

Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

## **Course Details:**

Title:	Engineering Statistics (0670202)	
Prerequisite:	Course prerequisite(s): 0210102	
Credit Hours:	2 credit hours (16 weeks per semester, approximately 30 contact hours)	
Textbook:	Applied Statistics and Probability for Engineers by D. Montgomery and G. Runger 5 <sup>th</sup> edition John Wiley and Sons, Inc, 2011 Applied statistics for engineers and scientists, Devore, Jay L. Farnum, Nicholas R. JT.AUTH.	
<b>References:</b>		
	Elementary statistics, Allan G. Bluman. 8 <sup>th</sup> editions.	
Course	This course is designed for civil engineering students in their second year. The course intends to introduce Statistical concepts and probability theory with applications to reliability production.	
Description:	Presentation and treatment of data; theory of probabilities; random variables; probability distributions (continuous and discrete); sampling theory; statistical estimation.	
Website:	http://www.philadelphia.edu.jo/academics/	
	Eng.Adnan Abdelhadi	
Terretoria	Email: adnan_m_abdelhadi@yahoo.com	
Instructor:	Office: Civil engineering building, room, A-310 ext.	
	Office hours: 11:10 – 12:00 Sun/ Tues/Th. 11:30 – 12:30 Monday/ Wed.	

Week	Торіс	
1	Course Introduction, The role of statistics in engineering, Types of Statistics	
2	Types of Statistics, Types of Variables, Levels of Measurement Organizing Data.	
3	Graphic Presentation of Frequency Distribution,	
4, 5	Measures of Central Tendency, Measures of Variation, Measures of position.	
6, 7, 8	Probability Theory, Discrete Random Variables and Probability Distribution	
	Discrete Random Variables and Probability Distribution.	
	Normal Distribution.	
9, 10, 11		
12, 13	Continuous Random Variables	
14	Continuous Random Variables	
15	Regression and correlation	
16	Review, and final exam	

1.	Understand Probability theory	a, e, k
2.	Apply Statistical Analysis to collected data	a, e, i, k
3.	Have the ability to read, draw and understand different curves.	a, e, g, k
4.	The ability to use Graphic Presentation of Frequency Distribution	e, k
5.	The ability to use the Statistical Analysis by using computer and the ability to use them to simplify problem solving	a, e, k
6.	Understand basics of experiments design and analysis	a, c, i, g, j, k,

Upon successful completion of this course, student should:

## **Assessment Guidance:**

Evaluation of the student performance during the semester(total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.
Quizzes:	(3-5) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Homework	(3-5) Assignments will be given throughout the semester
and projects:	<u>Cheating by copying homework from others is strictly forbidden</u> and punishable by awarding the work with zero mark.
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

### **Grading policy:**

First Exam	20%
Second Exam	20%
Homework and projects	10%
Quizzes and participation	10%
Final Exam	40%
Total:	100%

### **Attendance Regulation:**



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

## **Course Details:**

Title:	Strength of Materials (0670212)	
Prerequisite:	Statics (0670211)	
Credit Hours:	3 credit hours (15 weeks per semester, approximately 45 contact hours)	
Textbook:	Mechanics of Materials ,Hibbeler, R, C ,7th Edition ,2008	
References:	(Mechanics of Materials), F.P. Beer, E.R. Johnston, J.T. Dawolf, 6 <sup>th</sup> Edition, 2006.	
Course Description:	Stress-Strain, Torsion, Mechanical Properties of Materials Shear Force and Bending Moment, Stresses in Beams, Deflection of Beams, Analysis of Stress and Strain.	
Website:	http://www.philadelphia.edu.jo/academics/aodeibat/	
Instructor:	Eng. Abdallah Odeibat Email: aodeibat@philadelphia.edu.jo Office: Civil Engineering Building, Room 213 – B, Ext: 2463 Class hours: Sun, Tues, Thurs: 09:10-10:00 Office hours: Sun, Tues, Thurs: 10:00-11:00 and 12:00-11:00 Mon, Wed: 8:15-9:45 and 12:45 -14:00	
	Mon, Wed: 8:15-9:45 and 12:45 -14:00	

#### **Course Outlines:**

Week	Торіс
1	Introduction- Concept of Stress
2	Strain
3	Mechanical Properties of Materials
4, 5, 6	Axial Load
7	Torsion
8, 9, 10, 11	Bending
12	Center of Gravity and Centroid
13	Moments of Inertia
14,15	Deflection of Beams

#### **Course Learning Outcomes with reference to ABET Student Outcomes:**

Upon successful completion of this course, student should:

1.	To understand the axial, shear and bearing stresses associated with simple truss design and analysis	[a, e]
2.	To understand normal and shear strains and how they relate to deformation	[a, e]
3.	To understand the difference between applied loads and allowable loads and	[a ,c, e]

	how to calculate (or apply) factor of safety.	
4.	To interpret a stress-strain diagram and understand elastic constants	[a, b, e]
5.	To understand the stress-strain and load-displacement relationships for axial force and bending moment members.	[ a ,e]
6.	To learn to calculate the stresses, strains and angular displacements for torsion members (shafts).	[a, e]

#### **Assessment Guidance:**

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam, and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.
Quizzes:	(5) Quizzes of (15-20) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Homework and	Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).
projects:	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

#### Grading policy:

First Exam	20%
Second Exam	20%
Quizzes and participation	20%
Final Exam	40%
Total:	100%

#### **Attendance Regulation:**



Faculty of Engineering and Technology Civil Engineering Department Second Semester 2018/2019

## **Course Details:**

Title:	Construction Materials (0670214)	
Prerequisite:	Calculas(2)- (0250102)	
<b>Credit Hours:</b>	3 credit hours (16 weeks per semester, approximately 44 contact hours)	
Textbook:	<ol> <li>A.M .Neville and J.J .Brooks;:Concrete Technology" .1986</li> <li>D. Tayler" Construction of material,1989</li> </ol>	
<b>References:</b>	https://www.google.jo/?gfe_rd=cr&ei=zys5WY- KBtSs8wfqj5vQBw#q=structures+and+properties+of+matter -Engineering Materials Science, Amman ,Omry ,M,A,2008	
Course Description:	The structure of materials, power full atomic and energy relationship, properties of the nucleus ,Electron shells, and radioactivity, general classification of Construction materials, atomic of bonds, solid state structure, metallic crystalline structure, properties and crystal defects, polymers structure ,Elastic/plastic deformation, cracks, creep, fatigue. Bonding materials(cements),and aggregates, quality of water ,Admixtures ,fresh concrete properties. Concrete operations, mixing, handling, compacting curing of concrete, and bricks work.	
Website:	http://www.philadelphia.edu.jo/academics/aalfraihat/page.php?id=36	
Instructor:	<ul> <li>Dr. Ahmad ALFraihat</li> <li>Email: aalfraihat@philadelphia.edu.jo</li> <li>Office: Engineering and Architecture building, room 318, ext: 2463</li> <li>Office hours: Sun, Tues, Thurs: 10:10-11:00 and Mon, Wed: 11:15-12:45</li> </ul>	

Week	Торіс
1	Introduction The structure of material powerful atomic and energy relationship, properties of nucleus, types of bonds:
2	Radioactivity, General classification and structure of construction materials, structure and properties of metal ,crystal defects.
3	Polymers, Properties of solid materials, Ceramic Structures
4, 5	Portland Cement, Properties of Aggregate, Mechanical properties of materials
6, 7, 8	Quality of Water Mixing ,Handing placing of concrete,
9, 10, 11	Transporting and handling Compacting of concrete Admixture ,Methods of curing
12, 13	Mix Design of concrete
14	Testing of concrete

15	Brick and Brick work
16	Review, and final exam

Upon successful completion of this course, student should:

1.	To introduce and detail the main concepts of relationship between structure and properties of materials	[b, c, f]
2.	To Understand structure and properties of classes construction materials,	[h, I, j , c]
3.	To know structure and properties of cement, aggregate and water Operations of mixing ,placing ,curing of concrete ,	[I, k, h, f ,]
4.	To be able to develop solve an engineering problem By design of concrete mixes	[a , b, k]
5.	bricks work	[e, j, k]
6.	To understand testing of concrete and determining its properties	[a, b, c k]

## **Assessment Guidance:**

Evaluation of the student performance during the semester ( total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.
Quizzes:	(3-6) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Homework and projects:	Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).
	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

## **Grading policy:**

First Exam	20%
Second Exam	20%
Homework and projects	12%
Quizzes and participation	8%
Final Exam	40%
Total:	100%

## **Attendance Regulation:**

The semester has in total 45 credit hours. Total absence hours from classes and tutorials must not exceed 15% of the total credit hours. Exceeding this limit without a medical or emergency excuse approved by the deanship will prohibit the student from sitting the final exam and a zero mark will be recorded for the course. If the excuse is approved by the deanship the student will be considered withdrawn from the course.

Feb .2019



### **Course Details:**

Title:	Engineering Geology (0670231)	
Prerequisite:	Calculus 2 ( 250102)	
<b>Credit Hours:</b>	<b>ours:</b> 3 credit hours (16 weeks per semester, approximately 45 contact hours)	
Textbook:	ook: Engineering Geology ,Principles and Practice, by David George	
<b>References:</b>	Engineering Geology G Bell	
Course Description:	Engineering geology is an applied geology discipline that involves the collection, analysis, and interpretation of geological data and information required for the safe development of civil works.	
Website:	http://www.philadelphia.edu.jo/academics/aassouli/	
Instructor:	Eng. Amany Abdullah Ali Assouli <b>Email:</b> <u>aassouli@philadelphia.edu.jo</u> or <u>eng.amanyassouli90@yahoo.com</u> <b>Office:</b> Civil Engineering Building, Room 210 – E, Ext: 2513 <b>Class hours:</b> Sun, Tues, Thurs: 11:10-12:00 <b>Office hours:</b> Sun, Tues, Thurs:10:10-11:00	
	Mon, Wed: 9:45-11:15	

Week	Торіс
1	Introduction
2	Earth Structure
3,4	Minerals and their properties
5,6	Rocks and their properties
7,8	Deformations, Stresses and Strain in Rocks
9	Modulus of Elasticity of Rocks
10	Earthquakes
12,13	Site Investigation
14,15	Soil Classification
16	General Review, and Final Exam

1.	Be able to learn the basic of surveying equipment	[a, c, d,]
2.	Recognize and apply trigonometric formulas to solve variety of practical problems	[e, i , k]
3.	Learn value of measurements	[a ,g, k ]
4.	Ability to solve most of the surveying problems	[a,b , k]
5.	Analyzing data effectively	[a, c,k]
6.	Determine and defend results	[a,d]

Upon successful completion of this course, student should:

#### **Assessment Guidance:**

Evaluation of the student performance during the semester (Total Final Grade) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous $4-5$ weeks.
Quizzes:	(3-5) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Homework and projects:	Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).
	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

#### **Grading policy:**

First Exam	20%
Second Exam	20%
Homework and projects	20%
Final Exam	40%
Total:	100%

#### **Attendance Regulation:**



Faculty of Engineering and Technology Civil Engineering Department Second Semester 2018/2019

## **Course Details:**

Title:	Surveying (0670261)		
Prerequisite:	Calculus(1)-250101		
<b>Credit Hours:</b>	3 credit hours (16 weeks per semester, approximately 44 contact hours)		
Toythoolz	"Fundamentals of Surveying", Third Edition, Milton O., Schmidt, W,		
Textbook:	Wong. W.1976		
References:	-Elementary surveying . 12 <sup>th</sup> edition Galini and Wolf (USA 2008). -Surveying principle and practices, 5 <sup>th</sup> edition , Nathenson , Lanzafama and Kissam, USA 2005 - <i>Fundamentals</i> of surveying Sample Examination/Edition 3 by George M, Cole PE,1997		
Course Description:	Principle of surveying , distance measurements (direct , optical and electronic methods), leveling ; contouring , angle measurements, traverse survey ,coordinate geometry , areas and volumes, setting out horizontal and vertical curves. GPS Survey		
Website:	http://www.philadelphia.edujo/academics/rhussein/		
Instructor: Dr:Ahmad Alfraihat Email: aalfraihat@philadelphia.edu.jo Office: Civil Engineering and architecture building, room 61-318, o Office hours: Sun. Tues, Thurs.: 13:10-14:10			

Week	Торіс
1	Introduction, principleand, classification of surveying.
2-3	distance measurements
4	Errors and Mistakes-Accuracy and Precision
5,6,7	Leveling ,Plan and Map contouring
8,9,10	Angles measurements ', Compass Surveying

11,12	Traverse survey
13,14,15	coordinates geometry areas and volumes, GPS survey
16	FINAL EXAM

Upon successful completion of this course, student should:

1.	Understand the Principle and classifications of surveying	[c,d,f, g]
2.	Distance measurements (taping ,tacheometry,EDM)	[a,c,e,h ]
3.	Run a leveling net work	[a,d,e,k ]
4.	Make maps and lay out feature	[a,d,h,i]
5	Use the survey instruments	[a,d,e,j,k]
6	angles measurements ,and Run a traverse	[a,e,j,k]
7	Calculate the areas and volumes, ,G p s survey	[a,e,I,k]

## **Assessment Guidance:**

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.
Quizzes:	(3-6) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Homework and projects:	Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).
	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

## **Grading policy:**

First Exam	20%
Second Exam	20%
Homework and projects	12%
Quizzes and participation	8%
Final Exam	40%
Total:	100%

## **Attendance Regulation:**



Faculty of Engineering and Technology Civil Engineering Department Second Semester 2018/2019

## **Course Details:**

Title:	itle: Surveying of Architecture (0670265)	
Prerequisite:	Calculus(1)-250101	
Credit Hours:	3 credit hours (16 weeks per semester, approximately 44 contact hours)	
Touthook	"Fundamentals of Surveying", Third Edition, Milton O., Schmidt, W,	
Textbook:	Wong. W.1976	
<b>References:</b>	<ul> <li>-Elementary surveying . 12<sup>th</sup> edition Galini and Wolf (USA 2008).</li> <li>-Surveying principle and practices, 5<sup>th</sup> edition , Nathenson , Lanzafama and Kissam, USA 2005</li> <li>- <i>Fundamentals</i> of surveying Sample Examination/Edition 3 by George M, Cole PE,1997</li> </ul>	
Course Description:	Principle of surveying , distance measurements (direct , optical and electronic methods), leveling ; contouring , angle measurements, traverse survey ,coordinate geometry , areas and volumes, setting out horizontal and vertical curves. GPS Survey	
Website:	http://www.philadelphia.edujo/academics/rhussein/	
Instructor:	Dr:Ahmad Alfraihat <b>Email</b> : aalfraihat@philadelphia.edu.jo <b>Office</b> : Civil Engineering and architecture building, room 61-318, ex:2643 <b>Office hours</b> : Sun. Tues, Thurs.: 13:10-14:10	

Week	Торіс
1	Introduction, principleand, classification of surveying.
2-3	distance measurements
4	Errors and Mistakes-Accuracy and Precision
5,6,7	Leveling ,Plan and Map contouring
8,9,10	Angles measurements , Compass Surveying

11,12	Traverse survey
13,14,15	coordinates geometry areas and volumes, GPS survey
16	FINAL EXAM

Upon successful completion of this course, student should:

1.	Understand the Principle and classifications of surveying	[c,d,f, g]
2.	Distance measurements (taping ,tacheometry,EDM)	[a,c,e,h ]
3.	Run a leveling net work	[a,d,e,k ]
4.	Make maps and lay out feature	[a,d,h,i]
5	Use the survey instruments	[a,d,e,j,k]
6	angles measurements ,and Run a traverse	[a,e,j,k]
7	Calculate the areas and volumes, ,G p s survey	[a,e,I,k]

## **Assessment Guidance:**

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.
Quizzes:	(3-6) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Homework and projects:	Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).
	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

## **Grading policy:**

First Exam	20%
Second Exam	20%
Homework and projects	12%
Quizzes and participation	8%
Final Exam	40%
Total:	100%

## **Attendance Regulation:**

The semester has in total 45 credit hours. Total absence hours from classes and tutorials must not exceed 15% of the total credit hours. Exceeding this limit without a medical or emergency excuse approved by the deanship will prohibit the student from sitting the final exam and a zero mark will be recorded for the course. If the excuse is approved by the deanship the student will be considered withdrawn from the course.

Feb, 2019



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

## **Course Details:**

Title:	Structures 1 (0670311)
Prerequisite:	Strength of materials (0670212)
<b>Credit Hours:</b>	3 credit hours (16 weeks per semester, approximately 44 contact hours)
Textbook:	Structural Analysis- 8th edition, by R.C Hibbeler, Pearson Prentice Hall; 2012
References:	Fundamentals of Structural analysis-2 <sup>nd</sup> edition, by K.M. Leet, McGraw Hill, 2005 Classification of Structures and Loads; Analysis of Statically Determinate Structures and Trusses (Idealized Structures, Principal of Superposition,
Course Description:	Equations of Equilibrium, Determinacy and Stability, Application of the Equations of Equilibrium, Common Types of Trusses, Classification of Coplanar Trusses, and Methods of Joints and Sections), Internal Loadings Developed in Structural Members (Internal Loadings at a Specified Point, Shear and Moment Functions, Shear and Moment Diagrams for Beams and Frames and Moment Diagrams Constructed by the Method of
Description	Superposition); Influence Lines for Statically Determinate Structures (Influence Lines for Beams, Qualitative Influence Lines, Influence Lines for Trusses, and Maximum Influence at a Point due to a Series of Concentrated Loads); Deflections (Deflection Diagrams and the Elastic Curve, Elastic- Beam Theory, The Double Integration Method, Moment-Area Theorems, Conjugate-Beam Method); Deflections Using Energy Methods.
Website:	http://www.philadelphia.edu.jo/academics/aobaidat/
Instructor:	Dr. Ala' Taleb Obaidat <b>Email</b> : aobaidat@philadelphia.edu.jo <b>Office</b> : Civil engineering building, Room 210D, ext: 2692 <b>Office hours</b> : Sun, Tues, Tues: 8:10-9:00, 12:00-13:00 and Mon, Wed: 12:30-14:00.

Week	Торіс
1	Introduction
2	Chapter 1: Classification of structures and loads
3,4	Chapter 2: Analysis of statically determinate structures (equilibrium, superposition and determinacy)
5,6	Chapter 3: Analysis of statically determinate trusses
7,8	Chapter 4: Internal loadings in structural members
10,11	Chapter 8: Deflections
12,13	Chapter 9: Deflections using energy methods
14,15	Chapter 6: Influence lines for determinate structures
16	Review and final exam

Upon successful completion of this course, student should:

1.	Provide a thorough understanding and practical applications of structural analysis theories	[a, e, k]
2.	Develop the skills to analyze the behavior and response of structures to various loads and constraints.	[a, c, e, k]
3.	Analyze determinate structures (truss, beam and frame) under various loading conditions.	[a, e, k]
4.	Determine internal loads (axial, shear and moment) in structural members using equilibrium and compatibility equations.	[a ,e, k]
5.	Determine reactions and internal loading in structural elements due to moving (dynamic) loads.	[a ,e, g, k]
6.	Employ deflection methods for calculation of deflection.	[a, e, g ,k]

#### **Assessment Guidance:**

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.
Quizzes:	(3-5) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Homework:	Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date.
	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual studentwill be assessed accordingly.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

## Grading policy:

First Exam		20%
Second Exam		20%
Homework and Quizze	S	20%
Final Exam		40%
Т	otal:	100%

### **Attendance Regulation:**



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

## **Course Details:**

Title:	Structures II (0670312)
Prerequisite:	Structure I (0670311)
Credit Hours:	3 credit hours (16 weeks per semester, approximately 44 contact hours)
Textbook:	Structural Analysis- 8th edition, by R.C Hibbeler, Pearson Prentice Hall; 2012
<b>References:</b>	Fundamentals of Structural analysis-2 <sup>nd</sup> edition, by K.M. Leet, McGraw Hill, 2005
Course	Analyzing the statically indeterminate beams, trusses and frames using the force method. Analyzing the statically indeterminate beams and frames using
Description:	displacement methods: slope-deflection method and moment distribution method. Analyzing of trusses and beams using the stiffness method. http://www.philadelphia.edu.jo/academics/aobaidat/
Website.	Dr. Ala' Talah Ohaidat
Instructor:	<ul><li>Email: aobaidat@philadelphia.edu.jo</li><li>Office: Civil engineering building, Room 210D, ext: 2692</li><li>Office hours: Sun, Tues: 10:00-11:00 and Mon, Wed: 11:00-12:30.</li></ul>

## **Course Outlines:**

Week	Торіс
1,2,3	Analysis of Statically Indeterminate Structures by the Force Method
4,5,6	Displacement Method of Analysis: Slope-Deflection Equations
7,8,9	Displacement Method of Analysis: Moment Distribution
10,11,12	Beams and Frames having Non-prismatic Members
13,14	Truss Analysis using the Stiffness Method
15,16	Beam Analysis using the Stiffness Method

### **Course Learning Outcomes with reference to ABET Student Outcomes:**

Upon successful completion of this course, student should:

1.	Analysis of Statically Indeterminate Structures by the Force Method.	[a, e, k]
2.	Analysis of statically Indeterminate Structures using Displacement Method of Analysis: Slope-Deflection Equations.	[a, e, k]
3.	Analysis of statically Indeterminate Structures using Displacement Method of Analysis: Moment Distribution.	[a, e, k]
4.	Analysis of statically Indeterminate Structures having Non-prismatic Members.	[a ,e, k]
5.	Analysis of statically Indeterminate trusses using the Stiffness Method.	[a ,e, k]
6.	Analysis of statically Indeterminate beams using the Stiffness Method.	[a, e, g ,k]

## **Assessment Guidance:**

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.
Quizzes:	(3-5) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Homework:	Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date.
	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual studentwill be assessed accordingly.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

## **Grading policy:**

20%
20%
20%
40%
100%

## **Attendance Regulation:**



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

## **Course Details:**

Title:	Structural Mechanics and Analysis (0670315)
Prerequisite:	Applied Physics (211104)
Credit Hours:	3 credit hours (15 weeks per semester, approximately 45 contact hours)
Textbook:	R. C. Hibbeler, "Statics & Mechanics of Materials © 2007 Pearson Education South Asia Pte Ltd. Last updated on 27 October 2006. ISBN 13: 978-013-129- 011-2 and ISBN 10: 013-129-011-8
References:	Engineering Mechanics – Statics, 7th edition, Vol. 1, J. L. Meriam and L.G. Kraige, John Wiley and Sons, 2012 Engineering Mechanics – Statics, 3rd edition, A. Pytel and J. Kiusalaas, Cengage Learning, 2010.
Course In	Introduce students to the Force vectors, Force system resultants, Equilibrium of
Description:	a rigid body, Structural analysis, Geometric properties and distributed loadings and internal loading, Structural systems.
Website:	http://www.philadelphia.edu.jo/academics/aobaidat/
Instructor:	Dr. Ala' T. Obaidat Email: aobaidat@philadelphia.edu.jo Office: Civil Engineering Building, Room 317, Ext: 2463 Class hours: Mon, Wed: 12:45-14:15 Office hours: Sun, Tues, Thurs: 10:00-12:00 and Mon, Wed: 11:15-12:45
	und 1/10/1, 1/00, 11:10/12:10

Week	Торіс
1	Introduction (general principles)
2, 3	Force vectors
4	Equilibrium of a particle
5, 6	Force system resultants
7,8	Equilibrium of a Rigid Body
8,9	Structural Analysis
10, 11, 12	Internal Loading
13 , 14, 15	Structural Systems

1.	Introduce to force vector and their equilibrium to understand the effect of loading in the buildings.	[a, e, k]
2.	To transfer students cognitive and imaginative thinking to visualize the needed structures to hold the different loading systems.	[a, e, k]
3.	To upgrade students' abilities to distinguish between different structural loadings and their points of weakness.	[a, e, k]
4.	To provide students with means to analyze different structures and to choose the best system for their designs.	[c]

Upon successful completion of this course, student should:

#### **Assessment Guidance:**

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.
Quizzes:	(5) Quizzes of (15-20) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Homework and	Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).
projects.	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

#### **Grading policy:**

First Exam	20%
Second Exam	20%
Quizzes and participation	20%
Final Exam	40%
Total:	100%

#### **Attendance Regulation:**



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

## **Course Details:**

Title:	Pavement Design (0670323)		
Prerequisite:	Geometric Design of Highways (0670324)		
<b>Credit Hours:</b>	3 credit hours (15 weeks per semester, approximately 45 contact hours)		
Textbook:	Traffic and Highway Engineering by Nicholas J. Garber, Laster A. Hoel, 4 ed.		
References:	<ul> <li>Wright, Paul H., Highway Engineering, Seventh Edition, John Wiley, New York, 2004.</li> <li>Principles of pavement design by Yoder Witczak, 2<sup>nd</sup> ed., 1975</li> <li>Pavement design, by Huang, 2<sup>nd</sup> ed., 2012.</li> </ul>		
Course	This course is designed for civil engineering students in their third year. This course introduces students to the pavement materials, flexible pavement mix		
Description:	design and construction, highway drainage and drainage facilities, and rehabilitation of roads		
Website:	http://www.philadelphia.edu.jo/academics/zzaben		
Instructor:	Dr Zuhair Al-Zaben <b>Email</b> : zzaben@philadelphia.edu.jo <b>Office</b> : Civil Engineering building, Room 210-C, ext: <b>Office hours</b> : Sun. to Thurs.: 10:00-11:00		

Week	Торіс
1	Introduction
2	Pavement types
3	Ch. 15: Highway Materials-Soils
4	Ch. 15: Highway Materials -Aggregates
5	Ch. 15: Highway Materials - Aggregates
6	Ch.15: Highway Materials - Asphalts
7	Ch. 20 : Bases, Subbases, & Low Cost
8	Ch. 19: Highway Type Bituminous Pavements
9	Ch. 19: Highway Type Bituminous Pavements
10	Ch18: HMA Construction and Placement
11	Ch. 16 and Ch.20: Flexible Pavement Thickness Design
12	Rigid Pavement Design
13	Rehabilitations and highway maintenance
14	Drainage and drainage structures
15	Project Presentation
16	FINAL EXAMS

Upon successful completion of this course, student should:

1	Know the Properties of materials used in highway pavements (soils, aggregates, and bituminous binders).	[a, e,g ,k]
2	Know Different pavement types (flexible and rigid) and different types within each category (high-type HMA pavements, as conventional and full depth, and low cost surfaces).	[a, e ,g, k]
3	Design the thicknesses of the layers composing the highway pavements	
4	Providing adequate drainage means and facilities to guard the big investments in roadways from water damages.	[a, e ,k]
5	Methods of designing the hot asphalt mix using Marshal Method.	[a, e ,g,k]
6	Sources of distresses in the pavements and the methods of repair.	[a, e ,k]

### **Assessment Guidance:**

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.	
Quizzes:	izzes: (3-5) quizzes of (15-20) minutes will be conducted during th semester. The materials of the quizzes are set by the lecturer.	
Homework and projects:	Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).	
	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.	
Collective Participation:	CollectiveBrain storming and collective discussions will be carried out durinrticipation:any lecture. Individual student will be assessed accordingly.	
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.	

