

ANALOG ELECTRONICS 2016-2017

Bachelor Degree:	Industrial Electronics and Automation Engineering	805G
Course title:	3	641
Year/Semester:	First Semester	ECTS Credits: 6,00

DEPARTMENT

ELECTRICAL ENGINEERING

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ENGLISH-FRIENDLY FACULTY

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CONTENTS

Unit 1.- Introduction to analog electronics.

- 1.1. Objectives.
- 1.2. Analog and Digital Systems.
- 1.3. Fundamental of Analog Electronics.
- 1.4. Basic theorems in Analog Electronics.

Unit 2.- Diodes and Diode Circuits

- 2.1. Fundamentals of diodes.
- 2.2. Characteristics of diode.
- 2.3. Applications with diodes. Rectification and filtering.
- 2.4. Special-Purpose Diodes.

Unit 3.- Bipolar Junction Transistors

- 3.1. Bipolar Junction Transistors: Fundamentals and operating modes. Characteristics
- 3.2. Transistor Biasing.
- 3.3. Common Emitter Amplifier.
- 3.4. Common Collector and Common Base Amplifier.

Unit 4.- Field Effect Transistors FET

- 4.1. Introduction: types and models of FET transistors.
- 4.2. JFET Transistors: Characteristics, Operating Modes and Applications.
- 4.3. MOSFET Transistors: Characteristics, Operating Modes and Applications.

Unit 5.- Operational Amplifiers

- 5.1. Principles of Operational Amplifier.
- 5.2. Linear Op-Amp Applications: Inverting Amplifier, Noninverting Amplifier, Summing Amplifier, Subtracting Amplifier, Voltage Follower, Voltage Controlled Current Sources.
- 5.3. Non Linear Op-Amp Applications: Integrator, Differentiator, Waveform Conversion and Waveform Generation Comparators with and without Hysteresis, Oscillators, Active Filters.
- 5.4. The real Op-Amp.

Unit 6 - Practical Session

Applications in Analog Electronics with Diodes, Bipolar Transistors, Field Effect Transistors and AOs.



REFERENCES

Title
"Electronic Circuits", Norbert Malik, ISBN 9780133203004 Publisher: Prentice Hall, 2010, First edition, 1995
"Electronic Principles", Malvino, Seven edition, ISBN-10: 0073222771 Publisher: McGraw Hill, 2006

EVALUATION SYSTEM

Project worth 20% of the overall grade
Reporting practices worth 20% of the overall grade
Examination worth 60% of the overall grade