Philadelphia University

Faculty of Engineering - Mechatronics Engineering Department

First Semester 2021/2022

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 ed.
References	Engineering Fundamentals: An Introduction to Engineering by S. Moaveni. 5th ed.
	Engineering Your Future: A Brief Introduction to Engineering by W. Oakes.9th ed.
Class Times:	Sunday and Tuesday 14:15-15:45
Website:	http://www.philadelphia.edu.jo/academics/alaa

Instructor: **Dr. Ala'a Alshdiefat**

Email: aalshdiefat@philadelpia.edu.jo

Office: Civil engineering building, room, 312 ext.

Office hours: **Office hours: Sun, Tue and Thu: 10:00-11:00**
Mon and Wed 12:45-14:15

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Understand engineering definition	[2]
2.	Analyze basic engineering problems	[1]
3.	Propose and evaluate design solutions	[2]
4.	Communicate effectively within a team environment	[3, 5]
5.	Read research paper and write a technical report	[3]
6.	Understand professional and aware of ethical responsibility	[4]
7.	Understand project management basics and plan the management of simple projects	[5]

Course Academic Calendar	
Week	**Subject**
1	**Introduction** Course outline; Student Learning Outcomes; Introduction to Engineering: Definition, Engineering Disciplines, Successful Engineering Skills
2	**Problem Solving** Types of Problems, Problem Solving Skills, Problem Solving Procedure
3	Estimation, Creativity
4	**Introduction to Design** Design Method Steps, Problem Definition, Solution Search
5	Analysis, Implementation, Evaluation, Examples
	Exam I
6	**Communication I**: **Technical Reading** How to read a textbook.
7	**Communication II: Technical Writing** Engineering Documents; Main Sections in Technical Reports
8	Constructing Sentences; Punctuation; Constructing Paragraphs;
9	**Writing workshop** How to Write a Proposal; How to Write a Technical Report.
10	**Communication III: Presentation** Oral Presentation; Preparation; Structure; Visuals; Voice Quality; Body Language
	Exam II
11	**Student Presentations I** First Draft Student Presentations.
12	**Ethics** Code of Ethics for Engineers (Jordanian Engineers Association). Interaction rules; Moral theories; Guidelines; Engineering Responsibility
13	**Project Management Skills** CPM, Gantt Chart, Team Building, Leadership
14	**Student Presentations II**
15	**Review**
	FINAL EXAM

Assessment Guidance:

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%

Philadelphia University

First Semester 2021-2022

Course Details:

Title:	Development and Environment (067010100)
Prerequisite:	
Credit Hours:	3 credit hours (15 weeks per semester, approximately 45 contact hours)
Textbook:	" There is no text book for this class. but, various internet resources
References:	Related Journal articles and news Handbook of Sustainable Development. Atkinson, G., Dietz, S., and Neumayer, E. (eds.) (2007). Cheltenham: Edward Elgar.. An Introduction to Sustainable Development. Elliott, J.A. (2006). 3rd edition. London: Routledge.
Course Description:	This course examines the relations between the environmental elements (Air, Water, Soil, Flora and Fauna) and the development as well as the ways to achieve it. Furthermore, it introduces the learners to the concepts of Sustainable Development (SD) and the interactions among its components (social, economic and environmental). It will provide the basic understanding of these challenges and opportunities, will introduce the strategies and instruments of sustainability. The course will also introduce the emerging global concepts such as climate change, SDG'S, green economy, ecological collapse ..etc
Lecture means	Lectures, Class discussion, self-reading as well as site or guests involvements
Website:	http://www.philadelphia.edu.jo/academics/myounes/
Instructor:	Dr. Mohammad Younes **Email**: myounes@philadelphia.edu.jo **Office**: Civil Engineering Building, Office No 312 , ext: 2641 **Classes hours: Sun & Tue (9:45 – 11:15 ; 12:45 – 14:15)** **Mon& Wen (9:45 – 11:15 ; 12:45 – 14:15)** **Office hours**: all week days from 11:20-12:30

Course Outlines:

Week	Topic
1,2	The environment fundamentals, indicators and conservation concepts
2,3,4	SD and its components, SD instruments and measurements. markets readiness
5,6	Government, Education and Science to deal with the SD and environmental challenges and opportunities
7,8	Improve the life of the people without overburdening the ecosystems, local and global initiatives
9,10	introduction to solid waste management (classification, waste hierarchy, WM principles), sustainable power resources
11,12,13	Emerging terms (Climate change, biodiversity, green economy) Mitigation measure and adaptations
14,15	Projects presentation and discussions

Course Learning Outcomes:

Upon successful completion of this course, student should:

1.	Comprehend the complexity and various forms and dimensions of SD, its relation to environment and link the existing challenges and opportunities	
2.	Describe, analysis and deal with the environmental and SD problems to develop a solutions for our life. and understand the drivers behind them.	
3.	Develop interest and ability in discovering and exploiting environmental and SD opportunities, risks and trying out novel ideas and/or methods	
4.	Effectively function either as a team leader or a member, motivate and lead team to work toward environmental issues	
5.	Develop the concepts of collaborative work, effective communications and work with the team members and/or other people. As well as apply research, analytical and critical thinking skills to specify SD problems and solutions	

Assessment Guidance:

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

Assignments (20%)**:**	students will complete 2-3 short assignments (5-10% each). These consist of a selective literature critical review (about 1,500 words) that will be presented in the tutorials
Term Project(Research report) (20%+10%) :	students are required to do either a research essay or report about an environment and development issue of their choice. (at least 2,000 words) then they will present and discuss it in the tutorials **<u>Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.</u>**
Collective Participation: (10%)	Brain storming and collective discussions will be carried out during any lecture. Individual student will be assessed accordingly.
Final Exam: (40%)	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

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.

Philadelphia University

Faculty of Engineering and Technology -
Department of Civil Engineering
First Semester 2021/2022

Course Details:

Title:	Engineering Statistics (070202)
Prerequisite:	Calculus (I) (0250105)
Credit Hours:	2 credit hours (15 weeks per semester, approximately 30 contact hours)
Textbook:	Applied Statistics and Probability, 3 rd edition, Douglas C. Montgomery, George C. Runger.
References:	Statistics and Probability for Engineers and Sciences , 6 th edition ,William M.,Terry L.
Course Description:	Statistics provides an introduction to selected important topics and concepts. This course represents an introduction for undergraduate students to the field and provides knowledge for kind of statistical studies and their graphical presentation. Specific topics include tools for describing central tendency and dispersion of data; probability concepts; statistical hypothesis testing and its application to group comparisons; methods of sampling and various statistical measures.
Website:	http://www.philadelphia.edu.jo/academics
Instructor:	Eng. Adnan Abdelhadi **Email**: adnan_m_abdelhadi@yahoo.com **Office**: Civil Engineering Building, Room 61-301 / A **Class hours**: Monday & Wednesday :$9^{:45}$ – $10^{:45}$ **Office hours**: Sun, Tue, Thu:$08^{:30}$-$9^{:30}$ & $11^{:30}$ – $12^{:30}$ Mon, Wed: $8^{:30}$ – $9^{:30}$ & 11:30 – 12:30

Course Outlines:

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

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Identify the need of statistics in Engineering	[1, 2]
2.	Defining the various topics required in Statistics	[2]
3.	Ability to solve and analyze the various Probability concepts	[1, 2, 6]
4.	Understanding the mean of Regression	[2, 6]
5.	Ability to interpret the statistical results	[1, 2, 6]
6.	Knowing how to deal with different types of data	[1,6]

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 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%
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.

Philadelphia University

Faculty of Engineering and Technology -
Department of Civil Engineering
First Semester 2021/2022

Course Details:

Title:	Engineering Statistics (0670203)
Prerequisite:	Calculus (I) (0250105)
Credit Hours:	3 credit hours (15 weeks per semester, approximately 45 contact hours)
Textbook:	Applied Statistics and Probability, 3 rd edition, Douglas C. Montgomery, George C. Runger.
References:	Statistics and Probability for Engineers and Sciences , 6 th edition ,William M.,Terry L.
Course Description:	Statistics provides an introduction to selected important topics and concepts. This course represents an introduction for undergraduate students to the field and provides knowledge for kind of statistical studies and their graphical presentation. Specific topics include tools for describing central tendency and dispersion of data; probability concepts; statistical hypothesis testing and its application to group comparisons; methods of sampling and various statistical measures.
Website:	http://www.philadelphia.edu.jo/academics
Instructor:	Eng. Adnan Abdelhadi **Email**: adnan_m_abdelhadi@yahoo.com **Office**: Civil Engineering Building, Room 61-301 / A **Class hours**: Monday & Wednesday :$9^{:45}$ – $11^{:15}$ **Office hours**: : Sun, Tue, Thu:08:30-9:30 & 11:30 – 12:30 Mon, Wed: 8:30 – 9:30 & 11:30 – 12:30

Course Outlines:

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

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Identify the need of statistics in Engineering	[1, 2]
2.	Defining the various topics required in Statistics	[2, 3]
3.	Ability to solve and analyze the various Probability concepts	[1, 2, 6]
4.	Understanding the mean of Regression	[3, 6]
5.	Ability to interpret the statistical results	[1, 2, 3 , 6]
6.	Knowing how to deal with different types of data	[1,6]

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 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%
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.

Philadelphia University

Faculty of Engineering and Technology
Department of Civil Engineering
First Semester 2021/2022

Course Details:

Title: Strength of Materials (670212)

Prerequisite: Dynamics (620212)

Credit Hours: 3 credit hours (15 weeks per semester, approximately 45 contact hours)

Textbook: Mechanics of Materials -10th edition by R. C. Hibbeler

References: Strength of Materials- Elementary Theory and Problems- Part I- 2 nd edition by S. Timoshenko

Course Description: The course introduces concepts of stress and strain, properties of materials, axial loading, torsion, pure bending, analysis and design of beam for bending, shear stress in beams, transformation of stress and strain, deflection of beams, columns, and energy methods.

