Philadelphia University
Faculty of Engineering
Department of Civil Engineering
2nd Semester, 2016/2017

Course Syllabus	
Course Title: Statics	**Course code:** 0670211
nd year	**Course prerequisite(s):** 0210106
Course Level: 2 **Lecture Time:** 10:10 to 11:00 Sun.,Tu.&Th.	**Credit hours:** 3

Academic Staff Specifics				
Name	**Rank**	**Office No.**	**Office Hours**	**E-mail Address**
Dr. Ghassan AL-Dulaimi	Associate Prof.	311	As Announced	dr.ghassandulaimy@gmail.com

Course module description:

The main purpose of this course is to provide the student with a clear view of the theory and applications of engineering mechanics. This includes the force vector, force system resultants, free body diagram of forces and equilibrium of particles and rigid bodies, moment of a force about a point and about an axis, equilibrium of rigid bodies, analysis of trusses and frames, shear forces and bending moment diagrams, center of area and moment of inertia of a composite area.

Course module objectives & outcomes:

Students who successfully complete this course will be able to:

- Understand force vectors and resultants.

- Determine the reactions of a rigid body.
- Perform analysis of trusses and frames.
- Determine the moments of a force about a point.

- Draw shear and moment diagrams of a beam.

Course/ module components:

Books (title, author (s), publisher, year of publication):

- Engineering Mechanics – Statics, SI Edition, 13th edition, Vol. 1, R. C. Hibbeler and Kai Beng Yap, PEARSON, 2013.

Teaching methods:

Lectures, discussion groups, tutorials, problem solving, debates, etc.

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

Assessment instruments

Mid-Term exams: Two in-class exams will be conducted during the semester.

- **Quizzes:** FOUR to FIVE (20 minutes each) quizzes will be offered during the semester, these quizzes will cover material discussed during the previous two weeks of lectures.
- **Home works and Project:** Home works and project may be offered as part of this course. Detailed topics and schedule will be announced in due course.
- **Final examination**: 40 marks. The final examination will cover all the class material discussed during the semester.

Allocation of Marks	
Assessment Instruments	**Mark**
1st examination– Mid term	**20%**
2nd examination – Mid term	**20%**
Quizzes and home works	**20%**
Final Examination	**40%**
Total	**100%**

Documentation and academic honesty
- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.

Ethics and Disability Act:
- Students may consult with one another on solutions, but copying another student's code is strictly prohibited.
- Students should write their own code. Using code found on books or internet is
- prohibited.
  The Instructor follows general university "Academic Dishonesty/Cheating Policy".

Course/Module academic calendar:

CHAPTER	TITLE	WEEKS
Chapter 1	Introduction (general principles)	2
Chapter 2	Force vectors	2
Chapter 3 Mid-Term Exam I	Equilibrium of a particle	2
Chapter 4	Force system resultants	2
Chapter 5 Mid-Term Exam II	Equilibrium of a rigid body	2
Chapter 6	Structural analysis of Trusses	2
Chapter 7	Internal forces (Shear and moment diagrams)	2
Final Examination		

Expected workload:
On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

- Engineering Mechanics – Statics, SI Edition, 13th edition, Vol. 1, R. C. Hibbeler and Kai Beng Yap, PEARSON, 2013.
- Engineering Mechanics – Statics, 7th edition, Vol. 1, J. L. Meriam and L.G. Kraige, John Wiley and Sons, 2012
- Engineering Mechanics – Statics, 3rd edition, A. Pytel and J. Kiusalaas, Cengage Learning, 2010.

Attendance policy:

Absence from lectures and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without

a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty

shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the

excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

The student is responsible for all assignments on a weekly basis.

No make-up will be given for missed quizzes, tests or assignments, unless a case is made in advance

with Instructor's approval.

References

Philadelphia University
Faculty of Engineering
Department of Civil Engineering
Second Semester, 2016/2017

Course Syllabus	
Course Title: Statics	**Course code**: 0670211
Course Level: 2nd year	**Course prerequisite(s):** 0210106
Lecture Time: 10:10 to 11:00 Sun., Tues., Thurs. (Sect. 1) 8:15 to 9:45 Mon., Wed. (Sect. 2)	**Credit hours:** 3

Academic Staff Specifics				
Name	**Rank**	**Office No.**	**Office Hours**	**E-mail Address**
Dr. Mohammed Al-Iessa	Associate Prof.	210 B	As Announced on office door	mmalkaissi@yahoo.com

Course module description:
The main purpose of this course is to provide the student with a clear view of the theory and applications of engineering mechanics. This includes the force vector, force system resultants, free body diagram of forces and equilibrium of particles and rigid bodies, moment of a force about a point and about an axis, equilibrium of rigid bodies, analysis of trusses and frames, shear forces and bending moment diagrams, center of area and moment of inertia of a composite area.

Course module objectives & outcomes:
Students who successfully complete this course will be able to:
- Understand force vectors and resultants.
- Determine the moment of a force about a point.
- Determine the reactions of a rigid body.
- Perform analysis of trusses and frames.
- Draw shear and moment diagrams of a beam.

Course/ module components:
Books (title, author (s), publisher, year of publication):
- Engineering Mechanics – Statics, SI Edition, 13th edition, Vol. 1, R. C. Hibbeler and Kai Beng Yap, PEARSON, 2013.

Teaching methods:
Lectures, discussion groups, tutorials, problem solving, debates, etc.

Assessment instruments
Evaluation of students' performance (final grade) will be based on the following categories:
- **Mid-Term exams:** Two in-class exams will be conducted during the semester.
- **Quizzes:** FOUR to FIVE (20 minutes each) quizzes will be offered during the semester, these quizzes will cover material discussed during the previous two weeks of lectures.
- **Home works and Project:** Home works and project may be offered as part of this course. Detailed topics and schedule will be announced in due course.

- **Final examination**: 40 marks. The final examination will cover all the class material discussed during the semester.

Allocation of Marks	
Assessment Instruments	**Mark**
1st examination – Mid term	**20%**
2nd examination – Mid term	**20%**
Quizzes and home works	**20%**
Final Examination	**40%**
Total	**100%**

Documentation and academic honesty
- Documentation style (with illustrative examples)
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- Avoiding plagiarism.

Ethics and Disability Act:
- Students may consult with one another on solutions, but copying another student's code is strictly prohibited.
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Course/Module academic calendar:

CHAPTER	TITLE	WEEKS
Chapter 1	Introduction (general principles)	2
Chapter 2	Force vectors	2
Chapter 3 Mid-Term Exam I	Equilibrium of a particle	2
Chapter 4	Force system resultants	2
Chapter 5 Mid-Term Exam II	Equilibrium of a rigid body	2
Chapter 6	Structural analysis of Trusses	2
Chapter 7	Internal forces (Shear and moment diagrams)	2
Final Examination		

Expected workload:
On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

Attendance policy:
Absence from lectures and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.
The student is responsible for all assignments on a weekly basis.
No make-up will be given for missed quizzes, tests or assignments, unless a case is made in advance with Instructor's approval.

References
- Engineering Mechanics – Statics, SI Edition, 13th edition, Vol. 1, R. C. Hibbeler and Kai Beng Yap, PEARSON, 2013.
- Engineering Mechanics – Statics, 7th edition, Vol. 1, J. L. Meriam and L.G. Kraige, John Wiley and Sons, 2012
- Engineering Mechanics – Statics, 3rd edition, A. Pytel and J. Kiusalaas, Cengage Learning, 2010.

Philadelphia University
Faculty of Engineering
Department of Civil Engineering
Second Semester, 2016/2017

Course Syllabus	
Course Title: Strength of Materials	**Course code**: 670212
Course Level: 2nd Year	**Course prerequisite(s):** 670211
Lecture Time: 8.10-9.10 & 12:10-13:10 Sun., Tue.&.Thu. , 9:45 -11:15 Mon.,&Wed..	**Credit hours:** 3

Academic Staff Specifics				
Name	Rank	Office No.	Office Hours	E-mail Address
Dr. A. J. Dabdab	Associate Prof.	61-213	As shown on my office door	

Course module description:

Stress-Strain, Torsion, . Mechanical Properties of Materials Shear Force and Bending Moment, Stresses in Beams, Deflection of Beams, Analysis of Stress and Strain , Columns.

Course module objectives

Traditionally, the purpose of this class has been to teach some of the analytical techniques used to insure that a particular structural design is safe and durable. The most effective way to teach these techniques is to have the students work lots of short drill problems like the ones in the textbook. The drill **problems represent only a small part of the structural analysis** (one joint or member in the structure), and the **structural analysis represents only one part of the overall design process**. The analytical techniques should be learned or understood in the context of the overall design process. Specific course objectives are:

1. To understand the axial, shear and bearing stresses associated with simple truss design and analysis.
2. To understand normal and shear strains and how they relate to deformation.
3. To understand the difference between applied loads and allowable loads and how to calculate (or apply) factor of safety.
4. To interpret a stress-strain diagram and understand elastic constants.
5. To understand the stress-strain and load-displacement relationships for axial force members.
6. To learn to calculate the stresses, strains and angular displacements for torsion members (shafts), and to understand how power is transmitted through a gearbox.
7. To recall how to calculate the shear-force and bending-moment diagrams for beams.
8. To learn to calculate the stresses, strains and displacements for beams under various loading configurations.
9. To learn to calculate the stresses, strains and displacements for pressure vessels.
10. To understand the concepts of stress and strain as second order tensors.

11. To learn how to calculate the principal stresses, and how they are related to the failure of various materials.
12. To use the mechanics of materials technique to analyze a few structures.

Text (s) and other Materials

Mechanics of Materials ,Hibbeler, R, C ,12th Edition .

Teaching methods:

Lectures , problem solving, etc.

Assessment instruments
- Two Mid – Term Exams.
- **Quizzes:** 3
- **Homework**
  .
- **Final examination**:

Allocation of Marks	
Assessment Instruments	**Mark**
1st examination	**20%**
2nd examination	**20%**
Quizzes	**20%**
Final Examination:	**40%**
Total	**100%**

Course / module academic calendar

Chapter	Week	Subject
Introduction-Concept of Stress	**1**	**Equilibrium of a deformable body, average normal and shear stress, bearing stress, allowable stress, factor of safety, deformation.**
Stress and Strain - Axial Loading	**2&3**	**Normal and shear strain, the tension test, Hooke's law, Poisson's ratio. thermal stress.**

Chapter	Week	Subject
Torsion	4	The torsion formula, power transmission.
Pure Bending	5&6	Shear and moment diagrams, the flexure formula.
	7	Bending of composite beams, stress concentrations, eccentric axial loading, un-symmetric bending.
Shearing Stress in Beams and Thin-Walled Members.	8	The shear formula, shear stresses in beams, shear flow in built-up members.
Transformation of Stress and Strain	9	Plane stress transformation, general equations of plane stress transformation.
	10	Mohr's circle.
	11	Plane strain, Mohr's circle, failure criteria.
Deflection of Beams	13&14	The elastic curve, slope and displacement by integration method.

