

FUE - Future University in Egypt

Faculty of Engineering and Technology Department of Architectural Engineering

Course Specifications

MTH213 - Mathematics, Statistics and Computer

Programme (s) on which the course is given:	B.Sc. in Architectural Engineering
Major or minor element of programmes:	(Not Applicable)
Department offering the programme:	Architectural Engineering
Department offering the course:	Architectural Engineering
Academic year/Level:	Level Two –3 rd semester
Date of specification approval:	November 2017

A- Basic Information

Title: Mathematics, Statistics and Computer	Code: MTH213
Credit Hours: 3 Cr. Hrs.	
Lectures: 2 Hrs.	
Tutorial: 2 Hrs.	
Total: 3 Hrs.	
Prerequisite:	
N/A	

B- Professional Information

1- Catalog Course Description:

The course provides students with the basic concepts of Mathematical Statistics and application with Statistical Program e.g. MINITAB, and EXCEL" and to make them able to develop an understanding of mathematical Statistical concepts.

2- Overall aims of the course:

Upon successful completion of the course, the student should be able to:

- 1- Demonstrate knowledge about basic definitions.
- 2- Use standard method to deal with various techniques of integration.
- 3- Random variables, distribution functions, estimation, significance statistic. and softwares programs , Computer languages and Applications.
- 4- Some special families of univariate distributions. Joint, conditional and marginal distributions stochastic independence.

3- Intended learning outcomes of course (ILOs):

3.1. Program ILOs related to course:

A01 Demonstrate knowledge and understanding of concepts and theories of basic and engineering sciences appropriate to architectural engineering.

A02 Demonstrate knowledge and understanding of the basics of information and communication technology (ICT).

B01 Apply basic mathematics and physics knowledge to solve physical and engineering problems

B08 Analyze results of numerical models and assess their limitations

C02 Use computational facilities and techniques, measuring instruments, workshops and laboratory equipment to design experiments, collect, analyze and interpret results.

D05 Manage tasks and resources

3.2. Course Detailed ILOs:

a- Knowledge and understanding:

By the end of this course the student should be able to:

- a1. Define and distinguish between various statistical theories.
- a2. Define some of IT tools.

b- Intellectual skills:

By the end of this course the student should be able to:

- b1. Solve mathematical problems related to engineering profession.
- b2. Analyze results of statistical problems.

c- Professional and practical skills:

By the end of this course the student should be able to:

- c1. Apply statistical software to solve engineering problems.

d- General and transferable skills:

By the end of this course the student should be able to:

- d1. Manage tasks.

4- Course ILOs versus Program ILOs relation

See Appendix, table [1]

5- Course Contents:

Topic	Lec.	Tut.	Tot.
Descriptive Statistic: Data Description, Frequency distributions for Categorical Data , Measure of central Tendency , and Numerical Measure of Variability , Measure of position, Exploratory Data Analysis.	6 hrs.	6 hrs.	12 hrs.
Probability and counting: Random variables, Distribution functions, and Joint, conditional and marginal distributions, and Cumulative distribution function	4 hrs.	4 hrs.	8 hrs.
Discrete Probability Distribution: Mean, variance and standard Deviation	4 hrs.	4 hrs.	8 hrs.
Important Distributions: Bin(n,p), Poisson(λ), and $N(\mu, \sigma)$	4 hrs.	4 hrs.	8 hrs.
Confidence Intervals and Sample Size : Confidence Intervals for the Mean when Standard deviation is know , Good Estimator.	4 hrs.	4 hrs.	8 hrs.
Solve problems : Using Statistical Program e.g.: Minitab and Excel programs	8 hrs.	8 hrs.	16 hrs.
TOTAL	30 hrs.	30 hrs.	60 hrs.

For the relation between the course contents and "Intended Learning Outcomes" (ILOs) see Appendix, table [2]

6- learning/teaching methods:

See Appendix, table [3]

7- ILOs Teaching & Assessment Method

See Appendix, table [4]

8- Weighting of assessments

- Final exam: 40%
- Year's work: 50%
 - First Mid Term Exam 15%
 - Second Mid Term Exam 15%
 - Assignments and quizzes 20%
- Performance & Participation 10 %

9- List of references:

1. Text Book:

Bluman; A. G.

Elementary Statistics a Step by Step Approach., 1992

10- Facilities required for teaching and learning:

- Computer Lab
- White board
- Data show for presentations
- Library

Course Coordinator:

Head of Department:

Prof. Dr. Samir Sadek Hosny

Date:

November 2017

Course Instructor:

Appendix (1)

Table [1]: Course ILOs/ Program ILOs Matrix

		Program ILOs					
		A01	A02	B01	B08	C02	D05
Course ILOs	a1.	•					
	a2.		•				
	b1.			•			
	b2.				•		
	c1.					•	
	d1.						•

Table [2]: Course Content/ILO Matrix

Topic	a1	a2	b1	b2	c1	d1
Descriptive Statistic: Data Description, Frequency distributions for Categorical Data , Measure of central Tendency , and Numerical Measure of Variability , Measure of position, Exploratory Data Analysis.	•					•
Probability and counting: Random variables, Distribution functions, and Joint, conditional and marginal distributions, and Cumulative distribution function	•		•	•		•
Discrete Probability Distribution: Mean, variance and standard Deviation	•		•	•		•
Important Distributions: Bin(n,p), Poisson(λ), and $N(\mu, \sigma)$	•		•	•		•
Confidence Intervals and Sample Size : Confidence Intervals for the Mean when Standard deviation is know , Good Estimator.	•		•	•		•
Solve problems : Using Statistical Program e.g.: Minitab and Excel programs		•			•	•

Table [3]: Teaching Method/ILO Matrix

Teaching Method	a1	a2	b1	b2	c1	d1
Lecture	•	•	•	•		
Tutorial			•	•		•
Work @ Lab		•			•	•

Table [4]: Assessment Method/ILO Matrix

Assessment Method	a1	a2	b1	b2	c1	d1
Assignments	•	•	•	•	•	•
Final exam	•	•	•	•	•	