

Zarqa University



Faculty of Engineering Technology

Department: Electrical Engineering
Course title: Electronic Communication
(0904524)

Prerequisite: Analog Communication (0904452) & Electronics II (0904328)

Instructor: Dr. Haitham Issa

Lecture's time: 11:00-12:00, Sun, Tue, and Thu

Semester: Spring, 2017

Office Hours: 10:00-11:00, and 13:00-14:00 Sunday, Tuesday, and Thursday

Course description:

In this course the students will study Electronic fundamentals for Communications, RF Oscillators, PLL, Frequency Synthesizers, Mixers, Amplitude Modulation Fundamentals, Amplitude Modulator and Demodulator Circuits, Fundamentals of Frequency Modulation.

Aims of the course:

1. Study Electronic fundamentals for Communications.
2. Design and illustrate RF Oscillators, PLL, and Frequency Synthesizers.
3. Design and use different types of Mixers in communication systems.
4. Review AM & FM Modulation techniques.
5. Use electronic devices to design modulation and demodulation circuits for AM and FM techniques.

Intended Learning Outcomes (ILOs):

A student who has passed this module should be able to:

- 1- Identify and Employ the electronic fundamentals parameters and components needed for communications
- 2- Study and Design various types of oscillators, PLL and Frequency Synthesizers needed for communication systems.
- 3- Design and Illustrate Mixers for communication systems.
- 4- Review AM & FM Modulation and Demodulation techniques.
- 5- Use, and Apply electronic circuits for AM and FM communication systems.

Course structures:

| Week (s) | C. Hrs | ILOs | Topics | Teaching Procedure | Assessment methods |
|----------|--------|------|---|---|---|
| 1-2 | | 1 | Electronic fundamentals for Communications | Lecturing from the text and reference books | HWs |
| 3-5 | | 2 | RF Oscillators, PLL, Frequency Synthesizers | Lecturing from the text and reference books | HWs |
| 6-7 | | 3 | Mixers. | Lecturing from the text and reference books | HWs & Quizzes 1st Exam April 13, 2017 |



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|-------|--|-------|--|---|--|
| 8-11 | | 3 | Power Amplifiers. | Lecturing from the text and reference books | HWs |
| 11-12 | | 4 | Fundamentals of Amplitude Modulation. | Lecturing from the text and reference books | HWs 2 nd Exam May 9, 2017 |
| 12-14 | | 4 & 5 | Amplitude Modulator and Demodulator Circuits | Lecturing from the text and reference books | HWs & Quizzes |
| 14-15 | | 4 | Fundamentals of Frequency Modulation | Lecturing from the text and reference books | HWs Final Exam |

References:

1. “**Principles of Electronic Communication Systems**”, Louis E. Frenzel, McGraw-Hill Education, 4th Edition, 2016
2. “**Schaum's Outline of Electronic Communication**”, Lloyd Temes , McGraw-Hill, 2nd Edition, 1998.
3. “**Electronic Communication Systems**”, Roy Blake, Delmar, 2nd Edition, 2002.

Assessment Methods:

| Methods | Grade | Date |
|-----------------|-------|----------------|
| Quizzes and HWs | 10 | Bi-weekly |
| First Exam | 20 | End of Week 6 |
| Second Exam | 20 | End of Week 11 |
| Final Exam | 50 | After Week 15 |