Philadelphia University
Faculty of Engineering
Department of Civil Engineering
SecondSemester, 2016-2017

Course Syllabus	
Course Title: Materials of construction	**Course code: 0670214**
Course Level: 2 year	**Course prerequisite: 0210106**
Lecture Time: STT 10-10-11-00	**Credit hours: 3 h**

Academic Staff Specifics				
Name	**Rank**	**Office Number and Location**	**Office Hours**	**E-mail Address**
Dr Ahmad Alfraihat	lecturer	**Room: –206 (1)** **Room: –206 (2)**	**12-13**	**aalfraihat@philadelphia.edu.jo**

Course module description:
The course intends to give students a comprehensive idea about the structure and properties of matter,powerful atomic and energy realtionship,**Chemical bonding,Radioactivity,Generalclassificationofconststructionmaterials,Metalliccrystallinestructure,propertiesofmetalandcrystaldefects,Polymers,structure,mechanicalpropertiesElastic/plasticDeformation,creep,toughness,fatigue,Ceramicstructues.Bondingmaterials,propertiesofcementandaggregate,quality of water ,Mixing,Handling,Placing and compacting concrete,Durability ofconcrete,Admixture,Curing,Mixdesignof concrete ,Testing of concreteand bricks and brick work.**

Course module objectives:
The aim of this course is to introduce and detail the main concepts realtionship between structure and properties of materials
The student should be able t**o;Understand structure   and properties of construction materials,structure and properties of cement,aggregate and water ,Operatins of mixing ,placing ,curing of concrete ,design of concrete mixes,and brick work.**

Course/ module components
.   Books (title , author (s), publisher, year of publication)
• D.Tayler"Construction"of-material,1989,A.M.NevilleandJ.J .Brooks;:Concrete Technploge" .longman,latest
• editaion
• Study guide (s) (if applicable)
• **Support material (s):** textbook
• **Homework and laboratory guide (S) if(applicable)**

Teaching methods: Lectures,tutorials,problemsolving   discussion group**,etc**
Documentation and academic honesty;
.Documentation style(with illustative example)
.Avoiding palgiarism
,Protection copyright

Assessment instruments

• Quizzes.
• Home works: Practical projects
• Final examination: 40 marks

<table>
<tr><th colspan="2">Allocation of Marks</th></tr>
<tr><td colspan="2"></td></tr>
<tr><th>Assessment Instruments</th><th>Mark</th></tr>
<tr><td>First examination</td><td>20%</td></tr>
<tr><td>Second examination</td><td>20%</td></tr>
<tr><td>Final examination: 40 marks</td><td>40%</td></tr>
<tr><td>Quizzes, Home works</td><td>10%</td></tr>
<tr><td>Practical projects</td><td>10%</td></tr>
<tr><td>Total</td><td>100%</td></tr>
</table>

Course/module academic calendar

week	Basic and support material to be covered	Homework/reports and their due dates
Feb-26-March=8 (1)	IntroductionThe structure of material powerful atomic and energy realshinship,properties of nucleus,types of bonds:	
March-8-15 (2)	Radioactivity,General classification and structure of construction materials,structure and properties of metal,crystal defects.	**Quizz-1**
March -15-22 (3)	Polymers,Properties of solid materials	**Home work**
March-22-29April (4)	Ceramic Structures	
April-3-6 (5)	**First examination**	**EXAM 1**
April-9-15 (6)	Portland Cement	
April-15-22 (7)	Properties of Aggregate,Quality of Water,admixture	

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April-22-31 (8)	Mixing,Handing ,concrete mixing ratio	**Quizz-2**
May-1-7 (9)	Placing,Campacting concrete	
May-3-11 (10)	Second exaamination	EXAM 2
May-11-21 (11)	Transporting and handling	
May -21-28 (12)	Admixture,Methods of curing	
May-28-31 (13)	Mix Design of concrete	**Quizz-3**
Jun-1-7 (14)	Testing of concrete	
Jun-7-10 (15)	Brick and Brick work	
Jun-10-18 Specimen examination (Optional)	FINAL EXAMANATION Consensus (1	**EXAM FINAL** Due date Paper work

Expected workload: On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial**.**

Attendance policy:

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

Module references:

Books;1- D.Tayler"Construction of material,1989

    2-,A.M .Neville and J.J .Brooks;:Concrete Technologe" .longman,

    3-M. Omary;Scienceof engineering materials ,2009

    4-Gambhir.M.L.Concrete Technology,new delhi;Tata McGraw-Hill,1986

    5-,A.M.NevilleandJ.J.Brooks;'Propertiesof concrete'.Scientific&Technical,1989

    6-Shan Somayaji'Civil Engineering Material'Prentice Hall.Inc2001

Philadelphia University
Faculty of Engineering
Department of Civil Engineering
Second Semester, 2016/2017

Course Syllabus	
Course Title: surveying	**Course code**: 0670261
Course Level: 2th year	**Course prerequisite(s):** 250102
Lecture Time: Sec 1 :8:^{10} to 9:^{00} Sun, Tues., Thur. Sec 2 : 10:^{10} to11:^{00} Sun , Tues , Thur . Sec 3:8:^{15} to 9:^{45} Mon , Wed.	**Credit hours:** 3

Academic Staff Specifics

Name	Rank	Office No.	Office Hrs	E-mail
Adnan Abdelhadi	Lecturer	301	11:^{00}- 12:^{00} Sun,Tues, Thur.	adnan_m_abdelhadi@yahoo.com

Course module description:

Principle of surveying , distance measurements (direct , optical and elctronic methods), leveling ; contouring , angle measurements, traverse survey ,coordinate geometry , areas and volumes, setting out horizontal and vertical curves.

Course module objectives & outcomes:

- Understand the Principle of surveying

- Make mapes and lay out feature

- Run a leveling net work

- Determine the coordinates of points

- Use the survey instruments

- Calculate the areas and volumes

- Run a traverse survey

- set out horizontal and vertical curves.

Course/ module components:
- Books.
- support materials.
- Homework.

Teaching methods:
Lectures, discussion groups, tutorials, problem solving, debates, etc.

Assessment instruments
- Quizzes
- Homework
- Final examination

Allocation of Marks	
Assessment Instruments	**Mark**
1st examination	**20%**
2nd examination	**20%**
Home works & Project	**10%**
Quizzes	**10%**
Final Examination:	**40%**
Total	**100%**

Documentation and academic honesty
- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.

Ethics and Disability Act:
- Students may consult with one another on solutions, but copying another student's code is strictly prohibited.
- Students should write their own code. Using code found on books or internet is prohibited.
- The Instructor follows general university "Academic Dishonesty/Cheating Policy".

Expected workload:
On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

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

The student is responsible for all assignments on a weekly basis.

No make-up will be given for missed quizzes, tests or assignments, unless a case is made in advance with Instructor's approval.

Course/module academic calendar

Subject	date	no of weeks
1-Introduction	19/10- 23/10	1
2- distance measurements	26/10 – 8/11	2
3- leveling	11/ 11 -16/11	1
4- contouring	19/11- 23/11	1
1st exam		
5- profiles and cross sections	26/11- 30/11	١
6- Angles measurements ١	2/12 – 13/12	2
7- Traverse survey	16/12 -27/12	٢
2nd exam		
8- coordinates geometry	30/12 – 3/1	١
9- aras and volumes	6/1 -18/1	٢
10- route surveying	21/1 – 28/1	2

- **References:**
- **Foundamental of surveying , 3rd edition**

Molten O , S chmidt , Kam W wong

- Elementary surveying . 12th edition Galini and Wolf (USA 2008).
- Surveing principale andpractices, 5th edition , Nathenson,Lanzafama and Kissam,USA 2005

Molten O , S chmidt , Kam W wong

- Elementary surveying . 12th edition Galini and Wolf (USA 2008).
- Surveing principale andpractices, 5th edition , Nathenson,Lanzafama and Kissam,USA 2005

Philadelphia University
Faculty of Engineering
Department of Civil Engineering
Second Semester, 2016/2017

Course Syllabus

Course Title: surveying	Course code: 0670261
Course Level: 2th year	Course prerequisite(s): 250102
Lecture Time: Sec 1 : 9:^{45}to 11:^{15} Sun, Tues., Thur.	Credit hours: 3 C.H.

Academic Staff Specifics

Name	Rank	Office No.	Office Hrs	E-mail
Monther Alawneh	Assistant Prof.	61	11:10 – 12:10 Sun,Mon.Thu.	Dr_alawneh@yahoo.com

Course description:

Principle of surveying , distance measurements (direct , optical and elctronic methods), leveling ; contouring , angle measurements, traverse survey ,coordinate geometry , areas and volumes, setting out horizontal and vertical curves.

Course module objectives & outcomes:

- Understand the Principle of surveying

- Make mapes and lay out feature

- Run a leveling net work

- Determine the coordinates of points

- Use the survey instruments

- Calculate the areas and volumes

- Run a traverse survey

Course/ module components:
- Books.
- support materials.
- Homework.

Teaching methods:
Lectures, discussion groups, tutorials, problem solving, debates, etc.

Assessment instruments :
- Quizzes
- Homework
- Final examination

Allocation of Marks	
Assessment Instruments	**Mark**
1st examination	**20%**
2nd examination	**20%**
Home works & Project	**10%**
Quizzes	**10%**
Final Examination:	**40%**
Total	**100%**

Documentation and academic honesty:
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Ethics and Disability Act:
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Expected workload:

On average students need to spend 2 hours at lest of study and preparation for each 50-minute lecture/tutorial.

Attendance policy:

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

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No make-up will be given for missed quizzes, tests or assignments, unless a case is made in advance with Instructor's approval.

Course/module academic calendar :

Subject	no of weeks
1-Introduction	1
2- distance measurements	2
3- leveling	1
4- contouring	2
1st exam	
5- profiles and cross sections	1
6- Angles measurements1	2
7- Traverse survey	2
2nd exam	
8- coordinates geometry	1
9- aras and volumes	2
10- route surveying	2

- ## References:

- Foundamental of surveying , 3rd edition
  Molten O , S chmidt , Kam W wong
- Elementary surveying . 12th edition Galini and Wolf (USA 2008).
- Surveing principale andpractices, 5th edition , Nathenson,Lanzafama and Kissam,USA 2005

Philadelphia University
Faculty of Engineering
Department of Civil Engineering
Second Semester, 2016/2017

Course Syllabus	
Course Title: Structures 1	**Course code:** 0670311
Course Level: 3rd year	**Course prerequisite(s):** 0670212
Lecture Time: Sec1: 8:10-9:00 Sun-Tue-Thu Sec2 : 9:45-11:15 Mon-Wed	**Credit hours:** 3

Academic Staff Specifics				
Name	**Rank**	**Office No.**	**Office Hours**	**E-mail Address and Course website**
Eng. Abdallah Odeibat	Lecturer	301-A	As announced on office door	aodeibat@philadelphia.edu.jo http://www.philadelphia.edu.jo/academics/aodeibat/

Course module description:
Classification of structures; loads; truss analysis, internal loadings in structures, shear and moment diagrams for beams and frames; influence lines for determinate structures; deflections.

Course module objectives:
Provide a thorough understanding and practical applications of structural analysis theories. Develop the skills to analyze the behavior and response of structures to various loads and constraints. Establish foundation knowledge and skills in preparation for structural design, concrete and steel design.

After successfully completing this course, the students will be able to:
1. Analyze determinate structures (truss, beam and frame) under various loading conditions.
2. Determine internal loads (axial, shear and moment) in structural members using equilibrium and compatibility equations.
3. Determine reactions and internal loading in structural elements due to moving (dynamic) loads.
4. Employ deflection methods for calculation of deflection.
5. Demonstrate progress in problem solving skills and analytical thinking

Course/ module components:
  Books (title, author (s), publisher, year of publication):
- Structural Analysis- 8th edition, by R.C Hibbeler, Pearson Prentice Hall; 2012.

Teaching methods:
Lectures, discussion groups, problem solving, etc.