## Grading policy:

First Exam		20%
Second Exam		20%
Homework, Projects and Quizzes		20%
Final Exam		40%
	Total:	100%

## **Attendance Regulation:**



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

## **Course Details:**

Title:	Geometric Design of Highways (0670324)		
Prerequisite:	Surveying (0670261)		
<b>Credit Hours:</b>	3 credit hours (15 weeks per semester, approximately 45 contact hours)		
Textbook:	Traffic and Highway Engineering by Nicholas J. Garber, Laster A. Hoel, 4 ed.		
References:	<ul> <li>A policy on geometric design of highways and streets, 4 th edition, 2001, American Association of State Highway and Transportation Officals "AASHTO".</li> <li>2. Route surveying and design by mayer &amp; Gibson, 5 th edition.</li> <li>Principles of highway engineering and traffic analysis by Fred Mannering &amp; Walter Kilareski, 2 nd edition.</li> </ul>		
Course Description: Website:	This course is designed for civil engineering students in their third yea Geometric design concepts for highways, design control and criteria, sigh distance, horizontal and vertical alignment, cross section elements superelevation attainment, laying out highways, earthwork computations highway types and introduction of interchanges and intersections. http://www.philadelphia.edu.jo/academics/zzaben		
Instructor:	Dr Zuhair Al-Zaben <b>Email</b> : zzaben@philadelphia.edu.jo <b>Office</b> : Civil Engineering building, Room 210-C, ext: <b>Office hours</b> : Sun. to Thurs.: 10:00-11:00		

Week	Торіс
1	1-Basic principles
1	2-Road classification
2	3- Intersections & Interchanges
	4- Highway Surveys and Location
2	- Earthwork Computations:
3	- Average end area method.
	- Mass haul diagram
4	5- Characteristics of the Driver, the Pedestrian, the Vehicle, and the Road.
	6- Horizontal alignment:
	- Stopping sight distance on horizontal curves.
5	- Simple circular curves.
5	- Compound circular curves.
	- Reverse curve.
	- Transition curve.
	- Setting out horizontal curves.
6	- Curve widening.

	7- Superelevation
7	- Standards for superelevation.
	- Superelevation attainment.
	8- Cross section elements:
	- Travel lanes.
8	- Shoulders.
0	- Medians.
	- Roadside barriers.
	- Side slopes.
9	9- Highway drainage.
	10- Vertical Alignment:
10 8 11	- Introduction of Vertical curves.
10 & 11	- Stopping sight distance on sag vertical curves.
	- Stopping sight distance on crest vertical curves.
12	- Vertical curve design.
	11- Special facilities for heavy vehicle on steep grades:
13	- Climbing lanes.
	- Emergency escape Ramps.
14	Projects Presentation
15	Projects Presentation
16	FINAL EXAMS

Upon successful completion of this course, student should:

1	<ul> <li>Know the Properties of 1-Basic principles ;2-Road classification</li> <li>3- Intersections &amp; Interchanges ;4- Highway Surveys and Location</li> <li>- Earthwork Computations: - Average end area method.</li> <li>- Mass haul diagram; 5- Characteristics of the Driver, the Pedestrian, the Vehicle, and the Road.</li> </ul>	[a, e ,k]
2	<ul> <li>Know 6- Horizontal alignment: - Stopping sight distance on horizontal curves.; - Simple circular curves.; - Compound circular curves.</li> <li>-Reverse curve.; -Transition curve.; -Setting out horizontal curves.</li> <li>-Curve widening.</li> <li>7- Superelevation; - Standards for superelevation.; -Superelevation attainment.</li> <li>8- Cross section elements:; - Travel lanes.; - Shoulders.; - Medians.</li> <li>- Roadside barriers.; - Side slopes.</li> </ul>	[a, e , k]
3	<ul> <li>9- Highway drainage.</li> <li>10- Vertical Alignment:;- Introduction of Vertical curves.</li> <li>Stopping sight distance on sag vertical curves.</li> <li>Stopping sight distance on crest vertical curves.</li> <li>Vertical curve design.</li> </ul>	[a, e ,k]
4	<ul> <li>11- Special facilities for heavy vehicle on steep grades:</li> <li>Climbing lanes.</li> <li>Emergency escape Ramps.</li> </ul>	[a, e ,k]

## **Assessment Guidance:**

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.	
Quizzes:	s: (3-5) quizzes of (15-20) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.	
Homework and projects:	Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).	
	<u>Cheating by copying homework from others is strictly forbidden</u> and punishable by awarding the work with zero mark.	
Collective Participation:	CollectiveBrain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.	
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.	

## **Grading policy:**

First Exam		20%
Second Exam		20%
Homework, Projects and Quizzes		20%
Final Exam		40%
	Total:	100%

## **Attendance Regulation:**



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

## **Course Details:**

Soil Mechanics (0670331)	
Engineering Geology (0670231)	
3 credit hours (15 weeks per semester, approximately 45 contact hours)	
Soil Mechanics, SI Version, T.W. Lambe and R.V. Whitman, 2008, John Wiley & Sons, New York	
Craig's Soil Mechanics, 8 <sup>th</sup> ed., J.A. Knappet & R.F. Craig Engineering Properties of Soils and their Measurements, J.E. Bowles	
A study of the formation of soil, grain sizes and types, mineral composition, classification of soils, weight-volume relationships, compaction, permeability and fluid flow through soil, stresses within a soil mass, consolidation and settlement, and shear strength of soils.	
http://www.philadelphia.edu.jo/academics/maliessa/	
Dr. Mohammed Mustafa Mahmood Al-Iessa Email: maliessa@philadelphia.edu.jo Office: Civil Engineering Building, Room 210 – B , Ext: 2690 Class hours: Sun, Tues, Thurs: 10:10-11:00 and 12:10-13:00 Mon, Wed: 11:15-12:45 Office hours: Sun, Tues, Thurs: 8:00-10:00 and 11:00-12:00 Mon, Wed: 8:00-11:15 and 12:45 -14:00	

Week	Торіс
1	Introduction to soil mechanics
2,3,4	Basic characteristics of soils
5,6	Classification and Compaction of soils
7,8,9	Fluid flow through soil
10,11,12	Stresses within a soil mass
13,14	Shear strength of soils
15	Introduction to Consolidation and settlement

1.	Understand the origin of soil grains, types, sizes and their classification	[a, b, e]
2.	Understand and calculate the basic properties of soil.	[a, b, e, h , k]
3.	Understand and calculate the fluid flow through soil (1-D)	[a , b, e]
4.	Understand the mechanism of stress distribution (geostatic and external) within a soil mass	[a, c, e, k]
5.	Understand the principal stresses and the shear strength within a soil mass and be able to calculate the shear strength of a soil	[a , b, c, e, k]
6.	Understand the principles of consolidation theory	[a, b, c, e, k]

Upon successful completion of this course, student should:

#### **Assessment Guidance:**

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.
Quizzes:	(5) Quizzes of (15-20) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Homework and	Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).
projects:	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

#### **Grading policy:**

First Exam	20%
Second Exam	20%
Quizzes and participation	20%
Final Exam	40%
Total:	100%

#### **Attendance Regulation:**



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

## **Course Details:**

Title:	Environmental Engineering (0670343)	
Prerequisite:	General Chemistry (0212101)	
<b>Credit Hours:</b>	3 credit hours (16 weeks per semester, approximately 44 contact hours)	
Textbook:	"Introduction to Environmental Engineering, Mackenzie Davis and David Cornwell, McGraw Hill, Fifth Edition, 2013.	
References:	Water Supply and Pollution Control, 7th Edition, Warren Viessman & Mark J. Hammer, Pearson Prentice Hall. Waste Management Practice, 2ed edition., John Pichtel, CRC Press Hazardous Waste Management, International Edition 1994, La Grega, P. Buckingham and J. Evans. Mc Graw Hill	
Course Description:	To introduce students to Environmental engineering principles and environmental parameters including quantities and units, mass and energy balances, environmental impact assessment, basic water chemistry and microbiology, water quality &treatment, air pollution, mathematics of growth, environmental remediation and environmental legislation.	
Website:	http://www.philadelphia.edu.jo/academics/myounes/	
<b>T</b> / /	Dr. Mohammad Younes <b>Email</b> : myounes@philadelphia.edu.jo	

Instructor: Office: Civil Engineering Building, Department Head Office, ext: 2253 Office hours: Sun, Tues, Thurs: 11:00-12:00 and Mon, Wed: 9:00-11:00

Week	Торіс	
1	Fundamental Concepts and Overview	
2,3	Mass and Energy Balances	
4, 5,6	water quality parameters and pollution sources	
7, 8,9,10	Water and waste water treatment technologies	
11,12,13	Air Pollution and control	
	Risk assessment and Environmental issues	
14,15,16		

Upon successful completion of this course, student should:

1.	Understand mass balance and able to develop mass balance expression for contaminants/ materials under different case	[a, c, e]
2.	Understand water quality parameters and its application to characterize the different water sources	[e, k]
3.	Understand the best available technologies for physical and chemical treatment of drinking water and wastewater.	[a, e]
4.	Determine common air pollutants, and their pathways, and the various technologies available for control.	[a, k]
5.	Understand selected contemporary global environmental issues such as environmental impact assessment, climate change and emerging contaminants.	[ f, h, k]

### **Assessment Guidance:**

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.
Quizzes:	(3-5) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Homework and projects:	Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).
	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

## **Grading policy:**

First Exam	20%
Second Exam	20%
Homework and projects	12%
Quizzes and participation	8%
Final Exam	40%
Total:	100%

## **Attendance Regulation:**



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

## **Course Details:**

Title:	Fluid Mechanics (0670381)	
Prerequisite:	0670211	
Credit Hours:	3 credit hours (16 weeks per semester, approximately 44 contact hours)	
Textbook:	<ul> <li>Fluid Mechanics; Russell C. Hibbeler, Pearson, 2014</li> <li>Fundamentals of Hydraulic Engineering Systems (4th Edition) Robert J. Houghtalen, Robert J. Houghtalen, A. Osman H. Akan &amp; Ned H. C. Hwang, Pearson, 2010, 4th Edition</li> <li>Engineering fluid mechanics Roberson I A and</li> </ul>	
<b>References:</b>		
Course Description:	<ul> <li>Engineering fluid mechanics, Roberson J.A., and Crowe C.T, John Wiley and sons., (9<sup>th</sup> Edition).</li> <li>This course is designed for civil engineering students in their third yea The course intends to give students a comprehensive idea about the fluid prosperities, basic unit Fluid statics, pressure and its measurements, force on plane and curve submerged surface, floation. Fluid in motion, flow kinematics an visualization, Control volume approach, differential and integra continuity equation, pressure variation in flowing fluids, Euler's an Bernoulli's equations, application of Bernoulli equation, momentum principle and its applications.</li> </ul>	
Instructor:	Dr. Ahmad J. Dabdab <b>Email</b> : adabdab@philadelphia.edu.jo <b>Office</b> :Civil Engineering building, room 61-213, ext: 2463 <b>Office hours</b> : Sun, Tues, Thurs: 8:00-10:00 &11.00-12:00 and Mon, Wed: 9:45 -11:15	

