

Assignment Booklet

Certificate of Competency in Power Distribution (*Electrical Technicians*)

Programme Code:
CCPD

Course Code:

OEE-001

OEE-002



School of Engineering and Technology
Indira Gandhi National Open University
Maidan Garhi, New Delhi – 110 068

NOTE: Assignment booklet (refer pages 1-4) and Practical Workbook (refer pages 5-14) have to be submitted separately.

Dear Student,

This booklet contains the assignments for the CCPD Programme for the theory courses of OEE-001; OEE-002. It is for your kind information that each theory course has one assignment, which is based on course material of these courses. You are also advised to write your responses after comprehensive study your subject. **This to inform that minimum duration of this programme is 6 months and maximum duration is 2 years.**

You need to submit the assignments as under:

For January Session- By 30th April/May ; **For July Admission Session-** By 30th October/November
You are advised not to wait for the last date to submit your assignments.

You can submit your assignment-

At your concern Study Centre/ Regional Centre. Student are advised to get the acknowledgement/receipt while submitting assignment at Study Centre/Regional Centre concerned in order to fill up assignment submission details in your term end examination form. We strongly feel that you should **retain a photocopy of your assignment** answer sheet to avoid any unforeseen situation.

NOTE: The marks for assignment booklet of theory courses(OEE-001 and OEE-002), and Practical course workbook (OEEL-001 is separate .Hence **Assignment booklet (refer page1-4) and Practical Workbook** (Training/Internship/Field Visit) (refer page 5-14) report **have to be submitted separately.**

For Formatting of Your Assignments

- **On the top of the first page of your Tutor Marked Assignment (TMA) answer sheet,** please write the details exactly in the following format :

Enrolment No. _____	Course Code: _____
Name: _____	Course Title : _____
Date : _____	Address : _____
Regional Centre/ Study CentreCode:	Mobile Number: E Mail: Signature:

- Please follow the above format strictly to facilitate evaluation and avoid delay.
- Use only foolscap size writing paper (but not of very thin variety) for writing your answers.
- Leave 3 cm margin on the left, top and bottom of your answer sheet.
- Your answer should be logical and coherent.
- While solving problems, clearly indicate the question number along with the part being solved. Recheck your work before submitting it.

Wishing you all good luck!

TUTOR MARKED ASSIGNMENT
COURSE CODE: OEE-001
ELECTRICITY AND SAFETY MEASURES

Maximum Marks: 100
Weightage in TEE : 30%

Last Date of Assignment Submission: For June TEE by
30th April/May; For December TEE by 30th Oct/ Nov

Note: All questions are compulsory and carry equal marks.

Q.1 (a) Explain resistance, inductance and capacitance. Name various electrical appliances and mention the resistive, inductive and capacitive type of load these belong.

(b) What do you mean by active power, reactive power and power factor in electrical systems?

Q.2 (a) What are various quality parameters in electric power supply?

(b) What are the various problems faced by Generation, Transmission and Distribution system?

Q.3 What are various tools used in handling electrical installations. Explain with the help of neat diagrams.

Q.4 (a) Explain different methods of equipment earthing.

(b) What steps are required for maintenance of earthing in electrical installations?

Q.5 (a) Describe working of protective relays. What are important functional requirement of relays?

(Q.6 (a) What are various personal protective equipments to be used for safety?

(b) Give details of various types of fire extinguishers and their respective applications.

Q.7 Prepare a list of checks to avoid hazards in 'Main Board' and 'Lamps and Switches'.

Q.8 (a) Write Do's and Don'ts for electrical safety in case of domestic consumers.

(b) Write down various measures, which can be taken to avoid fire in electrical cables.

Q.9 (a) Explain the concept of cardiopulmonary resuscitation(CPR). How it is facilitated.

(b) Write first aid treatment in case of a fall resulting in situation like:

(i) Unconsciousness,

(ii) Nose Bleeding, and

(iii) Fractures.