Assessment instruments
- **Mid-Term Exams:** Two in-class exams will be given.
- **Quizzes & Assignments:** at least three quizzes and assignments will be given throughout the semester.
- **Final examination**: 40 marks

Allocation of Marks	
Assessment Instruments	**Mark**
1st examination	**20%**
2nd examination	**20%**
Quizzes & Assignments	**20%**
Final Examination:	**40%**
Total	**100%**

Documentation and academic honesty
- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.
- **Ethics and Disability Act:**
  - Students may consult with one another on solutions, but copying another student's code is strictly prohibited.
  - Students should write their own code. Using code found on books or internet is prohibited.
  - The Instructor follows general university "Academic Dishonesty/Cheating Policy".

Expected workload:
On average students need to spend 2 hours of study and preparation for each one hour lecture/tutorial.

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

Course/module academic calendar

Course Academic Calendar		
Week	**Material to be covered**	**Notes**
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	**First Examination**
7-8	Chapter 4: Internal loadings in structural members	
10-11	Chapter 8: Deflections	
12-13-14	Chapter 9: Deflections using energy methods	**Second Examination**
15-16	Chapter 6: Influence lines for determinate structures	
	FINAL EXAMS	

Module references
Books

References	
1-	Structural Analysis by R.C Hibbeler , 8th edition

Philadelphia University
Faculty of Engineering
Department of Civil Engineering
Second Semester, 2015/2016

Course Syllabus	
Course Title: Structural Analysis (2)	**Course code**: 0670312
Course Level: 3rd Year	**Course prerequisite(s):** 0670311
Lecture Time: **9:10-10.0 Sun., Tus., and Thur. Sections 1 & 3.** **9:45-11.0 Mon. and Wed. Section 2.**	**Credit hours: 3**

Academic Staff Specifics				
Name	**Rank**	**Office No.**	**Office Hours**	**E-mail Address**
Dr. Wail Al-Rifaie	Prof.	211	**As announced on my office door**	*wrifaie@philadelphia.edu.jo*

Course module description:
- Analysis of statically indeterminate structures: flexibility (force) method; slope deflection method; moment distribution method.
- Introduction to stiffness matrix method of structural analysis.
- Plastic methods of structural analysis.

Course module objectives:
Provide a thorough understanding and practical applications of structural analysis theories. Develop the skills to analyze the behavior and response of statically indeterminate structures to various loads and constraints. Establish foundation knowledge and skills in preparation for structural design, concrete and steel design.

After successfully completing this course, the students will be able to:
1. Analyze statically indeterminate structures (truss, beam and frame) under various loading conditions.
2. Determine internal forces (axial, shear and moment) in structural members and reactions using equilibrium and compatibility equations.
3. Demonstrate progress in problem solving skills and analytical thinking.

Text(s) and Other Course Materials   **Author(s)**   **Publisher**
Structural Analysis, 7th Ed in SI Units.   R.C. Hibbeler   Pearson Education

Teaching methods:
Lectures, discussion groups, problem solving, etc.

Assessment instruments:
- **Mid-Term Exams:** Two in-class exams will be given.
- **Assignments:** Five Assignments will be given throughout the semester**.**
- **Quizzes:** Three Quizzes will be offered.
- **Final examination**:

Allocation of Marks	
Assessment Instruments	**Mark**
1stexamination	**20%**
2ndexamination	**20%**
Homework	**10%**
Quizzes	**10%**
Final Examination	**40%**
Total	**100%**

Documentation and academic honesty
- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.
  Ethics and Disability Act:
  - Students may consult with one another on solutions, but copying another student's code is strictly prohibited.
  - Students should write their own code. Using code found on books or internet is prohibited.
  - The Instructor follows general university "Academic Dishonesty/Cheating Policy".

Expected workload:
On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

Attendance policy:
Absence from lectures and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.
The student is responsible for all assignments on a weekly basis.
No make-up will be given for missed quizzes, tests or assignments, unless a case is made in advance with Instructor's approval.

Course/module academic calendar

week	Basic and support material to be covered	Reading Assignment from Textbook	Note
(1,2)	Introduction		
(3,4)	Flexibility (Force) method.	Chapter 10	**First Examination**
(5,6,7)	Slope- deflection method	Chapter 11	
(8,9,10,11)	Moment distribution method	Chapter 12	**Second Examination**
(12,13)	Stiffness matrix method of structural analysis	Chapters 14, 15	
(14,15)	Plastic method of structural analysis		
(16)	**FINAL EXAMS**		

Module references

Books

References
1- Structural Analysis by R.C. Hibbeler, 6th edition

Philadelphia University
Faculty of Engineering
Department of Architecture
2nd semester, 2016/2017

<table>
<tr><td colspan="2" align="center">**Course Syllabus**</td></tr>
<tr><td>Course Title: Structural Mechanics and Analysis</td><td>Course code: 0670315</td></tr>
<tr><td>Course Level: 1</td><td>Course prerequisite (s) and/or corequisite (s): 210106</td></tr>
<tr><td>Lecture Time: Mon.-Weden. 12-45 to 2-15</td><td>Credit hours: 3</td></tr>
</table>

<table>
<tr><td colspan="5" align="center">Academic Staff Specifics</td></tr>
<tr><td>Name</td><td>Rank</td><td>Office Number and Location</td><td>Office Hours</td><td>E-mail Address</td></tr>
<tr><td>Dr.Ghassan AL-Dulaimi</td><td>Associate Professor</td><td>311</td><td>6 Hours weekly</td><td>dr.ghassandulaimy@gmail.com</td></tr>
</table>

Course module description:
Introduce students to the Force vectors, Force system resultants, Equilibrium of a rigid body, Structural analysis, Geometric properties and distributed loadings and internal loading. It provides them as well, with the knowledge of the mechanics of materials to include the stress and strain, Mechanical properties of materials, Axial load , Torsion, Bending , Transverse Shear, Combined loadings, Stress and strain transformation, Design of beams and Buckling of Columns.

Course module objectives:
1- To introduce students to force vector and their equilibrium to understand the effect of loading in the buildings.
2- To transfer students cognitive and imaginative thinking to visualize the needed structures to hold the different loading systems.
3- To upgrade students abilities to distinguish between different structural loadings and their points of weakness.
4- To provide students with means to analyze different structures and to choose the best system for their designs.

Course/ module components
The course consists of tow parts:
1- Statics
2- Mechanics of Materials and Structural analysis

1

The main purpose of this course is to provide the students with a clear and thorough understanding of the theory and the applications of the Statics and the engineering

mechanics of materials. This will allow the creation of their structural designs and improve the livability of their architectural creations.

- Books (title , author (s), publisher, year of publication)

R. C. Hibbeler, "Statics & Mechanics of Materials © 2007 Pearson Education South Asia Pte Ltd. Last updated on 27 October 2006. ISBN 13: 978-013-129-011-2 and ISBN 10 : 013-129-011-8

- Support material: Students are advised to read and solve problems from any book about statics, strength of materials and structures.

- Homework: students are requested to solve specific number of problems as home works.

Teaching methods:

Lectures will be presented to students twice a week. A problem session will be held at every third meeting to collect the home work and solve it on the board.

Learning outcomes:

- Knowledge and understanding

The course will build the student ability to understand the acting forces, their points of application, equilibrium and resultant. Then it will create an understanding of the internal action of the applied forces on the structural material (stresses) and the resulting strains.

- Communication skills (personal and academic).

The Architectural students will be able to design communicate, read, use resources (books, magazine, web sites, etc.) related to the structures of buildings, interpret and explain their designs.

- Practical and subject specific skills (Transferable Skills).

The course will train architectural students and qualify them to analyze loading in structures, and to understand the internal stresses and strains. Then choosing the structures and their materials will be provided by the concrete or steel design course. Then this course is the base for a practical design.

Assessment instruments

- Acording to the following table:

Allocation of Marks	
Assessment Instruments	Mark
Year work and attendence	% 20
First Exam	% 20
Second Exam	% 20
Final Exam	% 40
Total	% 100

Documentation and academic honesty

- Students are requested to illustrate references whatever extracted from books, magazine or web sites, in order to respect the copyright protection and avoid plagiarism.

Course/module academic calendar
The class meets Sunday, Tuesday and Thursday from 10-11 or from 11-12

Subject	Week	Homework/ due dates
- Force vectors	(1)	
- Force system resultants	(1)	
- Equilibrium of a Rigid body	(1)	
- Structural Analysis	(1)	
- Geometric Properties and Distributed Loadings	(1)	
- Internal Loading.	(1)	
-	First examination	
- stress and strain	(1)	
- Mechanical properties of materials	(1)	
- Axial load	(1)	
- Torsion	(1)	
- Bending	(1)	
- Transverse Shear	(1)	
-	Second examination	
- Combined loadings	(1)	
- Stress and Strain Transformation	(1)	
- Design of Beams	(1)	
- Buckling of Columns	(1)	
	Final Examination	

Expected workload:

On average students need to spend 10 hours weekly as a minimum to be able to solve the required problems.

Attendance policy:

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

References

Books
R. C. Hibbeler, "Statics & Mechanics of Materials © 2007 Pearson Education South Asia Pte Ltd. Last updated on 27 October 2006.
ISBN 13: 978-013-129-011-2 and ISBN 10 : 013-129-011-8

PhiladelphiaUniversity
Faculty of Engineering
Department of Civil Engineering
Second Semester, 2016/2017

Course Syllabus	
Course Title: Pavement Design	**Course code**: 670323
Course Level: 3rd Year	**Course prerequisite(s): 670324**
Lecture Time: 11:15-12:30 Mon. & Wed. 11:10-12:10 Sund. , Tues. & Thurs.	**Credit hours: 3**

Academic Staff Specifics				
Name	**Rank**	**Office No.**	**Office Hours**	**E-mail Address**
Eng. Rajaa Al-khwaja	Lecturer	A 301	10:10-11:10	rhussein@philadelphia.edu.jo

Course module description:
This course introduces students to the pavement materials, flexible pavement mix design and construction, highway drainage and drainage facilities, and rehabilitation of roads.

Course module objectives:
  Knowledge of:

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

Text Book:
-    *Traffic and Highway Engineering* by Nicholas J. Garber, Laster A. Hoel, 4 ed.

Course/ module components:
- Books
- Supportmaterials.
- Homework.

Teaching methods:
Lectures, discussion groups, tutorials, problem solving, etc.

Assessment instruments:
- Quizzes.
- Homework.
- Exams: First. Second & Final exams.
- Short research projects and presentation

Allocation of Marks	
Assessment Instruments	**Mark**
1stexamination	**20%**
2nd examination	**20%**
Project , Homework & Quizzes	**20%**
Final Examination:	**40%**
Total	**100%**

Documentation and academic honesty
- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.

- **Ethics and Disability Act:**
  - Students may consult with one another on solutions, but copying another student's code is strictly prohibited.
  - Students should write their own code. Using code found on books or internet is prohibited.
  - The Instructor follows general university "Academic Dishonesty/Cheating Policy".

Course/module academic calendar:

week	Basic and support material to be covered	Note
(1)	Introduction	
(2)	Pavement types	
(3)	Ch. 15: Highway Materials-Soils	
(4)	Ch. 15: Highway Materials -Aggregates	
(5)	Ch. 15: Highway Materials -Aggregates	**First Examination**
(6)	Ch.15: Highway Materials - Asphalts	**(29/3 -6/4)**
(7)	Ch. 20 : Bases, Subbases, & Low Cost	
(8)	Ch. 19: Highway Type Bituminous Pavements	
(9)	Ch. 19: Highway Type Bituminous Pavements	
(10)	Ch18: HMA Construction and Placement	**Second Examination**
(11)	Ch. 16 and Ch.20: Flexible Pavement Thickness Design	**(3/5 -11/5)**
(12)	Rigid Pavement Design	
(13)	Rehabilitations and highway maintenance	
(14)	Drainage and drainage structures	
(15)	**Project Presentation**	
(16)	**FINAL EXAMS**	**(10/6 -18/6)**

Expected workload:

On average students need to spend 2-3 hours of study and preparation for each 50-minute lecture/tutorial.

