FUTURE UNIVERSITY IN EGYPT
جامعة المستقبل

## Faculty of Engineering & Technology

### Special Topics in Electronics and Communication Engineering

**Information :**

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|---|---|---|---|---|---|
| **Course Code :** | COM 581 | **Level :** | Undergraduate | **Course Hours :** | 3.00- Hours |

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| **Department :** | Specialization of Electronics & Communication |

**Instructor Information :**

| Title | Name | Office hours |
|---|---|---|
| Lecturer | AHMED SAEED ABDELSAMEA SAYED | 9 |
| Assistant Lecturer | Marwa Mohamed Zaki Mohamed Shaheen | |

**Area Of Study :**

- Develop studentsôskills in software tools (MATLAB, Simulink, Multisim and LabVIEW) for problem solving and modeling of various electronic circuits.
- Train studentsôin a programming environment through data acquisition for performing real-time measurements.

**Course outcomes :**

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| **a.Knowledge and Understanding: :** | |
| 1 - | a1. List theories, techniques and analysis of analogue and digital electronics, communication and signal processing systems. |
| 2 - | a2. Recognize the instruction set and program structure of MATLAB and Simulink for problem solving |
| 3 - | a3. Recognize of the instruction set and program structure of LabVIEW and Multisim as an electronic simulation tool |
| **b.Intellectual Skills: :** | |
| 1 - | b1. Apply appropriate mathematical and physics knowledge for modelling and analysing electronic and communication systems problems |
| 2 - | b2. Use software tools to develop computer programs for engineering applications and simulation. |
| 3 - | b3. Design communication systems to solve communication systems problems such as communication links and channels. |
| **c.Professional and Practical Skills: :** | |
| 1 - | c1. Build a software code to solve electronic and communication problems using theories and techniques of mathematics, basic sciences. |
| 2 - | c2. Design a real model for data acquisition, and give simulation, some practical implementing. |
| 3 - | c3. Read thoroughly datasheets and identify appropriate specifications for required system or component. |
| **d.General and Transferable Skills: :** | |
| 1 - | d1. Demonstrate efficient IT capabilities. |
| 2 - | d2. Effectively Manage tasks, time, and resources |

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| 3 - | d3. Search for information and engage in life-long self-learning discipline. |
| 4 - | d4. Relate to relevant literatures |

**Course Topic And Contents :**

| Topic | No. of hours | Lecture | Tutorial / Practical |
|---|---|---|---|
| LabVIEW fundamentals | 10 | 6 | 4 |
| Random Signal and noise generation | 10 | 6 | 4 |
| Analog Communication Modulation techniques<br>AM, FM, PM, PAM, PPM, and PWM applications | 10 | 6 | 4 |
| MATLAB and Simulink Basics.<br>AM, FM, PM, PAM, PPM, and PWM applications | 10 | 6 | 4 |
| Digital Communication Modulation techniques<br>ASK, FSK, PSK and BER measurements + Mid Term 1 | 10 | 6 | 4 |
| Analog Filters design | 10 | 6 | 4 |
| Analog and Digital Oscillators | 10 | 6 | 4 |
| Logic Circuit design and simulation + Mid Term 2 | 5 | 3 | 2 |

**Teaching And Learning Methodologies :**

Interactive Lecturing

Discussion

Software tools

**Course Assessment :**

| Methods of assessment | Relative weight % | Week No | Assess What |
|---|---|---|---|
| ÅFinal exam | 40.00 | | |
| o Assignments/Midterm exams | 40.00 | | |
| o In Class Quizzes | 10.00 | | |
| o Participation | 10.00 | | |

**Course Notes :**

1. MATLAB, Simulink, Lab VIEW, and Multisim user guides and manuals
2. Students Lecture Notes and PPTâs.
3. Handouts.
4. Internet resources and sites.