# Electrical Engineering Courses (EE)

Electrical Engineering Courses Group

**EE 238 – Electrical Engineering Fundamentals**

## COURSE INFORMATION

Course Title: Electrical Engineering Fundamentals

Code: EE 238

Hours: Lecture – 2 Hrs. Tutorial – 2 Hrs. Credit –3.

Prerequisite: BA 124

## GRADING

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|---|---|
| Class Performance/Attendance: | 10% |
| Midterm # 1/Assignments – ($7^{th}$ Week): | 30% |
| Midterm # 2/Assignments – ($12^{th}$ Week): | 20% |
| Final Exam: | 40% |

## COURSE DESCRIPTION

Introduction. Basic d-c circuit. Resistance, voltage, current, and ohm's law, Kirchhaff's laws. Resistances in series or parallel. Mesh analysis. Nodal analysis. Source transformation. Superposition, voltage and current divider. Laws of magnetic force. Field strength, flux density. Relation between B,H,I,K. Alternating current generation . Waves, effective value and mean value. Phasor representation. Voltage, current and impedance as complex numbers. Phasor analysis. Instantaneous and complex power.

## TEXT BOOK &REFERENCES

Introductory Circuit Analysis by R.L. Boylestad Publisher: Merril, London, 1994.

Principles and Application of Electrical Engineering by Giorgio Rizzoni Publisher: McGraw Hill.

## COURSE AIM

Providing detailed skills related to the basic circuit, circuit theorems, the laws of magnetic force, and the alternating current.

## SPECIFIC OUTCOMES OF INSTRUCTION

- The students will be able to provide detailed skills related to the basic circuit, circuit theorems, the laws of magnetic force, and the alternating current.

## COURSE OUTLINE

*Week Number 1:* Introduction

*Week Number 2:* Basic d-c circuit

*Week Number 3:* Ohm's law

*Week Number 4:* Kirchhoff's laws

*Week Number 5:* Resistance in series or parallel

*Week Number 6:* Mesh analysis

*Week Number 7:* Nodal analysis

*Week Number 8-9:* Source transformation

*Week Number 10:* Superposition theorem

*Week Number 11:* Laws of magnetic force

*Week Number 12:* Field strength and flux density

*Week Number 13:* Alternating current

*Week Number 14:* Power

*Week Number 15:* Waves, effective value and average value

*Week Number 16:* Final Exam

## COURSE COORDINATOR AND DEMAND

*Course Coordinator:* Dr.Yasser Galal.

*Course Demand:* *Required*