

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 01

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 01

I. PREPARATION:

Title: DC Machines: Introduction & Parts — Syllabus Ref. 107

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of dc machines: introduction & parts covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: previous knowledge of basic electrical quantities, circuits, safety and workshop practice.
- (2) Motivation: Relate dc machines: introduction & parts to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Rotating electrical machines	DC machines convert mechanical/electrical energy through electromagnetic action; distinguish stationary and rotating parts.	Motor/generator model; ask learners to name visible parts.
2) Main DC machine parts	Armature, field coil, yoke, cooling fan, commutator, slip rings, brushes and laminated core; state each function.	Use labelled machine/model; stress brush and commutator handling.

Developments / Topics	Information Points	Hints
3) Terminals & connections	Identify armature and field terminals and trace series/shunt/compound connection paths.	Demonstrate terminal tracing with supply isolated.
4) Safety & inspection	Check nameplate, mechanical condition, brush seating and insulation before energizing.	Lock-out/isolate; no loose clothing; keep hands clear of rotating parts.

III. APPLICATION:

- 1) What is the operating principle and purpose of dc machines: introduction & parts?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for dc machines: introduction & parts, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 107.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 107.

Next Lesson: Week 02 – DC Generator: Principle, EMF & Types

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 02

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 02

I. PREPARATION:

Title: DC Generator: Principle, EMF & Types — Syllabus Ref. 107

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of dc generator: principle, emf & types covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate dc generator: principle, emf & types to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Generator principle	Mechanical energy is converted to electrical energy by electromagnetic induction; rotation of armature conductors in magnetic field produces EMF.	Use simple conductor-field sketch and generator model.
2) EMF equation	Explain generated EMF relation with flux, poles, conductors and speed; interpret terms of the equation.	Board derivation; use consistent SI units.

Developments / Topics	Information Points	Hints
3) Generator types	Differentiate separately excited, self-excited, series, shunt and compound generators by field connection.	Show connection diagrams side by side.
4) Application & recap	Relate generator type to practical use and identify terminals from diagrams.	Ask short oral questions; link to Week 01 parts.

III. APPLICATION:

- 1) What is the operating principle and purpose of dc generator: principle, emf & types?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for dc generator: principle, emf & types, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 107.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 107.

Next Lesson: Week 03 – DC Machine Identification & Resistance Measurement

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 03

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 03

I. PREPARATION:

Title: DC Machine Identification & Resistance Measurement — Syllabus Ref. 107-108

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of dc machine identification & resistance measurement covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate dc machine identification & resistance measurement to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Terminal identification	Identify armature, shunt field, series field and compound terminals from machine/nameplate.	Use continuity mode only on de-energized machine.
2) Polarity & connection tracing	Trace field and armature circuits and mark polarity/connection points.	Use labelled leads; avoid live probing.

Developments / Topics	Information Points	Hints
3) Resistance measurement	Measure field and armature resistance with suitable low-resistance/ohmmeter method and record readings.	Select proper range; avoid energized circuit.
4) Result interpretation	Compare field and armature resistance and explain why values differ; record observations.	Check lead/contact resistance and repeat anomalous readings.

III. APPLICATION:

- 1) What is the operating principle and purpose of dc machine identification & resistance measurement?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for dc machine identification & resistance measurement, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 107-108.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 107-108.

Next Lesson: Week 04 – DC Shunt Generator: Voltage Build-up

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 04

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 04

I. PREPARATION:

Title: DC Shunt Generator: Voltage Build-up — Syllabus Ref. 109

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of dc shunt generator: voltage build-up covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate dc shunt generator: voltage build-up to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Residual magnetism & build-up	Explain residual magnetism, field circuit and conditions required for voltage build-up in a DC shunt generator.	Use connection sketch; verify polarity before energizing.
2) Varying field excitation	Increase field excitation in controlled steps and observe generated voltage.	Use rheostat safely; do not exceed rated current.

Developments / Topics	Information Points	Hints
3) Load performance	Apply load progressively and record terminal voltage/current to study performance.	Use meters correctly; avoid sudden loading.
4) Analysis & safety	Interpret the voltage trend and identify abnormal build-up conditions; isolate before changing connections.	Check field circuit continuity and protect against overcurrent.

III. APPLICATION:

- 1) What is the operating principle and purpose of dc shunt generator: voltage build-up?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for dc shunt generator: voltage build-up, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 109.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 109.

