



GOVERNMENT POLYTECHNIC KORAPUT

Pr2. CIRCUIT AND SIMULATION LAB

Name of the Course: Diploma in Electrical Engineering			
Faculty: Sandhya Kumari Randhi			
Course code:	PR2	Semester	Semester W.E.F - 1 10 2021 3rd
Total Period:	90	Examination	3hrs
Theory periods:	6P/week	Sessional :	50
Maximum marks:	100	End Semester Examination:	50

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	Verify the theorems using different components.
Co2	Know the various types of filters.
Co3	Simulate different circuits using MATLAB software.
Co4	Analyze the charging and discharging of an R-C & R-L circuit.



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LESSON PLAN

Week	Class Day (3 periods per day)	Practical Topics
1 st	1 st	1. Measurement of equivalent resistance in series and parallel circuit
	2 nd	1. Measurement of equivalent resistance in series and parallel circuit
2 nd	1 st	2. Measurement of power and power factor using series R-L-C Load.
	2 nd	2. Measurement of power and power factor using series R-L-C Load.
3 rd	1 st	3. Verification of KCL and KVL
	2 nd	3. Verification of KCL and KVL
4 th	1 st	4. Verification of Super position theorem
	2 nd	4. Verification of Super position theorem
5 th	1 st	5. Verification of Thevenin's Theorem
	2 nd	5. Verification of Thevenin's Theorem
6 th	1 st	6. Verification of Norton's Theorem
	2 nd	6. Verification of Norton's Theorem
7 th	1 st	7. Verification of Maximum power transfer Theorem
	2 nd	7. Verification of Maximum power transfer Theorem
8 th	1 st	8. Determine resonant frequency of series R-L-C circuit.
	2 nd	8. Determine resonant frequency of series R-L-C circuit.
9 th	1 st	9. Study of Low pass filter & determination of cut-off frequency
	2 nd	9. Study of Low pass filter & determination of cut-off frequency
10 th	1 st	10. Study of High pass filter & determination of cut-off frequency
	2 nd	10. Study of High pass filter & determination of cut-off frequency
11 th	1 st	11. Analyze the charging and discharging of an R-C & R-L circuit with oscilloscope and Compute the time constant from the tabulated data and determine the rise time graphically.
	2 nd	11. Analyze the charging and discharging of an R-C & R-L circuit with oscilloscope and Compute the time constant from the tabulated data and determine

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		the rise time graphically.
12 th	1 st	12. Introduction to P-Spice/MATLAB software.
	2 nd	12. Construct the following circuits using P-Spice/MATLAB software and compare the measurements and waveforms. i. Superposition theorem
13 th	1 st	12. Construct the following circuits using P-Spice/MATLAB software and compare the measurements and waveforms. ii. Series Resonant Circuit
	2 nd	12. Construct the following circuits using P-Spice/MATLAB software and compare the measurements and waveforms. ii. Series Resonant Circuit
14 th	1 st	12. Construct the following circuits using P-Spice/MATLAB software and compare the measurements and waveforms iii. Transient Response in R-L-C series circuit
	2 nd	12. Construct the following circuits using P-Spice/MATLAB software and compare the measurements and waveforms iii. Transient Response in R-L-C series circuit
15 th	1 st	12. Construct the following circuits using P-Spice/MATLAB software and compare the measurements and waveforms iii. Transient Response in R-L-C series circuit
	2 nd	12. Construct the following circuits using P-Spice/MATLAB software and compare the measurements and waveforms iii. Transient Response in R-L-C series circuit

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1/10/21

Signature of HOD(electrical)

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1/10/21

Signature of faculty