Q.10 (a) List various natural and manmade disasters and their impact on electrical power systems.

(b) Name some alternative power generating processes in case of a disaster.

TUTOR MARKED ASSIGNMENT**OEE-002****POWER DISTRIBUTION SYSTEM – BASICS****Maximum Marks: 100**
Weightage : 30%**Course Code: OEE-002**
Last Date of Submission: November 30, 2018**Note:** All questions are compulsory and carry equal marks.

- Q.1 (a) Describe power distribution in brief. Write specific use of main equipment required for distribution lines in overhead lines.
- (b) What are the advantages of High Voltage Distribution Systems (HVDS) compared to low voltage distribution system.
- Q.2 (a) Describe construction of power cables. Also, explain various types of faults in power cables.
- (b) What are feeders? Explain about configuration of feeders and draw layouts.
- Q.3 (a) Explain transformer construction with suitable diagram.
- (b) What are important reasons for transformer failure, explain?
- Q.4 Write various types of cable jointing methods and also explain important cable jointing instructions.
- Q.5 (a) Describe the equipments required for the construction of a 66-33/11 KV substation.
- (b) Explain general maintenance practices for substation and distribution lines.
- Q.6 (a) Why was the T&D loss assessment changed to AT&C loss determination in distribution? Hence explain the term AT&C loss.
- (b) Write about various factors affecting commercial losses.
- Q.7 (a) Explain various meter installation practices adopted to guard against meter tampering.
- (b) Explain role of energy accounting and auditing in preventing revenue loss.
- Q.8 (a) Elaborate Indian electricity rules regarding electrical safety for handling of electrical supply lines and apparatus.
- (b) Write down provisions laid out in Indian Electricity Rules regarding:
- (i) Clearance from buildings of low and medium voltage lines and service lines, and
 - (ii) Intimation of Accidents
- Q.9 (a) Explain various long term plans for technical loss reduction in distribution systems.
- Q.10 (a) Explain the metering techniques used for LT and HT consumer metering.
- (b) Appreciate the role and significance of technological interventions in metering, billing and collection for the utility's revenue protection.

Practical Work Book

(Practical Training / Internship/ Field Visit)

**Certificate of Competency
in Power Distribution
(*Electrical Technicians*)**

Programme Code: CCPD

Course Code: OEEL-001

(PRACTICAL IN POWER DISTRIBUTION)



School of Engineering and Technology
Indira Gandhi National Open University
Maidan Garhi, New Delhi – 110 068

NOTE: Assignment booklet (refer pages 1-4) and Practical Workbook (refer pages 5-14) have to be submitted separately.

Dear Student,

This booklet is **Practical work guide (training/internship/field visit) for the practical course OEEL-001 of CCPD Programme** . You are also advised to write your responses after comprehensive study your subject .

Please note, submission of work report is compulsory to clear your OEEL-001 practical course in Term End Examination(TEE) and completing this Certificate Programme

The activities of this course have to be filled up in this Practical Work Book itself. You can submit your Practical Work Report (Training /Internship/Field Visit) directly to

To,
CCPD Practical Course – OEEL-001
Student Evaluation Division (SED)
Indira Gandhi National Open University Maidan Garhi
New Delhi -110068

OR

You can submit your Practical Work Report (Training /Internship/Field Visit) at your concern Study Centre/Regional Centre on or before the due date (in person) .Student are advised to get the acknowledgement/receipt while submitting Work Guide Report for **continuous evaluation** at Study Centre/Regional Centre concerned in order to get further information of his/her **terminal evaluation** of your practical course OEEL-001 for the final submission of term end examination (TEE) evaluation marks. You are advised to be in touch with the programme incharge office of your concerned study centre .

This to inform you that minimum duration of this programme is **6 months** and maximum duration is **2 years**.