Next Lesson: Week 05 – DC Shunt Generator: Load Performance & Tests

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 05

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 05

I. PREPARATION:

Title: DC Shunt Generator: Load Performance & Tests — Syllabus Ref. 109-110

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of dc shunt generator: load performance & tests covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate dc shunt generator: load performance & tests to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Continuity test	Check continuity of armature and field circuits with supply isolated; identify open-circuit conditions.	Use meter on resistance/continuity range.
2) Insulation resistance	Measure insulation resistance between windings and frame using an insulation tester; record value and units.	Follow rated test voltage and safe discharge procedure.

Developments / Topics	Information Points	Hints
3) Load test observations	Review load performance data from the shunt generator and relate current, voltage and output.	Record readings in a table; compare with nameplate limits.
4) Result & maintenance	Identify loose connections, poor insulation or brush issues indicated by tests.	Isolate, discharge and restore covers after testing.

III. APPLICATION:

- 1) What is the operating principle and purpose of dc shunt generator: load performance & tests?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for dc shunt generator: load performance & tests, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 109-110.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 109-110.

Next Lesson: Week 06 – DC Motors: Principle & Basic Operation

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 06

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 06

I. PREPARATION:

Title: DC Motors: Principle & Basic Operation — Syllabus Ref. 111

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of dc motors: principle & basic operation covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate dc motors: principle & basic operation to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) DC motor principle	A current-carrying armature conductor in magnetic field experiences force; explain conversion of electrical to mechanical energy.	Use motor model and simple force-direction sketch.
2) Back EMF	Explain applied voltage, back EMF and armature voltage drop relationship; back EMF rises with speed.	Emphasize that motor back EMF limits armature current during running.

Developments / Topics	Information Points	Hints
3) Speed and flux	Relate speed to applied voltage, armature drop and flux; introduce series, shunt and compound motors.	Use qualitative comparison before equations.
4) Types and applications	Compare series, shunt and compound motor behaviour and typical applications.	Ask learners to select a motor type for a stated duty.

III. APPLICATION:

- 1) What is the operating principle and purpose of dc motors: principle & basic operation?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for dc motors: principle & basic operation, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 111.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 111.

Next Lesson: Week 07 – DC Motor Starting, Reversal & Characteristics

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 07

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 07

I. PREPARATION:

Title: DC Motor Starting, Reversal & Characteristics — Syllabus Ref. 111,116

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of dc motor starting, reversal & characteristics covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, diagrams/models, field equipment or training panel, measuring instruments, tools and PPE.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate dc motor starting, reversal & characteristics to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce dc motor starting, reversal & characteristics using the syllabus concepts: Series, shunt and compound motors.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for dc motor starting, reversal & characteristics.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 111,116: start, run, reverse and compare motor behaviour.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of dc motor starting, reversal & characteristics?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for dc motor starting, reversal & characteristics, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 111,116.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 111,116.

Next Lesson: Week 08 – DC Generator No-load & Load Characteristics

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 08

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 08

I. PREPARATION:

Title: DC Generator No-load & Load Characteristics — Syllabus Ref. 112

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of dc generator no-load & load characteristics covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate dc generator no-load & load characteristics to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce dc generator no-load & load characteristics using the syllabus concepts: No-load and load tests of series and shunt generators.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for dc generator no-load & load characteristics.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 112: perform tests and determine characteristics.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of dc generator no-load & load characteristics?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for dc generator no-load & load characteristics, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 112.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 112.

Next Lesson: Week 09 – Compound Generator Characteristics

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 09

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 09

I. PREPARATION:

Title: Compound Generator Characteristics — Syllabus Ref. 113

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of compound generator characteristics covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate compound generator characteristics to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce compound generator characteristics using the syllabus concepts: Cumulative and differential compound generators.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for compound generator characteristics.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 113: determine compound generator characteristics.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of compound generator characteristics?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for compound generator characteristics, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 113.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 113.

Next Lesson: Week 10 – DC Shunt Motor: Dismantling & Assembly

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 10

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 10

I. PREPARATION:

Title: DC Shunt Motor: Dismantling & Assembly — Syllabus Ref. 114

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of dc shunt motor: dismantling & assembly covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate dc shunt motor: dismantling & assembly to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce dc shunt motor: dismantling & assembly using the syllabus concepts: Safe dismantling sequence, identification of parts, inspection, cleaning and correct reassembly..	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for dc shunt motor: dismantling & assembly.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 114: dismantle and assemble a DC shunt motor.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of dc shunt motor: dismantling & assembly?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for dc shunt motor: dismantling & assembly, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 114.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 114.