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

Instructor:
Dr. Sawsan Alkhawaldeh
Email: salkhawaldeh@ philadelphia.edu.jo
Office: Civil engineering building, Room 315
Class hours: Mon, Wed: 8:15 - 9:45
Classroom: 6201
Office hours: Sun, Mon, Tues, Wed: 9:45 - 11:15

Course Outlines:

Week	Topic
1	Introduction and Basic Concepts of Solid Mechanics
2	Stress and strain
3	Mechanical properties of materials
4	Axial loading
5	Torsion
6	Analysis and design of beam for bending
7, 8	shear stress in beams
9	Transverse shear
10, 11, 12	Transformation of stress and strain
13, 14	Deflection of beams
15	Columns, energy methods

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Provide a thorough understanding of the basic concepts of solid mechanics, Stress and strain.	[1, 2, 4, 7]
2.	Understand mechanical properties of materials, and axial loading.	[1, 2, 4, 7]
3.	Torsion, analysis and design of beam for bending.	[1, 2, 4, 7]
4.	Determine shear stress in beams, transverse shear, strain transformation.	[1, 2, 4, 7]
5.	Transformation of stress and strain, Deflection of beams, Columns, energy methods	[1, 2, 4, 7]

Assessment Guidance:

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

Exams:	The students will be subjected to two scheduled exams during the semester.
Quizzes:	(2-4) 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. <u>Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.</u>
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%
Semester works	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.

Philadelphia University

Faculty of Engineering and Technology

Department of Civil Engineering

First Semester 2021/2022

Course Details:

Title:	Strength of Materials Laboratory (0670213)
Prerequisite:	Strength of Materials (0670212)
Credit Hours:	1 credit hours (10 weeks per semester, approximately 30 contact hours)
Textbook:	Strength of Materials Laboratory Manual
References:	American Society of Testing and Materials. (2014).
Course Description:	Tensile test, Shear force and bending moment test, Impact test, Fatigue test, Creep test, Hardness test, Deflection of beams, Buckling..
Instructor:	Eng. Reem Mohammad Bataineh. Email: rbataineh@philadelphia.edu.jo Office: Construction of Materials lab, Ext: 2708 Class hours: Tues, Wed: 13:10-16:00

Course Outlines:

Week	Topic
1+2	Tensile test
2	Buckling Test
3	Shear and Bending moment
4	Creep Test
5	Fatigue Test
6	Impact Test
7	Hardness Test
8+9	Deflection of Beams

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	To be familiar with lab equipment's and learn how to operate them.	2, 5, 6
2.	To be able to read data correctly, and interpret it into results.	1,5,6
3.	To analyze the results.	1,6
4.	To be able to prepare a technical report for each lab class	1,2,5,6

Assessment Guidance:

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

Reports and Classwork:	The students should submit a technical report after each laboratory experiment. The report sub-titles are Introduction, Objectives, Procedures and Equipment, Calculations, Results, and Conclusion.
Quizzes:	(3) Quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
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:

Reports and Classwork	40%
Quizzes	20%
Final Exam	40%
Total:	100%

Attendance Regulation:

The semester has in total 30 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.

Philadelphia University

Faculty of Engineering and Technology
Department of Civil Engineering
First Semester 2021/2022

Course Information

Title: **Construction Materials (0670214)**
Sun, Tue 12:45-14:15
Classroom: 206

Prerequisite: Calculus II (0250102)

Credit Hours: 3 credit hours (15 weeks per semester, approximately 45 contact hours)

Textbook: A. M. Neville, and J.J Brooks, **Concrete Technology**, Second Edition-2010, Prentice Hall

References: A. M. Neville, **Properties of Concrete**, Fifth Edition-2011.

Course Description: This course is designed to provide an advanced understanding of cement chemistry, hydration reaction of Portland cement, chemical and physical interaction of aggregates and admixtures with the hydrated cement paste and their effects on the performance of fresh and hardened concrete. Concrete durability problems. Quality of water. Concrete operations, mixing, handling, compacting, and curing of concrete. Testing of concrete. Concrete mix design.

Website: https://www.philadelphia.edu.jo/academics/maldwaik/

Instructor: **Dr. Mais Aldwaik**
Email: Aldwaik.1@osu.edu
Office: Civil engineering building, room 318
Office hours: Mon, Wed: 9:45-11:15, Sun, Tues, Thur: 11:15-12:45

Course Outline

Week	Topic
1	Concrete as a structural material.
2	Cement; types, manufacturing, properties, hydration, and tests.
3	Aggregates; classifications, mechanical and physical properties.
4	Quality of water; mixing water, curing water, and tests.
5	Mixing, handling, placing, and compacting concrete.
6	Fresh concrete; workability, segregation, bleeding, and tests.
7	Admixtures; air entraining, accelerators, set-accelerators, set-retarders, and water-reducers.
8	Development of strength; curing, influence of temperature, and maturity rule.
9	Strength of concrete; compressive, tensile, flexural, splitting, and tests.
10	Fatigue strength, impact strength, resistance to abrasion, and bond to

	reinforcement.
11	Elasticity and creep.
12	Deformation and cracking independent of load; shrinkage, swelling, and thermal movement.
13	Permeability and durability; sulphate attack, attack by sea water, acid attack, alkali-aggregate reaction, and corrosion of reinforcement.
14, 15	Concrete mix design.

Course Learning Outcomes with reference to ABET Student Outcome

Upon successful completion of this course, student should:

1.	Develop an understanding of concrete as a structural material	1,2
2.	Develop an understanding of cement types, manufacturing, properties, hydration, and testing	1,7
3.	Analyze aggregate data and classify its types, mechanical and physical properties	2,6
4.	Develop an understanding of quality of water and admixtures used in concrete production	2,7
5.	Apply knowledge to decide best method for concrete mixing, handling, placing, and compacting	6,7
6.	Evaluate fresh concrete properties based on testing results	6
7.	Evaluate hardened concrete properties based on testing results	6
8.	Perform concrete mix design	1,2,7

Assessment Guidance (subjected to change based on COVID-19 government updates and Philadelphia University updates)

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

Exams: Students will be subjected to two scheduled exams during the semester.

Quizzes: One-three quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.

Homework: Two-four homeworks will be assigned during the semester. You are usually given one week to submit each home work. 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 students will be assessed accordingly.

Final Exam: 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%
Home works, Quizzes, and term work	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.

Philadelphia University

Faculty of Engineering and Technology

Department of Civil Engineering

First Semester 2021/2022

Course Details:

Title:	Construction of Materials Laboratory (0670216)
Prerequisite:	Construction of Materials (0670214)
Credit Hours:	1 credit hours (10 weeks per semester, approximately 30 contact hours)
Textbook:	Construction of Materials Laboratory Manual
References:	American Society of Testing and Materials. (2014).
Course Description:	Tests of Cement at Construction site, Fineness of Cement, Normal Consistency, Initial and final Setting time, Density and Specific Gravity of cement, Slump Test, Flow Table test, Compressive Strength, Tensile Test, Sieve Analysis, Specific gravity and Absorption for Coarse aggregate, Specific Gravity and Absorption For fine aggregate.
Instructor:	Eng. Reem Mohammad Bataineh. **Email**: rbataineh@philadelphia.edu.jo **Office**: Construction of Materials lab, Ext: 2708 **Class hours**: Tues, Wed: 13:10-16:00

Course Outlines:

Week	Topic
1	Quality cement tests done at site
2	Fineness of Cement.
3	Normal Consistency of cement paste.
4	Initial and Final Setting times.
5+6	Compressive strength of concrete.
7	Tensile Strength of mortar.
8	Sieve Analysis.
9	Slump Test of Concrete
10	Flow table test.
11	Unit weight and voids in aggregate

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Determine the workability of mortar and concrete.	1, 5,6
2.	Determine the compressive of concrete	1 , 5,6
3.	Determine the quality of cement at the lab	1 ,5 ,6
4.	Determine the quality of cement at the site	1 , 5 ,6
5.	Determine the quality of aggregate	1, 5,6

Assessment Guidance:

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

Reports and Classwork:	The students should submit a technical report after each laboratory experiment. The report sub-titles are Introduction, Objectives, Procedures and Equipment, Calculations, Results, and Conclusion.
Quizzes:	(3) Quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
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:

Reports and Classwork	40%
Quizzes	20%
Final Exam	40%
Total:	100%

Attendance Regulation:

The semester has in total 30 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.

