

**Summarized Course Description**

Course number: ECE 342	Course name: Electronics (2)
لغة تدريس المقرر: English	Pre-requisites: ECE 241
Credit hours: 4 (3-2-0)	Course level: Level - 7

**Course Description**

وصف المقرر :

Differential amplifiers. Multistage amplifiers. Amplifier frequency response (for single stage, multistage and opamp). Feedback: Circuit topologies and analysis. Active filters single and multi-opamp topologies, inductance simulation. Stability and pole locations, Opamp based Sinusoidal Oscillators, transistors based Sinusoidal Oscillators. Introduction to A/D and D/A.

**Course objectives**

أهداف المقرر :

1. Consider the operations and characteristics of differential amplifier BJT and MOSFET.
2. Study frequency response of amplifiers.
3. Presents several useful multistage amplifiers.
4. Introduce the main electronics circuit building blocks: amplifiers, filters and oscillators.
5. Apply advanced analysis methodologies: pole-zero calculations, s-domain, and feedback.
6. Provide basics of data convertors.

**Course Outcomes**

مخرجات التعليم :

Upon completing the course, the student should be able to:

1. Apply knowledge of mathematics, science, and engineering to the analysis of electronic circuits (Amplifiers Active Filters, and Oscillators).
2. Use the techniques, skills, and modern engineering tools such as PSPICE to analysis and design electronic circuits.
3. Apply knowledge of mathematics, science, and engineering to the design of electronic circuits (such as Amplifiers, Active Filters, and Oscillators).
4. Identify, formulates, and solves electronic engineering problems.
5. Design a electronic components or process to meet desired needs within realistic constraints such as economic, environmental, social political, ethical, health and safety, manufacturability and sustainability.
6. Use the techniques, skills, and modern engineering tools such as PSPICE to analysis and design electronic circuits.

**Textbook and references**

الكتاب المقرر والمراجع المساندة:

Text Book: Sedra and Smith, "Microelectronic Circuit," 7th Edition (or later), 2014, Oxford University Press, ISBN 9780199339136.

References:

Richard Jaeger, and Travis Blalock, Microelectronic Circuit Design, 5th Ed., McGraw Hill Education, 2016. SBN: 0073529605.

Mark N. Horenstein, Microelectronic Circuit and Devices (2nd Edition) (Part A & B), Pearson, 1994, ISBN 10: 0137013353 ISBN 13: 9780137013357.