



Shoubra Faculty  
of Engineering

Model No.12

Course Specifications : Selected Topics in Computer Engineering

Alfarabi for Quality Assurance and Accreditation System

**University** : Benha university

**Faculty** : Shoubra Faculty of Engineering

**Department** : Electrical Engineering Department

### 1- Course Data

Course Code : ECE 344C

Course Title : Selected Topics in  
Computer Engineering  
Computer Engineering

Study Year : Third Year

Specialization :

Teaching Hours:

Lecture : 4

Tutorial : 2

Practical :

### 2- Course Aim

For students undertaking this course, the aims are to:

- 2.1- Have a clear overview of one or more recent topics in computer science and engineering (Data Mining).
- 2.2- Understand how to develop and/or use data mining algorithms for turning big data into useful information.
- 2.3- Be able to use data mining tools for visualizing, preprocessing, and extracting hidden patterns from data.

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

#### a- Knowledge and Understanding

On completing this course, students will be able to:

- a2 Be familiar with basics of information technology, big data, and data mining.
- a5 Understand methodologies of solving data mining problems, data processing, and results interpretation.

#### b- Intellectual Skills

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

- b3 Think in a creative and innovative way in designing data mining algorithms and developing data mining tools.
- b11 Analyze results of numerical models and appreciate their limitations in data mining

applications.

**c- Professional Skills**

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

c2 Professionally merge the engineering knowledge, understanding, and feedback to improve data mining algorithms design and data mining tools.

c7 Apply numerical modeling methods to data mining problems.

**d- General Skills**

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

d1 Collaborate effectively within multidisciplinary team.

d3 Communicate effectively.

d6 Effectively manage tasks, time, and resources.

d7 Search for information and engage in life-long self-learning discipline.

**4- Course Contents**

No.	Topics	Hours
1	What's it all about?	4
2	Input: Concepts, instances, attributes	8
3	Output: Knowledge representation	8
4	Algorithms: The basic methods	8
5	Credibility: Evaluating what's been learned	8
6	Implementations: Real machine learning schemes	8
7	Data Transformations	4

**5- Teaching and Learning Methods**

5.1- Lectures

5.2- Practical Laboratory

5.3- Semester Project

5.4- Assignments

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

6.1- N/A

## 7- Student Assessment

### a- Student Assessment Methods

1	Assignments to assess a2,a5,b3, b11, c2,c7 ,d7
2	Quizzes to assess a2,a5,b3, b11, c2,c7
3	Midterm exam to assess a2,a5,b3, b11
4	Oral exam to assess a2,a5,b3, b11,c2,c7 , d1, d3, d6, d7
5	Final exam to assess a2,a5,b3, b11

### b- Assessment Schedule

No.	Assessment	Week
1	Assignments	4,5,6,8,9,10,12
2	Quizzes	6,10,13
3	Midterm exam	7
4	Oral exam	14
5	Final exam	15

### c- Weighting of Assessments

Assessment	Weight
Midterm Examination	10 %
Final Examination	60 %
Oral Examination	10 %
Practical Examination	10 %
Semester work	10 %
Other types of assessment	0 %
Total	100 %

## 8- List of References

**a- Course Notes**

1- Lecture notes and problems sheets prepared by the instructor

**b- Books**

1- Ian H. Witten, Eibe Frank, and Mark A. Hall. Data Mining: Practical Machine Learning Tools and Techniques. 3rd Edition, Morgan Kaufmann, 2011

- **Course Coordinator :** Dr. Islam ElShaarawy

- **Head of Department :** Prof. Dr. Sayed Abo-elseoud Ward



Shoubra Faculty  
of Engineering

Model No.11A  
Course Specifications : Selected Topics in Computer Engineering

Alfarabi for Quality Assurance and Accreditation System

**University** : Benha university

**Faculty** : Shoubra Faculty of Engineering

**Department** : Electrical Engineering Department

**Matrix of Knowledge and Skills of the course**

No .	Topics	Week	Basic Knowledge	Intellectual Skills	Professional Skills	General Skills
1	What's it all about?	1	a2			d7
2	Input: Concepts, instances, attributes	2	a2	b3,b11		
3	Input: Concepts, instances, attributes	3	a5		c2	d3
4	Output: Knowledge representation	4		b3		
5	Output: Knowledge representation	5			c2,c7	d3
6	Algorithms: The basic methods	6		b3		
7	Midterm Exam	7	a2, a5	b3, b11		
8	Algorithms: The basic methods	8			c2	d3
9	Credibility: Evaluating what's been learned	9		b3		
10	Credibility: Evaluating what's been learned	10			c2	d3
11	Implementations: Real machine learning schemes	11		b3		
12	Implementations: Real machine learning schemes	12			c2	d3
13	Data Transformations	13	a5		c2,c7	d7
14	Oral Exam	14	a2, a5	b3, b11	c2,c7	d1, d3, d6, d7
15	Final Exam	15	a2, a5	b3, b11		



**Matrix of course content and ILO's**

**Course Title:** Selected Topics in Computer Engineering **Code:** ECE 344C

**Lecture:** 4 **Tutorial:** 2 **Practical:** - **Total:** 6

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

**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 / **Second Semester 2014-2015**

**Date of specifications approval:** 10/5/2006

<b>Course content</b>	<b>a2</b>	<b>a5</b>	<b>b3</b>	<b>b11</b>	<b>c2</b>	<b>c7</b>	<b>d1</b>	<b>d3</b>	<b>d6</b>	<b>d7</b>
What's it all about?	x									x
Input: Concepts, instances, attributes	x	x	x	x	x			x		
Output: Knowledge representation			x		x	x		x		
Algorithms: The basic methods			x		x			x		
Credibility: Evaluating what's been learned			x		x			x		
Implementations: Real machine learning schemes			x		x			x		
Data Transformations		x			x	x				x

### Matrix of course aims and ILO's

**Course Title:** Selected Topics in Computer Engineering **Code:** ECE 344C

**Lecture:** 4 **Tutorial:** 2 **Practical:** - **Total:** 6

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

**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 / **Second Semester 2014-2015**

**Date of specifications approval:** 10/5/2006

<b>Course aims</b>	<b>a2</b>	<b>a5</b>	<b>b3</b>	<b>b11</b>	<b>c2</b>	<b>c7</b>	<b>d1</b>	<b>d3</b>	<b>d6</b>	<b>d7</b>
2.1- Have a clear overview of one or more recent topics in computer science and engineering (Data Mining).	x	x							x	x
2.2- Understand how to develop and/or use data mining algorithms for turning big data into useful information.			x	x	x	x			x	x
2.3- Be able to use data mining tools for visualizing, preprocessing, and extracting hidden patterns from data.				x	x	x	x	x		x

**-Course coordinator:** Dr. Islam ElShaarawy

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