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Department of Electrical & Electronics Engineering

Lesson Plan for a Day
Term/Semester/Year: II year Sem- I- Syllabus 2020 -21

MICRO LESSON PLAN

(ACCORDING TO BLOOMS DIGITAL TAXONOMY)

Programme	B.Tech, Electrical & Electronics Engineering
Semester	II Year - I Semester
Subject Title	Electrical Circuit Analysis-II
Subject Code	R1921023
Class Hours	5
Total Hours	65
Credits	3
Max. Marks	100
Unit & Title	Unit-I: Three phase circuits
Teaching and Learning Tools	Black Board/ Power Point Presentation/Videos, E-material.

Detailed – Lesson 1 **Three phase circuits: Introduction, Phase sequence** **Lesson Objectives:**	
Factual	• Students will be able to understand the necessity of three phase supply. • To learn the phase sequence.
Conceptual	Students will be able to understand the concept of single phase and three phase and its advantages.
Procedural	Students should be able to follow the mathematical representation of three phase system.
Applied	Students should be able to apply the concepts and solve the problems in 3phase circuits.

Taxonomy of Objectives:

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Knowledge Dimension	**The Cognitive Process Dimension**					
	Remember	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Create**
Factual Knowledge	1					
Conceptual Knowledge		2, 3				
Procedural Knowledge			4			
Meta Cognitive Knowledge						

Prerequisite Knowledge:

Electrical circuit analysis-I, Mathematics-1,2.

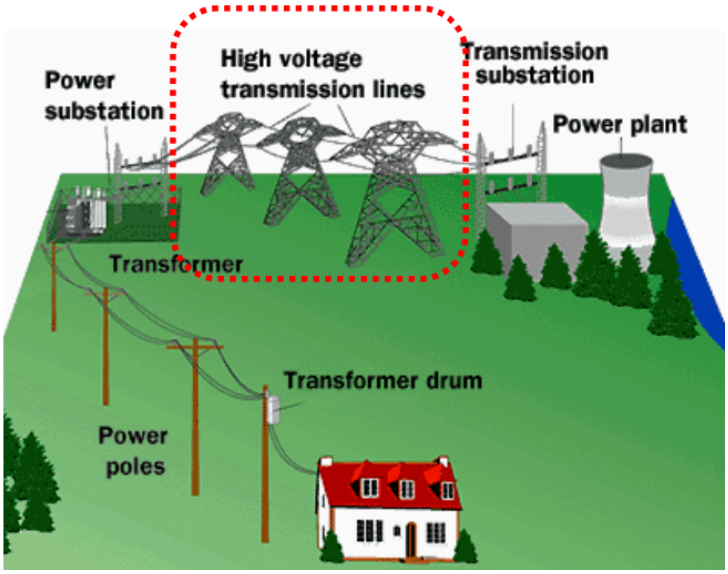
Micro Lesson Plan: Day -1. Three phase circuits-Introduction

1. Pre-class Activity- Introducing the three phase concept.

As a pre-task activity, it is planned to recall the AC concept and introduce three phase system.

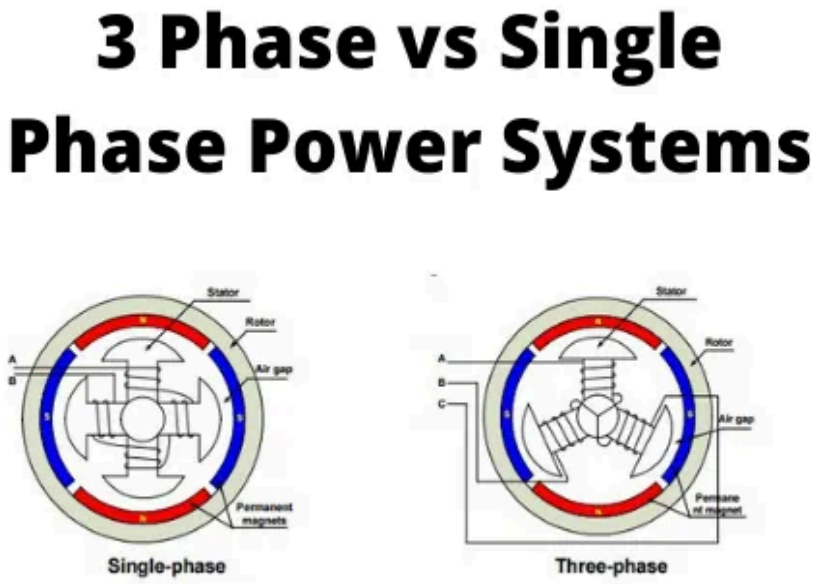
Textbook: Engineering Circuit Analysis: William H. Hyth Jr., Jack E.Kimmerly
Video Link: https://www.youtube.com/watch?v=8AfdmidxbNI

2. In-class Activity: What is the need of 1-phase & 3-phase circuits?



what is Three phase AC circuit?

There are two types of system available in electric circuit, single phase and three phase system. In single phase circuit, there will be only one phase, i.e the current will flow through only one wire and there will be one return path called neutral line to complete the circuit. So in single phase minimum amount of power can be transported.



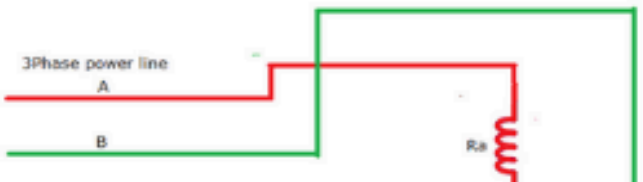


Fig .1 Single phase and three phase power generation

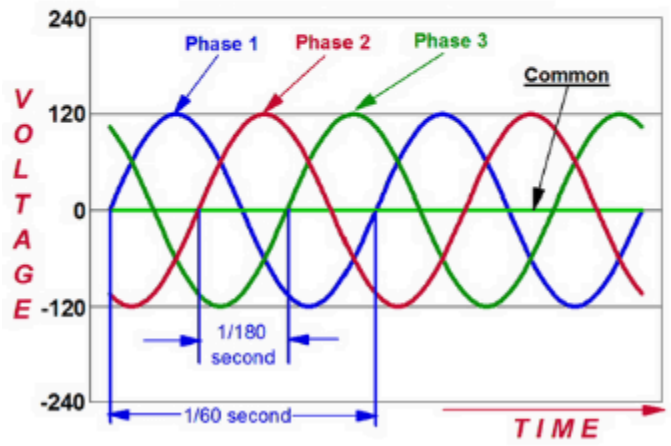


Fig .2. Three phase AC circuit and voltage waveforms

Why Three Phase is Preferred Over Single Phase?

1. The amount of conductor material needed to transfer same amount of power is lesser for three phase system.

2. Voltage regulation of three phase system is better.

3. The torque produced by the three phase motors is more.

4. For a given size of the frame, three phase generator provides more output.

3. Post – class Activity:

As a Post class activity, students will be asked to participate in discussion forum and also given poll activity.

1. In a three phase system, the order in which the voltages attain their maximum positive value is called ----------

A) RMS value B) Phase sequence C) Max. Value D) Power factor

2. In a three phase system, current passing through any two lines of supply is called ----------

A) Line voltage B) Line current C) Phase voltage D) Phase current

4. References

1. ***Engineering Circuit Analysis: by William H. Hyth Jr., Jack E.Kimmerly., Mc.graw hill company.***

2.Network Synthesis– by van valkenburg. *Prentice hall India Pvt. Ld.*

3. Circuit theory: by A. Chakrabarthi, Dhanpathrai & co.