Next Lesson: Week 11 – DC Compound Generator: Dismantling & Assembly

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 11

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 11

I. PREPARATION:

Title: DC Compound Generator: Dismantling & Assembly — Syllabus Ref. 115

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of dc compound generator: dismantling & assembly covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate dc compound generator: dismantling & assembly to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce dc compound generator: dismantling & assembly using the syllabus concepts: Mechanical/electrical parts, inspection, brush/commutator checks, reassembly and test..	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for dc compound generator: dismantling & assembly.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 115: dismantle and assemble a DC compound generator.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of dc compound generator: dismantling & assembly?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for dc compound generator: dismantling & assembly, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 115.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 115.

Next Lesson: Week 12 – DC Motor Performance Analysis

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 12

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 12

I. PREPARATION:

Title: DC Motor Performance Analysis — Syllabus Ref. 116

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of dc motor performance analysis covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate dc motor performance analysis to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce dc motor performance analysis using the syllabus concepts: Series, shunt and compound motor performance.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for dc motor performance analysis.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 116: conduct performance analysis.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of dc motor performance analysis?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for dc motor performance analysis, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 116.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 116.

Next Lesson: Week 13 – Three-point & Four-point Starters

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 13

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 13

I. PREPARATION:

Title: Three-point & Four-point Starters — Syllabus Ref. 117-118

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of three-point & four-point starters covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, control-panel trainer, contactors, relays, timers, MCBs, pushbuttons, cables, tools and PPE.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate three-point & four-point starters to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce three-point & four-point starters using the syllabus concepts: Starter construction, terminals, no-volt and overload protection.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for three-point & four-point starters.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 117: dismantle/identify; 118: assemble/service/repair.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of three-point & four-point starters?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for three-point & four-point starters, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 117-118.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 117-118.

Next Lesson: Week 14 – DC Motor Starter Service & Maintenance

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 14

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 14

I. PREPARATION:

Title: DC Motor Starter Service & Maintenance — Syllabus Ref. 118-119

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of dc motor starter service & maintenance covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, diagrams/models, field equipment or training panel, measuring instruments, tools and PPE.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate dc motor starter service & maintenance to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce dc motor starter service & maintenance using the syllabus concepts: Starter servicing, contact inspection, brush holders, carbon brushes, commutator and slip-ring maintenance..	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for dc motor starter service & maintenance.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 118-119: service starters and maintain brushes/commutator/sliprings.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of dc motor starter service & maintenance?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for dc motor starter service & maintenance, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 118-119.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 118-119.

Next Lesson: Week 15 – DC Motor Speed Control

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 15

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 15

I. PREPARATION:

Title: DC Motor Speed Control — Syllabus Ref. 120

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of dc motor speed control covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate dc motor speed control to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce dc motor speed control using the syllabus concepts: Field control and armature control methods.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for dc motor speed control.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 120: perform speed control by field and armature methods.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of dc motor speed control?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for dc motor speed control, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 120.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 120.

Next Lesson: Week 16 – DC Machine Overhauling & Winding

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 16

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 16

I. PREPARATION:

Title: DC Machine Overhauling & Winding — Syllabus Ref. 121-122

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of dc machine overhauling & winding covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, diagrams/models, field equipment or training panel, measuring instruments, tools and PPE.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate dc machine overhauling & winding to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce dc machine overhauling & winding using the syllabus concepts: Overhauling sequence.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for dc machine overhauling & winding.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 121-122: overhaul and perform winding/testing.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of dc machine overhauling & winding?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for dc machine overhauling & winding, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 121-122.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 121-122.

Next Lesson: Week 17 – Three-phase Induction Motor: Parts & Principle

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 17

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 17

I. PREPARATION:

Title: Three-phase Induction Motor: Parts & Principle — Syllabus Ref. 123

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of three-phase induction motor: parts & principle covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate three-phase induction motor: parts & principle to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce three-phase induction motor: parts & principle using the syllabus concepts: Construction and working principle.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for three-phase induction motor: parts & principle.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 123: identify parts and terminals.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of three-phase induction motor: parts & principle?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for three-phase induction motor: parts & principle, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 123.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 123.