Attendance policy:

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

The student is responsible for all assignments on a weekly basis.

No make-up will be given for missed quizzes, tests or assignments, unless a case is made in advance with Instructor's approval.

Module 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

Philadelphia University
Faculty of Engineering
Department of Civil Engineering
Second Semester, 2016-2017

<div align="center">

Course Syllabus

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Course Title: Geometric Design of Highway	**Course code: 0670324**
Course Level: 3 rd year	**Course prerequisite(s):** 0670261
Lecture Time: Mon. & Wed.　　11:15 - 12:45	**Credit hours:** 3

Academic Staff Specifics				
Name	**Rank**	**Office No.**	**Office Hours**	**E-mail Address**
Dr. Ghassan Suleiman	Ass. Prof.	A 318	As shown on my office door	ghass_977@yahoo.com

Course description:

This course is designed for civil engineering students in their third year. Geometric design concepts for highways, conflict points on intersections, degree of complexity. Intersections and interchanges, highway classification, design control and criteria, sight distance, horizontal and vertical alignment, cross section elements, superelevation attainment, laying out highways, earthwork computations.

Course Objectives:

To highlight the fundamental and mathematical concepts of highway geometric design and route location, to familiarize students with design and layout of horizontal and vertical curves, to design intersections and overcome special curve problems, and to attain supperelevation and sight distances..

Text Book:

1- *Traffic and Highway Engineering* by **Nicholas J. Garber**, Laster A. Hoel, 4 ed.
2. *The Civil Engineering Hand Book*, second edition. W. F. CHEN, J.y. Richard Liew

Course/ module components:
- Books
- Support materials.
- Homework.

Teaching methods:
Lectures, examples and problems, video shows, learning programs related to this course like Civil 3D, etc.

Assessment instruments
- **Quizzes:** Three quizzes will be offered.
- **Exams :** First, Second and Final Exams
- **Project:** Project is an essential part of this course
- **Presentation.**
-

- **Homework assignments.**

A allocation of Marks	
Assessment Instruments	**Mark**
1st examination	**20%**
2nd examination	**20%**
Project, Quizzes & Homework's	**20%**
Final Examination	**40%**
Total	**100%**

Documentation and academic honesty
- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.
- **Ethics and Disability Act:**
  1. Students may consult with one another on solutions, but copying another student's code is strictly prohibited.
  2. Students should write their own code. Using code found on books or internet is prohibited.
  3. The Instructor follows general university "Academic Dishonesty/Cheating Policy".

Course/module academic calendar

Course Academic Calendar		
No of Weeks	**Subject**	**Notes**
1	Transportation Modes, Conflict points on intersections.	
1	Road classification ,Intersections & Interchanges	
2	Characteristics of the Driver, the Pedestrian, the Vehicle,	
2	Cross section , Highway Surveys, Earthwork Computations:	
2	Horizontal alignment:	
1	Setting out horizontal curves. Curve widening.	
1	Super elevation	
2	Vertical Alignment, Highway drainage.	
1	Highway Project Design .	
2	**Projects Presentation**	
1		**Final Exam**

Expected workload:
   On average students need to spend 1 to 2 hours of study and preparation for each 50-minute lecture/tutorial.

Attendance policy:
   <u>Absence</u> from lectures and/or tutorials shall **not exceed 15%.** Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course. The student is responsible for all assignments on a weekly basis.
   <u>No make-up </u>**will be given for missed quizzes, tests or assignments, unless a case is made in advance with Instructor's approval.**

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

Philadelphia University
Faculty of Engineering
Department of Civil Engineering
Second Semester, 2016/2017

Course Syllabus	
Course Title: Soil Mechanics	**Course code**: 0670331
Course Level: 3rd year	**Course prerequisite(s):** 0670231
Lecture Times: 8:10 to 9:00 Sun, Tue & Thu. (Sect. 1) 11:15 to 12:45 Mon. & Wed. (Sect. 2)	**Credit hours:** 3

Academic Staff Specifics				
Name	**Rank**	**Office No.**	**Office Hours**	**E-mail Address**
Dr. Mohammed Al-Iessa	Associate Prof.	210 B	As announced on office door	mmalkaissi@yahoo.com

Course module 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.

Course module objectives & outcomes:

Students who successfully complete this course will be able to:

- Understand the origin of soil grains, types, sizes and their classification.
- Understand and calculate the basic properties of soil.
- Understand and calculate the fluid flow through soil (1-D).
- Understand the mechanism of stress distribution (geostatic and external) within a soil mass.
- Understand the principles of consolidation theory and be able to calculate the expected settlement.
- Understand the shear strength within a soil mass and be able to calculate the shear strength of a soil.

Course/ module components:

Books (title, author (s), publisher, year of publication):

- Soil Mechanics, SI Version, T.W. Lambe and R.V. Whitman, 2008, John Wiley & Sons, New York

Teaching methods:

Lectures, discussion groups, tutorials, problem solving, debates, etc.

Assessment instruments

- **Quizzes:** Five to Six Quizzes will be offered.
- **Project:** Project may be offered as part of this course. Detailed topics and schedule will be announced in due course.
- **Final examination**: 40 marks

Allocation of Marks	
Assessment Instruments	**Mark**
1st examination	**20%**
2nd examination	**20%**
Quizzes	**20%**
Final Examination:	**40%**
Total	**100%**

Documentation and academic honesty
- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.

Ethics and Disability Act:
- Students may consult with one another on solutions, but copying another student's code is strictly prohibited.
- Students should write their own code. Using code found on books or internet is prohibited.
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Course/module academic calendar

Item No.	Title	Weeks
1.	Introduction to soil mechanics	**2**
2.	Basic characteristics of soils	**2**
3.	Fluid flow through soil	**3**
4.	Stresses within a soil mass	**3**
5.	Shear strength of soils	**3**
6.	Consolidation and settlement	**1**

Expected workload:
On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

Attendance policy:
Absence from lectures and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.
The student is responsible for all assignments on a weekly basis.
No make-up will be given for missed quizzes, tests or assignments, unless a case is made in advance with Instructor's approval.

References
- Soil Mechanics, SI Version, T.W. Lambe & R.V. Whitman
- Craig's Soil Mechanics, 8th ed., J.A. Knappet & R.F. Craig
- Engineering Properties of Soils and their Measurements, J.E. Bowles

Philadelphia University
Faculty of Engineering
Department of Civil Engineering
Second Semester, 2016/2017

Course Syllabus

Course Title: Environmental Engineering	**Course code**: 0670343
Course Level: 3rd -4th year	**Course prerequisite(s):** 0212101
Lecture Times: 9:10 to 10:00 Sun, Tue & Thu. (Sect. 1)	**Credit hours:** 3

Academic Staff Specifics

Name	Rank	Office No.	Office Hours	E-mail Address
Mohammad Younes	Assistant Prof.	311	As announced on office door	myounes@philadelphia.edu.jo

Course module description:

To introduce students to Environmental engineering principles and environmental parameters including quantities and units, mass and energy balances, environmental impact assessment, basic water chemistry and microbiology, water quality & treatment, air pollution, mathematics of growth, solid and hazardous wastes, environmental remediation and environmental legislation.
.

Course module objectives & outcomes:

Students who successfully complete this course will be able to:

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

Course/ module components:

Books (title , author (s), publisher, year of publication):

- Introduction to Environmental Engineering, Mackenzie Davis and David Cornwell, McGraw Hill, Fifth Edition, 2013.
- **Support material (s) (vcs, acs, etc).**

Teaching methods:

Lectures, discussion groups, tutorials, problem solving, debates, etc.

Assessment instruments

- **Home works, Short reports and presentations**: Reading related to current topic will be assigned every week. Assignments and other Homework (HW) will be given throughout the semester, focusing on the concepts learned from these readings.
- **Quizzes:** Three to Four Quizzes will be offered.
- **Project:** Project may be offered as part of this course. Detailed topics and schedule will be announced in due course.
- **Final examination**: 40 marks

Allocation of Marks	
Assessment Instruments	**Mark**
1st examination	**20%**
2nd examination	**20%**
Home works & Project	**10%**
Quizzes	**10%**
Final Examination:	**40%**
Total	**100%**

Documentation and academic honesty
- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.

Ethics and Disability Act:
- Students may consult with one another on solutions, but copying another student's code is strictly prohibited.
- Students should write their own code. Using code found on books or internet is prohibited.
- The Instructor follows general university "Academic Dishonesty/Cheating Policy".

Course/module academic calendar

Item No.	Title	Weeks
1.	Fundamental Concepts and Overview	1
2.	Mass and Energy Balances	1
3.	water quality parameters	3
4.	Water and waste water treatment	3
5.	Air Pollution	2
6.	Solid and hazardous waste management	2
7.	Selected Contemporary Environmental Issues	2

Expected workload:
On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

Attendance policy:

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

The student is responsible for all assignments on a weekly basis.

No make-up will be given for missed quizzes, tests or assignments, unless a case is made in advance with Instructor's approval.

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 Syllabus

Course Title: Environmental Engineering	**Course code**: 0670343
Course Level: 3rd -4th year	**Course prerequisite(s):** 0212101
Lecture Times:	**Credit hours:** 3

Academic Staff Specifics

Name	Rank	Office No.	Office Hours	E-mail Address
Eng. Safa'a Idghaim			As announced on office door	sidghaim@philadelphia.edu.jo

Course module description:

To introduce students to Environmental engineering principles and environmental parameters including quantities and units, mass and energy balances, environmental impact assessment, basic water chemistry and microbiology, water quality & treatment, air pollution, mathematics of growth, solid and hazardous wastes, environmental remediation and environmental legislation.

.

Course module objectives & outcomes:

Students who successfully complete this course will be able to:

1. Understand mass balance and able to develop mass balance expression for contaminants/ materials under different case.
2. Understand water quality parameters and its application to characterize the different water sources
3. Understand the best available technologies for physical and chemical treatment of drinking water and wastewater.
4. Determine common air pollutants, and their pathways, and the various technologies available for control.
5. Characterize the solid and hazardous wastes, and understand the implemented methods to handle it from generation to final disposal including the 3R principles.
6. Understand selected contemporary global environmental issues such as environmental impact assessment, climate change and emerging contaminants.

Course/ module components:

Books (title , author (s), publisher, year of publication):

- Introduction to Environmental Engineering, Mackenzie Davis and David Cornwell, McGraw Hill, Fifth Edition, 2013.
- **Support material (s) (vcs, acs, etc).**

Teaching methods:

Lectures, discussion groups, tutorials, problem solving, debates, etc.

Assessment instruments

- **Home works, Short reports and presentations**: Reading related to current topic will be assigned every week. Assignments and other Homework (HW) will be given throughout the semester, focusing on the concepts learned from these readings.
- **Quizzes:** Three to Four Quizzes will be offered.
- **Project:** Project may be offered as part of this course. Detailed topics and schedule will be announced in due course.
- **Final examination**: 40 marks

Allocation of Marks	
Assessment Instruments	**Mark**
1st examination	**20%**
2nd examination	**20%**
Quizzes	**20%**
Final Examination:	**40%**
Total	**100%**

Documentation and academic honesty
- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.

Ethics and Disability Act:
- Students may consult with one another on solutions, but copying another student's code is strictly prohibited.
- Students should write their own code. Using code found on books or internet is prohibited.
- The Instructor follows general university "Academic Dishonesty/Cheating Policy".

