

Course Specifications

Course Title:	Probability and Engineering Statistics
Course Code:	285 STAT-3
Program:	Bachelor in computer and Information Systems.
Department:	All Departments
College:	College of computer and Information Systems.
Institution:	Najran University



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A. Course Identification

1. Credit hours:			
2. Course type			
a.	University <input type="checkbox"/>	College <input type="checkbox"/>	Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b.	Required <input checked="" type="checkbox"/>	Elective <input type="checkbox"/>	
3. Level/year at which this course is offered:			
Level 6			
4. Pre-requisites for this course (if any):			
None			
5. Co-requisites for this course (if any):			
None			

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3	100%
2	Blended		
3	E-learning		
4	Correspondence		
5	Other		

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	Lecture	45
2	Laboratory/Studio	00
3	Tutorial	00
4	Others (specify)	3
	Total	48
Other Learning Hours*		
1	Study	30
2	Assignments	10
3	Library	00
4	Projects/Research Essays/Theses	00
5	Others(specify) (Office hours)	15
	Total	55

*The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times



B. Course Objectives and Learning Outcomes

1. Course Description

This course introduce: Importance of statistics, Presentation and description of statistical data, Measures of central tendency, Measures of dispersion, Variation coefficient, Measures of skewness, Kurtosis Measure, Correlation and regression, Introduction of probability , Random Variables , Probability functions and some significant probability distributions.

2. Course Main Objective

The main objective is knowledge of the basic concepts related to the principles of statistics ,probability and random variables theory with the transfer of student from the stage of description to the stage of decision-making and problems solving.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge:	
1.1	Recognize the related basic scientific facts, concepts, principles and techniques in statistics and probability theory	
1.2	Describe how to handle with data, how to calculate measurements, and understand to the meaning of probability and how to calculate it.	
1.3	Define the discrete random variable, the continuous random variable , the probability mass function, the probability density function, distribution function, probability distributions.	
1...		
2	Skills :	
2.1	Explain acquire the necessary skills to understand the statistical data in various fields.	
2.2	Prepare of students to the descriptive analysis of statistical data, and draw conclusions and recommendations	
2...		
3	Competence:	
3.1	Work effectively with in groups and independently	
3.2	Apply critical thinking, communication skills and mathematical and statistical techniques in solving many problems in other disciplines.	
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Introduction(Importance of statistics, Definition of statistics, Statistical data, Sources of data, Methods of data collection, Population and sample, Parameter and statistic)	3
2	Presentation and description of statistical data(Frequency distributions, Relative frequency, Cumulative frequency distributions, Graphic Presentations, Forms of distributions, Introduction of samples).	6
3	Measures of central tendency(Arithmetic mean, Geometric mean, harmonic mean, Median, Mode, Approximate relation of the mean, median and mode, Deciles, quartiles and percentiles).	6



4	Measures of dispersion(Rang, Mid - quartile rang, Mean deviation, Variance, Standard deviation).	3
5	Variation coefficient, Quartile variation coefficient, Measures of skewness(Pearson an coefficient , Quartile skewness coefficient, Percentile skewness coefficient),Kurtosis Measure(or Peakedness), Correlation and regression.	6
6	Introduction of probability(Probability and statistics, Meaning of probability, Basic definitions, Axioms of probability, Relationship between random events, Basic lows, Conditional probability, Independent events, Bayes rule, Bayes theorem, Combination and Permutation).	9
7	Random Variables(Meaning of random variable, Discrete random variables, Continuous random variables), Probability functions, Discrete Probability Distributions(Binomial distribution, Poisson distribution), Continuous probability distribution (Continuous Uniform Distribution, Exponential distribution, Normal distribution).	9
8	Applications on the computer using statistical software	3
Total		45

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	TeachingStrategies	AssessmentMethods
1.0	Knowledge		
1.1	Recognize the related basic scientific facts, concepts, principles and techniques in statistics and probability theory	Direct teaching - discussion and dialogue - problem solving.	Exams Home work..
1.2	Describe how to handle with data, how to calculate measurements, and understand to the meaning of probability and how to calculate it.		
...	Define the discrete random variable, the continuous random variable , the probability mass function, the probability density function, distribution function, probability distributions.		
2.0	Skills		
2.1	Explain acquire the necessary skills to understand the statistical data in various fields.	- Lectures - Tutorials	Homework - Assignment - Quizzes - Test 1 and Test 2 Final exam
2.2	Prepare of students to the descriptive analysis of statistical data, and draw conclusions and recommendations		
...			
3.0	Competence		
3.1	Work effectively with in groups and independently	- Solve exercises through individual work and groups. - Lectures, discussion and dialogue	Solving exercise and Home work. Written tests.
3.2	Apply critical thinking, communication skills and mathematical and statistical techniques in solving many problems in other disciplines.		



Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
...			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	First exam	7	20 degrees
2	Second exam	12	20 degrees
3	Home work and Assignments/Quizzes	Every week	10 degrees
4	Final exam	16	50 degrees

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

- Office hours.
- Provide academic guidance services.
- Introduce students to the course plan in terms of objectives, content and evaluation procedures.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	Richard j. and Gouri B. , Statistics Principles and Methods., JOHN WILE , SONS, 1985.
Essential References Materials	R.E Walpole, R.H. Myers, probability and statistics for engineers and scientists ,Macmillan publishing 1998. Mendenhall and Tsincich , statistics for engineers and scientists , prentice Hall , Fourth Edition , 1995.
Electronic Materials	<ul style="list-style-type: none"> • Electronic materials available on the internet. • Lectures on the Department of Mathematics YouTube Channel.
Other Learning Materials	Program of SPSS

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	<ul style="list-style-type: none"> • The number of seats in the classroom is at least 30 seats.
Technology Resources (AV, data show, Smart Board, software, etc.)	<ul style="list-style-type: none"> • Halls equipped with modern learning techniques and different display devices.
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	None



G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching	Students - Leadership Program.	Direct and Indirect
Effectiveness of assessment	Students - Leadership Program - Peer References.	Indirect
Extent of achievement of course learning outcomes	Students - Leadership Program.	Indirect
Quality of learning resources	Students - Leadership Program.	Indirect

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	Department Council
Reference No.	Session No. 10 (441-38-43300)
Date	17/02/2020