You need to submit the work report as under:

For January Session- By 30th May (For June Term End Exam) ;
For July Session- By 30th November (For December Term End Exam)

NOTE: The marks for Practical Work Book(Training/Internship/Field Visit) of course OEEL-001 is separate and assignment booklet of theory courses(OEE-001 and OEE-002) is separate,Hence **Practical workbook report (refer pages 5-14) and assignment booklet (refer pages 1-4) have to be submitted separately.**

For Formatting of Your Work Report

- **On the top of the first page of your Practical/ Inrernship/Field Visit Work Assignment Guide Report Sheet**, please write the details exactly in the following format :

ENROLMENT NO. :		DATE:	
COURSE CODE : (OEEL-001)		COURSE TITLE : PRACTICAL IN POWER DISTRIBUTION	
Study Centre Name and Code: -----			
Regional Centre Code:-----			
Student Name :----- Address :-----			
Signature :		E mail : Mobile No.:	

- Please follow the format strictly to facilitate evaluation and avoid delay.
- Use only foolscap size writing paper (but not of very thin variety) for writing your responses.

While submitting work report ,check work for submission in prescribed proforma for activity report file and Annexure A and Annexure B. Recheck your work before submitting it. We strongly feel that you should retain a photocopy of your complete work report file with all annexures to avoid any unforeseen situation.

Wishing you all good luck!

Programme Coordinator
Certificate of Competency in Power Distribution

CCPD PRACTICAL COURSE : OEEL-001

Practical Work Book (Training / Internship/ Field Visit)

Dear Learner,

Welcome to this Course OEEL-001 titled "Practical in Power Distribution".

This course requires you to have an real experience of demonstration/ practical exposure **either** at **any** Substation /Power Distribution Company/ Relevant Electrical Industry /Training Centre or Institution **or** at your Study Centre , having facilities for demonstration/ practical exposure on the some of the topics that have been highlighted in your course material / other relevant topics on electrical power distribution as per industry need.

Student can arrange Practical Training / Internship/ Field Visit of a minimum of 10 days duration on their own, at any Substation /Power Distribution Company / Relevant Electrical Industry or compony / Training Centre/ Institution. Here you should work under the guidance of your supervisor with whom you have discussed about the activity task undertaken.

Accordingly such students will be assessed for their performance by the Supervisor (Head / Manager /Incharge / Trainer or Counsellor) of concerned Substation / Power Distribution Company / Relevant Electrical Industry / Training Centre/Institution / or Study Centre.

Practical work (Training / Internship/ Field Visit) emerges out of the theory syllabus and **Practical Manual of course OEEL-001** . Doing this will help to clarify your understanding of theoretical concepts.

For example **exposure on topics/activities related to any of the given below**

- **Electrical Power Substation** or relevant electrical company infrastructure and functioning;
- Electric pole and fittings ; **Overhead lines**;
- **Cables** -overhead and underground, Cable jointing;
- **Transformers**- Construction; installation ; Inspection and routine maintenance related activity;
- **Switch gears** (includes fuses, switches, relays, isolators, circuit breaker, potential and current transformer, indicating device, lightning arresters, etc.) ;other substation equipment ;Trouble shooting and maintenance activity
- **Earthing** (Pipe/Plate/Rod / strip earthing); **electrical safety** ;Earthing and Protection, measuring the earth resistance;
- **Energy meters**; Types; Installation and sealing
- **Domestic wiring** installations; Testing of domestic wiring installations; identification and location of various faults in house wiring and their rectification related;
- Other relavent activities as per industry need.

You should look for a Practical Training / Internship/ Field Visit opportunity to work on any above options. This will continue throughout the complete semester.

The practical work book Report has to be prepared as a separate file. **Enclosed Pro forma of this will guide you to record activities.** In this activity report you have to write down the details of activities conducted during Practical Training / Internship/ Field Visit work .