Philadelphia University

Faculty of Engineering and Technology
Department of Civil Engineering
First Semester 2021/2022

Course Details:

Title:	Building Construction and Civil Drawing (0670217)
Prerequisite:	Construction Materials Lab (0670214)
Credit Hours:	3 credit hours (15 weeks per semester, approximately 45 contact hours)
Textbook:	Structural Analysis- 8th edition, by R.C Hibbeler, Pearson Prentice Hall; 2012
References:	ارتين ليقون، زهير ساكو. انشاء المباني. العراق. جامعة بغداد، 1983. Building Construction Handout. N. Abo.Naser
Course Description:	Classification of Structural elements and Types of buildings, Classification of Loads; Classification of slab based on slab system; Analysis of isolated solid slab; Classification of reinforced concrete solid slab (one way or two way); Analysis of continuous slab; Determination of minimum thickness of slab; Calculation of dead and live load on solid and ribbed slab; Analysis of two way solid slab; Calculation of loads on reinforced beams (load coming from slab); Analysis beams supported two way slab using Actual uniform distributed load and Equivalent distributed load; Analysis of one way and two way of hollow slab; Definition of flat slab; Classification of columns; calculations of column cross section; Earth materials and Excavations; Classifications od concrete foundations; calculations of depth and area of isolated footing; construction of concrete wall, sections in concrete beams, columns, slabs, and walls.
Website:	http://www.philadelphia.edu.jo/academics/aobaidat/
Instructor:	Dr. Ala' Taleb Obaidat **Email**: aobaidat@philadelphia.edu.jo **Office**: Civil engineering building, Room 317, ext: 2692 **Class hours**: Sat, Mon, Wed: 08:15-09:05 **Office hours**: Sun, Tues, Thurs: 10:00-11:00 and 12:00-13:00 Mon, Wed: 10:15-14:00

Course Outlines: The course will be carried out online through Microsoft Teams Platform

Week	Topic
1	Introduction
2	Chapter 1: Classification of Structural elements and Types of buildings and Classification of Loads
3,4	Chapter 2: Classification of slab based on slab system; Analysis of isolated solid slab
5,6	Chapter 3: Classification of reinforced concrete solid slab (one way or two way); Analysis of continuous slab; Determination of minimum thickness of slab
7,8	Chapter 4: Calculation of loads on reinforced beams (load coming from slab); Analysis beams supported two way slab using Actual uniform distributed load and Equivalent distributed
10,11	Chapter 8: Analysis of one way and two way of hollow slab; Definition of flat slab; Classification of columns; calculations of column cross section;

12,13	Chapter 9: Earth materials and Excavations; Classifications od concrete foundations; calculations of depth and area of isolated footing;
14,15	Chapter 6: construction of concrete wall, sections in concrete beams, columns, slabs, and walls.

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Provide a thorough understanding and practical applications of slabs	[1, 2]
2.	Develop the skills to analyze the behavior and response of structures to various loads and constraints.	[1]
3.	Analyze determinate structures (one way and two way of solid and ribbed slab) under various loading conditions.	[1, 2, 5]
4.	Determine the reaction and maximum moment on beams supported one way and two way slabs using equilibrium and compatibility equations.	[1 , 2, 5]
5.	Determine reactions on columns and classify whether the column is short or slender in addition to calculate the cross section of column.	[1 , 2]
6.	Provide an information about excavation of building foundation.	[1, 2]
7.	Determine the area of isolated footing and its thickness	[1,,2]
8.	Learning how to draw the section in concrete beam, slab, column, and wall	[1]

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 one midterm scheduled written exam during the semester. This exam will cover materials given in lectures in the 1-5 weeks.

Quizzes: (2) 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. Two homeworks will be conducted during the semester.

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 Term Exam	20%
Second Term Exam	20%
Homework and Quizzes	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.

Philadelphia University

Faculty of Engineering and Technology
Department of Civil Engineering
First Semester 2021/2022

Course Details:

Title:	Engineering Geology (0670231)
Prerequisite:	250102
Credit Hours:	3 credit hours (16 weeks per semester, approximately 45 contact hours)
Textbook:	Engineering Geology ,Principles and Practice, by David George
References:	Engineering Geology,F 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 **Email**: aassouli@philadelphia.edu.jo or eng.amanyassouli90@yahoo.com **Office**: Civil Engineering Building, Room 212/6 – E , Ext: 2513 **Class hours**: Sun & Tues: 08:15-09:45 **Office hours**: Mon, Wed: 9:45-11:15

Course Outlines:

Week	Topic
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
10,11	Earthquakes
12,13	Site Investigation
14,15	Soil Classification
16	General Review, and Final Exam

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Understand the structural composition of the earth	[a, d]
2.	Be able to distinguish between various types of minerals	[a, h]
3.	Identify the types of various rocks types	[a , h]
4.	Understanding how earthquakes happened and studying seismic waves	[a, d, h]
5.	Ability to classify different types of soils	[h, k]
6.	Knowing the mean of aquifers and underground water	[c ,k]
7.	Recognize the meaning of soil investigation and improvement of soils	[a, d]

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 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	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.

Philadelphia University

Faculty of Engineering and Technology

Department of Civil Engineering

First Semester 2021/2022

Course Details:

Title:	Surveying Laboratory (0670262)
Prerequisite:	Surveying (0670261)
Credit Hours:	1 credit hours (10 weeks per semester, approximately 30 contact hours)
Textbook:	Surveying Laboratory Manual
References:	Surveying Fundamentals and Practices, 6th edition, Jerry Nathanson, Michael T. Lanzafama, Philip Kissam
Course Description:	Pacing and Taping, Level Instrument, Leveling, Profile Drawing, Contour Map, Planimeter Device and Scaling, Theodolite Instrument, Azimuth and Bearing, Loop and Link Traverse, Measurement of the length (width) of an obstructed building using Theodolite, and Measuring an object height by measuring vertical angle.
Instructor:	Eng. Mohammad Karim Al-Sweis **Email**: msweis@philadelphia.edu.jo **Office**: Civil Engineering Building, Room 61-113, Ext: 2512 **Class hours**: Tues, Wed: 13:10-16:00

Course Outlines:

Week	Topic
1	Pacing and Taping
2	Level Instrument
3	Leveling
4	Profile Drawing
5	Contour Map
6	Planimeter Device and Scaling
7	Theodolite Instrument
8	Azimuth and Bearing
9	Loop and Link Traverse
10	Measurement of the length (width) of an obstructed building using Theodolite
11	Measuring an object height by measuring vertical angle

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Understand the technique to use the tape to measure the horizontal and inclined distances	1 , 6
2.	Understand how to setup and use the level instrument to determine the point elevation.	1 , 2
3.	Understand how to setup and use the Planimeter device to determine map areas.	1 , 2 , 6
4.	Understand how to setup and use the theodolite instrument to solve loop and link traverse and to measure the obstructed distances	1 , 2 , 6

Assessment Guidance:

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

Reports and Classwork:	The students should submit a technical report after each laboratory experiment. The report sub-titles are Introduction, Objectives, Procedures and Equipment, Calculations, Results, and Conclusion.
Quizzes:	(3) Quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
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:

Reports and Classwork	40%
Quizzes	20%
Final Exam	40%
Total:	100%

Attendance Regulation:

The semester has in total 30 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.

Philadelphia University

Faculty of Engineering and Technology
Department of Civil Engineering
First Semester 2021/2020

Course Details:

Title:	Structure I (0670311)
Prerequisite:	Strength of materials (0670212)
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
References:	Fundamentals of Structural analysis-2nd edition, by K.M. Leet, McGraw Hill, 2005
Course Description:	Classification of Structures and Loads; Analysis of Statically Determinate Structures and Trusses (Idealized Structures, Principal of Superposition, 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 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/salkhawaldeh/
Instructor:	Dr. Sawsan Alkhawaldeh **Email**: salkhawaldeh@ philadelphia.edu.jo **Office**: Civil engineering building, Room 315 **Class hours**: Sun, Tues: 11:15 - 12:45 **Office hours**: Sun, Mon, Tues, Wed: 9:45 - 11:15

Course Outlines:

Week	Topic
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

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Provide a thorough understanding and practical applications of structural analysis theories	[1, 5]
2.	Develop the skills to analyze the behavior and response of structures to various loads and constraints.	[1, 5]
3.	Analyze determinate structures (truss, beam and frame) under various loading conditions.	[1, 2, 5]
4.	Determine internal loads (axial, shear and moment) in structural members using equilibrium and compatibility equations.	[1 , 2,5]
5.	Determine reactions and internal loading in structural elements due to moving (dynamic) loads.	[1 , 2, 5]
6.	Employ deflection methods for calculation of deflection.	[1, 2, 5, 7]

Assessment Guidance:

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

Exams:	The students will be subjected to two scheduled exams during the semester.
Quizzes:	(2-4) 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%
Semester works	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.

Philadelphia University

Faculty of Engineering and Technology
Department of Civil Engineering
First Semester 2021/2022

Course Details:

Title:	Structure 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
References:	Fundamentals of Structural analysis-2nd edition, by K.M. Leet, McGraw Hill, 2005
Course Description:	Analyzing the statically indeterminate beams, trusses and frames using the force method. Analyzing the statically indeterminate beams and frames using displacement methods: slope-deflection method and moment distribution method. Analyzing of trusses and beams using the stiffness method.
Website:	http://www.philadelphia.edu.jo/academics/salkhawaldeh/
Instructor:	Dr. Sawsan Alkhawaldeh **Email**: salkhawaldeh@ philadelphia.edu.jo **Office**: Civil engineering building, Room 315 **Class hours**: Sun, Tues: 8:15 - 9:45 **Classroom:** 6206 **Office hours**: Sun, Mon, Tues, Wed: 9:45 - 11:15

Course Outlines:

Week	Topic
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.	Evaluate Statically Indeterminate Structures by the Force Method.	[1, 2, 6, 7]
2.	Analyze statically Indeterminate Structures using Displacement Method of Analysis: Slope-Deflection Equations.	[1, 2, 6, 7]
3.	Apply Displacement Method of Analysis: Moment Distribution to analyze statically Indeterminate Structures.	[1, 2, 6, 7]
4.	Understand and analyze statically Indeterminate Structures having non-prismatic Members.	[1, 2, 6, 7]

5.	Use Stiffness method to analyze statically Indeterminate trusses.	[1, 2, 6, 7]
6.	Apply Stiffness method to Understand and analyze statically Indeterminate beams.	[1, 2, 6, 7]

Assessment Guidance:

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

Exams: The students will be subjected to two scheduled exams during the semester.

Quizzes: (2-4) 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%
Semester works	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.

