



# GOVERNMENT POLYTECHNIC KORAPUT

## Pr-4. ELECTRICAL DRAWING

Name of the Course: Diploma in Electrical Engineering			
Faculty: Mahesh Kumar Biswal			
Course code:	Pr-4	Semester	4 <sup>th</sup>
Total Period:	90	Semester duration: 10/03/2022 to 10/06/2022	
Theory periods:	6P/week	Examination	30ms
		Term work	25
Maximum marks:	125	End Semester Examination:	100

### DEPARTMENT OF ELECTRICAL

#### Vision:-

To create competent and industry ready Electrical diploma engineers with professional and social values to meet future challenges.

#### Mission:-

- To prepare diploma holders through "qualitative competency based education system" to compete with national requirement along with core values
- To produce dynamic Electrical Engineers to serve the society and industry .
- To develop leadership qualities, communication skills, critical thinking and attitude for Lifelong learning.

#### Program educational objectives:-

PEO1:	Apply technical knowledge and skills learned in the field of Electrical Engineering to excel in professional and/or higher education.
PEO2:	to provide students an excellent academic environment and make them aware the needs of Society and Industry to become a successful Professional/Entrepreneur.
PEO3:	To engage in lifelong learning, career enhancement to adopt emerging technologies.

#### Course outcomes:-

Co1	Acquire experience to draw different types of electrical symbols, AC and DC armature windings.
Co2	Acquire experience to design, visualize and draw the sectional plan and elevation of different aspect of transformer structure.
Co3	Identify and draw the sectional plan and elevation of different type of DC machine winding.
Co4	To gain knowledge of layout of schematic representation of outdoor and indoor substations.





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### TOPIC WISE DISTRIBUTION OF PERIODS

Sl. No.	Topics	Periods
1.	Wiring Diagram of Starters	18
2.	Development of DC armature winding	18
3.	1 $\phi$ and 3 $\phi$ transformer	12
4.	Sketches of Earthing and LT and HT line	18
5.	Single line diagram substation	09
6.	Auto CAD practice	15
<b>TOTAL</b>		<b>60</b>

### LESSON PLAN

Week	Day	Theory topic
1 <sup>st</sup>	1 <sup>st</sup>	<b>WIRING DIAGRAM AND CONTROL CIRCUIT:</b> 3 point D. C. motor starter
	2 <sup>nd</sup>	do
	3 <sup>rd</sup>	do
	4 <sup>th</sup>	4 point D.C. motor starter.
	5 <sup>th</sup>	do
	6 <sup>th</sup>	do
2 <sup>nd</sup>	1 <sup>st</sup>	DOL starter
	2 <sup>nd</sup>	do
	3 <sup>rd</sup>	do
	4 <sup>th</sup>	Star delta starter
	5 <sup>th</sup>	do
	6 <sup>th</sup>	do
3 <sup>rd</sup>	1 <sup>st</sup>	Auto Transformer Starter.
	2 <sup>nd</sup>	do
	3 <sup>rd</sup>	do
	4 <sup>th</sup>	Rotor resistance starter.
	5 <sup>th</sup>	do
	6 <sup>th</sup>	do
4 <sup>th</sup>	1 <sup>st</sup>	<b>D.C. M/C PARTS:</b> Pole with pole shoes.
	2 <sup>nd</sup>	do
	3 <sup>rd</sup>	do
	4 <sup>th</sup>	Commutator
	5 <sup>th</sup>	Do
	6 <sup>th</sup>	do
5 <sup>th</sup>	1 <sup>st</sup>	Armature
	2 <sup>nd</sup>	Do
	3 <sup>rd</sup>	do
	4 <sup>th</sup>	Simple lap 1 layer winding
	5 <sup>th</sup>	do



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	6 <sup>th</sup>	do
6 <sup>th</sup>	1 <sup>st</sup>	Simple lap double layer winding
	2 <sup>nd</sup>	do
	3 <sup>rd</sup>	do
	4 <sup>th</sup>	Simple wave 1 layer winding
	5 <sup>th</sup>	do
	6 <sup>th</sup>	do
7 <sup>th</sup>	1 <sup>st</sup>	Simple wave double layer winding
	2 <sup>nd</sup>	do
	3 <sup>rd</sup>	do
	4 <sup>th</sup>	<b>DRAW 1-PHASE &amp; 3-PHASE TRANSFORMER:</b> single phase stepped core type transformer
	5 <sup>th</sup>	do
	6 <sup>th</sup>	do
8 <sup>th</sup>	1 <sup>st</sup>	Three phase stepped core type transformer
	2 <sup>nd</sup>	do
	3 <sup>rd</sup>	do
	4 <sup>th</sup>	single phase shell type transformer
	5 <sup>th</sup>	do
	6 <sup>th</sup>	do
9 <sup>th</sup>	1 <sup>st</sup>	Three phase shell type transformer
	2 <sup>nd</sup>	do
	3 <sup>rd</sup>	do
	4 <sup>th</sup>	<b>Earthing:</b> Pipe earthing
	5 <sup>th</sup>	do
	6 <sup>th</sup>	do
10 <sup>th</sup>	1 <sup>st</sup>	Plate earthing
	2 <sup>nd</sup>	do
	3 <sup>rd</sup>	do
	4 <sup>th</sup>	Double pole structure for LT distribution lines
	5 <sup>th</sup>	do
	6 <sup>th</sup>	do
11 <sup>th</sup>	1 <sup>st</sup>	Double pole structure for HT distribution lines
	2 <sup>nd</sup>	do
	3 <sup>rd</sup>	do
	4 <sup>th</sup>	Double pole structure for LT distribution lines with guard wire
	5 <sup>th</sup>	do
	6 <sup>th</sup>	do
12 <sup>th</sup>	1 <sup>st</sup>	Double pole structure for HT distribution lines with guard wire
	2 <sup>nd</sup>	do
	3 <sup>rd</sup>	do
	4 <sup>th</sup>	<b>SINGLE LINE DIAGRAM OF SUBSTATION:</b> Single line diagram of 33/11kV distribution substation.
	5 <sup>th</sup>	do
	6 <sup>th</sup>	Do



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13 <sup>th</sup>	1 <sup>st</sup>	Single line diagram of a 11/0.4 kV distribution substation.
	2 <sup>nd</sup>	Do
	3 <sup>rd</sup>	do
	4 <sup>th</sup>	Draw Electrical symbols
	5 <sup>th</sup>	do
	6 <sup>th</sup>	do
14 <sup>th</sup>	1 <sup>st</sup>	Draw D.C. m/c parts
	2 <sup>nd</sup>	do
	3 <sup>rd</sup>	do
	4 <sup>th</sup>	Draw A. C. m/c parts
	5 <sup>th</sup>	do
	6 <sup>th</sup>	do
15 <sup>th</sup>	1 <sup>st</sup>	Draw electrical layout of diagram of Electrical Installation of abuilding
	2 <sup>nd</sup>	do
	3 <sup>rd</sup>	do
	4 <sup>th</sup>	do
	5 <sup>th</sup>	do
	6 <sup>th</sup>	do

15/3/22  
Signature of HOD(electrical)

15/3/22  
Signature of faculty