

ACPDM

# Assignment Booklet

## Advanced Certificate in Power Distribution Management (ACPDM)

COURSE CODE:

BEE-001

BEE-002

BEE-003

(JAN/JULY 2024)



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

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**Dear Student,**

This booklet contains the assignments of ACPDM programme for the courses of BEE-001 BEE-002 & BEE-003. It is for your kind information that each course has one assignment, which is based on course materials of these courses. You are also advised to **write your responses in your own words**. This will improve your comprehension skills. Further, you may note that in case the Coordinator / Counselor may summarily reject your assignment response happens to be a copy of assignment response sheet submitted by another student, your assignment **and/or your marks might be made null and void**. Therefore, you are strongly advised not to allow any other student to copy it. This to inform that minimum duration of this programme is 6 months and max. Duration is 2 years. Please note that if you fails to submit the assignment of any course in the registered session of 6 months then same set of assignment is valid for one year for submission, after one year you have to upload fresh set assignment of current year for submission.

**Please note , assignments submission are prerequisite for your Term End Examination (TEE) result.**

You need to submit the assignments as under:

**For January Session- By 30<sup>th</sup> April ; For July Session- By 30<sup>th</sup> October**

***You can submit your assignment-***

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 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 duly acknowledged by the office of the Coordinator/ Study Centre/ Regional Centre to avoid any unforeseen situation.**

**For Formatting 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. _____	Date : _____
Course Code : _____	Course Title : _____
Name : _____	Address : _____
	_____
	_____
Signature : _____	E mail-----Mob.-----

- 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!**

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**TUTOR MARKED ASSIGNMENT****Course Code: BEE-001****POWER DISTRIBUTION SECTOR****Maximum Marks: 100****Weightage : 30%****Note :** All questions are compulsory and carry equal marks.

- Q.1 (a) What are the Key Performance Indices measuring the distribution sector performance?  
 (b) Mention the key factors driving reforms and change in the power distribution sector in India referring to the current peak and energy shortages.
- Q.2 (a) Electricity as a subject appears in the Concurrent list of subjects as per the constitution of India. With reference to IEA 2003 provisions explain how the center-state balance is maintained in developing the sector. What is the remedy in case of conflict?  
 (b) The power sector reforms were initiated around the early nineties, however the Indian Electricity Act 2003 accelerated the pace of reforms. Do you agree? If yes, justify with reference to the provisions in IEA 2003 and if No, explain why?
- Q.3 (a) Discuss the emerging role of Energy Efficiency in the distribution sector in mitigating the demand –supply deficit.  
 (b) Discuss the relevant provisions of IEA 2003 and National Tariff Policy aimed at rationalizing the tariff in the electricity sector
- Q.4 (a) Show with the help of a diagram, how is energy registered correctly in case of electronic meter with neutral removed and load running through the earth.  
 (b) Giving the internal block diagram of an electronic meter explain the role of watchdog timer.
- Q.5 (a) The key to success of distribution reforms is the Business Process Re-engineering. Compare the business processes in the vertically integrated Utility structure and the emerging unbundled structure in the distribution.  
 (b) Discuss the importance of benchmarking as a tool to push the BPR in a distribution utility.
- Q.6 (a) Mention the steps in developing a modern distribution system for a satellite town area. Indicate the planning and design steps involved  
 (b) Explain the importance of following:  
 i. Diversity factor      ii. Load Factor      iii Load Loss factor
- Q.7 (a) With the help of a Single Line Diagram indicate the switchgear and equipment used in a typical 33/11 KV sub-station. Mention the annual maintenance practices adopted.  
 (b) Discuss the variation in dielectric strength variation with altitude. How would the ground clearances or Rod gaps be altered as compared to sea level in a 33/11 KV substation at high altitude.
- Q.8 (a) Mention the two parts of R-APDRP? What is the significance of Ring-fencing in loss reduction?  
 (b) Why was the T&D loss assessment changed to AT&C loss determination in distribution? Hence explain the term AT&C loss.
- Q.9 (a) Identify the factors contributing to Technical loss and Commercial loss. Mention the techniques to reduce the Technical losses.  
 (b) What is meant by Billing efficiency and Collection Efficiency? Give the equation, allowing calculation of AT&C loss from the two efficiency factors.
- Q.10 (a) A consumer reverses the CT connections in a three phase four wire metering arrangement. What is the percentage change in energy registered  
 (b) Distinguish between section 135 and 126 in the context of IEA 2003 dealing with theft/pilferage of energy.

