**Minimum Aggregate Passing % at QP Level : 40**

(**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

**Qualification Pack**

| National Occupational Standards | Theory Marks | Practical Marks | Project Marks | Viva Marks | Total Marks | Weightage |
|---|---|---|---|---|---|---|
| MSME/PSS/N0203.Acquire the concepts of Basic Electrical | 100 | 0 | 0 | 0 | 100 | 10 |
| MSME/PSS/N0206.Measure Electrical Parameters (Voltage,Current, Power etc.) | 100 | 0 | 0 | 0 | 100 | 10 |
| MSME/PSS/N0215.Repair and Maintenance of Electrical Machines | 100 | 0 | 0 | 0 | 100 | 10 |
| MSME/PSS/N0214.Power Equipment Testing and Maintenance | 0 | 100 | 0 | 0 | 100 | 10 |
| MSME/PSS/N0213.Power Equipment Testing and Maintenance | 100 | 0 | 0 | 0 | 100 | 10 |
| MSME/PSS/N0212.Perform Transformer Testing and Maintenance | 0 | 100 | 0 | 0 | 100 | 10 |
| MSME/PSS/N0211.Perform Transformer Testing and Maintenance | 100 | 0 | 0 | 0 | 100 | 10 |
| MSME/PSS/N0210.Prepare for Domestic and Industrial Electrical Wiring | 100 | 0 | 0 | 0 | 100 | 10 |
| MSME/PSS/N0209.Prepare for Domestic and Industrial Electrical Wiring | 0 | 100 | 0 | 0 | 100 | 10 |
| MSME/PSS/N0207.Measure ElectricalParameters (Voltage,Current, Power etc.) | 0 | 100 | 0 | 0 | 100 | 10 |
| MSME/PSS/N0216.EmployabilitySkills | 100 | 0 | 0 | 0 | 100 | 0 |
| **Total** | **700** | **400** | **-** | **-** | **1100** | **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. |