



FIRST-YEAR DIPLOMA ENGINEERING SYLLABUS

Semester: 1st

Course Code: 002203110

Type of Course: ESE-LC-1

Course Name: Fundamental of Electrical Engineering

Course Prerequisites:

The purpose of this course is to help the student to attain the following industry identified competency through various teaching learning experiences:

- Apply the basic principles of electrical and electronics engineering in relevant engineering discipline applications.

COURSE OBJECTIVE:

Electrical engineering is one of the core engineering, which every common man uses in day to day life. This course is offered in all branches of engineering. Need of knowledge about fundamental electrical concepts for every branch is considered for this course.

TEACHING & EXAMINATION SCHEME:

Teaching Scheme (Hrs/Week)				Examination Scheme					
Theory	Tutorial	Practical	Credit	SEE		CA			Total
				Th	Pr	MSE	PLE	LA	
0	0	2	1	0	25	0	25	0	50

SEE: Semester End Examination; CA: Continuous Assessment; Th: Theory; Pr: Practical; MSE: Mid Semester Examination; PLE: Participatory Learning Experience; LA: Laboratory Assessment

TOTAL Practical Hours: No. of Pr. and Prt.Hrs/Week*15 = 30

LIST OF PRACTICALS: (sample for 2 hrs/week)*15 weeks

Sr. No.	Content	Unit No.	Time Duration
1	Identify resistors, inductors and capacitors.	I	2*
2	Verify Ohm's law in the given electric circuit.	I	2*
3	Verify Kirchhoff's current law in the given electric circuit.	I	2*
4	Verify Kirchhoff's voltage law in the given electric circuit.	I	2*
5	Find equivalent resistance for series connection and parallel connection.	I	2*
6	Measure voltage, current and power in the given DC circuit	I	2
7	Carry out following wiring: (1) Staircase (2) Go down	II	2*
8	Measure voltage, current and power in the given AC circuit	II	2*
9	Calculate unit consumption for given electrical load.	II	2
10	Identify electronic components like types of diodes, transistors, SCR.	III	2*



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11	Use digital meters like multi-meter, clip-on meter for measuring various parameters.	III	2*
12	Measure various parameters for generated wave using function generator and CRO	III	2*
13	Identify components of solar power system stating its function.	IV	2*
14	Identify components of wind power system stating its function.	IV	2*
15	Test the operation of protective devices like Fuse, MCB and ELCB.	V	2*
TOTAL			34

Text Book(s):

Title of the Book	Author(s)	Publication
Basic Electronics	Mehta D. R.	Mehta publication
Text book of Renewable Energy	S.C.Bhatia&R.K.Gupta	WPI publication

Reference Book(s):

Title of the Book	Author(s)	Publication
Fundamentals of Electrical Engineering and Electronics	Theraja, B.L.	S.Chand Publication
Non-Conventional Energy Sources	Rai G. D.	Khanna Publications
Basic Electronics & Linear Circuits	Theraja, B.L.	McGraw Hill Education, New Delhi
Basic electronics	Mehta ,V.K.	Chand Publication

Web Material Link(s):

- A. <https://ndl.iitkgp.ac.in>
- B. www.electronicsforu.com
- C. www.electrical4u.com
- D. www.vlab.co.in

Equivalent/Corresponding Course on NPTEL (SWAYAM):

NPTEL course on

- A. www.nptel.iitm.ac.in

PRACTICAL EVALUATION:



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Sr. No.	Activity	Marks	Weightage
1	Semester End Examination (External Practical)	30	60%
2	Continuous Assessment Practical (CAP)	20	40%
	Semester End Examination (External Practical)		
1(a)	Lab Experiment/Exercise		30%
1(b)	Viva-voce		20%
1(c)	Certified Record		10%
	Continuous Assessment Practical (CAP)		
2(a)	Day to day Laboratory Work & Attendance		15%
2(b)	Submission of Laboratory Work/Journal		10%
2(c)	Exam		15%

* For 4 Credit Subjects

1 Credit = 25 Marks

Theory: 3 Credits = 75 Marks

Practicals: 1 Credit = 25 Marks

SEE Evaluation will be of 100 marks and converted to 50 Marks (75 Th + 25 Pr)

CA Evaluation will be of 100 Marks and converted to 50 Marks. (75 Th + 25 Pr)

Distribution of Marks for Theory Evaluation as per Bloom's Taxonomy Level:

Level	Remember	Understand	Apply	Analyze	Evaluate	Create
% Weightage	30 %	40%	30%	-	-	-

COURSE OUTCOMES:

CO1	Apply fundamentals of DC circuits and batteries in relevant engineering discipline.
CO2	Apply fundamental of AC circuits in relevant engineering discipline.
CO3	Use electrical and electronics instruments for measuring various parameters.
CO4	Classify green energy sources with emphasis on working of solar and wind power plant
CO5	Understand electrical safety and Use of Electrical protection.