Philadelphia University

Faculty of Engineering and Technology
Department of Civil Engineering
First Semester 2021/2022

Course Details:

Title:	Design of Highways Laboratory (0670322)
Prerequisite:	Pavement Design (0670323)
Credit Hours:	1 credit hours (14 weeks per semester, approximately 28 contact hours)
Textbook:	Highway Laboratory Manual depends on ASTM specification.
References:	Standard Specifications for Transportation Materials and Methods of Sampling and Testing, Part II-Tests, Twenty Second Edition, American Association of State Highway and Transportation Officials (AASHTO), Washington D. C., 2002.
Course Description:	To study the tests of asphalt such as penetration test, Flash & Fire point test, Softening point test, Viscosity of petroleum products, Ductility test, Determine the physical properties of soil that used in highway pavement, Design of asphalt mix by Marshall Method aggregate, and specify the skid resistance for surface layer.
Instructor & Website:	Eng. Sahar "Mohammed Hejazi" Al-Mutairi **Email**: saimutairi@philadelphia.edu.jo **Office**: Engineering Building, Room 608 – C , Ext: 2129 **Class hours**: Tues, Wed, Thurs: 12:10-14:10 and 14:10-16:10 **Office hours**: Sun, Mon, Tues, Wed, Thurs: (10:00-11:00 AM)

Course Outlines:

Week	Experiments
1	Introduction to highway laboratory
2	Penetration Test
3	Ring and Ball Softening Point Test
4	Ductility Test
5	Flash and Fire Points Test
6	Say bolt Viscometer Test
7	Los Angeles Abrasion (L.A.A) Test
8	California Bearing Ratio (CBR) Test
9	Marshall Mixture Design Method
10	Skid Resistance Test & Surface Texture Depth Measurement Test

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Develop the student's ability to relate theoretical information to actual experiments	**2, 3, 4, 5, 8**
2.	To evaluate and design asphalt paving mixtures prepared from available aggregates and asphalt binders using Marshall Mixture Design Method	**9**
3.	To measure and study the physical properties of asphalt binders using the traditional test methods	**4, 5**
4.	To study the physical consensus and source properties of aggregate materials using the traditional test methods.	**7, 8**

Assessment Guidance:

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

Quizzes:	(3-4) Quizzes of (10-15) minutes will be conducted during the online 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:

Students Reports	40%
Quizzes and participation	20%
Final Exam	40%
Total:	100%

Attendance Regulation:

The semester has in total 28 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.

Philadelphia University

Faculty of Engineering and Technology
Department of Civil Engineering
First Semester 2021/2022

Course Details:

Title:	Pavement Design (0670323)
Prerequisite:	Geometric Design of Highways (0670324)
Credit Hours:	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:	- Wright, Paul H., Highway Engineering, Seventh Edition, John Wiley, New York, 2004. - Principles of pavement design by Yoder Witczak, 2nd ed., 1975 - Pavement design ,by Huang, 2nd ed., 2012
Course Description:	This course is designed for civil engineering students in their third year. This course introduces students to the pavement materials, flexible pavement mix design and construction, highway drainage and drainage facilities, and rehabilitation of roads.
Website:	http://www.philadelphia.edu.jo/academics/aassouli/
Instructor:	Eng. Amany Abdullah Ali Assouli **Email**: aassouli@philadelphia.edu.jo or eng.amanyassouli90@yahoo.com **Office**: Civil Engineering Building, Room 212/6 – E , Ext: 2513 **Class hours**: Mon, Wed: 8:15-11:15 **Office hours**: Sun and Tues: 9:45-11:15

Course Outlines:

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

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1	Know the Properties of materials used in highway pavements (soils, aggregates, and bituminous binders).	[1, 2, 3 ,6]
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).	[1, 2, 3 ,6]
3	Design the thicknesses of the layers composing the highway pavements	[1, 2, 3 ,6]
4	Providing adequate drainage means and facilities to guard the big investments in roadways from water damages.	[1, 2, 3 ,6]
5	Methods of designing the hot asphalt mix using Marshal Method.	[1, 2, 3 ,6]
6	Sources of distresses in the pavements and the methods of repair.	[1, 2, 3 ,6]

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 (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).

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, Projects and Quizzes	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.

Philadelphia University

Faculty of Engineering and Technology
Department of Civil Engineering
First Semester 2021/2022

Course Details:

Title: Geometric Design of Highway (0670324)

Prerequisite: surveying (0670261)

Credit Hours: 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.
- The Civil Engineering Hand Book, second edition. W. F. CHEN, J.y. Richard Liew

References:
- A policy on geometric design of highways and streets, 4 th edition , 2001, American Association of State Highway and Transportation Officals "AASHTO".
- Route surveying and design by mayer & Gibson, 5 th edition.
- Principles of highway engineering and traffic analysis by Fred Mannering & Walter Kilareski, 2 nd edition.

Course Description: This course is designed for civil engineering students in their third year. Geometric design concepts for highways, design control and criteria, sight distance, horizontal and vertical alignment, cross section elements, superelevation attainment, laying out highways, earthwork computations, highway types and introduction of interchanges and intersections.

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

Instructor:
Eng. Amany Abdullah Ali Assouli
Email: aassouli@philadelphia.edu.jo or eng.amanyassouli90@yahoo.com
Office: Civil Engineering Building, Room 212/6 – E , Ext: 2513

Class hours: Mon & Wed: 11:15-12:45
Office hours: Sun &Tues:9:45:10-11:15

Course Outlines: The course will be carried online through Microsoft Teams Platform.

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

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

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Know the elements of road .	[1, 2, 6]
2.	Determine the Characteristics of road classification.	[1, 2, 6]
3.	Design the horizontal and vertical Alignment.	[1, 2, 6]
4.	Determine the intersection	[1, 2, 6]

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 one scheduled written exam, Midterm Exam during the semester. This exam will cover materials given in lectures in the previous 3-4 weeks.
Quizzes:	(2) 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). 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.

Philadelphia University

Faculty of Engineering and Technology
Department of Civil Engineering
First Semester 2021/2022

Course Details:

Title:	Soil Mechanics (0670331)
Prerequisite:	Engineering Geology (0670231)
Credit Hours:	3 credit hours (16 weeks per semester, approximately 48 contact hours)
Textbook:	Soil Mechanics, SI Version, T.W. Lambe and R.V. Whitman, 2008, John Wiley & Sons, New York
References:	Craig's Soil Mechanics, 8th ed., J.A. Knappet & R.F. Craig Engineering Properties of Soils and their Measurements, J.E. Bowles
Course Description:	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.
Website:	http://www.philadelphia.edu.jo/academics/aassouli/
Instructor:	Eng. Amany Abdullah Ali Assouli **Email**: aassouli@philadelphia.edu.jo or eng.amanyassouli90@yahoo.com **Office**: Civil Engineering Building, Room 212/6 – E , Ext: 2513 **Class hours**: Sun &Tues 11:15-12:45 **Office hours:** Mon & Wed::9:45:10-11:15

Course Outlines:

Week	Topic
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 , 16	Introduction to Consolidation and settlement

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

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

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 one scheduled written exam, midterm exam during the online semester. The exam will cover materials given in lectures in the previous 3-4 weeks.
Quizzes:	(4) Quizzes of (15-20) minutes will be conducted during the online 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%
Quizzes and participation	20%
Final Exam	40%
Total:	100%

Attendance Regulation:

The semester has in total 48 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.

Philadelphia University

Faculty of Engineering and Technology
Department of Civil Engineering
First Semester 2021/2022

Course Details:

Title:	Soil Mechanics Laboratory (0670332)
Prerequisite:	Soil Mechanics (0670331)
Credit Hours:	1 credit hours (14 weeks per semester, approximately 28 contact hours)
Textbook:	Soil Mechanics Laboratory Manual, Sixth Edition, Braja M. Das
References:	Engineering Properties of Soils and Their Measurements By J. Bowles McGraw Hill; ISBN 0-07-006752-X.
Course Description:	A study the tests of soil to determine the physical properties of different types of soil such as: Moisture content, Specific gravity, grain distribution by Sieve analysis for coarse particle and hydrometer analysis foe fine particle, weight-volume relationships, compaction test, permeability and fluid flow through soil, Atterberg limits test, stresses within a soil mass, consolidation test, and shear strength of soils, and unconfined compression test of soil.
Instructor & Website:	Eng. Sahar "Mohammed Hejazi" Al-Mutairi **Email**: saimutairi@philadelphia.edu.jo **Office**: Engineering Building, Room 608 – C , Ext: 2129 **Class hours**: Mon: 12:15-14:15 and 14:15-16:15 **Office hours**: Sun, Mon, Tues, Wed, Thurs: (10:00-11:00 AM)

Course Outlines:

Week	Experiments
1	Determination of Water Content Test
2	Specific Gravity Test.
3	Sieve Analysis Test.
4	Hydrometer Analysis Test.
5	Liquid, Plastic Limits Test.
6	Standard Proctor Compaction Test.
7	Consolidation Test.
8	Direct Shear Test.
9	Unconfined Compression Test.
10	Consolidation Test.

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Understand the origin of soil grains, types, sizes and their classification	3, 4
2.	Learn how to measure the basic properties of soils.	1, 2, 3, 4, 5, 9
3.	Interact professionally among themselves during laboratory sessions. They will perform tests and collect data and develop the student's ability to do experimental work.	3, 4, 5, 9
4.	Develop the student's ability to relate theoretical information to actual experiments.	1, 2, 5, 9

Assessment Guidance:

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

Quizzes:	(3-4) Quizzes of (10-15) minutes will be conducted during the online 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:

Students Reports	40%
Quizzes and participation	20%
Final Exam	40%
Total:	100%

Attendance Regulation:

The semester has in total 28 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.