Week	Торіс
1	Introduction, fluid definitions and its various
2&3	Principle of fluid static
4&5	Flow concepts and conservation of mass principle
6,7&8	Pressure variation and Bernoulli's equation
9,10&11	Momentum principle
12&13	Energy principle
14	Dimensional analysis
15	Flow concepts and conservation of mass principle

1.	Be able to solve specific engineering problems related with fluid static	[a, c, e]
2.	Be able to develop methods to solve an engineering problem	[e, k]
3.	Have the ability to read and understand fluid mechanics problems	[a , e]
4.	Understand the basics of fluid mechanics at rest	[a, k]
5.	Understand the concept of fluid in motion and have the ability to solve problems	[a,c,k]
6.	Understand sorting and searching algorithms	[a]

Upon successful completion of this course, student should:

### **Assessment Guidance:**

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.
Quizzes:	(2-3) quizzes of (20-30) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
<b>Homework</b> and projects: Tutorials sheets will be handed out to the students and should be solved individually and submitted before o agreed date. Student may be assigned to present project(s	
	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

## **Grading policy:**

First Exam	20%
Second Exam	20%
Quizzes and participation	20%
Final Exam	40%
Total:	100%

## **Attendance Regulation:**



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

## **Course Details:**

Title:	Reinforced Concrete 1 (0670411)	
Prerequisite:	Structural analysis 2 (0670312)	
Credit Hours:	3 credit hours (16 weeks per semester, approximately 45 contact hours)	
Textbook:	<b>Dok:</b> Design of Concrete Structures, 15 <sup>th</sup> Edition, A. H. Nilson, D. Darwin, and H. Dolan, McGraw-Hill, 2016.	
References:	<ul> <li>i. Reinforced Concrete Mechanics and Design, 6<sup>th</sup> Edition, J. K. Wight and J. G. Macgregor, Pearson, 2012.</li> <li>ii. Building Code Requirements for Structural Concrete (ACI 318-14) and Commentary, ACI Committee (318-14), Farmington Hills, MI, 2014, 530 pp.</li> </ul>	
Course Description:	The course is a requirement for civil engineering students. Students will learn how to analyze and design different types of beams and one-way slabs subjected to moment and or shear and moment. Design of beams and one- way slabs for shear. Analysis and design of short columns. Development and splicing of reinforcement. Approximate design of two-way slabs.	
Website:	http://www.philadelphia.edu.jo/academics/staan/	
Instructor:	Dr. Saad Al-Taan <b>Email</b> : staan@philadelphia.edu.jo <b>Office</b> : Engineering building, room 61-212, Ext: 2589 <b>Office hours</b> : Sun, Tues, Thurs: 10:00-11:00, 12:00-14:00, and Mon, Wed: 11:30 - 14:00	

Week	Торіс
1	Introduction, Properties of concrete and steel.
2	Design methods and requirements.
3, 4	Elastic analysis of beams, un-cracked and cracked sections.
5, 6	Flexural analysis of beams and one-way slabs using the strength design method.
8,9	Flexural design of beams and one-way slabs using the strength design method.
10	Approximate method for designing two-way slabs.
11, 12	Design of beams and one-way slabs for shear.
13	Development and splicing of reinforcement.
14, 15	Strength of members subjected to compression and bending: Short columns.
Final Exam.	

Upon successful completion of this course, student should:

-		
1.	Be able to choose the suitable concrete strength and steel grade for any type of reinforced concrete member.	[c]
2	Be able to choose a suitable status of the members, load cases, load combinations, and suitable safety factors.	[d, f, j]
3.	Be able to analyze different types of beams and one-way slabs during the working conditions.	[a, c, e, k]
4.	Be able to analyze different types of beams and one-way slabs for the ultimate stage.	[a, c, e, h, j]
5.	Be able to design different types of reinforced concrete beams and one-way slabs subjected to many types of ultimate loads.	[c, d, e, f, j, k]
7.	Be able to design beams and one-way slabs subjected to shear forces.	[a, h, k]
8.	Be able to locate the critical sections for the development of bars under compression or tensile stresses, and to splice the bars in the proper locations.	[e, h, k]
8.	Be able to design columns subjected to compression and bending moments.	[c, g, i, k]

## **Assessment Guidance:**

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams lasting 50 minutes, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 4-5 weeks.	
Quizzes:	(3-5) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.	
Homework and projects:	Homeworks should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).	
	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.	
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.	
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.	

## **Grading policy:**

First Exam	20%
Second Exam	20%
Homework and projects	7%
Quizzes and participation	13%
Final Exam	40%
Total:	100%

## **Attendance Regulation:**



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

## **Course Details:**

Title:	Reinforced Concrete 2 (0670412)
Prerequisite:	Reinforced Concrete 1 (0670411)
<b>Credit Hours:</b>	3 credit hours (16 weeks per semester, approximately 44 contact hours)
Textbook:	Design of Concrete Structures, 15 <sup>th</sup> Edition, A. H. Nilson, D. Darwin, and C. H. Dolan, McGraw-Hill, 2016.
References:	<ul> <li>i. Reinforced Concrete Mechanics and Design, 6<sup>th</sup> Edition, J. K. Wight and J. G. Macgregor, Pearson, 2012.</li> <li>ii. Building Code Requirements for Structural Concrete (ACI 318-14) and Commentary, ACI Committee (318-14), Farmington Hills, MI, 2014, 530 pp.</li> </ul>
Course	The course is a requirement for civil engineering students. Students will learn how to check the serviceability requirements of flexural members, and how to
Description:	design for torsion, combined shear and torsion, long columns, continuous beams, frames, two-way slabs, and different types of staircases.
Website:	http://www.philadelphia.edu.jo/academics/staan/
Instructor:	Dr. Saad Al-Taan <b>Email</b> : staan@philadelphia.edu.jo <b>Office</b> : Engineering building, room 61-212, Ext: 2589 <b>Office hours</b> : Sun, Tues, Thurs: 10:00 -11:00, 12:00 – 13:00 and Mon, Wed: 11:30 - 14:00

Week	Торіс
1	Ultimate strength versus unified design approaches, tension- and compression- controlled members, strain limits.
2, 3	Serviceability analysis, deflection and cracking control.
4, 5	Analysis and design for torsion.
6, 7	Slender columns.
8, 9	Analysis of building frames, simplifications, and idealization
10, 11, 12	Two-way slabs, direct design method.
13, 14	Two-way slabs, direct design method.
15	Design of stairs
Final Exam.	
Upon successful completion of this course, student should:

1.	Revision of RC.1	[a, k]
2.	Be able to check the serviceability requirements for beams and one-way slabs. Be able to write computer programs to solve specific engineering problems	[c, d, f, i]
3.	Be able to design members subjected to torsion, and combined shear and torsion.	[a, e, k]
4.	Be able to distinguish between sway and nonsway frames, short and long (slender) columns and to magnify the moments in case of long columns.	[c, e, k]
5.	Be able to analyze and design reinforced concrete continuous beams and frames subjected to different types of loading (dead, live, wind, seismic, etc).	[d, f, g, h j, k]
6.	Be able to analyze and design two-way slabs subjected to uniformly distributed loads using the Direct Design Method and the Equivalent Frame Method.	[c, e, k]
7.	Be able to analyze and design different types of reinforced concrete staircases.	[c, d]

### **Assessment Guidance:**

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams lasting 50 minutes, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 4-5 weeks.
Quizzes:	(3-5) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Homework and projects:	Homeworks should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).
	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

# Grading policy:

First Exam	20%
Second Exam	20%
Homework and projects	7%
Quizzes and participation	13%
Final Exam	40%
Total:	100%

# **Attendance Regulation:**



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

### Course Details:

Title:	Steel Design (0670413)		
Prerequisite:	Structural Analysis II		
Credit Hours:	3 credit hours (16 weeks per semester, approximately 44 contact hours)		
Textbook and	1- W.T., Segui, "Steel Design", Cengage Learning, 5 <sup>th</sup> edition, 2012.		
Design Code:	2- AISC Steel Construction Manual, 14 <sup>th</sup> edition, 2011.		
	1. J.C. McCormac, S.F. Csernak, "Structural Steel Design", Pearson, 5 <sup>th</sup> edition, 2011.		
	2. C.G., Salmon, J.E. Johnson, F.A., Malhas, "Steel Structures Design		
Deferences	and Behavior", Prentice Hall, 5 <sup>th</sup> edition, 2009.		
References:	3. American Institute of Steel Construction. "Detailing for Steel		
	Construction". AISC/NSD, 3 <sup>rd</sup> edition, 2009.		
	4. American Society of Civil Engineers. 2010. "Minimum Design Loads		
	for Buildings and Other Structures". ASCE/SEI 7-10. Reston, VA.		
	This course covers the fundamental theories and principles of design of		
Course	simple steel structures using LRFD and ASD Methods. This course includes:		
Description:	design, investigation and detailing of beams, tension and compression		
	members and their connections.		
Website:	http://www.philadelphia.edu.jo/academics/bbehnam/		
	Dr. Bashar Behnam		
	Email: <u>bbehnam@philadelphia.edu.jo</u>		
Instructor:	Office: Civil Engineering building, room 312, ext:		
	Class hours: 9:10 to 10:00 AM Sun, Tue & Thu. (Sect. 1)		
	9:45 to 11:15 AM Mon. & Wed. (Sect. 2)		

### **Course Outlines:**

Week	Topic
1	Review and Chapter One: Introduction
2	Chapter Two: Concept in Structural Steel Design
3, 4, 5, 6	Chapter Three: Tension Members
7, 8, 9, 10	Chapter Four: Compression Members
11, 12, 13, 14	Chapter Five: Beams
15	Chapter Seven: Simple Connections
16	Final Exam.

#### Course Learning Outcomes with reference to ABET Student Outcomes: Upon successful completion of this course, student should:

1.	Be familiar with the AISC Steel Construction Manual,	[a, c, k]
	understand the concepts of structural design by the Load and Resistance	
2.	Factor Design method and the Allowable Stress Design method, and will	[a, k]
	understand the differences between the methods	
3.	Analyze and design steel tension members	[a, e]
4.	And analyze and design steel compression members	[a, e]
5.	Analyze and design steel beams	[a, e]
6.	design structural steel simple connections using bolting or welding.	[a, e]

### Assessment Guidance:

Evaluation of the student performance during the semester ( total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam
	and second exam during the semester. Each exam will cover materials
	given in lectures in the previous 3-4 weeks.
Quizzes:	3 quizzes of 20 minutes each will be conducted during the semester. The
	materials of the quizzes are set by the lecturer.
Homework and	Home assignment will be handed out to the students and should be solved
projects:	individually. Student may be assigned to a project.
Final Exam:	The students will undergo a scheduled final exam at the end of the
	semester covering the whole materials taught in the course.

### Grading policy:

First Exam	20%
Second Exam	20%
Ouizzes and participation	20%
Final Exam	40%
Total:	100%

### Attendance Regulation:



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

# **Course Details:**

Title:	Concrete & Steel Structures (0670416)
Prerequisite:	Structural Mechanics and Analysis (0670315)
<b>Credit Hours:</b>	3 credit hours (16 weeks per semester, approximately 44 contact hours)
Textbook:	Nilson, A.H., Darwin, D., and Dolan, C.W. (2013). "Design of Concrete Structures", 14th edition, McGraw Hill, 2009
References:	<ol> <li>ACI Code (ACI 318 M -11). AISC code.</li> <li>Design of Reinforced Concrete by J. C. McCormac and R.H. Brown, 8th Edition, John Wiley &amp; Sons.</li> </ol>
Course Description: Website:	Basic concepts of ultimate strength design method, behavior of ductile and brittle modes of failure of reinforced concrete sections under bending, analysis of reinforced concrete sections under bending, design of reinforced concrete sections under bending, reinforcement layout, introduction shear behavior of reinforced concrete sections, design for shear reinforcement, analysis and design of reinforced concrete solid slab and ribbed slab, analysis and design of short columns under axial and bending, understand steel and its structural properties, design of tension members, design of compression members.
Instructor:	Eng. Abdallah Odeibat Email: aodeibat@philadelphia.edu.jo Office: Civil engineering building, room 213, ext: 2463 Class hours: Sun, Tues, Thurs: 13:10-14:10 Office hours: Sun, Tues, Thurs: 10:00-11:00 and 12:00-11:00
	Mon, Wed: 8:15-9:45 and 12:45 -14:00

Week	Торіс
1,2	Introduction, Reinforced concrete and building codes
3,4	Materials, Concrete, Strength of concrete, stress-strain relationship, durability of concrete and reinforcement
5,6,7,8	Flexural analysis and design of reinforced concrete beams, analysis and design of one way slabs
9,10,11	Shear and diagonal tension in beams
12,13,14	Short Columns
15,16	Introduction to steel-materials, Design of tension members, Design of Compression members

Upon successful completion of this course, student should:

1.	Recognize the importance of building codes.	[a]
2.	Understand the design process.	[a, c, e]
3.	Establish a clear understanding of the mechanical behaviors of reinforcement steel, concrete and reinforced concrete members, and steel members.	[a, e]
4.	Understand the limit states of a reinforced concrete structure and recognize the importance of each limit state.	[a, c, e]
5.	Understand the basic principles to apply the ACI and AISC provisions.	[c]
6.	Understand the flexural behavior of reinforced concrete beams, investigate and design beams for bending and shear.	[a, c, e, k]
7.	Understand the compression and tension behavior of steel members.	[a, c, e ]

### **Assessment Guidance:**

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.
Quizzes:	(3-5) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Homework:	Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date.
	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

# Grading policy:

First Exam	20%
Second Exam	20%
Homework and Quizzes	20%
Final Exam	40%
Total:	100%

### **Attendance Regulation:**



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

# **Course Details:**

Title:	Transportation and Traffic Engineering (0670421)
Prerequisite:	0670324
<b>Credit Hours:</b>	3 credit hours (15 weeks per semester, approximately 45 contact hours)
Textbook:	" <b>Traffic and Highway Engineering</b> ", Forth Edition, Nicholas J. Garber, Laster A. Hoel, 2009.
<b>References:</b>	Highway Capacity Manual 2000, <b>HCM</b> , Transportation Research Board, National Research Council.
Course Description:	Concepts, fundamental parameters of traffic (Speed, volumes, density, time headway, gap and follow-up time and examples), fundamental of transportation ( car following theory, queuing theory), capacities and level of service (multilane highways, unsignalized intersections, signalized intersections, roundabouts, pedestrians facilities).
Website:	http://www.philadelphia.edu.jo/academics/ahad/page.php
Instructor:	Eng. Adnan Abdelhadi <b>Email</b> : adnan_m_abdelhadi@philadelphia.edu.jo <b>Office</b> : Civil Engineering building, room A 301, ext:2604 <b>Office hours</b> : Sun, Tues, Thurs: 9:05-10:05 and Mon, Wed: 9:30 -11:00

Week	Торіс
1,2	Fundamental parameters of traffic
3.4	Introduction to queuing theory
5	Highway Capacity & level of service
6, 7, 8	- Two lane highway -Multilane highways -Freeway
9,10	Unsignalized intersections Roundabouts
11,12	Signalized intersections
13,14	Traffic Studies
15	Final exam

1.Understanding of choosing the best transportation planning[a, e, k]2.Understanding transportation models[a, c, e, k]3.Understanding fundamental parameters of traffic flow[a, e, h, k]4.Understanding capacities and level of services of various road elements[a, c, h, k]

Upon successful completion of this course, student should:

### **Assessment Guidance:**

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.
Quizzes:	(3-5) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Homework and projects:	Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).
	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

## Grading policy:

First Exam	20%
Second Exam	20%
Homework and projects	10%
Quizzes and participation	10%
Final Exam	40%
T1	1000/

Total: 100%

# **Attendance Regulation:**



#### **Course Details:**

Title:	Transportation and Traffic Engineering (0670421)	
Prerequisite:	Geometric Design (0670324)	
Credit Hours:	3 credit hours (15 weeks per semester, approximately 45 contact hours)	
Textbook:	"Traffic and Highway Engineering", Forth Edition, Nicholas J. Garber, Laster A. Hoel, 2009.	
<b>References:</b>	Highway Capacity Manual 2000, HCM, Transportation Research Board, National Research Council.	
Course Description:	Concepts, fundamental parameters of traffic (Speed, volumes, density, time headway, gap and follow-up time and examples), fundamental of transportation ( car following theory, queuing theory), capacities and level of service (multilane highways, unsignalized intersections, signalized intersections, roundabouts, pedestrians facilities).	
Website:	http://www.philadelphia.edu.jo/academics/aassouli/	
Instructor:	<ul> <li>Eng. Amany Abdullah Ali Assouli</li> <li>Email: <u>aassouli@philadelphia.edu.jo</u> or <u>eng.amanyassouli90@yahoo.com</u> Office: Civil Engineering Building, Room 210 – E , Ext: 2513</li> <li>structor: Class hours: Mon, Wed: 11:15-12:45</li> <li>Office hours: Sun, Tues, Thurs:10:10-11:00</li> </ul>	
	Mon, Wed: 9:45-11:15	

Week	Торіс
1,2	Fundamental parameters of traffic
3.4	Introduction to queuing theory
5	Highway Capacity & level of service
6, 7, 8	- Two lane highway -Multilane highways -Freeway
9,10	Unsignalized intersections Roundabouts
11,12	Signalized intersections
13,14	Traffic Studies
15	Final exam

1.Understanding of choosing the best transportation planning[a, e, k]2.Understanding transportation models[a, c, e, k]3.Understanding fundamental parameters of traffic flow[a, e, h, k]4.Understanding capacities and level of services of various road elements[a, c, h, k]

Upon successful completion of this course, student should:

#### Assessment Guidance:

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.
Quizzes:	(3-5) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Homework and projects:	Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).
	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

**Grading policy:** 

First Exam	20%
Second Exam	20%
Homework and projects	20%
Final Exam	40%
Total:	100%

#### **Attendance Regulation:**



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

# **Course Details:**

Title:	Hydraulics (0670441)	
Prerequisite:	Fluid Mechanics 760381	
Credit Hours:	3 credit hours (15 weeks per semester, approximately 44 contact hours)	
Textbook:		
	• Fundamentals of Hydraulic Engineering Systems, Hwang & Houghtalen. ,4 <sup>th</sup> Edit ion, Prentice Hall, 2006.	
References:	<ul> <li>Civil Engineering Hydraulics, by R. E. Featherstone &amp; C. Nalluri, 3rd Edition, 1995.</li> <li>Fluid Mechanics, Douglas, Swaffield and Gasiorek. 4th Edition, 2001.</li> <li>Water Distribution Modeling, Walsky, Chase and Savic. 1st Edition, 2001</li> <li>Roberson, J.A., Cassidy J.J., Chaudhry, M.H., Hydraulic Engineering, 2nd edition, John Wiley &amp; sons, inc.,1997.</li> </ul>	
Course Description:	<ul> <li>Flow in pipes, Pipes Networks Analysis, Open Channel Fundamentals, Open Channel Flow Analysis, Classificat ion o f Flow, (Uniform Flow), Crit ical Flow (Supercrit ical, Subcrit ical), Gradually Varied Flow, Water Surface</li> <li>Profile Analysis, Rapid Varied Flow (Hydraulic Jump), Similitude in Engineering, Pumps, Turbines.</li> </ul>	
Instructor:	Dr. Ahmad J. Dabdab <b>Email</b> : adabdab@philadelphia.edu.jo <b>Office</b> :Civil Engineering building, room 61-213, ext: 2463 <b>Office hours</b> : Sun, Tues, Thurs: 8:00-10:00 &1100-12:00 and Mon, Wed: 9:45 -11:15	

Weeks	ΤΟΡΙϹ	READING
1 ,2,3	INTRODUCTION (REVISION)	Chapter (1,2)
	UNITS AND DIMENSION , REVIW OF FLUID MECHANICS	
4,5,6,7	WATER FLOW IN PIPES	Chapter (3)
	Description of Pipe Flow, Continuity Equation, Forces in Pipe Flow, Energy Loss Due to Friction, Empirical Formulas For Friction Head, Local (Minor) Losses.	
8,9,10,11	PIPELINES AND PIPE NETWORKS	Chapter (4)
	Pipelines Connecting Two Reservoirs, Pipelines with Negative Pressure or Pumps, Branching Pipe Systems, Pipe Networks, Water Hammer, Surge Tanks,	
12,13,14,15	WATER PUMPS & OPEN CHANNEL FLOW	Chapter
	Centrifugal, Propeller and Jet Pumps, Pump Selection, Pumps in Parallel or in Series, Specific Speed and Pump Similarity.	(5,6)

1.	Be able to solve specific engineering problems related with Hydraulics	[a, c, e]
2.	Be able to develop methods to solve an engineering problem like network	[e, k]
3.	Have the ability to read and understand pumps problems	[a, e]
4.	Understand the basics of Bernoulli's theorem	[a, k]
5.	Understand the concept of open channel and closed channel	[a, c, k]
6.	Understand Hydraulic jump	[a]

Upon successful completion of this course, student should:

### **Assessment Guidance:**

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.
Quizzes:	(3-5) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Homework and projects:	Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).
	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

### Grading policy:

First Exam	20%
Second Exam	20%
Homework and projects	12%
Quizzes and participation	8%
Final Exam	40%
Total:	100%

### **Attendance Regulation:**



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

# **Course Details:**

Title:	Sanitary Engineering (0670443)	
Prerequisite:	Environmental Engineering (0670343)	
<b>Credit Hours:</b>	3 credit hours (16 weeks per semester, approximately 44 contact hours)	
Textbook:	"Water and Wastewater Technology, 6th Edition, Mark J. Hammer & Mark J. Hammer Jr., Prentice Hall, 2007.	
<b>References:</b>	Water Supply and Pollution Control, 7th Edition, Warren Viessman & Mark J. Hammer, Pearson Prentice Hall. Wastewater Engineering, Treatment and reuse, Metcalf and Eddy, McGraw- Hill Education, 2003	
Course Description:	Sources of water, Population estimation, water demand and type of waste water, hydraulic of sewage systems and design principles, water distribution systems, sewer water collection system design and principles. Physical, biological and chemical water quality. Water standards and criteria. Unit operations and processes. Basics in water and wastewater engineering design. Wastewater generation and collection. Biological wastewater treatment and reuse including activated sludge. Water treatment design of sedimentation, filtration, coagulation-flocculation and disinfection.	
Website:	http://www.philadelphia.edu.jo/academics/myounes/	
Instructor:	Dr. Mohammad Younes <b>Email</b> : myounes@philadelphia.edu.jo <b>Office</b> : Civil Engineering Building, Department Head Office, ext: 2253 <b>Office hours</b> : Sun, Tues, Thurs: 11:00-12:00 and Mon, Wed: 9:00-11:00	

Week	Торіс	
1	Fundamental Concepts and Overview	
2,3	Water demand and population forecast	
4, 5,6	Water distribution	
7, 8,9,10	wastewater generation and collection	
11,12	Water treatment (physical and chemical)	
	Biological wastewater treatment process and concepts	
13,14,15,16		

Upon successful completion of this course, student should:

1.	Determine up to dated knowledge of water quality parameters and its application in water and wastewater treatment.	[a, c, e]
2.	Understand the main concepts of water engineering design .	[c,e, k]
3.	Determine the basic requirement for waste water management and collection system design.	[a, e]
4.	Understand the best available technologies for physical, chemical and biological treatment of wastewater	[a, k]
5.	Determine common water pollutants, and their pathways, and the various technologies available for waste water control	[a, c, k]

### **Assessment Guidance:**

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.	
Quizzes:	(3-5) quizzes of (10-15) minutes will beconducted during the semester. The materials of the quizzes are set by the lecturer.	
Homework and projects:	Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).	
	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.	
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual studentwill be assessed accordingly.	
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.	

### Grading policy:

First Exam	20%
Second Exam	20%
Homework and projects	12%
Quizzes and participation	8%
Final Exam	40%
Total:	100%

### **Attendance Regulation:**



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

## **Course Details:**

Title:	Engineering Economy (0670472)	
Prerequisite:	Course prerequisite(s): 0210106	
<b>Credit Hours:</b>	3 credit hours (16 weeks per semester, approximately 44 contact hours)	
Textbook:	<b>Engineering Economy</b> , by <i>Leland T. Blank and Anthony J. Tarquin</i> , WCB/McGraw-Hill, 6 <sup>th</sup> Edition, 200	
<b>References:</b>	<b>Construction Accounting and Financial Management</b> , by Steven J. Peterson, Second Edition	
Course Description:	This course is designed for civil engineering students in their second year. The course intends to introduce the aspects on Engineering Economy. Concepts of Construction Account and Financial Ratios, Time value of money. Simple and compound interest. Decision making among alternatives and evaluation of public projects. Inflation and depreciation calculations. Cost of owning and operating equipment. Breakeven, Minimum Cost life, and replacement analysis.	
Website:	http://www.philadelphia.edu.jo/academics/ oaldmour /	
Eng. Othman Aldmour         Email: Othman.mm1@gmail.com         Office: Civil engineering building, room, 312 ext.         Office hours: 11:10 12:00 Sur/Tues/Th. 11:20 12:20 Monday/W		