Course/module academic calendar

Item No.	Title	Weeks
1.	Fundamental Concepts and Overview	**1**
2.	Mass and Energy Balances	**1**
3.	water quality parameters	**3**
4.	Water and waste water treatment	**3**
5.	Air Pollution	**2**
6.	Solid and hazardous waste management	**2**
7.	Selected Contemporary Environmental Issues	**2**

Expected workload:

On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

Attendance policy:

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

The student is responsible for all assignments on a weekly basis.

No make-up will be given for missed quizzes, tests or assignments, unless a case is made in advance with Instructor's approval.

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 Syllabus	
Course Title: Fluid Mechanics	**Course code: 0670381**
Course Level: 3rd year	**Course prerequisite(s): 0670211**
Lecture Time خميس, ثلاثاء, احد.: 10:10-11:00	**Credit hours:** 3

Academic Staff Specifics				
Name	**Rank**	**Office No.**	**Office Hours**	**E-mail Address**
Dr.A. Dabdab	Associate Prof	**61 - 213**	**As shown on my office door**	

Course module description:

This course is designed for civil engineering students in their third year. The course intends to give students a comprehensive idea about the fluid prosperities, basic units. Fluid statics, pressure and its measurements, force on plane and curved submerged surface, floation. Fluid in motion, flow kinematics and visualization, Control volume approach, differential and integral continuity equation, pressure variation in flowing fluids, Euler's and Bernoulli's equations, application of Bernoulli equation, momentum principle and its applications.

Course module objectives:

The main objectives of this course are to :
1. To be familiar with the fluid mechanics basic conservation laws: continuity, momentum, and energy principles.
2. Expose students to the basic principles of pipe and open channel flows.
3. Expose students to the methods of dimensional analysis.

Course outcomes

At completing this module the student should be able to:
1. Students capable of connecting principles learned in other courses of solid mechanics, dynamics and physics to fluids.
2. Student learned the basic conservation laws as applied to typical problems of pipe and open channel flows.
3. Students exposed to the methods of similarity and they are capable of using them to certain problems of pipe and open channel flows.

 Teaching methods:

Lectures, problem solving, etc.

Assessment Instruments
• **Quizzes:** Three Quizzes will be offered.

A allocation of Marks

Assessment Instruments	Mark
1st examination	20%
2nd examination	20%
Quizzes	20%
Final Examination:	40%
Total	100%

Documentation and academic honesty
- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.
- **Ethics and Disability Act:**
  - Students may consult with one another on solutions, but copying another student's code is
    strictly
    prohibited.
  - Students should write their own code. Using code found on books or internet is prohibited.
  - The Instructor follows general university "Academic Dishonesty/Cheating Policy".

Expected workload:
On average students need to spend 2 hours of study and preparation for each 50-minute
lecture/tut
orial.

Attendance policy:
Absence from lectures and/or tutorials shall not exceed 15%. Students who exceed the 15%
limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.
 The student is responsible for all assignments on a weekly
 basis.
No make-up will be given for missed quizzes, tests or assignments, unless a case is made in
advance   with   Instructor's
approval.

Course/module academic calendar

**Course Academic
Calendar**

No. of Lectures	Topics	Notes
4	Introduction, fluid definitions and its various	
7	Principle of fluid static	**Exam I**
7	Flow concepts and conservation of mass principle	
6	Pressure variation and Bernoulli's equation	**Exam II**
8	Momentum principle	
8	Energy principle	
2	Dimensional analysis	**FINAL EXAMS**

- **References**

Text Book: Fluid Mechanics; Russell C. Hibbeler,
Pearson, 2014

- Fundamentals of Hydraulic Engineering Systems (4th Edition) Robert J. Houghtalen, Robert J. Houghtalen, A. Osman H. Akan & Ned H. C. Hwang, Pearson, 2010, 4th Edition
- Engineering fluid mechanics, Roberson J.A., and Crowe C.T, John Wiley and sons., (9th Edition).

Philadelphia University
Faculty of Engineering
Department of Civil Engineering
2nd Semester, 2016-2017

Course Syllabus	
Course Title: Fluid Mechanics	**Course code: 0670381**
Course Level: 3rd year	**Course prerequisite(s): 0670211**
Lecture Time 8:10-9:00 **:احد ,ثلاثاء ,خميس** 9:45-11:15 **اثنين واربعاء ٦٣٠٣**	**Credit hours:** 3

Academic Staff Specifics				
Name	**Rank**	**Office No.**	**Office Hours**	**E-mail Address**
Dr.Ghassan AL-Dulaimi	Associate Prof	**311**	As shown on my office door	dr.ghassandulaimy@gmail.com

Course module description:
This course is designed for civil engineering students in their third year. The course intends to give students a comprehensive idea about the fluid prosperities, basic units. Fluid statics, pressure and its measurements, force on plane and curved submerged surface, floation. Fluid in motion, flow kinematics and visualization, Control volume approach, differential and integral continuity equation, pressure variation in flowing fluids, Euler's and Bernoulli's equations, application of Bernoulli equation, momentum principle and its applications.

Course module objectives:
    The main objectives of this course are to :
    1. To be familiar with the fluid mechanics basic conservation laws: continuity, momentum, and energy principles.
    2. Expose students to the basic principles of pipe and open channel flows.
    3. Expose students to the methods of dimensional analysis.

Course outcomes
    At completing this module the student should be able to:
    1. Students capable of connecting principles learned in other courses of solid mechanics, dynamics and physics to fluids.
    2. Student learned the basic conservation laws as applied to typical problems of pipe and open channel flows.
    3. Students exposed to the methods of similarity and they are capable of using them to certain problems of pipe and open channel flows.

 Teaching methods:
Lectures, problem solving, etc.

Assessment Instruments
   • **Quizzes:** Three Quizzes will be offered.

A allocation of Marks

Assessment Instruments	Mark
1st examination	20%
2nd examination	20%
Quizzes	20%
Final Examination:	40%
Total	100%

Documentation and academic honesty
- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.
- **Ethics and Disability Act:**
  - Students may consult with one another on solutions, but copying another student's code is
       strictly
     prohibited.
  - Students should write their own code. Using code found on books or internet is prohibited.
  - The Instructor follows general university "Academic Dishonesty/Cheating Policy".

Expected workload:
On average students need to spend 2 hours of study and preparation for each 50-minute
lecture/tut
orial.

Attendance policy:
Absence from lectures and/or tutorials shall not exceed 15%. Students who exceed the 15%
limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.
 The student is responsible for all assignments on a weekly
 basis.
No make-up will be given for missed quizzes, tests or assignments, unless a case is made in
advance   with   Instructor's
approval.

Course/module academic calendar

Course Academic Calendar

No. of Lectures	Topics	Notes
4	Introduction, fluid definitions and its various	
7	Principle of fluid static	**Exam I**
7	Flow concepts and conservation of mass principle	
6	Pressure variation and Bernoulli's equation	**Exam II**
8	Momentum principle	
8	Energy principle	
2	Dimensional analysis	**FINAL EXAMS**

- ## References

Text Book: Fluid Mechanics; Russell C. Hibbeler, Pearson, 2014

- Fundamentals of Hydraulic Engineering Systems (4th Edition) Robert J. Houghtalen, Robert J. Houghtalen, A. Osman H. Akan & Ned H. C. Hwang, Pearson, 2010, 4th Edition
- Engineering fluid mechanics, Roberson J.A., and Crowe C.T, John Wiley and sons., (9th Edition).

Course Syllabus

Course Title: Reinforced Concrete 1	**Course code**: 0670411
Course Level: 3nd year	**Course prerequisite(s):** 0670312
Lecture Time: 8:10 to 9:00 Sun., Tue. and Thurs. (Sec. 1)	**Credit hours:** 3

Academic Staff Specifics

Name	Rank	Office No.	Office Hours	E-mail Address
Dr. Saad Ali AlTaan	Professor	61-210E	As Announced on office door	saad.altaan@yahoo.com

Course module description:
The main purpose of this course is to provide the student with an introduction on the properties of concrete and steel, allowable stress design, cracked and uncracked sections, strength design, stress block, singly and doubly reinforced sections, rectangular sections, T-sections and other shapes, design for bending, shear design, bond requirements, development length, one-way and ribbed slabs, approximate methods for two-way slabs, short columns.

Course module objectives & outcomes:
Students who successfully complete this course will be able to:

- Analyze reinforced concrete beams subjected to flexure , shear, and flexure and shear of any shape.
-

Course/ module components:
   Books (title, author (s), publisher, year of publication):
- Design of Reinforced Concrete, Ninth Edition, J. C. McCormac and R. H. Brown, John Wiley and Sons, 2014.
- Design of Concrete Structures, 15th Edition, D. Darwin, and C. W. Dolan, and A. H. Nilson, McGraw-Hill, 2016.

Teaching methods:
   Lectures, discussion groups, tutorials, problem solving, debates, etc.

Assessment instruments
   Evaluation of students' performance (final grade) will be based on the following categories:
- **Mid-Term exams:** Two one-hour in-class exams will be conducted during the semester.
- **Quizzes:** Six (10-15 minutes each) quizzes will be offered during the semester, these quizzes will cover material discussed during the previous two weeks of lectures.
- **Home works and Project:** Six to seven Home works will be offered as part of this course. Detailed topics and schedule will be announced in due course.

- **Final examination**: 40 marks. The final examination will cover all the class material discussed during the semester.

Allocation of Marks	
Assessment Instruments	**Mark**
1st examination – Mid term	**20%**
2nd examination – Mid term	**20%**
Quizzes and home works	**20%**
Final Examination	**40%**
Total	**100%**

Documentation and academic honesty
- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.

Ethics and Disability Act:
- Students may consult with one another on solutions, but copying another student's code is strictly prohibited.
- Students should write their own code. Using code found on books or internet is prohibited.
- The Instructor follows general university "Academic Dishonesty/Cheating Policy".

Course/module academic calendar:

CHAPTER	TITLE	WEEKS
Chapter 1	Properties of steel and concrete.	1
Chapter 2	Design methods and requirements.	1
Chapter 3	Working stress design method.	1
Chapter 4 Mid-Term Exam I	Analysis of reinforced concrete beams using the strength design method.	3
Chapter 5	Design of reinforced concrete beams using the strength design method.	3
Chapter 6 Mid-Term Exam II	Shear strength of reinforced concrete beams and one-way slabs.	3
Chapter 7	Approximate method for the analysis on two-way slabs.	1
Chapter 8	Strength of reinforced concrete members under compression and bending.	2
Final Examination		

Expected workload:
On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

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

The student is responsible for all assignments on a weekly basis.

No make-up will be given for missed quizzes, tests or assignments, unless a case is made in advance with Instructor's approval.

References

- Design of Concrete Structures, 15th Edition, D. Darwin, and C. W. Dolan, and A. H. Nilson, McGraw-Hill, 2016.
- Reinforced Concrete Mechanics and Design, 6th Edition, J. K. Wight and J. G. Macgregor, Pearson, 2012.
- Building Code Requirements for Structural Concrete (ACI 318-11) and Commentary, ACI Committee (318-11), Farmington Hills, MI, 2011, 480 pp.
- Building Code Requirements for Structural Concrete (ACI 318-14) and Commentary, ACI Committee (318-14), Farmington Hills, MI, 2014, 530 pp.
- Standard Method of Detailing Structural Concrete, A manual for best practice, Third Edition, the Institution of Structural Engineers and the Concrete Society, United Kingdom, 2006.

