



Faculty of  
Engineering at  
Shoubra

## Model No.12

# Course Specifications : Introduction in Large Scale Integration Circuits

---

**University** : Benha university

**Faculty** : Faculty of Engineering at Shoubra

**Department** : Electrical Engineering Department

### 1- Course Data

Course Code : ECE341

Course Title : Introduction in Large Scale Integration Circuits

Study Year : Third

Specialization :

Teaching Hours:

Lecture : 4

Tutorial : 2

Practical :

### 2- Course Aim

For students undertaking this course, the aims are to:

2.1- Evaluate the basic features of VLSI and to provide students with an understanding of the fundamental of protective functions.

2.2-Recognize the advantages and disadvantages

### 3- Intended Learning Outcomes of Course (ILOS)

#### a- Knowledge and Understanding

On completing this course, students will be able to:

a-1- Characteristics of engineering materials related to Integration Circuits (a4) .

#### b- Intellectual Skills

At the end of this course, the students will be able to:

b-1- Investigate the failure of components, systems, and processes (b7).

#### c- Professional Skills

On completing this course, the students are expected to be able to:

c-1 Create and/or re-design a process, component or system, and carry out specialized engineering designs (c).

#### d- General Skills

At the end of this course, the students will be able to:

d-1- Communicate effectively (d<sub>3</sub>).

#### 4- Course Contents

No.	Topics	No of hours
1	Basic components in Analog and Digital Integrated circuits	4
2	Basic components in Analog and Digital Integrated circuits	4
3	Analysis and Synthesis of Analog and Digital systems	4
4	Analysis and Synthesis of Analog and Digital systems	4
5	Analysis and Synthesis of Analog and Digital systems	4
6	Analysis and Synthesis of Analog and Digital	4
7	Planning & Extraction and Simulation for basic cells	4
8	Planning & Extraction and Simulation for basic cells	4
9	Planning & Extraction and Simulation for basic cells	4
10	Planning & Extraction and Simulation for basic cells	4
11	Design methods using software packages	4
12	Design methods using software packages	4
13	Design methods using software packages	4

#### 5- Teaching and Learning Methods

- 5.1- Modified Lectures
- 5.2- Class activity
- 5.3- Case study
- 5.4- Assignments / homework

#### 6- Teaching and Learning Methods of Disables

- 6.1- nothing

#### 7- Student Assessment

##### a- Student Assessment Methods

1	Assignments to assess knowledge, intellectual skills.
2	Quiz to assess knowledge, intellectual and professional skills.
3	Mid-term exam to assess knowledge, intellectual skills.
4	Oral exam to assess knowledge and intellectual skills.
5	Final exam to assess knowledge, intellectual skills.

##### b- Assessment Schedule

No.	Assessment	Week
1	on	2, 5, 9, 11
2	Quizzes on	4, 6, 10, 12
3	Mid-term exam on	8
4	Oral Exam on	14
5	Final exam on	15

##### c- Weighting of Assessments

Assessment	Weight
Mid_Term Examination	18 %
Final_Term Examination	67 %
Oral Examination	0 %
Practical Examination	0 %
Semester work	15 %
Other types of assessment	0 %
Total	100 %

## **8- List of References**

**a- Books**

**b- Recommended Books**

**c- Web Sites**

**- Course Coordinator:**

**- Head of Department : Prof. Dr. Sayed Aboo-Elsood Ward**



Faculty of  
Engineering at  
Shoubra

## Model No.11A

### Course Specifications : Introduction in Large Scale Integration Circuits

**University :** Benha university

**Faculty :** Faculty of Engineering at Shoubra

**Department :** Electrical Engineering Department

#### Matrix of Knowledge and Skills of the course

N o.	Topics	week	Basic Knowledge	Intellectual Skills	Professional Skills	General Skills
1	Basic components in Analog and Digital Integrated circuits	1,2	a1	b1		
2	Analysis and Synthesis of Analog and Digital systems	3,4,5,6			c1	
3	Planning & Extraction and Simulation for basic cells	7	a1	b1	c1	d1
4	Mid term exam	8	a1	b1		
5	Planning & Extraction and Simulation for basic cells	9,10,11	a1	b1	c1	d1
6	Design	12,13,	a1	b1	c1	d1

	methods using software package s	14				
7	Final Exam	15	a1	b1		

**- Course Coordinator :**

**- Head of Department : Prof. Dr. Sayed Aboo-Elsood Ward**

## Matrix of course content and ILO's

**Course Title:** Introduction in Large Scale Integration Circuits

**Code:** ECE341

**Lecture:** 4

**Tutorial:** 2

**Practical:** -

**Total:** 6

**Program on which the course is given:** B.Sc. Electrical Engineering (Communications)

**Major or minor element of program:** Major

**Department offering the program:** Electrical Engineering Department

**Department offering the course:** Electrical Engineering Department

**Academic year / level:** Third Year / **first** Semester 2014-2015

**Date of specifications approval:** 20/6/2010

Course content	a1	b1	c1	d1
Basic components in Analog and Digital Integrated circuits	√	√		
Analysis and Synthesis of Analog and Digital systems			√	
Planning & Extraction and Simulation for basic cells	√	√	√	√
Design methods using software packages	√	√	√	√

## Matrix of course aims and ILO's

**Course Title:** Introduction in Large Scale Integration Circuits

**Code:** ECE341

**Lecture:** 4

**Tutorial:** 2

**Practical:** -

**Total:** 6

**Program on which the course is given:** B.Sc. Electrical Engineering (Communications)

**Major or minor element of program:** Major

**Department offering the program:** Electrical Engineering Department

**Department offering the course:** Electrical Engineering Department

**Academic year / level:** **Fourth** Year / **first** Semester 2014-2015

**Date of specifications approval:** 20/6/2010

<b>Course aims</b>	<b>a1</b>	<b>b1</b>	<b>c1</b>	<b>d1</b>
Evaluate the basic features of VLSI and to provide students with an understanding of the fundamental of LSI, its protective functions	√	√	√	
Recognize the advantages and disadvantages	√	√	√	√

**Course coordinator:**

**Head of department:** Prof. Dr. Sayed Abo-Elsood Ward

**Date:**