Philadelphia University

Faculty of Engineering and Technology - Department of Civil Engineering

First Semester 2021/2022

Course Details:

Title:	Environmental Engineering (067034300)
Prerequisite:	General Chemistry (02121000 and 067044400)
Credit Hours:	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 chemical, physical and biological characteristics, water quality & treatment, Unit operation for water treatment, engineering water treatment systems (sedimentation, flocculation-coagulation, filtration and disinfection), air pollution, mathematics of growth, environmental remediation and environmental legislation.
Website:	http://www.philadelphia.edu.jo/academics/myounes/
Instructor:	Dr. Mohammad Younes **Email**: myounes@philadelphia.edu.jo **Office**: Civil Engineering Building, Office No 312 ext: 2357 **Classes hours:** Sun, Tues,: 9:45-11:15 & 12:45-14:15 & Mon, Wed: 9:45-11:15 ; 12:45-14:15 **Office hours:** All week days: 11:20-12:30

Course Outlines:

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

Course Learning Outcomes with reference to ABET Student Outcomes:

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	[1;2]
2.	Understand water quality parameters and its application to characterize the different water sources	[2;6]
3.	Understand the best available technologies for physical and chemical treatment of drinking water and wastewater.	[1;2;6]
4.	Determine common air pollutants, and their pathways, and the various technologies available for control.	[1;2]
5.	Understand selected contemporary global environmental issues such as environmental impact assessment, climate change and emerging contaminants.	[1;2]

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:

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.

September, 2021

Philadelphia University

Faculty of Engineering & Technology
Department of Civil Engineering
First Semester 2021/2022

Course Details:

Title: FluidMechanics (**0670381**)

Prerequisite: **0670211**

Credit Hours: 3 credit hours (15 weeks per semester, approximately45 contact hours)

Textbook: Fluid Mechanics; RussellC.Hibbeler,Pearson, 2014

References:
- Fundamentals of Hydraulic Engineering Systems (4thEdition) RobertJ.Houghtalen, RobertJ.Houghtalen,A.OsmanH.Akan&NedH.C.Hwang,Pearson,2010,4thEdition
- Engineering fluidmechanics,RobersonJ.A.,and Crowe C.T,JohnWiley andsons.,(9th Edition).

Course Description: This course is designed for civil engineer ing students intheir third year.Thecourse intends to give students acomprehensive idea about the fluid prosperities,basicunits.Fluidstatics,pressureandits measurements,forceonplane submergedsurface,floatation.Fluidinmotion,flow kinematics and visualization, Control volume approach, differential and integral continuity equation,pressure variationinflowingfluids,Euler'sand Bernoulli's equations,applicationof Bernoulli equation,momentum principle and its applications.

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

Instructor:
Eng. Adnan Abdelhadi
Email: aabdelhadi@philadelphia.edu.jo
Office: Civil Engineering building, room 61-301A
Class hours: Mon, Wed: 12:45-2:15
Office hours: Sun, Tues: 8:30-9:30 / 11:30 – 12:30 and
Mon, Wed: 8:15 -9:45 / 11:00 – 12:30

Course Outlines: The course will be carried online through Microsoft Teams Platform.

Week	Topic
1	Introduction,fluiddefinitionsanditsvarious
2&3	Principleoffluidstatic
4&5	Flowconceptsandconservationofmassprinciple
6,7&8	PressurevariationandBernoulli'sequation
9,10&11	Momentumprinciple
12,13,14 &15	Energyprinciple

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

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

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 one scheduled mid-term online exam during the semester.
Quizzes	(1) quiz 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). Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark. <u>Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.</u>
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:

Mid-term Exam	30%
Quizzes and HomeWorks	30%
Final Exam	40%
Total:	100%

Attendance Regulation:

The semester has in total 48 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.

Philadelphia University

Faculty of Engineering & Technology - Department of Civil Engineering

1st Semester 2020/2021

Course Details:

Title:	Fluid Mechanics lab (**0670382**)
Prerequisite:	Fluid Mechanics of Material **0670381**
Credit Hours:	1 credit hours (14 weeks per semester, approximately 28 contact hours)
Textbook:	1.Laboratory manuals 2.Fluid Mechanics; Russell C. Hibbeler, Pearson, 2014
References:	Engineering fluid mechanics, Roberson J.A., and Crowe C.T, John Wiley and sons., (9^{th} Edition).
Course Description:	This course is designed for civil engineering students in their third year. The course intends to givestudents a fluid properties Density and Viscosity, Center of pressure on submerged plan surface, Impact of water jet, Pipe flow **Characteristics Of Centrifugal Pump**(single ,series ,parallel), Pump Cavitation**.**
Instructor:	Eng. Esraa AL-hyasat **Email**: ehyasat@philadelphia.edu.jo **Office**: Civil Engineering building, room 205, ext: 2556

Course Outlines:

Week	Topic
1	**Introduction**
2	**Density and Viscosity**
3	**Center of pressure on submerged plan surface**
4	**Impact of water jet**
5	**Fluid meter in incompressible flow**
6	**Pipe flow**
7	**Characteristics Of A Single Centrifugal Pump**
8	**Coupling Of Two Identical Pumps (Series)**
9	**Coupling Of Two Identical Pumps (Parallel)**
10	**Pump Cavitation**

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Be able to solve specific engineering problems related with fluid static	[1]
2.	Measure volume flow rate and relate it to flow velocity	[1 , 6]
3.	Understand basic units of measurement, convert units, and appreciate their magnitudes	[2. 6]
4.	Understand the basics of fluid mechanics at rest	[1]
5.	Use word and excel software in writing reports.	[6. 7]
6.	Compare the results of analytical models introduced in lecture to the actual behavior of real fluid flows and draw correct and sustainable conclusions.	[1 , 2 , 6]

Assessment Guidance:

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

Lab Reports:	The students will submit a report for each experiment at the beginning of each lab.
Quizzes and lab work:	(2-3) Quizzes of (15-20) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the lab.

Grading policy:

Lab Reports	40%
Quizzes and lab work	20%
Final Exam	40%
Total:	100%

Attendance Regulation:

The semester has in total 14 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.

Philadelphia University

Faculty of Engineering and Technology
Department of Civil Engineering
First Semester 2021/2022

Course Information

Title: **Reinforced Concrete (0670411)**
Mon, Wed 11:15-12:45
Classroom: 206

Prerequisite: Structures II (0670312)

Credit Hours: 3 credit hours (15 weeks per semester, approximately 45 contact hours)

Textbook:
- Nilson, A.H., Darwin, D., and Dolan, C.W. (2013). "Design of Concrete Structures", 14th edition , McGraw Hill, 2009
- William T. Segui (2012). "Steel Design", 5th edition.

References:
- ACI Code (ACI 318 M -11).
- Design of Reinforced Concrete by J. C. McCormac and R.H. Brown, 8th Edition, John Wiley & Sons.

Course Description: 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 and detailing, 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, analyze steel and its structural properties, design of tension members, design of compression members.

Website: https://www.philadelphia.edu.jo/academics/maldwaik/

Instructor: **Dr. Mais Aldwaik**
Email: Aldwaik.1@osu.edu
Office: Civil engineering building, room 318
Office hours: Mon, Wed: 9:45-11:15, Sun, Tues, Thur: 11:15-12:45

Course Outline

Week	Topic
1,2	Introduction, Reinforced concrete and building codes
3	Loading, cracked and uncracked behavior, stress block
4,5,6	Flexural analysis and design of reinforced concrete beams, single reinforced, double reinforced, T-beams
7,8	Shear and diagonal tension in beams
9,10	Analysis and design of one-way slabs
11,12	Short Columns
13,14,15	Introduction to steel-materials, Design of tension members, Design of Compression members

13,14	Analysis and design of two-way slabs
15	Serviceability

Course Learning Outcomes with reference to ABET Student Outcome

Upon successful completion of this course, students should:

1.	Understand design sequence and process for RC structures.	1,2
2.	Learn how to use and apply building codes.	7
3.	Establish an understanding of the mechanical behaviors of reinforcement steel, concrete and reinforced concrete members, and steel members.	2,7
4.	Understand the flexural behavior of reinforced concrete beams, investigate and design beams and slabs for bending and shear.	2,7
5.	Understand the basic principles to apply the ACI and AISC provisions	2,7
6.	Understand the compression and tension behavior of steel members	1,2,7

Assessment Guidance (subjected to change based on COVID-19 government updates and Philadelphia University updates)

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

Exams: Students will be subjected to two scheduled exams during the semester.

Quizzes: One-three quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.

Homework: Two-four homeworks will be assigned during the semester. You are usually given one week to submit each home work. 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 students will be assessed accordingly.

Final Exam: 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%
Home works, Quizzes, and term work	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.

Philadelphia University

Faculty of Engineering and Technology
Department of Civil Engineering
First Semester 2021/2022

Course Details:

Title:	Reinforced concrete 2 (0670412)
Prerequisite:	Reinforced concrete 1 (0670411)
Credit Hours:	3 credit hours (15 weeks per semester, approximately 45 contact hours)
Textbook:	Design of concrete structures, 15thEdition, A. H. Nilson, D. Darwin, and C. H. Dolan, MCGraw-Hill, 2016.
References:	-Reinforced concrete mechanics and design, 6th Edition, J. K Wight and J. G. Macgregor, Pearson, 2012. -Building Code Requirements for structural concrete (ACI318-14) and Commentary, ACI Committee (318-14), Farmington Hills, MI, 2014, 530 pp.
Course Description:	The course is requirement of the civil engineering students. The student will learn how to check the serviceability requirements of flexural members, how to design the members subjected to Torsion, Combined Shear and torsion. In addition to learn how to calculate the ultimate load on Slender (Long) column. The calculating of factored moment using Direct design method and coefficient ACI code method will be given in this course. Also the student will learn how to design two way slabs, different type of stairs and different type of foundations.
Website:	http://www.philadelphia.edu.jo/academics/aodeibat/
Instructor:	Eng. Abdallah Odeibat **Email**: aodeibat@philadelphia.edu.jo **Office**: Civil engineering building, Room 215, ext: 2182 **Class hours**: Mon, Wed: 12:45-14:15 **Office hours**: Sun, Tues: 8:15-9:30 & 11:15-12:30 Mon, Wed: 8:15-9:30 & 11:15-12:30

Course Outlines:

Week	Topic
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. Design of stairs
15	Design of Foundations

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Revision of RC.1	[1]
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	[1, 2, 5]
3.	Be able to design members subjected to torsion, and combined shear and torsion.	[1, 2, 5]
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.	[1, 4, 5]
5.	Be able to analyze and design reinforced concrete continuous beams and frames subjected to different types of loading (dead, live, wind, seismic,… etc).	[1, 2, 5, 6]
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.	[1, 2, 5]
7.	Be able to analyze and design different types of reinforced concrete staircases.	[1, 2, 4, 5]

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%
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.