Course Syllabus	
Course Title: REINFORCED CONCRETE I	**Course code**: 670411
Course Level: 4th Year	**Course prerequisite(s):** 670312
Lecture Time: 10:10 – 11:10 (Sun, Tue, Thu)	**Credit hours:** 3

Academic Staff Specifics				
Name	**Rank**	**Office No.**	**Office Hours**	**E-mail Address**
Eng. Abdallah Odeibat	Lecturer	301-A	As announced on office door	aodeibat@philadelphia.edu.jo http://www.philadelphia.edu.jo/academics/aodeibat/

Course description

Properties of concrete and steel, allowable stress design, cracked and untracked sections, strength design, stress block, singly and doubly reinforced sections, rectangular sections, T-sections and other shapes, design for bending, shear design, bond requirements, development length, one-way and ribbed slabs, approximate methods for two-way slabs, short columns.

Prerequisite by Topics:

- Structural analysis of determinant and indeterminate structures,
- Drawing shear force and bending moment diagrams in beams,
- Determination of bending and shear stresses in beams,
- Computation of elastic deflection in beams.

Course learning objectives:

Students completing this course successfully will be able to

- Recognize the importance of building codes.
- Understand the design process.

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- Establish a clear understanding of the mechanical behaviors of reinforcing steel, concrete and reinforced concrete members.
- Understand the limit states of a reinforced concrete structure and recognize the importance of each limit state.
- Understand the basic principles to properly apply the ACI provisions.
- Understand the flexural behavior of reinforced concrete beams, investigate and design beams for bending and shear.
- Understand mechanism of bond transfer, development length and anchorage of reinforcement and provide detailing of reinforced concrete beams.
- Determine the immediate and long term deflections in reinforced concrete beams; apply ACI provisions for crack and deflection control.

Text(s) and Other Course Materials

1. Nilson, A.H.,Darwin, D., and Dolan, C.W. (2013). "Design of Concrete Structures", 14th edition , McGraw Hill, 2009.

2. ACI Code (ACI 318 M -11).

Teaching methods:
Lectures, discussion groups, problem solving, etc.

Assessment instruments:
- **Mid-Term Exams:** Two in-class exams will be given.
- **Assignments:** Assignments will be given throughout the semester**.**
- **Quizzes:** Quizzes will be offered.
- **Final examination**.

Allocation of Marks	
Assessment Instruments	**Mark**
1st examination	**20%**
2nd examination	**20%**
Homework	**10%**
Quizzes	**10%**
Final Examination	**40%**
Total	**100%**

Documentation and academic honesty
- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.

Ethics and Disability Act:
- Students may consult with one another on solutions, but copying another student's code is strictly prohibited.
- Students should write their own code. Using code found on books or internet is prohibited.
- The Instructor follows general university "Academic Dishonesty/Cheating Policy".

Expected workload:

On average students need to spend 2 hours of study and preparation for each lecture/tutorial.

Attendance policy:

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

The student is responsible for all assignments on a weekly basis.

No make-up will be given for missed quizzes, tests or assignments, unless a case is made in advance with Instructor's approval.

Course/module academic calendar

Weeks	Basic and support material to be covered	Reading Assignment from Textbook	Note
1	Introduction, Reinforced concrete and building codes.	Chapter 1	**First Examination** (/-/)
1	Materials, Concrete, Strength of concrete, stress-strain relationship, durability of concrete and reinforcement	Chapter 2	
4	Flexural analysis and design of reinforced concrete beams, analysis and design of one way slabs	Chapter 3	
3	Shear and diagonal tension in beams.	Chapter4	**Second Examination** (/-/)
1.5	Bond, Anchorage and development lengths	Chapter5	
1.5	Design of one-way slabs	Chapter 13	
4	Short Columns	Chapter8	
FINAL EXAMS			

References

Books

- Reinforced Concrete: A Fundamental Approach, Edward G. Nawy, 6th Edition, 2009, Prentice Hall.
- Design of Reinforced Concrete by J. C. McCormac and R.H. Brown, 8th Edition, John Wiley & Sons.

Philadelphia University
Faculty of Engineering
Department of Civil Engineering
Second Semester, 2016/2017

<table>
<tr><td colspan="2" align="center">**Course Syllabus**</td></tr>
</table>

Course Title: Reinforced Concrete 2	**Course code**: 0670412
Course Level: 3nd year	**Course prerequisite(s):** 0670411
Lecture Time: 10:10 to 11:00 Sun., Tue. and Thurs. (Sec. 1) 11:15 to 12:45 Mon. and Wed. (Sec. 2)	**Credit hours:** 3

<table>
<tr><td colspan="5" align="center">**Academic Staff Specifics**</td></tr>
<tr><td align="center">**Name**</td><td align="center">**Rank**</td><td align="center">**Office No.**</td><td align="center">**Office Hours**</td><td align="center">**E-mail Address**</td></tr>
<tr><td>Dr. Saad Ali AlTaan</td><td align="center">Professor</td><td align="center">61-210E</td><td align="center">As Announced on office door</td><td>saad.altaan@yahoo.com</td></tr>
</table>

Course module description:
 The main purpose of this course is to provide the student with a continuation of the topics that are covered in Reinforced Concrete 1 like serviceability, design for torsion, design of slender columns, design of two way-slabs using the direct method, design of two way-slabs using the equivalent frame method, and design of stairs.

Course module objectives & outcomes:
 Students who successfully complete this course will be able to:

- Check the serviceability of reinforced concrete beams and one-way slabs.
- Estimate the probable short-term and long-term deflection of beams and one-way slabs.
- Estimate the probable width of flexural cracks in beams and one-way slabs.
- Design reinforced concrete beams of any shape subjected to combined shear and torsion.
- Distinguish the short and long columns and design slender columns.
- Design two-way slabs using the direct or the equivalent frame method.
- Design different types of stairs.

Course/ module components:
 Books (title, author (s), publisher, year of publication):
- Design of Reinforced Concrete, Ninth Edition, J. C. McCormac and R. H. Brown, John Wiley and Sons, 2014.
- Design of Concrete Structures, 15th Edition, D. Darwin, and C. W. Dolan, and A. H. Nilson, McGraw-Hill, 2016.

Teaching methods:
 Lectures, discussion groups, tutorials, problem solving, debates, etc…

Assessment instruments

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

- **Mid-Term exams:** Two one-hour in-class exams will be conducted during the semester.
- **Quizzes:** Six (10-15 minutes each) quizzes will be offered during the semester, these quizzes will cover material discussed during the previous two weeks of lectures.
- **Home works and Project:** Six to seven Home works will be offered as part of this course. Detailed topics and schedule will be announced in due course.
- **Final examination**: 40 marks. The final examination will cover all the class material discussed during the semester.

Allocation of Marks	
Assessment Instruments	**Mark**
1st examination – Mid term	**20%**
2nd examination – Mid term	**20%**
Quizzes and home works	**20%**
Final Examination	**40%**
Total	**100%**

Documentation and academic honesty

- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.

Ethics and Disability Act:

- Students may consult with one another on solutions, but copying another student's code is strictly prohibited.
- Students should write their own code. Using code found on books or internet is prohibited.
- The Instructor follows general university "Academic Dishonesty/Cheating Policy".

Course/module academic calendar:

CHAPTER	TITLE	WEEKS
Chapter 1	Ultimate strength versus unified design approaches, tension- and compression-controlled members, strain limits.	1
Chapter 2	Serviceability analysis, deflection and cracking control.	2
Chapter 3	Analysis and design for torsion.	2
Chapter 4 Mid-Term Exam I	Slender columns.	2
Chapter 5	Analysis of building frames, simplifications, and idealization	1
Chapter 6 Mid-Term Exam II	Two-way slabs, direct design method.	3

Chapter 7	Two-way slabs, equivalent frame method.	3
Chapter 8	Design of stairs	1
Final Examination		

Expected workload:

On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

Attendance policy:

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

The student is responsible for all assignments on a weekly basis.

No make-up will be given for missed quizzes, tests or assignments, unless a case is made in advance with Instructor's approval.

References

- Design of Concrete Structures, 15th Edition, D. Darwin, and C. W. Dolan, and A. H. Nilson, McGraw-Hill, 2016.
- Reinforced Concrete Mechanics and Design, 6th Edition, J. K. Wight and J. G. Macgregor, Pearson, 2012.
- Building Code Requirements for Structural Concrete (ACI 318-11) and Commentary, ACI Committee (318-11), Farmington Hills, MI, 2011, 480 pp.
- Building Code Requirements for Structural Concrete (ACI 318-14) and Commentary, ACI Committee (318-14), Farmington Hills, MI, 2014, 530 pp.
- Standard Method of Detailing Structural Concrete, A manual for best practice, Third Edition, the Institution of Structural Engineers and the Concrete Society, United Kingdom, 2006.

Philadelphia University-Jordan
College of Engineering
Department of Civil Engineering
Second Semester, 2016/2017

Course Syllabus	
Course Title: Steel Design	**Course code**: 0670413
Course Level: 4th year	**Course prerequisite(s):** Structural Analysis
Lecture Times: 11:10 to 12:00 Sun, Tue & Thu. (Sect. 1) 9:45 to 11:15 Mon. & Wed. (Sect. 2)	**Credit hours:** 3

Academic Staff Specifics				
Name	Rank	Office No.	Office Hours	E-mail
Dr. Bashar Behnam	Assistant Prof.	312	As announced on office door	bbehnam@philadelphia.edu.jo

Course objectives & outcomes:

This course covers the fundamental theories and principles of design of simple steel structures using LRFD and ASD Methods. This course includes: design, investigation and detailing of beams, columns, tension and compression members and their connections.

After successful completion of this course the student will be able to: Be familiar with the AISC Steel Construction Manual, 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, analyze and design steel tension members, analyze and design steel compression members, analyze and design steel beams, and design structural steel simple connections using bolting or welding.

Course Components:

Textbook: W.T., Segui, "Steel Design", Cengage Learning, 5th edition, 2012.

Design Code: AISC Steel Construction Manual, 14th edition, 2011.

References:

1- C.G., Salmon, J.E. Johnson, F.A., Malhas, "Steel Structures Design and Behavior", Prentice Hall, 5th edition, 2009.
2- American Institute of Steel Construction. "Detailing for Steel Construction". AISC/NSD, 3rd edition, 2009.
3- American Society of Civil Engineers. 2010. "Minimum Design Loads for Buildings and Other Structures". ASCE/SEI 7-10. Reston, VA.

Grading Policy

Requirement	Weight
Exam I	20%
Exam II	20%
Quizzes	20%
Final Exam	40%
Total	100 %

Classroom Expectations:

You are expected to attend class, participate, and take notes. You are not to disrupt the learning of other students (i.e. having side conversations, text messaging, etc.) as to achieve a welcoming classroom environment for all. **No cell phones are to be visible during any of the exams**.

Topics to Cover:

1	Review	0.5 Week
2	Chapter One: Introduction	0.5 week
3	Chapter Two: Concept in Structural Steel Design	1 Week
4	Chapter Three: Tension Members	3.5 Weeks
5	Chapter Four: Compression Members	3.5 Weeks
6	Chapter Five: Beams	3.5 Weeks
7	Chapter Seven: Simple Connections	1.5 Weeks

Attendance policy:

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

The student is responsible for all assignments on a weekly basis. No make-up will be given for missed quizzes, tests or assignments, unless a case is made in advance with Instructor's approval.

The instructor reserves the right to modify the time and contents of the course to satisfy the needs and abilities of the class.