Next Lesson: Week 18 – Star-delta Starter & Motor Connections

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 18

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 18

I. PREPARATION:

Title: Star-delta Starter & Motor Connections — Syllabus Ref. 124-125

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of star-delta starter & motor connections covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, control-panel trainer, contactors, relays, timers, MCBs, pushbuttons, cables, tools and PPE.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate star-delta starter & motor connections to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce star-delta starter & motor connections using the syllabus concepts: Automatic star-delta starter with three contactors.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for star-delta starter & motor connections.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 124-125: make internal connection and start/run motors.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of star-delta starter & motor connections?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for star-delta starter & motor connections, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 124-125.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 124-125.

Next Lesson: Week 19 – Induction Motor Starters: Testing & Safety

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 19

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 19

I. PREPARATION:

Title: Induction Motor Starters: Testing & Safety — Syllabus Ref. 125

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of induction motor starters: testing & safety covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, control-panel trainer, contactors, relays, timers, MCBs, pushbuttons, cables, tools and PPE.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate induction motor starters: testing & safety to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce induction motor starters: testing & safety using the syllabus concepts: Starter operation, interlocking, overload protection and safe connection sequence..	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for induction motor starters: testing & safety.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 125: connect and operate using DOL/star-delta/autotransformer.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of induction motor starters: testing & safety?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for induction motor starters: testing & safety, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 125.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 125.

Next Lesson: Week 20 – Slip-ring Motor & Rotor Resistance Starter

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 20

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 20

I. PREPARATION:

Title: Slip-ring Motor & Rotor Resistance Starter — Syllabus Ref. 126

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of slip-ring motor & rotor resistance starter covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, control-panel trainer, contactors, relays, timers, MCBs, pushbuttons, cables, tools and PPE.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate slip-ring motor & rotor resistance starter to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce slip-ring motor & rotor resistance starter using the syllabus concepts: Rotor resistance starting, speed/torque behaviour and reversal of rotation..	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for slip-ring motor & rotor resistance starter.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 126: start/run/reverse and determine performance.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of slip-ring motor & rotor resistance starter?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for slip-ring motor & rotor resistance starter, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 126.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 126.

Next Lesson: Week 21 – Induction Motor Efficiency Tests

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 21

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 21

I. PREPARATION:

Title: Induction Motor Efficiency Tests — Syllabus Ref. 127-128

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of induction motor efficiency tests covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate induction motor efficiency tests to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce induction motor efficiency tests using the syllabus concepts: Brake test, no-load test and blocked-rotor test.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for induction motor efficiency tests.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 127-128: determine efficiency by prescribed tests.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of induction motor efficiency tests?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for induction motor efficiency tests, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 127-128.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 127-128.

Next Lesson: Week 22 – Slip, Power Factor & Speed-Torque Characteristics

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 22

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 22

I. PREPARATION:

Title: Slip, Power Factor & Speed-Torque Characteristics — Syllabus Ref. 129-131

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of slip, power factor & speed-torque characteristics covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate slip, power factor & speed-torque characteristics to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce slip, power factor & speed-torque characteristics using the syllabus concepts: Measure slip and power factor.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for slip, power factor & speed-torque characteristics.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 129,131: measure characteristics and practice control.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of slip, power factor & speed-torque characteristics?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for slip, power factor & speed-torque characteristics, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 129-131.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 129-131.

Next Lesson: Week 23 – AC Motor Continuity, IR & Winding

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 23

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 23

I. PREPARATION:

Title: AC Motor Continuity, IR & Winding — Syllabus Ref. 130,132

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of ac motor continuity, ir & winding covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, diagrams/models, field equipment or training panel, measuring instruments, tools and PPE.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate ac motor continuity, ir & winding to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce ac motor continuity, ir & winding using the syllabus concepts: Continuity/insulation tests.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for ac motor continuity, ir & winding.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 130,132: test and perform motor winding.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of ac motor continuity, ir & winding?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for ac motor continuity, ir & winding, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 130,132.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 130,132.

Next Lesson: Week 24 – AC Starter Maintenance & Troubleshooting

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 24

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 24

I. PREPARATION:

Title: AC Starter Maintenance & Troubleshooting — Syllabus Ref. 133

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of ac starter maintenance & troubleshooting covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, control-panel trainer, contactors, relays, timers, MCBs, pushbuttons, cables, tools and PPE.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate ac starter maintenance & troubleshooting to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce ac starter maintenance & troubleshooting using the syllabus concepts: Single phasing prevention, contactor/starter faults, maintenance and repair.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for ac starter maintenance & troubleshooting.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 133: maintain, service and troubleshoot starter.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of ac starter maintenance & troubleshooting?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for ac starter maintenance & troubleshooting, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 133.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 133.