Course Practical in Power Distribution (OEEL-001) is of total 100 Marks consists Guided component (continuous evaluation)-70 Marks and unguided component (terminal evaluation)-30 Marks

This **Practical activity Report file with Annexures are to be shown to** your Practical Training / Internship/ Field Visit work **Supervisor** (Head / Manager /Incharge / Trainer or Counsellor) under whom you have undertaken work at any Substation /Power Distribution Company/Relevant Electrical Industry/Training/IGNOU Study Centre).**After continuous evaluation by supervisor you can submit your Practical Work Report (Training /Internship/Field Visit) directly to Student Evaluation Division (SED),Indira Gandhi National Open University Maidan Garhi,New Delhi -110068) for terminal (internal) evaluation.**

➤ **First level of evaluation** and is called 'GUIDED COMPONENT (CONTINUOUS ASSESSMENT)'

The **Supervisor (Head / Manager /Incharge / Trainer or Counsellor)** will evaluate your Report file after your Practical Training / Internship/ Field Visit.

- This guided (continuous) assessment carries **70 per cent weight age**.
See **Annexure A**).

The Supervisor will give you marks and will certify that you undertook the Practical Training / Internship/ Field Visit and the report is the work done by the candidate. Look up the certificate copy attached at **Annexure A2** of this practical course workbook.

You need to cut Annexure A, Annexure A2 and Annexure B from this work book and attach them in the beginning of the Practical Training / Internship/ Field Visit ,Activity Report Proforma File , before submitting your file to the Supervisor of (Substation /Power Distribution Company / Relevant Electrical company, Industry or Training/Study Centre) for evaluation.

➤ **The second level of evaluation** is called **UNGUIDED COMPONENT (TERMINAL ASSESSMENT)**

- This internal assessment by IGNOU expert carries **30 percent weightage**.
- This will take place at your IGNOU HQ/ Study Centre/RC or online as may be directed to you after continuous evaluation.
- **Do not forget to get your report certified from your Supervisor before submission for terminal /internal evaluation.**

Note: Completion of this work book assignment on **Course OEEL 001- Practical in Power Distribution** is mandatory for getting this Certificate. No request will be considered for waiver of the Practical Course.

We strongly feel that you should retain a acknowledged photocopy of your activity report file and annexures to avoid any unforeseen situation.Students are strongly recommended that they shall be in constant touch with their Programme Coordinator/Regional Centre/Study centre programme in-charge or online portal for the updates including examination /evaluation related activities of this practical course.

Wishing you all good luck!

Programme Coordinator
Certificate of Competency in Power Distribution

Cont.....

CCPD PRACTICAL COURSE : OEEL-001

STRUCTURE OUTLINE OF ACTIVITY REPORT FILE

Activity Report has to be prepared as a separate file. In this Report you have to write down the details of activities conducted during Practical course work (Training / Internship/ Field Visit) , under different headings given in the Pro forma.

1. Student's Name:.....

2. Enrolment number:.....

3. Programme : CCPD

4. Practical Course Code: OEEL-001

5. Concern IGNOU's Study Centre(SC) and Regional Centre(RC) (Name and Code):

LSC:.....

RC:.....

6. Kind of work undertaken by student (Tick any one):-

Practical Training	Internship	Field Visit Work

work undertaken by student related to topic:

4. Place of Work (Complete address):.....

.....

.....

5. Duration (Time Period):

.....

6. Role of Student at work place

- Trainee student / Intern / Employee

.....

Prepare a activity report describing the activities you worked on for the Practical (Training / Internship/ Field Visit)work.

(You may also enclose the pictures,videos, illustrations, flow diagram, tables, more content pages/sheets,floor plans etc., if required)

(contd....)

ACTIVITY REPORT FILE

S. No.	Daily Activity/Task Undertaken by Student	Date	Enclosure (if required)
1			
2			
3			
4			
5			

6			
7			
8			
9			
10			

(contd to next
page....)

ANNEXURE A

Remember this Annexure has to be attached with the Activity Report file before it is submitted to your Supervisor. Keep a copy with yourself.