- Good Luck -

Course Syllabus

Course Title: Steel & Concrete Structures	**Course code:** 0670416
Course Level: 4th year	**Course prerequisite(s):** 0670315
Lecture Time: Sec1: 12:45-2:15 Mon, Wed	**Credit hours:** 3

Academic Staff Specifics				
Name	**Rank**	**Office No.**	**Office Hours**	**E-mail Address and Course website**
Eng. Abdallah Odeibat	Lecturer	301-A	As announced on my office door	aodeibat@philadelphia.edu.jo http://www.philadelphia.edu.jo/ academics/aodeibat/

Course module 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, understand steel and its structural properties, design of tension members, design of compression members.

Course module objectives:

Provide a thorough understanding and practical applications of Reinforced Concrete and Steel structures design theories.

Course/ module components:

- Lecture notes adopted from ACI318-11 code and AISC.

Teaching methods:

Lectures, discussion groups, problem solving, etc.

Assessment instruments

- **Mid-Term Exams:** Two in-class exams will be given.
- **Quizzes and homeworks:** at least three quizzes will be given throughout the semester.
- **Final examination**: 40 marks

Allocation of Marks	
Assessment Instruments	**Mark**
1st examination	**20%**
2nd examination	**20%**

Homeworks	**10%**
Quizzes	**10%**
Final Examination:	**40%**
Total	**100%**

Documentation and academic honesty
- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.
- **Ethics and Disability Act:**
  - Students may consult with one another on solutions, but copying another student's code is strictly prohibited.
  - Students should write their own code. Using code found on books or internet is prohibited.
  - The Instructor follows general university "Academic Dishonesty/Cheating Policy".

Expected workload:
On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

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

Course/module academic calendar

Course Academic Calendar		
Week	**Material to be covered**	**Notes**
1	Introduction	
2	Classification of structures and loads	
3 & 4	Analysis of statically determinate structures (equilibrium, superposition and determinacy)	
5	Behavior of R.C beams in Flexure	**First Examination**
6	Flexure design of Rectangular beams	
7	Shear design of R.C beams	
8	Design of solid and ribbed slabs	
9&10	Design of short columns	
11	Calculations of development length	**Second Examination**
12	Introduction to steel-materials	
13 & 14	Design of tension members	
14 & 15	Design of Compression members	
16	**FINAL EXAMS** (28/1-5/2)	

PhiladelphiaUniversity
Faculty of Engineering
Department of Civil Engineering
Second Semester, 2016/2017

Course Syllabus	
Course Title: Transportation and Traffic Engineering	**Course code**: 670421
Course Level: 4th Year	**Course prerequisite(s): 670324**
Lecture Time: 9:10-10:10 Sun., Tue. & Thur. 8:15-9:45 Mon. & Wed.	**Credit hours: 3**

Academic Staff Specifics				
Name	**Rank**	**Office No.**	**Office Hours**	**E-mail Address**
Eng. Rajaa Hussein	Lecturer	A 301	10:10-11:10	rhussein@philadelphia.edu.jo

Course module 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) .

Course module objectives:
Understanding of choosing the best transportation planning, transportation models, fundamental parameters of traffic flow, capacities and level of services of various road elements.

Text Book:
1- *Traffic and Highway Engineering* by Nicholas J. Garber, Laster A. Hoel, 4 ed.

2- Traffic Engineering by Roger P. Roess, Elena S. Prassas, William R.McShane, 4 ed.

Course/ module components:
3- Books
4- Supportmaterials.
5- Homework.

Teaching methods:

Lectures, discussion groups, tutorials, problem solving, video show, field measurement, learning programs like Synchro, SIDERA…etc.

Assessment instruments:
- Quizzes.
- Homework.
- Exams: First. Second & Final exams.
- projects and presentation

Allocation of Marks	
Assessment Instruments	**Mark**
1stexamination	**20%**
2nd examination	**20%**
Project , Homeworks& Quizzes	**20%**
Final Examination:	**40%**
Total	**100%**

Documentation and academic honesty
- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.

- **Ethics and Disability Act:**
  - Students may consult with one another on solutions, but copying another student's code is strictly prohibited.
  - Students should write their own code. Using code found on books or internet is prohibited.
  - The Instructor follows general university "Academic Dishonesty/Cheating Policy".

Course/module academic calendar:

week	Basic and support material to be covered	Note
(1)	Introduction to traffic engineering	
(2)	Fundamental parameters of traffic	
(3)	Fundamental parameters of traffic	
(4)	Highway Capacity & level of service	
(5)	Highway Capacity & level of service	**First Examination**
(6)	- Two lane highway	**(29/3-6/4)**
(7)	-Multilane highways	
(8)	-Freeway	
(9)	Unsignalized intersections	
(10)	Signalized intersections	**Second Examination**
(11)	Signalized intersections	**(3/5-11/5)**
(12)	Roundabouts	
(13)	Traffic Studies	
(14)	Traffic Studies	
(15)	**Project Presentation**	
(16)	**Final Exam**	**(10/6-18/6)**

Expected workload:

On average students need to spend 2 to 3 hours of study and preparation for each 50-minute lecture/tutorial.

Attendance policy:

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

The student is responsible for all assignments on a weekly basis.

<u>No make-up will be given for missed quizzes, tests or assignments, unless a case is made in advance with Instructor's approval.</u>

Module references:

6- Highway Capacity Manual 2000, **HCM**, Transportation Research Board, National Research Council.

7- A Policy on Geometric Design of Highway and Streets, fourth edition, 2001. American Association of State Highway and Transportation Officials "**AASHTO** ".

Philadelphia University
Faculty of Engineering
Civil Engineering Department

Course Title: *Hydraulics (0670441)*
Instructor: *Eng. Safa'a Idghaim*
Email:
Webpage:
Semester: 2nd *2016/2017*
Class Time: *12:10 – 13:10 Sun. Tues. and Thu.and 9:45-11:15 Mon. and Wed.*
Prerequisite: *Fluid Mechanics (0670381)*
Office Hours: *9:00-10:00*, *Sun. Tues. and Thu.*   **Office Room Number:**
Text Book*: Fundamental of Hydraulic Engineering Systems. Ned H.C. Hwang, Robert J. Houghtalien and A. Osmanakan.*

Course Goals:
This course will cover basic concepts of Hydraulic and its relevant in civil engineering

- *Course Description:.*
- *This course includes flow in open channels, flow regimes, GVF, water surface profiles, dimensional analysis and similitude.*
- ***At Completing this module the student should be able to :***
 Analyze the hydraulics of some structures such as culverts and others.

Course Contents	Week
1 *Revision for the fundamental properties of water*	
2 *Open channel fundamental*	
3 *Open channel flow analysis+ Quiz 1*	
4 *Classification of flow (Uniform Flow)*	
5 ***First Exam Period***	
6 *Non uniform flow (1)*	
7 *Critical Flow + Quiz 2*	
8 *Hydraulic Jump*	
9 *Gradually Varied Flow*	
10 *Water Surface Profile + Quiz 3*	
11 ***Second Exam Period***	
12 *Rapid Varied Flow*	
13 *Dimensional Analysis*	
14 *Similitude in engineering + Quiz 4*	
Final date of Withdrawn	
15 *General Review*	
16 ***Final Exams period***	
Mode of Assessment	
1 *First Exam*	*20%*
2 *Second Exam*	*20%*
3 *Quizzes*	*15%*
4 *Performance*	*5%*
5 *Final Exam*	*40%*

References
1   *Hydraulics, R. L. Daugherty, October 2007,Foreman press*
2   *Fluid Mechanics, V. L. Streeter, 5th ed1971, Mc-Raw Hill*

Documentation and academic honesty
- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.
- **Ethics and Disability Act:**
  - Students may consult with one another on solutions, but copying another student's code is strictly prohibited.
  - Students should write their own code. Using code found on books or internet is prohibited.
  - The Instructor follows general university "Academic Dishonesty/Cheating Policy".

Expected workload:

On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

Attendance policy:

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

The student is responsible for all assignments on a weekly basis.

No make-up will be given for missed quizzes, tests or assignments, unless a case is made in advance with Instructor's approval.

Course Syllabus

Course Title: Sanitary Engineering	**Course code**: 0670443
Course Level: 4th year	**Course prerequisite(s): 0**670343
Lecture Times: 11:10 to 12:00 Sun, Tue & Thu. (Sect. 1) 9:45 to 11:15 Mon. & Wed. (Sect. 2)	**Credit hours:** 3

Academic Staff Specifics

Name	Rank	Office No.	Office Hours	E-mail Address
Mohammad Younes	Assistant Prof.	311	As announced on office door	myounes@philadelphia.edu.jo

Course module description:
Sources of water , Population estimation, water demand and type of waste water, hydraulic of sewage systems and design principles, water distribution systems, physical, biological and chemical water quality. Reactor and reactor engineering, Water standards and criteria. Unit operations and processes. Basics in water and wastewater engineering design. Wastewater generation and collection. Biological wastewater treatment and reuse including activated sludge. Water treatment design of sedimentation, filtration, coagulation-flocculation and disinfection.

Course module objectives & outcomes:
Students who successfully complete this course will be able to:
1. Determine up to dated knowledge of water quality parameters and its application in water and wastewater treatment.
2. Understand the main concepts of water engineering design .
3. Understand the best available technologies for physical, chemical and biological treatment of wastewater.
4. Determine common water pollutants, and their pathways, and the various technologies available for control.

Course/ module components:

Books (title, author (s), publisher, year of publication):
- Water and Wastewater Technology, 6th Edition, Mark J. Hammer & Mark J. Hammer Jr., Prentice Hall, 2007.
- **Support material (s) (vcs, acs, etc).**

Teaching methods:

Lectures, discussion groups, tutorials, problem solving, debates, etc.

Assessment instruments

- **Home works, Short reports and presentations**: Reading related to current topic will be assigned every week. Assignments and other Homework (HW) will be given throughout the semester, focusing on the concepts learned from these readings.
- **Quizzes:** Three to Four Quizzes will be offered.
- **Project:** Project may be offered as part of this course. Detailed topics and schedule will be announced in due course.
- **Final examination**: 40 marks

Allocation of Marks	
Assessment Instruments	**Mark**
1st examination	**20%**
2nd examination	**20%**
Home works & Project	**10%**
Quizzes	**10%**
Final Examination:	**40%**
Total	**100%**

Documentation and academic honesty
- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.

Ethics and Disability Act:
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Course/module academic calendar

Item No.	Title	Weeks
1.	Fundamental Concepts and Overview	1
2.	Water demand and wastewater generation	2
3.	Water distribution	3
4.	wastewater collection	2
5.	Water treatment (physical and chemical)	3
6.	Biological wastewater treatment	3

Expected workload:

On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

Attendance policy:

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

The student is responsible for all assignments on a weekly basis.

No make-up will be given for missed quizzes, tests or assignments, unless a case is made in advance with Instructor's approval.

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 Syllabus	
Course Title: Prestressed Concrete Design	**Course code:** 0670517
Course Level: 5th year	**Course prerequisite(s):** Reinforced Concrete II
Lecture Times: 9:10 to 10:00 Sun. Tue. & Thu.	**Credit hours:** 3

Academic Staff Specifics				
Name	**Rank**	**Office No.**	**Office Hours**	**E-mail**
Dr. Bashar Behnam	Assistant Prof.	312	As announced on office door	bbehnam@philadelphia.edu.jo

Course objectives & outcomes:

❖ 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.

❖ The various topics include prestressing systems, flexural behavior using actual material constitutive relationships; shear analysis and design using advanced approaches; behavior of members subjected to combined loadings; serviceability requirements including prestress loss, and deflection and ductility.

Course Components:

Textbook:
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.
3. Nilson, A.H. "Design of Prestressed Concrete" (2nd Edition), Wiley, 1987.

