Arab Academy for Science and Technology and Maritime Transport
Computer Science Curriculum
Course Syllabus

Course Code:	**Course Title:**	**Classification:**	**Coordinator:** Dr. Radwa Khalil	**Credit Hours:**
EC134	Fundamentals of Electricity and Electronics	Required Course	**Lecturer:** Dr. Radwa Khalil	3
Pre-requisites:	**Co-requisites:**	**Schedule:**		
BA113 (Physics)	None	Lecture: 2 hours Tutorial-Lab: 2/2 hours		

Office Hours: (Room 256)

Sunday 12:00 pm – 2:00 pm
Tuesday 8:30 am – 10:30 am

Course Description:

This course provides an introduction to the basic concepts of electricity and electronics concepts. This is useful in understanding the operations of robotics. The topics of interest include the basics of electricity and electrical circuit's components. It covers also the basic DC and AC circuits' analysis, power and resonance, and transformers. The electronic topics include semiconductors diodes and transistors. The course covers practical and applications of the studied topics in the operations of amplifiers and oscillators.

Textbook:

Floyd, "Electronics Fundamentals, Circuits, Devices and Applications".

References:

- Stan Gibilisco, Teach Yourself Electricity and Electronics, McGraw Hill.
- Mc Comb and Earl Boysen; Electronics for Dummies; John Wiley, Inc, 2005.
- Paul Horowitz and Winfield Hill; The Art of Electronics; Second Edittion, Cambridge, 1989.
- Forrest M. Mims; Getting Started in Electronics; Master Publishing, INC, 2003.
- Boylestad, Nashelsky, Electronic Devices and Circuit Theory, 1991

Course Objective/Course Learning Outcome:	**Contribution to Program Student Outcomes:**
1. Introducing different electronic devices used in constructing modern electronic circuits: diodes, bipolar junction transistor, field effect transistor and operational amplifiers. 2. Studying the performance with special emphasis on some practical applications.	(SO-1) Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
Course Outline: **Week 1.** Basic Physical Concepts **Week 2.** Electrical Units & Measuring Devices **Week 3.** Basic dc circuits **Week 4.** Direct-Current Circuit Analysis **Week 5.** Alternating Current Basics **Week 6.** RLC Current Analysis – Power & Resonance in AC Circuits **Week 7.** 7th Week Exam – Transformers an Impedance Matching **Week 8.** Introduction to Semiconductors	 **Week 9.** Some Uses of Diodes – Part I **Week 10.** Some Uses of Diodes – Part II **Week 11.** Bipolar Junction Transistor (BJT) – Part I **Week 12.** 12th Week Exam – Bipolar Junction Transistor (BJT) – Part I **Week 13.** Field Effect Transistor (FET) **Week 14.** Amplifiers **Week 15.** Oscillators **Week 16.** Final Exam
Grade Distribution: **7th Week Assessment (30%):** Exam (20%) + Quiz (5%) + Lab Exam (5%) **12th Week Assessment (20%):** Exam (20%) **Year Work (10%):** Lab Exam **Final Exam (40%)**	

Policies:

Attendance:
AASTMT Education and Study Regulations (available at aast.edu)

Academic Honesty:
AASTMT Education and Study Regulations (available at aast.edu)

Late Submission:
Late submissions are graded out of 75% (1 week late), 50% (2 weeks late), 25% (3 weeks late), 0% (more than 3 weeks late)