**TUTOR MARKED ASSIGNMENT****Course Code: BEE-002****ENERGY MANAGEMENT AND IT APPLICATIONS****Maximum Marks: 100****Weightage : 30%****Note :** All questions are compulsory and carry equal marks.

- Q.1 (a) What do you understand by energy intensity and energy efficiency.  
(b) Describe the benefits of GIS for managing the power distribution system.
- Q.2 (a) Describe the basic aim of energy security for a nation.  
(b) Justify need for energy auditing with the help of suitable examples.
- Q.3 (a) Describe the importance of ERP and its application areas in distribution.  
(b) Describe what you can do as a consumer to contribute to DSM and energy efficiency improvement.
- Q.4 (a) Discuss the measures that should be taken to improve the energy efficiency of buildings.  
(b) Explain in brief different types of fire extinguishers.
- Q.5 (a) Discuss energy accounting and various problems associated with it?  
(b) Explain the two types of spot billing technology. What are their relative advantages and disadvantages?
- Q.6 (a) List the different tools used for customer analysis. How do they benefit the utilities?  
(b) Explain how IT can help in reducing AT & C losses and improving the efficiency of power distribution.
- Q.7 (a) How is an HHD actually used for reading meters?  
(b) State the benefits of AMR and outline the hardware requirements for it.
- Q.8 (a) What should be the disaster management plan for quick restoration of power supply in the event of earthquake?  
(b) Discuss "Green House Effect" on Global Environment.
- Q.9 (a) What are the key areas of IT interventions in the power distribution sector?  
(b) Explain why utilities should adopt integrated IT systems rather than standalone applications.
- Q.10 (a) Discuss the usefulness of SCADA for improving the operations of a power distribution utility.  
(b) Discuss the reasons why DSM has not been taken up actively by utilities in the domestic and commercial sectors.

**TUTOR MARKED ASSIGNMENT****Course Code :BEE-003****MANAGEMENT OF POWER DISTRIBUTION****Maximum Marks: 100****Weightage : 30%****Note:** All questions are compulsory and carry equal marks.

- Q.1 (a) How can IT be used in improving communication processes in a discom within organization, and with consumers? Give the components and their interconnections.
- (b) What measures should be taken to make inter-personnel communication effective?
- Q.2 (a) Describe the process of conflict.
- (b) What are the different types of conflicts taking place in business organizations?
- Q.3 (a) What is the process of ARR filing by discoms? Discuss in light of IEA 2003 provisions.
- (b) What are the provisions in IEA 2003 that endeavor to bring out transparency in the working of discoms?.
- Q.4 (a) How are wheeling charges computed? Give the procedure for source connected at 33kV and consumer connected at 11 kV.
- (b) Mention the components that make-up the annual annual revenue requirements of a discom. What is meant by IRR? Explain.
- Q.5 (a) What are the main driving factors of change in any business?
- (b) Explain various change models for business.
- Q.6 (a) Give a comparison of unit rate and turnkey contracts.
- (b) Explain various cost components of Detailed Project Report.
- Q.7 (a) Describe in brief the management processes of planning, controlling, organizing and leading.
- (b) With reference to cost management, explain following :
- (i) Material variance, (ii) Fixed overhead variance,
- (iii) Variable overhead variance, (iv) Labor variance, and
- (v) Sales variance.
- Q.8 (a) Describe how you can use the print and electronic media to sensitize your customers about timely payment of bills, and legalizing power connections.
- (b) Explain the concept of supply chain management in detail.
- Q.9 (a) Describe practices in complaint handling with reference to customer relationship management.
- (b) 'Customer relationship management has become an important area for public utilities'. Analyze this statement in context of any organization.
- Q.10 (a) Explain various investment evaluation methods.
- (b) Describe various aspects of cost volume profit (CVP) analysis.