Next Lesson: Week 25 – Single-phase AC Motors: Types & Connections

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 25

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 25

I. PREPARATION:

Title: Single-phase AC Motors: Types & Connections — Syllabus Ref. 134-136

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of single-phase ac motors: types & connections covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate single-phase ac motors: types & connections to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce single-phase ac motors: types & connections using the syllabus concepts: Working principle, starting methods, terminals, applications.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for single-phase ac motors: types & connections.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 134-136: identify, connect, start/run/reverse.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of single-phase ac motors: types & connections?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for single-phase ac motors: types & connections, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 134-136.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 134-136.

Next Lesson: Week 26 – Single-phase Motor Speed Control & Capacitor Motor

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 26

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 26

I. PREPARATION:

Title: Single-phase Motor Speed Control & Capacitor Motor — Syllabus Ref. 137-138

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of single-phase motor speed control & capacitor motor covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate single-phase motor speed control & capacitor motor to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce single-phase motor speed control & capacitor motor using the syllabus concepts: Speed control.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for single-phase motor speed control & capacitor motor.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 137-138: practice control and compare currents/speed.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of single-phase motor speed control & capacitor motor?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for single-phase motor speed control & capacitor motor, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 137-138.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 137-138.

Next Lesson: Week 27 – Single-phase Motor Maintenance & Universal Motor

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 27

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 27

I. PREPARATION:

Title: Single-phase Motor Maintenance & Universal Motor — Syllabus Ref. 139-142

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of single-phase motor maintenance & universal motor covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate single-phase motor maintenance & universal motor to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce single-phase motor maintenance & universal motor using the syllabus concepts: Maintenance, servicing, repair.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for single-phase motor maintenance & universal motor.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 139-142: service, wind, test and operate universal motor.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of single-phase motor maintenance & universal motor?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for single-phase motor maintenance & universal motor, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 139-142.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 139-142.

Next Lesson: Week 28 – Alternator: Construction, Principle & EMF

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 28

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 28

I. PREPARATION:

Title: Alternator: Construction, Principle & EMF — Syllabus Ref. 143-145

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of alternator: construction, principle & emf covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate alternator: construction, principle & emf to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce alternator: construction, principle & emf using the syllabus concepts: Alternator parts/terminals, EMF equation, poles-speed-frequency relation, excitation and voltage build-up..	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for alternator: construction, principle & emf.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 143-145: install, test IR, connect/start/run and build voltage.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of alternator: construction, principle & emf?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for alternator: construction, principle & emf, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 143-145.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 143-145.

Next Lesson: Week 29 – Alternator Performance & Synchronization

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 29

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 29

I. PREPARATION:

Title: Alternator Performance & Synchronization — Syllabus Ref. 146-147

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of alternator performance & synchronization covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate alternator performance & synchronization to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce alternator performance & synchronization using the syllabus concepts: Load performance, voltage regulation, phase sequence, synchronization and parallel operation..	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for alternator performance & synchronization.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 146-147: determine regulation and synchronize alternators.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of alternator performance & synchronization?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for alternator performance & synchronization, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 146-147.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 146-147.

Next Lesson: Week 30 – Synchronous Motor & V-curves

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 30

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 30

I. PREPARATION:

Title: Synchronous Motor & V-curves — Syllabus Ref. 148-149

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of synchronous motor & v-curves covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate synchronous motor & v-curves to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce synchronous motor & v-curves using the syllabus concepts: Working principle, excitation/load effects, V and anti-V curves, power-factor improvement..	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for synchronous motor & v-curves.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 148-149: install, connect and plot V-curves.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of synchronous motor & v-curves?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for synchronous motor & v-curves, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 148-149.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 148-149.

Next Lesson: Week 31 – MG Set & Rotary Converter

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 31

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 31

I. PREPARATION:

Title: MG Set & Rotary Converter — Syllabus Ref. 150-151

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of mg set & rotary converter covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate mg set & rotary converter to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce mg set & rotary converter using the syllabus concepts: MG set parts, induction motor coupled to DC shunt generator, loading and maintenance.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for mg set & rotary converter.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 150-151: identify, start and load MG set.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of mg set & rotary converter?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for mg set & rotary converter, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 150-151.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 150-151.