Philadelphia University

Faculty of Engineering and Technology -
Department of Civil Engineering
1st Semester 2021/2022

Course Details:

Title:	Metallic Structures (0670414)
Prerequisite:	Structural Analysis II
Credit Hours:	2 credit hours (15 weeks per semester, approximately 30 contact hours)
Textbook:	1- W.T., Segui, "Steel Design", Cengage Learning, 5th edition, 2012. 2- AISC Steel Construction Manual, 14th edition, 2011.
References:	1. J.C. McCormac, S.F. Csernak, "Structural Steel Design", Pearson, 5th edition, 2011. 2. C.G., Salmon, J.E. Johnson, F.A., Malhas, "Steel Structures Design and Behavior", Prentice Hall, 5th edition, 2009. 3. American Institute of Steel Construction. "Detailing for Steel Construction". AISC/NSD, 3 rd edition, 2009. 4. American Society of Civil Engineers. 2010. "Minimum Design Loads for Buildings and Other Structures". ASCE/SEI 7-10. Reston, VA.
Course Description:	This course covers the fundamental theories and principles of design of simple steel structures using LRFD Method. This course includes design and investigation of beams, tension and compression members.
Website:	http://www.philadelphia.edu.jo/academics/aodeibat/
Instructor:	Eng. Abdallah Odeibat **Email**: aodeibat@philadelphia.edu.jo **Office**: Civil Engineering Building, Room 215, Ext: 2182 **Class hours**: Mon, Wed: 9:45-11:15 **Office hours**: Sun, Tues : 8:15-9:30 and 11:15-12:30 Mon, Wed: 8:15-9:30 and 11:15 -12:30

Course Outlines:

Week	Topic
1	Review and Chapter One: Introduction
2,3	Chapter Two: Concept in Structural Steel Design
4, 5, 6,7	Chapter Three: Tension Members
8, 9, 10,11	Chapter Four: Compression Members
12,13,14,15	Chapter Five: 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 AISC Steel Construction Manual	7
2.	understand the concepts of structural design by the Load and Resistance Factor Design method and the Allowable Stress Design method, and will understand the differences between the methods	1,2,7
3.	Analyze and design steel tension members	2,7
4.	And analyze and design steel compression members	2,7
5.	Analyze and design steel beams	2,7

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 one scheduled exam during the semester.

Quizzes: (2-3) quizzes of (15-20) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.

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 30 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.

Philadelphia University

Faculty of Engineering and Technology
Department of Civil Engineering
Second Semester 2020/2021

Course Information

Title: **Concrete and Steel Structures (0670416)**
Mon, Wed 11:15-12:45
Classroom 206

Prerequisite: Structural Mechanics and Structural Analysis (0670315)

Credit Hours: 3 credit hours (15 weeks per semester, approximately 45 contact hours)

Textbook:
- Nilson, A.H., Darwin, D., and Dolan, C.W. (2013). "Design of Concrete Structures", 14th edition , McGraw Hill, 2009
- William T. Segui (2012). "Steel Design", 5th edition.

References:
- ACI Code (ACI 318 M -11).
- Design of Reinforced Concrete by J. C. McCormac and R.H. Brown, 8th Edition, John Wiley & Sons.

CourseDescription: 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 and detailing, 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, analyze steel and its structural properties, design of tension members, design of compression members.

Website: https://www.philadelphia.edu.jo/academics/maldwaik/

Instructor: **Dr. Mais Aldwaik**
Email: Aldwaik.1@osu.edu
Office: Civil engineering building, room 318
Office hours: Mon, Wed: 9:45-11:15, Sun, Tues, Thur: 11:15-12:45

Course Outline

Week	Topic
1,2	Introduction, Reinforced concrete and building codes
3	Loading, cracked and uncracked behavior, stress block
4,5,6	Flexural analysis and design of reinforced concrete beams, single reinforced, double reinforced, T-beams
7,8	Shear and diagonal tension in beams
9,10	Analysis and design of one-way slabs
11,12	Short Columns
13,14,15	Introduction to steel structures, Design of tension members, Design of Compression members

Course Learning Outcomes with reference to ABET Student Outcome

Upon successful completion of this course, students should:

1.	Understand design sequence and process for RC structures.	1,2
2.	Learn how to use and apply building codes.	7
3.	Establish an understanding of the mechanical behaviors of reinforcement steel, concrete and reinforced concrete members, and steel members.	2,7
4.	Understand the flexural behavior of reinforced concrete beams, investigate and design beams and slabs for bending and shear.	2,7
5.	Understand the basic principles to apply the ACI and AISC provisions	2,7
6.	Understand the compression and tension behavior of steel members	1,2,7

Assessment Guidance (subjected to change based on COVID-19 government updates and Philadelphia University updates)

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

Exams: Students will be subjected to two scheduled exams during the semester.

Quizzes: One-three quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.

Homework: Two-four homeworks will be assigned during the semester. You are usually given one week to submit each home work. 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 students will be assessed accordingly.

Final Exam: 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%
Home works, Quizzes, and term work	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.

Philadelphia University

Faculty of Engineering - Department of Civil Engineering
First Semester 2021/2022

Course Details:

Title:	Transportation and Traffic Engineering (0670421)
Prerequisite:	**Highway 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.
References:	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/ahad/page.php
Instructor:	Eng. Adnan Abdelhadi **Email**: adnan_m_abdelhadi@philadelphia.edu.jo **Office**: Civil Engineering building, room A 301 Class hours: Sun, Tue: 9:45-11:15 **Office hours**: Sun, Tues: 8:30-9:30 / 11:30 – 12:30 and Mon, Wed: 8:15 -9:45 / 11:00 – 12:30

Course Outlines:

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

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Understanding of choosing the best transportation planning	[1, 2]
2.	Understanding transportation models	[1, 3, 6]
3.	Understanding fundamental parameters of traffic flow	[1, 3, 5, 6]
4.	Understanding capacities and level of services of various road elements	[1, 3 ,5, 6]

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:

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, 2018

Philadelphia University

Faculty of Engineering - Department of Civil Engineering
First Semester 2021/2022

Course Details:

Title:	Transportation and Traffic Engineering (0670422)
Prerequisite:	**Highway geometric design 0670324**
Credit Hours:	2 credit hours (15 weeks per semester, approximately 30 contact hours)
Textbook:	"***Traffic and Highway Engineering***", Forth Edition, Nicholas J. Garber, Laster A. Hoel, 2009.
References:	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/ahad/page.php
Instructor:	Eng. Adnan Abdelhadi **Email**: adnan_m_abdelhadi@philadelphia.edu.jo **Office**: Civil Engineering building, room A 301 Class hours: Sun, Tue: 9:45-10:45 **Office hours**: Sun, Tues: 8:30-9:30 / 11:30 – 12:30 and Mon, Wed: 8:15 -9:45 / 11:00 – 12:30

Course Outlines:

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

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Understanding of choosing the best transportation planning	[1, 2]
2.	Understanding transportation models	[1, 3, 6]
3.	Understanding fundamental parameters of traffic flow	[1, 3, 5, 6]
4.	Understanding capacities and level of services of various road elements	[1, 3 ,5, 6]

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:

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, 2018

Philadelphia University

Faculty of Engineering & Technology - Department of Civil Engineering

1st Semester 2021/2022

Course Details:

Title:	Hydraulics (0670441)
Prerequisite:	Fluid Mechanics 760381
Credit Hours:	3 credit hours (15 weeks per semester, approximately 45 contact hours)
Textbook:	• Fundamentals of Hydraulic Engineering Systems, Hwang & Houghtalen. ,4th Edit ion, Prentice Hall, 2006.
References:	• Civil Engineering Hydraulics, by R. E. Featherstone & C. Nalluri, 3rd Edition, 1995. • Fluid Mechanics, Douglas, Swaffield and Gasiorek. 4th Edition, 2001. • Water Distribution Modeling, Walsky, Chase and Slavic. 1st Edition, 2001 • Roberson, J.A., Cassidy J.J., Chaudhry, M.H., Hydraulic Engineering, 2nd edition, John Wiley & sons, inc.,1997.
Course Description:	Flow in pipes, Pipes Networks Analysis, Open Channel Fundamentals, Open Channel Flow Analysis, Classification of Flow,(Uniform Flow), Critical Flow (Supercritical, Subcritical), Gradually Varied Flow, Water Surface Profile Analysis, Rapid Varied Flow (Hydraulic Jump), Pumps.
Website:	http://www.philadelphia.edu.jo/academics/aodeibat
Instructor:	Eng. Abdallah Odeibat **Email**: aodeibat@philadelphia.edu.jo **Office**: Civil Engineering building, room 61-215, ext: 2182 **Class hours**: Sun, Tues: 12:45-14:15 **Office hours**: Sun, Tues, Thurs: 8:15 -9:30 & 11:15 – 12:30 Mon, Wed: 8:15 -9:30 & 11:15 – 12:30.