**EVALUATION MARK SHEET (EXTERNAL EVALUATION)
Guided component (Continuous assessment) - Level 'A'**

Level 'A' - Evaluation by the Supervisor at the work place (Work place may be any Substation / Power Distribution Company / Relevant Electrical Company, Industry or Training Centre)
This assessment carries 70% weightage (i.e it will be of Maximum 70 Marks).

The following is the format in which the Supervisor is requested to consolidate the marks for work. These marks should also be stated on the Activity Report. The Supervisor will also make her / his comments for the submission in the Report.

MAXIMUM MARKS 70

Name of Learner:		Enrolment number:	
S.No.	Particulars	Maximum Marks 70	Marks obtained
	how he / she performed the role given		
1	Activity Report- Task undertaken, Details, Presentation	25	
2	Student's Performance	20	
3	Basic understanding of work undertaken	15	
4	Ability to Explanation	5	
5	Attention to details	5	
TOTAL MARKS OBTAINED IN FIGURES:			
TOTAL MARKS OBTAINED IN WORDS :			

Date:
Place:

**(Signature of Supervisor)
with stamp**

**(Signature of Head of IGNOU Study Centre)
With stamp**

ANNEXURE A1 (Optional)

REVIEW OF THE LEARNER

This is a important part of **Practical Training/Internship/ Field Visit Work**
to understand what the company/supervisor thinks of the learner. What are the learner's areas of strength and where does the learner need to work harder, etc.

Supervisor's Overall Comments about the Learner:

.....
.....

Date: Place: **(Signature of Supervisor)**

ANNEXURE A2

Remember this Annexure has to be attached with the Activity Report file before it is submitted to your Supervisor. Keep a copy with yourself.

CERTIFICATE OF PRACTICAL WORK SUPERVISOR

We certify that the candidate

Mr./Mrs./Miss.....

Enrollment No. has undertaken the

Practical Training/Internship/ Field Visit Work

at.....

.....

(Name of Substation /Power Distribution Company / Relevant Electrical Company, Industry /Training Centre or Institution)

under our guidance and supervision from to

.....

The activity report submitted herewith is the result of work undertaken by the candidate.

Date:

Place:

.....

Signature of Supervisor

Name and Designation with seal

(contd....)

ANNEXURE 'B'

EVALUATION MARK SHEET (INTERNAL EVALUATION)

Unguided component (Terminal Assessment) – LEVEL 'B'

Remember to photocopy this page and enclose this Annexure with the activity report File when you submit/mail it to IGNOU.
Keep a copy with yourself.

Level 'B' -Terminal Evaluation by IGNOU Expert

The following is the format in which the Evaluation Expert at IGNOU will do the assessment of the learner. This assessment carries 30 % weightage (i.e it will be of Maximum 30 Marks). Following this the Expert of terminal evaluation is requested to consolidate the marks for Practical Training/Internship/ Field Visit Work as shown in the second table of this page. These marks should also be stated in the Activity Report

Maximum Marks 30

Name of Learner:		Enrolment number:	
S.N o.	Particulars	Maximum Marks 30	Marks obtained
1	Activity Report- Task undertaken, Details,Presentation /or Viva- Voce	30	
TOTAL MARKS OBTAINED IN FIGURES:			
TOTAL MARKS OBTAINED IN WORDS :			

- Marks Obtained by Learner for Level A and Level B of Evaluation for practical course to be consolidated by IGNOU Expert as follows :

TOTAL MARKS OF FOR PRACTICAL COURSE (OEEL-001) (LEVEL A + LEVEL B)

MAXIMUM MARKS: 100

External Continuous Assessment (Guided component) Max. Marks:70 Level 'A' (Expert to write marks as stated by supervisor in Annexure 'A')	Internal Terminal Assessment (Unguided Component) Max. Marks:30 Level 'B' (Expert to write marks given by her /him in Annexure 'B' above)	TOTAL MARKS Max. Marks:100 (Level 'A' + Level 'B') (Expert to add marks and write the total here)

Date:

Place:

(Signature of Examiner of IGNOU Panel)