Next Lesson: Week 32 – Electronic Components & Diode Characteristics

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 32

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 32

I. PREPARATION:

Title: Electronic Components & Diode Characteristics — Syllabus Ref. 152-154

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of electronic components & diode characteristics covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, projector/diagram, trainer kit, components, multimeter, CRO/function generator, soldering tools and PPE.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate electronic components & diode characteristics to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce electronic components & diode characteristics using the syllabus concepts: Resistor colour code/types.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for electronic components & diode characteristics.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 152-154: identify/test components and plot diode characteristics.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of electronic components & diode characteristics?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for electronic components & diode characteristics, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 152-154.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 152-154.

Next Lesson: Week 33 – Rectifiers, Filters & Transistors

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 33

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 33

I. PREPARATION:

Title: Rectifiers, Filters & Transistors — Syllabus Ref. 155-156

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of rectifiers, filters & transistors covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, projector/diagram, trainer kit, components, multimeter, CRO/function generator, soldering tools and PPE.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate rectifiers, filters & transistors to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce rectifiers, filters & transistors using the syllabus concepts: Half-wave, full-wave and bridge rectifiers.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for rectifiers, filters & transistors.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 155-156: construct rectifiers and check transistor functioning.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of rectifiers, filters & transistors?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for rectifiers, filters & transistors, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 155-156.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 155-156.

Next Lesson: Week 34 – Transistor Biasing, Switching & Regulation

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 34

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 34

I. PREPARATION:

Title: Transistor Biasing, Switching & Regulation — Syllabus Ref. 157-158

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of transistor biasing, switching & regulation covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, projector/diagram, trainer kit, components, multimeter, CRO/function generator, soldering tools and PPE.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate transistor biasing, switching & regulation to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce transistor biasing, switching & regulation using the syllabus concepts: Transistor biasing and characteristics.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for transistor biasing, switching & regulation.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 157-158: bias transistor and demonstrate switching/regulation.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of transistor biasing, switching & regulation?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for transistor biasing, switching & regulation, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 157-158.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 157-158.

Next Lesson: Week 35 – Function Generator, PCB & Power Supply

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 35

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 35

I. PREPARATION:

Title: Function Generator, PCB & Power Supply — Syllabus Ref. 159-160

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of function generator, pcb & power supply covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate function generator, pcb & power supply to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce function generator, pcb & power supply using the syllabus concepts: Function generator frequency setting.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for function generator, pcb & power supply.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 159-160: operate function generator and make PCB.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of function generator, pcb & power supply?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for function generator, pcb & power supply, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 159-160.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 159-160.

Next Lesson: Week 36 – UJT/FET, Power Supply Troubleshooting & Digital Basics

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 36

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 36

I. PREPARATION:

Title: UJT/FET, Power Supply Troubleshooting & Digital Basics — Syllabus Ref. 161-162

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of ujt/fet, power supply troubleshooting & digital basics covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate ujt/fet, power supply troubleshooting & digital basics to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce ujt/fet, power supply troubleshooting & digital basics using the syllabus concepts: UJT triggering, FET amplifier.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for ujt/fet, power supply troubleshooting & digital basics.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 161-162: construct circuits and troubleshoot supplies.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of ujt/fet, power supply troubleshooting & digital basics?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for ujt/fet, power supply troubleshooting & digital basics, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 161-162.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 161-162.

Next Lesson: Week 37 – SCR, DIAC, TRIAC, IGBT & Logic/CRO

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 37

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 37

I. PREPARATION:

Title: SCR, DIAC, TRIAC, IGBT & Logic/CRO — Syllabus Ref. 163,165-166

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of scr, diac, triac, igbt & logic/cro covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, projector/diagram, trainer kit, components, multimeter, CRO/function generator, soldering tools and PPE.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate scr, diac, triac, igbt & logic/cro to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce scr, diac, triac, igbt & logic/cro using the syllabus concepts: Power control devices.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for scr, diac, triac, igbt & logic/cro.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 163,165-166: construct, test logic and observe waveforms.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of scr, diac, triac, igbt & logic/cro?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for scr, diac, triac, igbt & logic/cro, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 163,165-166.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 163,165-166.