Course Outlines:

Weeks	Topics	READING
1 ,2,3	Introduction (revision) Units and dimension, review of fluid mechanics	Chapter (1,2)
4,5,6,7	Water Flow in Pipes Description of Pipe Flow, Continuity Equation, Forces, In Pipe Flow, Energy Loss Due to Friction, Empirical Formulas for Friction Head, Local (Minor) Losses.	Chapter (3)
8,9,10,11	Pipelines and pipe networks Pipelines connecting two reservoirs, pipelines with negative pressure or pumps, branching pipe systems, pipe networks.	Chapter (4)
12,13	Water pumps Centrifugal, propeller and jet pumps, pump selection, pumps in parallel or in series, specific speed and pump similarity.	Chapter (5)

14,15	Open Channel Fundamentals, Open Channel Flow Analysis, Classification of Flow,(Uniform Flow), Critical Flow (Supercritical, Subcritical), Gradually Varied Flow, Water Surface Profile Analysis	Chapter (6)

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Be able to solve specific engineering problems related with Hydraulics	[1, 6]
2.	Be able to develop methods to solve an engineering problem like network	[1 , 2]
3.	Have the ability to read and understand pumps problems	[1 , 6]
4.	Understand the basics of Bernoulli's theorem	[1 , 7]
5.	Understand the concept of open channel	[1 , 2 , 6]
6.	Understand Hydraulic jump	[1]

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 one scheduled exam during the semester.

Quizzes: (2-3) quizzes of (15-20) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.

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%

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.

Philadelphia University

Faculty of Engineering & Technology - Department of Civil Engineering

1st Semester 2020/2021

Course Details:

Title:	Hydraulics lab (0670442)
Prerequisite:	Hydraulics of Materials (0670441)
Credit Hours:	1 credit hours (14 weeks per semester, approximately 28 contact hours)
Textbook:	. Laboratory manuals . Fundamentals of Hydraulic Engineering Systems, Hwang & Houghtalen. , 4th Edit ion, Prentice Hall, 2006.
References:	• Civil Engineering Hydraulics, by R. E. Featherstone & C. Nalluri, 3rd Edition, 1995. • Fluid Mechanics, Douglas, Swaffield and Gasiorek. 4th Edition, 2001.
Course Description:	Calibration of Bourdon Gauge, Met centric Height Of Floating Bodies Osborne Reynolds Demonstration. Hydraulic Gradient with Ground Water Flow.
Instructor:	Eng. Esraa AL- hyasat **Email**: ehyasat@philadelphia.edu.jo **Office**: Civil Engineering building, room 61-205, ext: 2556

Course Outlines:

Weeks	TOPIC
1	Calibration of Bourdon Gauge
2	Metacentric Height Of Floating Bodies
3	Osborne Reynolds Demonstration
4	Impact of Jet (I)
5	Impact of Jet (II)
6	Orifice and Free Jet Flow Determination of Coefficient of Velocity
7	Orifice and Free Jet Flow Determination of Coefficient of Dischage
8	Coefficient of Discharge for a Rectangular Notch
9	Coefficient of Discharge for a Triangular Notch
10	Hydraulic Gradient with Ground Water Flow

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Be able to solve specific engineering problems related with Hydraulics	[1,]
2.	Identify, name, and characterize flow patterns and regimes	[1, 6]
3.	Understand basic units of measurement, convert units, and appreciate their magnitudes	[2. 6]
4.	Measure volume flow rate and relate it to flow velocity	[1 , 6]
5.	Use word and excel software in writing reports.	[6. 7]
6.	Compare the results of analytical models introduced in lecture to the actual behavior of real fluid flows and draw correct and sustainable conclusions.	[1 , 2 , 6]

Assessment Guidance:

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

Lab Reports:	The students will submit a report for each experiment at the beginning of each lab.
Quizzes and lab work:	(2-3) Quizzes of (15-20) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Final Exam:	The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the lab.

Grading policy:

Lab Reports	40%
Quizzes and lab work	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.

Philadelphia University

Faculty of Engineering and Technology - Department of Civil Engineering

First Semester 2021/2022

Course Details:

Title:	Sanitary Engineering (067044300)
Prerequisite:	Environmental Engineering (067034300)
Credit Hours:	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.
References:	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. biological and chemical wastewater quality. Unit operations and processes. Basics in water and wastewater engineering design. Wastewater generation and collection. Biological wastewater treatment and reuse including activated sludge.
Website:	http://www.philadelphia.edu.jo/academics/myounes/
Instructor:	Dr. Mohammad Younes **Email**: myounes@philadelphia.edu.jo **Office**: Civil Engineering Building, Office No 312 ext: 2357 **Classes hours:** Sun, Tues,: 9:45-11:15 & 12:45-14:15 & Mon, Wed: 9:45-11:15 ; 12:45-14:15 **Office hours:** All week days: 11:20-12:30

Course Outlines:

Week	Topic
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	WasteWater treatment (physical and chemical)
13,14,15,16	Biological wastewater treatment process and concepts

Course Learning Outcomes with reference to ABET Student Outcomes:

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.	[1;2]
2.	Understand the main concepts of water engineering design .	[1;2]
3.	Determine the basic requirement for waste water management and collection system design.	[1;2]
4.	Understand the best available technologies for physical, chemical and biological treatment of wastewater	[1;2]
5.	Determine common water pollutants, and their pathways, and the various technologies available for waste water control	[1;7]

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 Mid 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	30%
Homework and projects	12%
Quizzes and participation	8%
Final Exam	50%
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.

September, 2021

Philadelphia University

Faculty of Engineering and Technology -
Department of Civil Engineering
First Semester 2021/2022

Course Details:

Title: Sanitary Laboratory Lab (0670444)

Prerequisite: Sanitary Engineering (Concurrent)

Credit Hours: 1 credit hours (14 weeks per semester, approximately 28 contact hours)

Textbook: Laboratory manuals

References:

Water Supply and Pollution Control, 7th Edition, Warren Viessman &Mark J. Hammer, Pearson Prentice Hall.

Course Description: Determination of pH ,Preparation of Primary& Secondary Standards ,Acid – Base Titration ,Determination of Acidity of Water, Determination of Alkalinity of Water, Determination of Hardness Water, Determination Of Turbidity, Determination Of Conductivity ,JAR Testing of Coagulation-Flocculation Process, Determination of Solid and Determination of Dissolved Oxygen

Instructor: Eng. Isra'a AL- Smadi
Email: ialsmadi@philadelphia.edu.jo
Office: Sanitary laboratory, room 617, ext: 2638

Course Outlines:

Week	Topic
1	Introduction
2	Determination of pH
3	Preparation of Primary& Secondary Standards
4	Acid – Base Titration
5	Determination of Acidity of Water
6	Determination of Alkalinity of Water
7	Determination of Hardness Water
8	Determination of Turbidity
9	Determination of Conductivity
10	JAR Testing of Coagulation-Flocculation Process
11	Determination of Solid
12	Determination of Dissolved Oxygen
13	Review
14	Final exam

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Students are able to work cooperatively and effectively as a team member and share ideas	5,6
2.	Follow experimental and theoretical procedures for measurement some of the important characteristics of water quality such as ph, alkalinity, acidity …etc.	6,5,3
3.	The students will be able to effectively present information visually using textual and graphical techniques	6,3
4.	The students will be able to evaluate their results, by comparing them the standards of drinking water.	4

Assessment Guidance:

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

Lab Reports:	The students will submit a report for each experiment at the beginning of each lab .No late submission will be accepted. Missing reports will result in a zero grade. Cheating is not tolerated. A student guilty of cheating will receive a zero grade. Cheating is any form of copying of another student's work, or allowing the copying of your own work.
Quizzes and lab work:	(4-5) Quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.
Final Exam:	The students will undergo a scheduled final exam (theoretical and practical) at the end of the semester covering the whole materials taught in the lab.

Grading policy:

Lab Reports	40%
Quizzes and lab work	20%
Final Exam	40%
Total:	100%

Attendance Regulation:

The semester has in total 28 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.

Philadelphia University

Faculty of Engineering and Technology
Department of Civil Engineering
First Semester 2021/2022

Course Details:

Title:	Engineering Economy (0670472)
Prerequisite:	Course prerequisite(s): (0210106)
Credit Hours:	3 credit hours (16 weeks per semester, approximately 44 contact hours)
Textbook:	Engineering Economy, by Leland T. Blank and Anthony J. Tarquin, WCB/McGraw-Hill, 6th Edition, 2005
References:	Construction Accounting and Financial Management, 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.
Class Times:	Sunday and Tuesday 11:15-12:45 – Section 1
Website:	http://www.philadelphia.edu.jo/academics/alaa
Instructor:	**Dr. Ala'a Alshdiefat** **Email: aalshdiefat@philadelpia.edu.jo** **Office: Civil engineering building, room, 312 ext. 2436**
Office hours:	**Office hours: Sun, Tue and Thu: 10:00-11:00** **Mon and Wed 12:45-14:15**

Course Outlines:

Week	Topic
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

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1	Understand the concepts of engineering economic analysis and its role in solving problems.	1, 2, 4, 6
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.	1, 2, 4, 6
3	Apply all mathematical approach models covered in solving engineering economics problems: mathematical formulas, interest factors from tables, Excel functions and graphs.	1, 2, 4, 6
4	Learn and appreciate how money is used and invested.	1, 2, 4, 6
5	Learn about rational decision making, principles of economic analysis methods and techniques	1, 2, 4, 6

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: (2-3) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.

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.