Week	Торіс	
1	The Principles of Engineering Economy. The Role of Engineering Economy	
2	The Process of Decision Making, Cash Flow, Using Time Lines, Time Value Money, Compounding and Future Value.	
3	Discounting and Present Value, Annual Percentage Rate (APR) Making Interest Rates Comparable, Impact of Interest Rates on PV, Comparing Loans using EAR	
4, 5	Discounting and Present Value, Annual Percentage Rate (APR) Making Interest Rates Comparable, Impact of Interest Rates on PV, Comparing Loans using EAR	
6, 7, 8	UNIFORM-SERIES PRESENT-WORTH FACTOR, UNIFORM-SERIES CAPITAL-RECOVERY FACTOR, COMPLEX CASH FLOWS. Uniform (arithmetic) gradient cash flows	
9, 10, 11	INFLATION AND CONSTANT DOLLAR, Simple Loans, Long-Term Loans. Depreciation, STRAIGHT-LINE METHOD, SUM-OF-THE-YEARS Analysis of Financial Statements	
12, 13	Tools for Making, Financial Decisions, NET PRESENT VALUE OR PRESENT WORTH, INCREMENTAL NET PRESENT VALUE	
14	Tools for Making, Financial Decisions, FUTURE WORTH, ANNUAL EQUIVALENT	
15	Tools for Making, Financial Decisions, RATE OF RETURN, INCREMENTAL RATE OF RETURN. PAYBACK PERIOD WITHOUT INTEREST, and PROJECT BALANCE	
16	Review, and final exam	

Upon successful completion of this course, student should:

1	Understand the concepts of engineering economic analysis and its role in solving problems.	A, b, e, k
2	Understand and apply the appropriate engineering economics analysis method(s) for problem solving: present worth, annual cost, rate-of-return, payback, break-even, benefit-cost ratio.	E, k
3	Apply all mathematical approach models covered in solving engineering economics problems: mathematical formulas, interest factors from tables, Excel functions and graphs.	A, k
4	Learn and appreciate how money is used and invested.	F, k
5	Learn about rational decision making, principles of economic analysis methods and techniques	E, g
6	Students be able to evaluate the cost effectiveness of individual engineering projects using the methods learned and draw inferences for the investment decisions.	D, e, g , l, k
7	Students be able to compare the life cycle cost of multiple projects using the methods learned, and make a quantitative decision between alternate facilities and/or systems	A, d, e, g, k
8	Students be able to apply appropriate suitable analysis method for evaluating different types of projects and alternatives.	D, e, g, k
9	Develop and demonstrate teamwork, project management, and professional communications skills	D, e, g, k
10	Students compare the several solutions to make suitable decision	D, e, g
11	Improve the absorb knowledge on personal level through critical discussion for solving problems	D, e, g
12	Review the possible solutions that have been done	E, g
13	Improve the critical thinking for problem solving	E, g, h, k
14	Improve the communication skills for students during problem solving	E, g, h, k
15	Students be able to examine engineering problem not only from technical side, but also from economical side too.	E, h
16	Students can learn how to apply other analysis techniques in cases of multiple alternatives.	E, j, k

### **Assessment Guidance:**

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.
Quizzes:	(3-5) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Homework	(3-5) Assignments will be given throughout the semester
and projects:	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

### **Grading policy:**

First Exam	20%
Second Exam	20%
Homework and projects	10%
Quizzes and participation	10%
Final Exam	40%
Total:	100%

# **Attendance Regulation:**



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

## Course Details:

Title:	Bridge Design (0670519)	
Prerequisite:	Structural Analysis II, Reinforced Concrete Design I	
Credit Hours:	3 credit hours (16 weeks per semester, approximately 44 contact hours) "Bridge Design and Evaluation", 1 <sup>st</sup> Ed., Gongkang Fu, John Wiley & Sons, Inc.,	
Textbook	2013.	
Design Code:	"American Association of State and Highway Transportation Officials AASHTO, LRFD Bridge Design Specifications", 6 <sup>th</sup> Ed., AASHTO, Washington, DC., 2012 "Design of Highway Bridges on LBED Approach", 2 <sup>rd</sup> Ed., B.M. Berker and LA	
References:	"Design of Highway Bridges an LRFD Approach", 3 "Ed., R.M. Barker and J.A. Puckett, John Wiley & Sons, Inc., 2013 "Bridge Engineering", 3 <sup>rd</sup> Ed., J.J. Zhao and D.E. Tonias, McGraw-Hill Education 2012	
Course Description:	This course covers design of new bridges in accordance with current AASHTO specifications. The procedures and requirements of bridge design will be discussed, and the corresponding AASHTO code provisions will be explained through examples. Main topics include bridge design and procedures, bridge superstructure design, fatigue and fracture of steel bridges.	
Website:	http://www.philadelphia.edu.jo/academics/bbehnam/ Dr. Bashar Behnam	
Instructor:	Email: bbehnam@philadelphia.edu.jo Office: Civil Engineering building, room 312, ext: 11:10 to 12:00 PM Sun., Tue. & Thr. (Sect. 1)	

### **Course Outlines:**

Week	Topic
1	Introduction to AASHTO LRFD Method
2, 3	Loads, Load Combinations and Limit States
4, 5	Statically Determinate Bridges
6, 7	Design of Concrete Bridge Decks.
8, 9, 10	Structural Analysis: Simplified Analysis (Distribution Factor)
11, 12, 13	Service Limit State
14, 15	Influence Line for Statically Indeterminate Beams.
16	Final Exam.

#### Course Learning Outcomes with reference to ABET Student Outcomes: Upon successful completion of this course, student should:

1.	Be familiar with the AASHTO LRFD Bridge Design Specifications.	[a, c, k]
2	understand the concepts of structural design by the LRFD method, determine	[a k]
۷.	the applied loads and the corresponing load combinations	[a, K]
3.	Be able to analyze and design concrete decks.	[a, e]
4.	Be able to analyze and design steel bridge girders.	[a, e]
5.	Be able to Analyze and design compsoite sections.	[a, e]
6.	Be able to construct influence line for statically indeterminate bridges.	[a, e]

### Assessment Guidance:

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam
	and second exam during the semester. Each exam will cover materials
	given in lectures in the previous 3-4 weeks.
Quizzes:	3 quizzes of 20 minutes each will be conducted during the semester. The
	materials of the quizzes are set by the lecturer.
Homework and	Home assignment will be handed out to the students and should be solved
projects:	individually. Student may be assigned to a project.
Final Exam:	The students will undergo a scheduled final exam at the end of the
	semester covering the whole materials taught in the course.

### Grading policy:

20%
20%
20%
40%
100%

### Attendance Regulation:



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

# **Course Details:**

Title:	Railway and Airport Engineering (0670522)	
Prerequisite:	Transportation and Traffic Engineering (0670421)	
Credit Hours:	3 credit hours (15 weeks per semester, approximately 45 contact hours)	
Textbook:	planning and Design of Airports , Fifth edition , Robert Horonjeff, Francis X.Mckeley.William J. Sproule Seth B. Young, 2010	
References:	planning and Design of Airports , Fifth edition , Robert Horonjeff, Francis X.Mckeley.William J. Sproule Seth B. Young, 2010	
Course Description:	This course is designed for civil engineering students in their fourth year. The course intends to introduce the nature of civil aviation and airports, Aircraft characteristics related to airport deign, runway characteristics and configuration, taxiway and taxi lanes and aprons, Necessity of railways, and classification of railway and system of rail ways.	
Website:	http://www.philadelphia.edu.jo/academics/aassouli/	
Instructor:	Eng. Amany Abdullah Ali Assouli Email: <u>aassouli@philadelphia.edu.jo</u> or <u>eng.amanyassouli90@yahoo.com</u> Office: Civil Engineering Building, Room 210 – E, Ext: 2513 Class hours: Mon, Wed: 08:15-09:45 & Sun, Tues, Thurs: 09:10-10:00 Office hours: Sun, Tues, Thurs:10:10-11:00 Mon Wed: 0:45, 11:15	
	WIOII, WCU. 7.4J-11.1J	

Week	Торіс
1,2	Introduction to transportation system and Nature of civil aviation and airports.
3,4	Aircraft characteristics related to airport design and Runway characteristics and configuration
5,6	Taxiway and Taxi lanes and Aprons
7,8,9	Terminal and parking area
10,11	Airfield pavement & Capacity and delay
12,13	Lightening systems and Marking for airports utilities
14,15	Introduction of railway

1.	Know the Natural of civil aviation	[a, c, e , k]
2.	Determine the Characteristics of aircraft related to airport design.	[a, c, e , k]
3.	Design the pavement and geometric design for the Airport	[a, c, e , k]
4.	Determine the capacity and delay of the Aircrafts	[a, c, e, k]
5.	Determine the lights and marks in the Airports	[a, c, e , k]
6.	Know the railways and the types of them	[a, c, e , k]

Upon successful completion of this course, student should:

#### **Assessment Guidance:**

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.
Quizzes:	(5) Quizzes of (15-20) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Homework and	Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).
projects.	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

#### **Grading policy:**

First Exam	20%
Second Exam	20%
Homework and projects	20%
Final Exam	40%

#### **Attendance Regulation:**



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

## **Course Details:**

Title:	Foundation Engineering (0670531)		
Prerequisite:	e: Soil Mechanics (0670331)		
Credit Hours:	3 Credit Hrs (16 weeks per semester, approximately 45 contact hours)		
Textbook:	Bowles J.E., "Foundation Analysis and Design", McGraw-Hill		
<b>References:</b>	<ul> <li>Tomlinson M.J., "Foundation Design and Construction", A pitman International Text</li> <li>Teng W.C., "Foundation Design", Prentice – Hall</li> <li>Das B.M., "Principles of Foundation Engineering", Cengage Learning</li> </ul>		
Course Description:	This course will focus on the geotechnical aspects of foundation engineering. The course is designed to provide students with methods of analysis and design for various geotechnical systems. Topics to be covered include: subsurface investigation, slope stability, bearing capacity, settlement, and design of shallow foundations deep foundations and earth retaining structures		
Website:	http://www.philadelphia.edu.jo/academics/maliessa/		
	Dr. Mohammed Mustafa Mahmood Al-Iessa <b>Fmail</b> : maliessa@philadelphia.edu.io		
	<b>Office</b> : Civil Engineering Building, Room 210 – B. Ext: 2690		
Instructor:	<b>Class hours</b> : Sun, Tues, Thurs: 10:10-11:00 and 12:10-13:00		
	Mon, Wed: 11:15-12:45		
	Office hours: Sun, Tues, Thurs: 8:00-10:00 and 11:00-12:00		
	Mon, Wed: 8:00-11:15 and 12:45 -14:00		

Week	Торіс
1	Introduction to Foundation Engineering
2,3,4	Review of Fundamental Topics
4,5	Soil Site Explorations
6,7	Lateral earth Pressure
8,9	Bearing Capacity
10,11	Stability of Slopes
12,13	Design of Shallow Foundations
14,15	Design of Earth Retaining Structures

By the end of this course, students will be expected:

1.	To understand the importance of "Foundation Engineering" in civil engineering.	
2.	To correlate between "Soil Mechanics" and "Foundation Engineering" topics, and be able to use previous knowledge in Soil Mechanics.	
3.	To get familiar with soil site investigation and the tools and methods used in determining site soil properties.	
4.	To understand the concepts of lateral earth pressure and its effect on structures and how to design earth retaining structures.	
5.	To be able to estimate the bearing capacity of a soil.	
6.	To be familiar with slope stability problems.	
7.	To be able to design different types of foundations.	