Next Lesson: Week 38 – Control Cabinet: Layout & Control Elements

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 38

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 38

I. PREPARATION:

Title: Control Cabinet: Layout & Control Elements — Syllabus Ref. 167,169-170

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of control cabinet: layout & control elements covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, control-panel trainer, contactors, relays, timers, MCBs, pushbuttons, cables, tools and PPE.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate control cabinet: layout & control elements to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce control cabinet: layout & control elements using the syllabus concepts: Cabinet layout.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for control cabinet: layout & control elements.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 167,169-170: design layout, mount elements and install instruments.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of control cabinet: layout & control elements?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for control cabinet: layout & control elements, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 167,169-170.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 167,169-170.

Next Lesson: Week 39 – Motor Control Cabinets: Local/Remote & F/R

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 39

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 39

I. PREPARATION:

Title: Motor Control Cabinets: Local/Remote & F/R — Syllabus Ref. 167

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of motor control cabinets: local/remote & f/r covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, control-panel trainer, contactors, relays, timers, MCBs, pushbuttons, cables, tools and PPE.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate motor control cabinets: local/remote & f/r to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce motor control cabinets: local/remote & f/r using the syllabus concepts: Local/remote control and forward/reverse control circuits.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for motor control cabinets: local/remote & f/r.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 167(i)-(ii): assemble and wire control circuits.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of motor control cabinets: local/remote & f/r?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for motor control cabinets: local/remote & f/r, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 167.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 167.

Next Lesson: Week 40 – Automatic Star-delta & Sequential Motor Control

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 40

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 40

I. PREPARATION:

Title: Automatic Star-delta & Sequential Motor Control — Syllabus Ref. 167

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of automatic star-delta & sequential motor control covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate automatic star-delta & sequential motor control to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce automatic star-delta & sequential motor control using the syllabus concepts: Automatic star-delta with direction change.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for automatic star-delta & sequential motor control.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 167(iii)-(iv): assemble and test control circuits.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of automatic star-delta & sequential motor control?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for automatic star-delta & sequential motor control, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 167.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 167.

Next Lesson: Week 41 – Control Cabinet Wiring & Testing

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 41

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 41

I. PREPARATION:

Title: Control Cabinet Wiring & Testing — Syllabus Ref. 168,171

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of control cabinet wiring & testing covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, control-panel trainer, contactors, relays, timers, MCBs, pushbuttons, cables, tools and PPE.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate control cabinet wiring & testing to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce control cabinet wiring & testing using the syllabus concepts: Wiring as per diagram, XLPE cable bunching, channeling, tying, ferrules/lugs.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for control cabinet wiring & testing.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 168,171: wire, check and test complete control panel.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of control cabinet wiring & testing?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for control cabinet wiring & testing, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 168,171.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 168,171.

Next Lesson: Week 42 – AC/DC Drives & Speed Control

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 42

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 42

I. PREPARATION:

Title: AC/DC Drives & Speed Control — Syllabus Ref. 172-174

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of ac/dc drives & speed control covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, control-panel trainer, contactors, relays, timers, MCBs, pushbuttons, cables, tools and PPE.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate ac/dc drives & speed control to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce ac/dc drives & speed control using the syllabus concepts: AC/DC drive parameters and applications.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for ac/dc drives & speed control.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 172-174: perform drive-based speed control.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of ac/dc drives & speed control?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for ac/dc drives & speed control, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 172-174.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 172-174.

Next Lesson: Week 43 – Stabilizer, UPS, Emergency Light, Charger & Inverter

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 43

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 43

I. PREPARATION:

Title: Stabilizer, UPS, Emergency Light, Charger & Inverter — Syllabus Ref. 175-180

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of stabilizer, ups, emergency light, charger & inverter covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, marker, relevant machine/model, connection diagram, measuring instruments, PPE and workshop tools.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate stabilizer, ups, emergency light, charger & inverter to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce stabilizer, ups, emergency light, charger & inverter using the syllabus concepts: Block diagrams, operation, assembly, installation, testing and preventive/breakdown maintenance of stabilizer, UPS, emergency light, charger and inverter..	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for stabilizer, ups, emergency light, charger & inverter.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 175-180: assemble, troubleshoot, maintain and install inverter.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of stabilizer, ups, emergency light, charger & inverter?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for stabilizer, ups, emergency light, charger & inverter, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 175-180.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 175-180.