Philadelphia University

Faculty of Engineering and Technology
Department of Civil Engineering
First Semester 2021/2022

Course Details:

Title:	Prestressed Concrete Design (0670517)
Prerequisite:	Reinforced Concrete Design II
Credit Hours:	3 credit hours (16 weeks per semester, approximately 44 contact hours)
Textbook and Design Code:	1- PCI design handbook of "Precast and Prestressed Concrete" (7th Edition), 2010. 2- Nawy, Edward "Prestressed Concrete: A Fundamental Approach" (5th Edition), Prentice Hall, 2009.
References:	1. Naaman, A.E. "Prestressed Concrete Analysis and Design: Fundamentals" (2ndEdition), Techno Press 3000, 2004. 2. Nilson, A.H. "Design of Prestressed Concrete" (2nd Edition), Wiley, 1987.
Course Description:	This course covers the fundamental theories and principles of prestressed concrete members. This course includes: design, investigation of beams, columns.
Website:	http://www.philadelphia.edu.jo/academics/salkhawaldeh/
Instructor:	Dr. Sawsan Alkhawaldeh **Email**: salkhawaldeh@ philadelphia.edu.jo **Office**: Civil engineering building, Room 315 **Class hours**: Sun, Tues: 11:15 - 12:45 **Classroom:** 6201 **Office hours**: Sun, Mon, Tues, Wed: 9:45 - 11:15

Course Outlines:

Week	Topic
1	Basic Concepts.
2	Materials and System for Prestressing.
3, 4, 5, 6	Loss of Prestress.
7, 8, 9, 10	Flexural Analysis and Design at ultimate.
11, 12, 13, 14	Shear Strength Design.
15	Compression Members.
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 prestressing methods	[1, 6, 7]
2.	Understand the fundamental structural behavior, analysis and design of prestressed concrete members subjected to a variety of loading conditions. Prestressed concrete is essentially reinforced concrete in which steel reinforcement is tensioned against the concrete, thereby introducing compression in concrete and hence overcoming the tensile weakness of concrete relative to its compressive strength.	[1, 6, 7]
3.	Analyze prestressed concrete beams at release, service and ultimate.	[1, 6, 7]
4.	Calculate prestressing loss.	[1, 6, 7]
5.	Analyze and design prestressed concrete beams for shear	[1, 6, 7]
6.	Analyze and design prestressed concrete columns	[1, 6, 7]

Assessment Guidance:

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

Exams: The students will be subjected to two scheduled exams during the semester.

Quizzes: (2-4) 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%
Semester works	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.

Philadelphia University

Faculty of Engineering and Technology -
Department of Civil Engineering
First Semester 2021/2022

Course Details:

Title:	Airport Engineering and Railway (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
Instructor:	Eng. Adnan Abdelhadi **Email**: adnan_m_abdelhadi@yahoo.com **Office**: Civil Engineering Building, Room 61-301 / A **Class hours**: Sun & Tue : $12^{:45} - 14^{:15}$ **Office hours**: : Sun, Tue, Thu:08:30-9:30 & 11:30 – 12:30 Mon, Wed: 8:30 – 9:30 & 11:30 – 12:30

Course Outlines:

Week	Topic
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
16	Review & Final Examination

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

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

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 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%
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.

Philadelphia University

Faculty of Engineering and Technology -
Department of Civil Engineering
1st Semester 2021/2022

Course Details:

Title:	Foundation Engineering (0670531)
Prerequisite:	Soil Mechanics (0670331)
Credit Hours:	3 credit hours (15 weeks per semester, approximately 45 contact hours)
Textbook:	1- Bowles J.E., "Foundation Analysis and Design" , McGraw-Hill
References:	• Tomlinson M.J., "Foundation Design and Construction", A pitman International Text • Teng W.C., "Foundation Design", Prentice – Hall • Das B.M., "Principles of Foundation Engineering", Cengage Learning
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: A review of the basic topics of soil mechanics, subsurface investigation, bearing capacity, settlement, and earth retaining structures.
Website:	http://www.philadelphia.edu.jo/academics/aodeibat/
Instructor:	Eng. Abdallah Odeibat **Email**: aodeibat@philadelphia.edu.jo **Office**: Civil Engineering Building, Room 215, Ext: 2182 **Class hours**: Sun, Tues: 9:45-11:15 **Office hours**: Sun, Tues : 8:15-9:30 and 11:15-12:30 Mon, Wed: 8:15-9:30 and 11:15 -12:30

Course Outlines:

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

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

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

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 one scheduled exam during the semester.

Quizzes: (2-3) quizzes of (15-20) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.

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.

Philadelphia University

Faculty of Engineering & Technology - Department of Civil Engineering

First Semester 2021/2022

Course Details:

Title:	Hydrology (**067054100**)
Prerequisite:	Hydraulic (**067044100**)
Credit Hours:	3 credit hours (15 weeks per semester, approximately 44 contact hours)
Textbook:	Viessman, W., and Lewis, G., Introduction to Hydrology, 5th edition, Prentice Hall. (ISBN 0- 67-399337-x).
References:	• Engineering Hydrology , Wilson ,E. M. Macmillan,London. 1983 . Hydrology for Engineers. Linsley, R., Kohler, M., Paulhus, JMcGraw Hill. • Hydrology An Introduction , WILFRIED BRUTSAERT, Cambridge University press. 8th edition, 2013 • Water Authority (WAJ): Studies and reports related to Jordan's hydrology.
Course Description:	This course introduces students to the basic components of surface water hydrology including the components of the hydrological cycle as well as other hydrological topics like evapotranspiration, precipitation, interception, run off , stream flow and groundwater flow. it Prepares students to develop engineering solutions to hydrological problems by emphasizing the interlinkages of processes in hydrological cycle. Attention is paid to techniques for the measurement and collection of data on the different components. The course also covers engineering applications in hydrological analysis and design
Website:	https://www.philadelphia.edu.jo/academics/myounes/
Instructor:	Dr. Mohammad Younes **Email**: myounes@philadelphia.edu.jo **Office**: Civil Engineering Building, Office No 312 ext: 2357 **Classes hours:** Sun, Tues,: 9:45-11:15 & 12:45-14:15 & Mon, Wed: 9:45-11:15 ; 12:45-14:15 **Office hours:** All week days: 11:20-12:30

Course Outlines:

Weeks	TOPIC
1 ,2,3	**INTRODUCTION TO HYDROLOGY, HYDROLOGIC CYCLE , HYDROLOGIC BUDGET .**
4,5,6	**PRECIPITATION.**
7,8,9	**EVAPORATION &TRANSPIRATION . infiltration**
10,11,12,13	**STREAM FLOW, RUNOFF and Hydrograph . Hydrograph Analysis, Unit Hydrograph Theory and its applications, Synthetic Unit Hydrograph**
14,15	**Groundwater hydrology and reservoirs**

Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should:

1.	Be able to identify main components of hydrological processes. Including; precipitation, evaporation, transpiration, infiltration and runoff.	[1, 2]
2.	Be able to analyze rainfall-runoff relationship.	[1 , 2]
3.	Be able to employ the concepts of unit hydrographs.	[1 , 7]
4.	Be able to predict peak flood, using rational method, empirical relations, NRCS method, hydrologic routing.	[1 6]
5.	Be able to outline groundwater movement and general flow equations.	[1 , 2]
6.	Be able to recognize main features of wells' hydraulics.	[1, 7]

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:

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.

Philadelphia University

Faculty of Engineering and Technology
Department of Civil Engineering
First Semester 2021/2022

Course Information

Title: **Special Topics in Civil Engineering (0670553)**
Mon, Wed 8:15-9:45
Classroom 202

Prerequisite: 120 hours

Credit Hours: 3 credit hours (15 weeks per semester, approximately 45 contact hours)

Textbook: R. C. Hibbler. "**Mechanics of Materials**", 9th edition.

Nilson, A.H., Darwin, D., and Dolan, C.W."**Design of Concrete Structures**", 14th edition.

References:

- ACI Code (ACI 318 M -11).
- Design of Reinforced Concrete by J. C. McCormac and R.H. Brown, 8th Edition, John Wiley & Sons.

CourseDescription: Advanced mechanics and design of reinforced concrete, which includes: Shear and moment in members, bending deformation, the flexure formula, inelastic bending, reinforced concrete section design, deflection of beams, wall footing, single footing, eccentric footing, combined footing, strap footing, piles and pile cap design, Concrete building systems, brackets and corbels design.

Website: https://www.philadelphia.edu.jo/academics/maldwaik/

Instructor: **Dr. Mais Aldwaik**
Email: Aldwaik.1@osu.edu
Office: Civil engineering building, room 318
Office hours: Mon, Wed: 9:45-11:15, Sun, Tues, Thur: 11:15-12:45

Course Outline

Week	Topic
1,2	Introduction, Shear and moment in members
3,4	Bending deformation, the flexure formula, inelastic bending
5,6	Flexural analysis and design of reinforced concrete section
7,8	Deflection of beams
9	Wall footing
10	Single footing
11	Combined footing
12	eccentric footing

13	Strap footing
14	Piles and pile cap design
15	Bracket and corbel design

Course Learning Outcomes with reference to ABET Student Outcome

Upon successful completion of this course, student should:

1.	Understand the behavior of concrete sections under bending	1,2
2.	Learn how apply mechanics principles to reinforced concrete design	1,7
3.	Use different techniques to determine deflection of members	2,7
4.	Understand the flexural behavior of reinforced concrete beams, investigate and design beams for bending and shear.	2,7
5.	Analyze buildings and proposing appropriate structural system	4
6.	Learn how to design advanced reinforced concrete elements	2,7

Assessment Guidance (subjected to change based on COVID-19 government updates and Philadelphia University updates)

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

Exams: Students will be subjected to two scheduled exams during the semester.

Quizzes: One-three quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.

Homework: Two-four homeworks will be assigned during the semester. You are usually given one week to submit each home work. 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 students will be assessed accordingly.

Final Exam: 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%
Home works, Quizzes, and term work	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.