#### **Assessment Guidance:**

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.
Quizzes:	(3) Quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Homework and	Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).
projects.	<u>Cheating by copying homework from others is strictly forbidden and punishable by</u> <u>awarding the work with zero mark.</u>
Collective	Brain storming and collective discussions will be carried out during any lecture.
Participation:	Individual student will be assessed accordingly.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

#### Grading policy:

First Exam	20
Second Exam	20
Quizzes	20
Final Exam	40
Total:	100%

#### **Attendance Regulation:**



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

# **Course Details:**

Title:	Hydrology (0670541)
Prerequisite:	0670441
Credit Hours:	3 credit hours (15 weeks per semester, approximately 44 contact hours)
Textbook:	Engineering Hydrology E.M.WILSON. Hydrology (principles ,Analysis, Design) by H M Raghunath 3 <sup>rd</sup> edition
<u>References:</u>	• <u>Hydrology and flood plain Analysis, Second- Editions. By Philip B.</u> Bedient and Wayne C. Huber
	Applied Hydrology by Ven Te Chow.
Course	This course is designed for civil engineering students in their 4th year. The course intends to give students a comprehensive idea about the
Description:	hydrology. Hydrologic cycle, surface water hydrology, precipitation, evaporation & transpiration, stream flow and Surface Runoff, infiltration
Website:	http://www.philadelphia.edu.jo/academics/ oaldmour /
	Eng. Othman Aldmour
Instructor	Email: Othman.mm1@gmail.com
mon uctor.	<b>Office</b> : Civil Engineering building, Room 312 <b>Office hours</b> : Sun, Tues, Thurs: 11:10-12:00 and Mon, Wed: 11:10-12:10

Week	Торіс
1,2,3	Introduction to Hydrology, Hydrologic Cycle, hydrologic Budget
4,5,6	Precipitation
7,8,9	Evaporation and Transpiration
10,11	Stream Flow & Surface Runoff
12,13	Reservoirs
14,15	Ground water

Upon successful completion of this course, student should:

1.	Be able to find areal rainfall by using three methods	[a, c, e]
2.	Be able to solve problems related with Evaporation and Transpiration	[e, k]
3.	Have the ability to read and understand hydrograph and finding runoff depth	[a, e]
4.	Understand the basics of water budget	[a , k]
5.	Understand the concept of double mass curve	[a,c,k]
6.	Be able to find hydraulic conductivity and discharge in ground water topic	[a]

### **Assessment Guidance:**

Evaluation of the student performance during the semester ( total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.
Quizzes:	(3-5) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Homework and projects:	Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).
	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

### **Grading policy:**

First Exam	20%
Second Exam	20%
Homework and projects	10%
Quizzes and participation	10%
Final Exam	40%
Total:	100%

### **Attendance Regulation:**



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

# **Course Details:**

Title:	Special Topics in Civil Engineering (0670553)
Prerequisite:	Finishing 120 Cr. Hrs.
<b>Credit Hours:</b>	3 credit hours (15 weeks per semester, approximately 44 contact hours)
Textbook:	
	Building Construction . Mr. A. Livon & Z. Sako ,1 st Edition , 1983, In Arabic
<b>References:</b>	Willey And Sons, Allan, E. Fundamentals of Building Construction 1990. ling Construction &Building Materials, Mr. Y. Al-Dawaf ,5 th Edition,1978 ( In Arabic )
Course Description:	Type of Buildings, Earth Works, Footing and Foundation Works, Brick and Block Works, Masonry Works, Pointing Works, Forms and Scaffolding Works, Beam, Girder and Column Works, Floor and Roofs Works & Finishes, Wall and Ceiling Works & Finishes, Arches, Lintels & Sills, Damp Proofing, Stair Works, Door and Window Works, Joint in Building Works.
Instructor:	Dr. Ahmad J. Dabdab Email: adabdab@philadelphia.edu.jo Office:Civil Engineering building, room 61-213, ext: 2463 Office hours: Sun, Tues, Thurs: 8:00-10:00 &1100-12:00 and Mon, Wed: 9:45 -11:15

week	Basic and support material to be covered
(1)	Type of Buildings
(2)	Earth Works
(3)	Footing and Foundation Works
(4)	Brick and Block Work
(5)	, Masonry Works
(6)	Pointing Works
First examination	
(7)	Forms and Scaffolding Works,
(8)	, Beam ,Girder and Column Works .
(9)	Floor and Roofs Works & Finishes
(10)	Wall and Ceiling Works

	&Finishes	
(11)	Arches, Lintels & Sills	
Second examination		
(12)	Damp Proofing,	
(13)	Stair Works	
(14)	Door and Window	
	Works	
(15)	Joint in Building Works .	
(16)	Joint in Building Works .	
Final Examination		

Upon successful completion of this course, student should:

1.	acquire knowledge and skills for the building construction trade and related professions	[d]
2.	appreciate the use of local materials for building construction.	[g]
3.	develop respect for the abilities of the craftsmen in the building industry.	[i]
4.	develop the capacity for providing solutions for constructional problems.	[f]
5.	use safety precautions and safe practices in the building industry	[f]
6.	appreciate the need for maintenance of buildings	[i]

### **Assessment Guidance:**

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

- **Sub-Exams:** The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.
  - **Quizzes**: (3-5) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.

Homework and projects:	<ul> <li>Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).</li> <li><u>Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.</u></li> </ul>	
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.	
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.	

# Grading policy:

First Exam	20%
Second Exam	20%
Homework and projects	12%
Quizzes and participation	8%
Final Exam	40%
Total:	100%

# **Attendance Regulation:**



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

## **Course Details:**

Title:	Special Topics in Civil Engineering (0670553) – 12 D Model	
Prerequisite:	Finishing 120 Cr. Hrs.	
<b>Credit Hours:</b>	3 credit hours (15 weeks per semester, approximately 44 contact hours)	
Instructor:	Eng. Makram Jaibaji Eng. Osama Al-Samadi	

## **Course Outlines:**

Week	Basic and support material to be covered
1 and 2	Infrastructure
3 and 4	Building Information Modeling BIM
5 and 6	Geographic Information System GIS
End of Week 6	First Exam
7 and 8	12d Interface
9 and 10	12d Survey
11 and 12	12d Road Design
End of Week 12	Second Exam
13 , 14 and 15	12d Drainage
End of Week 15	Final Exam

### **Assessment Guidance:**

Evaluation of the student performance during the semester ( total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.	
Quizzes:	(3-5) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.	
Homework and projects:	<ul> <li>k Tutorials sheets will be handed out to the students and homework</li> <li>ts: should be solved individually and submitted before or on a se agreed date. Student may be assigned to present project(s).</li> </ul>	
	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.	
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.	
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.	

# Grading policy:

First Exam	20%
Second Exam	20%
Quizzes and Participation	20%
Final Exam	40%
Total:	100%

## **Attendance Regulation:**



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

## **Course Details:**

Title:	Project Management (0670571)		
Prerequisite:	Reinforced Concrete 2 (0670412)		
<b>Credit Hours:</b>	3 credit hours (16 weeks per semester, approximately 44 contact hours)		
Textbook:	Project management for engineering and construction., New York: McGraw - Hill Higher Education		
	A Guide to the Project Management Body of Knowledge (PMBOK Guide)		
	-Modern Construction Management / Frank Harris and Ronald McCaffer, 6th ed, 2006		
<b>References:</b>	Oberlender, G. D., & Oberlender, G. D. (2000, 2nd edition). <i>Project</i> management for engineering and construction., New York: McGraw -Hill Higher Education		
	- PMBOK Guide (Project Management Body of Knowledge) USA-Project Management Institute 5th,ed		
Course	Planning, project management concepts, network analysis using arrow		
<b>Description:</b> techniques network analysis. Overlapping networks, project monitoring, project control, time- cost trade off.			
Website: <u>http://www.philadelphia.edu.jo/academics/alaa</u>			
	Dr. Ala'a Alshdiefat		
Instructor:	Email: aalshdiefat@philadelpia.edu.jo		
	Office: Civil engineering building, room, 312 ext.		
	Office hours: Office hours: Sun, Tue and Thu: 11:00-12:00 Mon and Wed 11:15-12:45		

Week	Торіс	
1	Introduction, Define Projects and Project Management, What is PMBOK Guide.	
2	Projects in the international business environment	
3	Project management.	
4	Project Planning.	
5,6	Scheduling the project and Gantt chart.	
7,8	Network programming using critical path mode (CPM)	
9,10	Techniques of Project Planning and control, using the Program Evaluation and Review Technique (PERT).	
11,12	Balancing the project.	
13,14	Censorship and Finish the project.	

15	Project presentation
16	Review & Final exam

Upon successful completion of this course, student should:

1.	Determine the role of project managers.	[a, c, e]
2.	Plan the work: perform WBS, estimate activity duration, and establish relationships among the project activities.	[e, k]
3.	Perform network analysis and scheduling calculations.	[a, e]
4.	Evaluate the project status	[a, c, k]
5.	Perform earned value analysis to control schedule and cost variances.	[a]

### **Assessment Guidance:**

Evaluation of the student performance during the semester ( total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.	
Quizzes:	(3) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.	
Homework and projects:	Tutorials sheets will be handed out to the students should be solved as group and submitted before or on a set agreed date. Student may be assigned to present $project(s)$ .	
	<u>Cheating by copying homework from others is strictly forbidden</u> and punishable by awarding the work with zero mark.	
Collective Participation:	ctiveBrain storming and collective discussions will be carried out duringpation:any lecture. Individual student will be assessed accordingly.	
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.	

### **Grading policy:**

First Exam	20%
Second Exam	20%
projects	15%
Quizzes and participation	5%
Final Exam	40%
Total:	100%

# **Attendance Regulation:**



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

# **Course Details:**

Title:	Project Management (0670571)	
Prerequisite:	Reinforced Concrete 2 (0670412)	
Credit Hours:	3 credit hours (16 weeks per semester, approximately 44 contact hours)	
Textbook:	A Guide to the Project Management Body of Knowledge (PMBOK Guide)	
	-Modern Construction Management / Frank Harris and Ronald McCaffer, 6th ed, 2006	
<b>References:</b>	- PMBOK Guide (Project Management Body of Knowledge) USA-Project Management Institute 5 <sup>th</sup> ,ed	
	الدليل المعرفي لادارة المشاريع ،الاصدار الخامس المعهد الامريكي للمقاييس القومية/معهد ادارة المشروعات ٢٠١٤،	
Course	Planning, project management concepts, network analysis using arrow	
Description:	cription: techniques network analysis. Overlapping networks, project monitoring, project control, time- cost trade off.	
Website:	http://www.philadelphia.edu.jo/academics/aissa/	
Instructor:	btructor: Dr. Atef Issa Email: AtefIssa1961@hotmail.com Office: Civil Engineering building, room 61315, ext: 2149 Office hours: 11:00 – 12:00, Sun /Tue/Thu	

Week	Торіс
1	Introduction, Define Projects and Project Management, What is PMBOK Guide.
2	Projects in the international business environment
3	Project management. & Project Planning
5	Scheduling the project.
6	Network programming using critical path mode (CPM)
7,8	Techniques of Project Planning and control, using the Program Evaluation and Review Technique (PERT).
9,10	Balancing the project.
11	Project Team Management.
12	Conflict management project.
13	Risk Management Project. & Feasibility studies.
14	Feasibility studies.
15	Censorship and Finish the project.
16	Review & Final exam

1.	Determine the role of project managers.	[a, c, e ,f]
2.	Plan the work: perform WBS, estimate activity duration, and establish relationships among the project activities.	[e,k]
3.	Perform network analysis and scheduling calculations.	[a, e]
4.	Optimize the plan: perform time-cost tradeoff	[a, k]
5.	Evaluate the project status	[a, c, k]
6.	Perform earned value analysis to control schedule and cost variances.	[a, k]
7.	Estimate equipment cost, productivity and production cost	[a, c, e, f ]
8.	Understand Quality management	[a, c, k]
9.	Understand Risk Management	[a, c]

Upon successful completion of this course, student should:

### **Assessment Guidance:**

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.
Quizzes:	(3-5) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Homework and projects:	Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).
	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

### **Grading policy:**

First Exam	20%
Second Exam	20%
Homework and projects	12%
Quizzes and participation	8%
Final Exam	40%
Total:	100%

### **Attendance Regulation:**



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

# **Course Details:**

Title:	Specifications, Contracts, and Quantity (0670572)		
Prerequisite:	Reinforced Concrete 2 (0670412)		
Credit Hours:	3 credit hours (16 weeks per semester, approximately 44 contact hours)		
Textbook:	عاطف عيسى، " العقود والمواصفات وحساب الكميات "		
References:	<ol> <li>Dauglass Douglas D, Gransberg C.M, Clain, Popescu R.C. and Ryan C. " Construction Equipment Management for Engineers, Estimators, and Owners" Taylor and Francis Group, New York, 2006</li> <li>Beal, C., "Masonry and Concrete ", McGraw – Hill New York, N.Y., 2001.</li> </ol>		
Course Description:	This course is designed for civil engineering students in their fifth year. The course intends to introduce types of contractual procedures, types of contracts, contract conditions, technical specification for buildings, bills of quantities, pricing and quantity measurement.		
Website:	http://www.philadelphia.edu.jo/academics/aissa/		
Instructor:	Dr. Atef Issa <b>Email</b> : AtefIssa1961@hotmail.com <b>Office</b> : Civil Engineering building, room 61315, ext: 2149 <b>Office hours</b> : 11:00 – 12:00,Sun /Tue/Thu 11:15—12:15 Mon / Wed		

Week	Торіс
1,2	Introduction :Technical Specifications, Quantity surveying, Contracts
3,4	Excavation and Fill, Concrete works
5,6	Masonry works, contracts-general principles
7,8	Block work, Plaster work, Types of contracts
9,10	Tile and Marble works, Tendering procedure, Contracts conditions documents
11,12	Joinery work/ Painting, General conditions of contracts
12,13	Plumbing Installations, Bill of quantities and prices
14,15	Dispute resolution, Projects presentation
16	Review & Final Exam

1.	Provide an introduction to the role of quantity surveying in within the client's specifications	[a, c, e, f]
2.	Understand contracts and budgets	[e,f,k]
3.	Understand quantities and measurements	[a, e]
4.	Understand technical specification for buildings	[a , j , k]
5.	Performing bills of quantities, pricing	[a, c, f k]
6.	Being familiar with contractual procedures	[a,c,k]

Upon successful completion of this course, student should:

### **Assessment Guidance:**

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.	
Quizzes:	(3-5) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.	
Homework and projects:	<ul><li>Tutorials sheets will be handed out to the students and homework</li><li>should be solved individually and submitted before or on a se agreed date. Student may be assigned to present project(s).</li></ul>	
	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.	
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.	
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.	