Next Lesson: Week 44 – Power Plants, Substation & Smart Distribution

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 44

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 44

I. PREPARATION:

Title: Power Plants, Substation & Smart Distribution — Syllabus Ref. 181-184

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of power plants, substation & smart distribution covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, diagrams/models, field equipment or training panel, measuring instruments, tools and PPE.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate power plants, substation & smart distribution to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce power plants, substation & smart distribution using the syllabus concepts: Thermal/hydel layouts.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for power plants, substation & smart distribution.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 181-184: draw layouts, visit substation and document circuit.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of power plants, substation & smart distribution?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for power plants, substation & smart distribution, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 181-184.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 181-184.

Next Lesson: Week 45 – Solar/Wind, Overhead Lines, Service & Circuit Breakers

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 45

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 45

I. PREPARATION:

Title: Solar/Wind, Overhead Lines, Service & Circuit Breakers — Syllabus Ref. 185-199

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of solar/wind, overhead lines, service & circuit breakers covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, diagrams/models, field equipment or training panel, measuring instruments, tools and PPE.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate solar/wind, overhead lines, service & circuit breakers to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce solar/wind, overhead lines, service & circuit breakers using the syllabus concepts: Solar/wind layouts.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for solar/wind, overhead lines, service & circuit breakers.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 185-199: install, draw, measure, erect, test and maintain.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of solar/wind, overhead lines, service & circuit breakers?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for solar/wind, overhead lines, service & circuit breakers, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 185-199.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 185-199.

Next Lesson: Week 46 – EV Charging, Integrated Revision & Project Work

LESSON PLAN

Trade: ELECTRICIAN / Debargha Memorial ITI

Module/Unit: Week 46

Date: As per Institute Schedule

Time: Weekly allocation as per syllabus

Lesson No: Week 46

I. PREPARATION:

Title: EV Charging, Integrated Revision & Project Work — Syllabus Ref. 200-202 + project

1) **Objectives:** *(At the end of the lesson the trainees will be able to)*

1. Explain the key principles and constructional features of ev charging, integrated revision & project work covered in the syllabus.
2. Identify the relevant parts, terminals, tools and connection/measurement requirements for the topic.
3. Perform the prescribed practical activity safely, following the correct sequence and recording observations/results.
4. Interpret the observed result, identify common faults or unsafe conditions, and state the required precautions.

2) **Teaching Aids:** White board, diagrams/models, field equipment or training panel, measuring instruments, tools and PPE.

3) **Introduction**

- (1) Review: the previous week's learning and the relevant basic electrical principles.
- (2) Motivation: Relate ev charging, integrated revision & project work to an actual electrical installation/machine or workshop task; explain why correct identification, testing and safe procedure are essential.

II. PRESENTATION:

Developments / Topics	Information Points	Hints
1) Concept and principle	Introduce ev charging, integrated revision & project work using the syllabus concepts: EV charger specifications, safety, public/home charging installation.	Question learners on prior knowledge; use board/model demonstration.
2) Construction / connection	Explain relevant construction, terminals, circuit connections and operating sequence for ev charging, integrated revision & project work.	Demonstrate with isolated equipment and labelled diagram.

Developments / Topics	Information Points	Hints
3) Practical procedure	Carry out the prescribed activity in a controlled sequence, observe readings/operation and record results. 200-202: demonstrate specifications and install EV charging station; complete project/assessment.	Instructor demonstration → guided practice → individual practice.
4) Safety, faults and assessment	Identify common errors, protective measures and acceptance checks; relate observations to the expected result.	Use PPE, isolation/earthing and test-before-touch; conclude with oral/practical questions.

III. APPLICATION:

- 1) What is the operating principle and purpose of ev charging, integrated revision & project work?
- 2) Name the important parts/terminals/tools involved and state their functions.
- 3) State the correct practical sequence and two essential safety precautions.
- 4) What observation/result would indicate correct operation or a fault?

Summary: Reinforce the four key points of the lesson, link the practical observation to the stated learning objectives, and verify that the trainee can explain the safe working sequence.

IV. TEST:

Assignment: Complete the practical record/observation sheet for ev charging, integrated revision & project work, draw the relevant connection/flow diagram where applicable, and answer the four application questions. Syllabus reference: 200-202 + project.

Reference: Electrician Trade – 2nd Year syllabus (NIMI), Professional Knowledge and Professional Skills, exercises 200-202 + project.

Next Lesson: Week — – Project work / integrated revision and assessment