### **Grading policy:**

First Exam	20%
Second Exam	20%
Homework and projects	12%
Quizzes and participation	8%
Final Exam	40%
Total:	100%

### **Attendance Regulation:**


Faculty of Engineering and Technology Department of Mechanical Engineering Second Semester 2018/2019

## **Course Details:**

Title:	Dynamics (0620212)
Prerequisite:	Statics (0670211)
Credit Hours:	3 credit hours (16 weeks per semester, approximately 45 contact hours)
Textbook:	Engineering Mechanics-Dynamics-12th edition by R. C. Hibbeler
<b>References:</b>	Dynamics-7th edition by J. Meriam and L. Kraig
Course	The course is a requirement for Mechanical and Civil engineering students. It introduces the principles of Kinematics and Dynamics of particles and extend
Description:	the knowledge to cover the Dynamics of rigid bodies.
Website:	http://www.philadelphia.edu.jo/academics/aodeibat/
Instructor:	Eng. Abdallah Odeibat Email: aodeibat@philadelphia.edu.jo Office: Civil Engineering Building, Room 213 – B, Ext: 2463 Class hours: Mon, Wed: 9:45-11:15 Sun, Tues, Thurs: 09:10-10:00 Office hours: Sun, Tues, Thurs: 10:00-11:00 and 12:00-11:00 Mon, Wed: 8:15-9:45 and 12:45 -14:00

#### **Course Outlines:**

Week	Торіс
1	-Introduction -Rectilinear Kinematics: Continuous Motion
2	-General Curvilinear Motion of Particles - Rectangular Components -Motion of a Projectile
3	-Normal and Tangential Components -Absolute Dependent Motion of Two Particles
4	-Relative motion of two Particles using Translating axes.
5	-Kinetics of Particles: Newton's 2nd Law -Equation of Motion: Rectangular Coordinates, Equation of Motion for a System of Particles
6	-Equation of Motion: Normal and Tangential Coordinates
7,8	<ul><li>-The Work of a Force</li><li>-Principle of Work and Energy</li><li>-Principle of Work and Energy for a System of Particles</li></ul>
9	-Conservative Forces and Potential Energy -Conservation of Energy
10	-Kinematics of rigid bodies: rotation, absolute motion, relative velocity method
11, 12, 13	-Planer Kinematics of rigid bodies: instantaneous center method, velocity triangle and acceleration polygon .
14, 15	-Planar Kinetics of rigid bodies -Moment of inertia, Planar kinetic of motion, Equation of motion: translation -Equation of motion: rotation about fixed axis. Equation of motion: general

	plane motion
16	Review, and final exam

#### **Course Learning Outcomes with reference to ABET Student Outcomes:**

Upon successful completion of this course, student should:

1.	Draw the free-body diagram for a particle or for a rigid body in plane motion.	[a, e , k]
2.	Understand the basic concepts of force, mass and acceleration, of work and energy, and of impulse and momentum.	[a, e , k]
3.	Apply the above-mentioned three basic concepts and to understand their respective advantages.	[a, e , k]
4.	Explain the geometry of the motion of particles and plane motion of rigid bodies.	[a, e, k]
5.	Effectively communicate in writing an assignment.	[g]

#### **Assessment Guidance:**

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams:	The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.
Quizzes:	(5) Quizzes of (15-20) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Homework and	Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).
projects.	Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.
Collective Participation:	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

#### Grading policy:

First Exam	20%
Second Exam	20%
Quizzes and participation	20%
Final Exam	40%
Total:	100%

#### **Attendance Regulation:**

The semester has in total 45 credit hours. Total absence hours from classes and tutorials must not exceed 15% of the total credit hours. Exceeding this limit without a medical or emergency excuse approved by the deanship will prohibit the student from sitting the final exam and a zero mark will be recorded for the course. If the excuse is approved by the deanship the student will be considered withdrawn from the course.



Faculty of Engineering and Technology Department of Civil Engineering Second Semester 2018/2019

## **Course Information**

Title:	Engineering Analysis 1 (0650260)	
Prerequisite:	Differentiation and integration 2 (0250102)	
<b>Credit Hours:</b>	3 credit hours (16 weeks per semester, approximately 44 contact hours)	
Textbook:	Advanced Engineering Mathematics By:Erwin Kreyszig 10th edition, 2011	
References:	<ol> <li>Boyce, William E., DiPrima, Richard C., Elementary Differential Equations, ninth Edition, Wiley, New York, 2009.</li> <li>Rabenstein, Albert L., Elementary Differential Equations with Linear Algebra, Third Edition, Academic Press, New York, 1982.</li> <li>Krusemeyer, Mark, Differential Equations, Macmillan Publishing Co., New York, 1994.</li> <li>Simmons, George F., Differential Equations with Applications and Historical Notes, third edition, Taylor &amp; Francis Group, LLC, 2017</li> <li>IlcZiq are It cavi Itig Image I Instruction Intervention I</li></ol>	
Catalog Description:	6) http://www.sosmath.com/diffeq/diffeq.html The course is a requirement for all engineering students. It introduces the principles of digital communications to make the student able to understand the communication system with zoom in digital form of electronics.	

Website: http://www.philadelphia.edu.jo/academics

#### Instructor:

## **Course Topics**

Week	Торіс
1	Basic Concepts & Ideas
2, 3, 4	First Order Differential Equations
5, 6, 7	Second Order Differential Equations
8	Higher Order Differential Equations
9	Laplace Transform, Inverse Laplace Transform
10, 11	Laplace Transform properties
12	Solving DE using Laplace Transform
13, 14	Power Series Method
14, 15	Frobenius method and Projects discussion.
16	Final Examination

## **Course Learning Outcomes and Relation to ABET Student Outcomes:**

Upon successful completion of this course, a student should:

1.	Understand Basic concepts and the elementary of DE	а
2.	Be able to distinguish the appropriate methods to solve DE	а
3.	Use fundamental knowledge to analyze and solve different engineering models	е
4.	Able to use Laplace Transform and power series to solve DE	а

#### **Assessment Instruments:**

Evaluation of students' performance (final grade) will be based on the following categories:

- **Exams:** Two written exams will be given. Each will cover about 3-weeks of lectures
- **Quizzes**: 10-minute quizzes will be given to the students during the semester. These quizzes will cover material discussed during the previous lecture(s).
- **Homework**: Problem sets will be given to students. Homework should be solved individually and submitted before the due date.

Copying homework is forbidden, any student caught copying the homework or any part of the homework will receive zero mark for that homework

**Participation:** Questions will be asked during lecture and the student is assessed based on his/her response

Final Exam: The final exam will cover all the class material.

### **Grading policy:**

First Exam	20%
Second Exam	20%
Quizzes and participation	20%
Final Exam	40%
Total:	100%

#### **Attendance policy:**

Absence from classes and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse, acceptable to and approved by the Dean of the relevant college/faculty, shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.



Faculty of Engineering and Technology Mechatronics Engineering Department Second Semester 2018/2019

Title:	Engineering Skills (0640253)
Prerequisite:	English II (130102)
Credit Hours:	Three credit hours (16 weeks per semester, approximately 45 contact hours)
Textbook:	Foundations of Engineering by Holtzapple and Reece. 2nd edition
Class Time:	10:10-11:00 Sun, Tue, Thu
	9:45-11:15 Mon, Wed
Website:	http://www.philadelphia.edu.jo/academics/aalshdiefat/
Instructor:	Dr. Ala'a Alshdiefat Email: aalshdiefat@philadelphia.edu.jo Office: Civil engineering building, room, 312 ext. Office hours: Sun, Tue and Thu: 11:00-12:00 Mon and Wed 11:15-12:45

### **Course Learning Outcomes with reference to ABET Student Outcomes:**

Upon successful completion of this course, student should:

1.	Remember and understand engineering definition and history	h
2.	Analyze basic engineering problems	a, e
3.	Propose and evaluate design solutions	c, h
4.	Communicate effectively within a team environment	g ,d
5.	Write technical reports	g
6.	Understand professional and ethical responsibility	f
7.	Understand project management basics and plan the management of simple projects	d

Course Academic Calendar				
Week	Subject			
Feb 17	<b>Introduction</b> Course outline; Student Learning Outcomes; Introduction to Engineering: Definition and History, Engineering Disciplines, Successful Engineering Skills			
Feb 24	<b>Problem Solving</b> Types of Problems, Problem Solving Skills, Problem Solving Procedure			
Mar 3	Estimation, Creativity			
Mar 10	Introduction to Design           Design Method Steps, Problem Definition, Solution Search			
Mar 17	Analysis, Implementation, Evaluation, Examples			
	Exam I			
Mar 24	Communication I: Technical Reading			
Mar 31	1 Communication II: Technical Writing			
	Engineering Documents; Main Sections in Technical Reports			
Apr 7	Constructing Sentences; Punctuation; Constructing Paragraphs; Action Verbs			
Apr 14	Writing workshop			
Apr 28	Communication III: Presentation			
	Oral Presentation; Preparation; Structure; Visuals; Voice Quality; Body Language			
	Exam II			
May 5	Ethics Interaction rules; Moral theories; Guidelines; Engineering Responsibility			
May 12	Project Management Skills			
	CPM, Gantt Chart, Team Building, Leadership			
May 19	Student Presentations I			
May 26	Student Presentations II			
Jun 2	Review			
FINAL EXAM (Jan 26 to Feb. 2)				
Assessment Guidance:				
Evaluation of the student performance during the competer will be based on the fallowing:				

Evaluation of the student performance during the semester will be based on the following:

- **Exams:** Two written exams will be given to the students. Each exam will cover material from the previous 4-5 weeks. Also, students will have a final exam at the end of the semester covering all the materials taught in the course.
- **Quizzes**: Three 10-minute quizzes will be given to the students. The material will be based on one or two lectures.
- **Project** Students will be required to work in a team to study an engineering system, write a technical report, and present the results in class.

#### **Grading policy:**

First Exam		20%
Second Exam		20%
Project / Quizzes		20%
Final Exam		40%
	Total:	100%



Faculty of Engineering and Technology Department of Mechanical Engineering Second Semester 2018/2019

## **Course Information**

Title:	Statics (620211)
Prerequisite:	Calculus-1 (0250101)
<b>Credit Hours:</b>	3 credit hours (16 weeks per semester, approximately 44 contact hours)
Textbook:	Engineering Mechanics-Statics-12 <sup>th</sup> edition by R. C. Hibbeler
<b>References:</b>	Statics-7 <sup>th</sup> edition by J. Meriam and L. Kraig
Description:	The course is a requirement for Mechanical and Civil engineering students. It introduces Force vectors, moment of a force, equilibrium of rigid body. And extend the knowledge to cover internal forces of rigid bodies.
Instructor:	<b>Dr. Nabil Musa</b> <b>Office</b> : Mechanical Engineering building, room E61206, ext. : 2543

# Office hours: Sun, Wed, Thurs: 10:00-11:00

## **Course Topics:**

Week	Торіс	
1	- Introduction and Basic Concepts of Statics	
2	- Force vectors and its operations	
3	- Equilibrium of a particles	
4	- Moment of a force and its operations(Scalar Formulation)	
5	- Moment of a force and its operations(Vector Formulation)	
6	- Moment of a force about an axis, couple moment.	
7,8	- Friction, Friction forces and its applications.	
9	- Equilibrium of a rigid body(2-D Equilibrium)	
10	- Equilibrium of a rigid body(3-D Equilibrium)	
11, 12, 13	- Internal normal Forces, Truss Analysis	
14, 15	- Internal Forces, Shear force and Bending Moment Diagram.	
16	Review, and final exam	

## **Course Learning Outcomes and Relation to ABET Student Outcomes:**

1.	Draw the free-body diagram for a particle or for a rigid.	[a, e, k]
2.	Understand the basic concepts of force, vectors, moment.	[a, e, k]
3.	Apply the above mentioned three basic concepts and to understand their respective advantages.	[a , e, k]
4.	Explain the geometry of the equilibrium of particles and rigid bodies.	[a, e, k]
5.	Effectively communicate in writing an assignment.	[g]

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

#### **Assessment Instruments:**

Evaluation of students' performance (final grade) will be based on the following categories:

- Exams: Two written exams will be given. Each will cover about 3-weeks of lectures
  Quizzes: 10-minute quizzes will be given to the students during the semester. These quizzes will cover material discussed during the previous lecture(s).
  Homework: Problem sets will be given to students. Homework should be solved
  - individually and submitted before the due date.

Copying homework is forbidden, any student caught copying the homework or any part of the homework will receive zero mark for that homework

**Participation:** Questions will be asked during lecture and the student is assessed based on his/her response

Final Exam: The final exam will cover all the class material.

### **Grading policy:**

First Exam	20%
Second Exam	20%
Home works, Quizzes and	20%
participation	
Final Exam	40%
Total:	100%

### **Attendance policy:**

Absence from classes and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse, acceptable to and approved by the Dean of the relevant college/faculty, shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.