References:
1. Naaman, A.E. "Prestressed Concrete Analysis and Design: Fundamentals" (2nd Edition), Techno Press 3000, 2004.

Grading Policy

Requirement	Weight
Exam I	20%
Exam II	20%
Quizzes	20%
Final Exam	40%
Total	100 %

Classroom Expectations:

You are expected to attend class, participate, and take notes. You are not to disrupt the learning of other students (i.e. having side conversations, text messaging, etc.) as to achieve a welcoming classroom environment for all. **No cell phones are to be visible during any of the exams**.

Topics to Cover:

1. Basic Concepts.
2. Materials and System for Prestressing.
3. Losses of Prestressing.
4. Flexural Analysis and Design at ultimate.
5. Shear Strength Design.
6. Compression Members.

Attendance policy:

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

The student is responsible for all assignments on a weekly basis. No make-up will be given for missed quizzes, tests or assignments, unless a case is made in advance with Instructor's approval.

The instructor reserves the right to modify the time and contents of the course to satisfy the needs and abilities of the class.

- Good Luck -

Philadelphia University
Faculty of Engineering
Department of Civil Engineering
Second Semester, 2016-2017

Course Syllabus	
Course Title: Railway and Airport Engineering	**Course code**: 0670522
Course Level: 5th Year	**Course prerequisite(s):** 0670421
Sun. ,Tue. & Thu. : 08:10-09:00 - : 11:10-12:00 Mon. & Wed. : 08:15-09:45	**Credit hours:** 3

Academic Staff Specifics				
Name	**Rank**	**Office No.**	**Office Hours**	**E-mail Address**
Dr. Ghassan Suleiman	Ass. Prof.	A 318	As shown on my office door	ghass_977@yahoo.com

Course module description:

This course is designed for civil engineering students in their fifth year. The course intends to introduce the nature of civil aviation and airports, advantages of air transport, airport components, Aircraft characteristics related to airport deign , runway characteristics and configuration , taxiway and taxi lanes and aprons , delay and capacity at airport, pavement design for airport. Necessity of railways , and classification of railway and system of rail ways

Text Book:
1. Books : Robert Horonjeff, Francis X.Mckeley.William J. Sproule Seth B. Young "planning and Design of Airports" Fifth edition ,2010.
2. Support materials.

Teaching methods:
Lectures, problem solving, video showing, etc.

Assessment instruments
- Quizzes: Two or three quizzes will be offered.
- Exams : First, Second and Final Exams
- Project: Project is an essential part of this course
- Presentation.
- Homework assignments.

A allocation of Marks	
Assessment Instruments	**Mark**
1st examination	**20%**
2nd examination	**20%**
Project, Quizzes & Homework's	**20%**
Final Examination	**40%**
Total	**100%**

Documentation and academic honesty

1. Documentation style (with illustrative examples)
2. Protected by copyright
3. Avoiding plagiarism.

- **Ethics and Disability Act:**
- Students may consult with one another on solutions, but copying another student's code is strictly prohibited.
- Students should write their own code. Using code found on books or internet is prohibited.
- The Instructor follows general university "Academic Dishonesty/Cheating Policy".

No. of Weeks	Topics	Notes
2	Introduction To Transportation Types, Air Transport and Aircraft characteristics related to airport deign. airport components	
2	Atmospheric Conditions Affecting Aircraft Performance, runway characteristics and configuration	**Exam I**
2	taxiway and taxi lanes and aprons	
2	Airport Pavement Design , Delay At Airport, Runway Capacity. Airport lighting	**Exam2**
1	Runway Orientation, distress in Pavement of Airport	
1	Introduction of railway engineering	
2	Components of Railway	
1	Railway project Design	
2	Discuss of students project	
1	Final Exam	

Attendance policy:

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

No make-up will be given for missed quizzes, tests or assignments, unless a case is made in advance with Instructor's approval.

Philadelphia University
Faculty of Engineering
Department of Civil Engineering
Second Semester, 2016/2017

Course Syllabus	
Course Title: Foundation Engineering	**Course code**: 670531
Course Level: Forth Year	**Course prerequisite(s):** soil mechanics, fluid mechanics, solid mechanics
Lecture Time: 11:10 – 12: Sun. Tues. Th	**Credit hours:** 3

Academic Staff Specifics				
Name	**Rank**	**Office No.**	**Office Hours**	**E-mail Address**
Dr. F. A. Al-Jumaily	Prof.	214	As announced on my office door	fouad_ecg@yahoo.com

Course module description:

Although the practice of foundation engineering requires significant knowledge in the area of structural analysis, concrete and steel design, as well as construction techniques, this course will focus on the geotechnical aspects of foundation engineering. The course is designed to provide students with methods of analysis and design for various geotechnical systems. Topics to be covered include: subsurface investigation, soil improvement, slope stability, bearing capacity, settlement, and design of shallow foundations, deep foundations, and earth retaining structures.

Course academic calendar

Number of weeks that required to cover each topic is:

Topic	Duration (wks)
Review of some related fundamentals	1
Earth pressures	2
Foundation settlement	1
Soil Site Explorations	2
Bearing capacity	2

Stability of Slopes	1
Soil improvement	1
Design of shallow foundations	2
Design of earth retaining structures	2

Total	14 wks

Course module objectives & outcomes:

At the end of the course a successful student will be able to;

- Interpret subsurface information to propose material properties.

- Select appropriate models and analysis methodologies for rang of foundation engineering problems.

- Perform the geotechnical engineering design for shallow foundations

- Perform the geotechnical engineering design for deep foundations

- Perform the geotechnical engineering design for earth retaining structures.

Teaching methods:

Lectures , discussion and solving of problems

Assessment instruments
- Home works, Short reports and presentations:
- Quizzes:
- Project:
- Final examination:

Allocation of Marks	
Assessment Instruments	**Mark**
1st examination	**20%**
2nd examination	**20%**
Home works & Project	**5%**
Quizzes	**15 %**
Final Examination:	**40%**
Total	**100%**

Documentation style

The students will be given the key solution after each quiz and examination to compare with their answers.

Any student query will be respected and discussed

Ethics and Disability Act:

Student may consult with one another on solution, but copying another student's code is strictly prohibited.

Students should write their own code. Using code found on books or internet is prohibited.

The Instructor follows general university "Academic Dishonesty / Cheating Policy "

Expected workload:

On average, students need to spend two hours of study and preparation for each lecture

 (50 minutes).

Attendance policy:

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

The student is responsible for all assignment on a weekly basis.

No-make-up will be given for missed quizzes, tests or assignments, unless a case is made in advance with Instruct's approval.

References

1- Bowles J.E., "Foundation Analysis and Design"
                McGraw-Hill

 2- Tomlinson M.J., "Foundation Design and Construction"
                A pitman International Text

3- Teng W.C., "Foundation Design"
                Prentice – Hall

- Das B.M., "Principles of Foundation Engineering"٤
                Cengage Learning

Course Syllabus	
Course Title: <u>Hydrology</u>	**Course code: 0670541**
Course Level: 4rd year	**Course prerequisite(s): 0212101**
Lecture Time **Sun. ,Tue. &Thu.: 9:10-10:10 &** **Mon & Wed 12:45-2:15**	**Credit hours: 3**

Academic Staff Specifics				
Name	**Rank**	**Office No.**	**Office Hours**	**E-mail Address**
Dr. Monther Alawneh	Assistant Prof	61 -	-	Dr_alawneh@yahoo.com

Course description:
Hydrological cycle, precipitation, evaporation, seepage, infiltration and percolation, ground water hydrology, ground water movement and methods of usage, surface water, Water sources, Watershed physical characteristics, hydrograph analysis, flood analysis, hydrological prediction.

Course goals:
This course introduces the basic information and skills of hydrological system analysis. Skills include modeling of hydrological systems. You will be trained to apply procedures to different problem statements, emphasizing the engineering approach to problem solving.

Text Book: Title: **<u>Engineering Hydrology</u>**
Author: Chow.

Teaching methods:
Lectures, problem solving, etc.

Assessment Instruments
- **Quizzes:** Three Quizzes will be offered.

A allocation of Marks

Assessment Instruments	Mark
1st examination	20%
2nd examination	20%
Quizzes	20%
Final Examination:	40%
Total	100%

Documentation and academic honesty
- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.
-

Ethics and Disability Act:
- Students may consult with one another on solutions, but copying another student's code is strictly prohibited.
- Students should write their own code. Using code found on books or internet is prohibited.
- The Instructor follows general university "Academic Dishonesty/Cheating Policy".

Expected workload:
On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

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

The student is responsible for all assignments on a weekly basis.

No make-up will be given for missed quizzes, tests or assignments, unless a case is made in advance with Instructor's approval.

Course Syllabus

Course Title: Liquid and Solid Waste	**Course code**: 0670545
Course Level: 4th -5th year	**Course prerequisite(s): 0**670443
Lecture Times: 12:45 to 14:15 45 Mon. & Wed. (Sect. 1)	**Credit hours:** 3

Academic Staff Specifics

Name	Rank	Office No.	Office Hours	E-mail Address
Mohammad Younes	Assistant Prof.	311	As announced on office door	myounes@philadelphia.edu.jo

Course module description:

Quantifying the refuses and their composition, integrated solid waste management, collection, transport and final disposal , engineering design and proper planning for waste handling, waste treatment technologies, Principles design of landfill, Material and heat recovery, opportunities and challenges of solid waste, waste water treatment and unit operation in waste water treatment, sludge processing, advanced treatment methods.

Course module objectives & outcomes:

Students who successfully complete this course will be able to:

1. Characterize the solid waste and identify the physical and chemical prosperities of solid and hazardous wastes.
2. Understand the elements of integrated solid waste management and their interactions.
3. Understand the modern concepts of solid waste management including waste minimization, material and heat recovery and best practices.
4. Determine the basic requirement for solid waste management and landfill design.
5. Understand main solid waste management technologies and process (composting, incineration, Pyrolysis, routing, sludge digestion, etc)

Course/ module components:

Books (title , author (s), publisher, year of publication):

- Integrated Solid Waste Management Engineering Principles and Management Issues, G. Tchobanoglous, H. Theisen, S. Vigil, Irwin McGraw Hill.
- Water and waste water technology, VI edition, Mark J. Hammer & Mark J. Hammer Jr., Prentice hall, 2007

- **Support material (s) (vcs, acs, etc).**

Teaching methods:
> Lectures, discussion groups, tutorials, problem solving, debates, etc.

Assessment instruments

- **Home works, Short reports and presentations**: Reading related to current topic will be assigned every week. Assignments and other Homework (HW) will be given throughout the semester, focusing on the concepts learned from these readings.
- **Quizzes:** Three to Four Quizzes will be offered.
- **Project:** Project may be offered as part of this course. Detailed topics and schedule will be announced in due course.
- **Final examination**: 40 marks

Allocation of Marks	
Assessment Instruments	**Mark**
1st examination	**20%**
2nd examination	**20%**
Home works & Project	**10%**
Quizzes	**10%**
Final Examination:	**40%**
Total	**100%**

Documentation and academic honesty
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- Protection by copyright
- Avoiding plagiarism.

Ethics and Disability Act:
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- Students should write their own code. Using code found on books or internet is prohibited.
- The Instructor follows general university "Academic Dishonesty/Cheating Policy".

Course/module academic calendar

Item No.	Title	Weeks
1.	Fundamental Concepts and Overview	**1**
2.	Solid waste characterization (physical and chemical)	**2**
3.	Integrated solid waste management processes	**6**
4.	Solid waste disposal and landfill design	**3**
5.	Hazardous waste management and treatment	**2**

Expected workload:
> On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

Attendance policy:

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

The student is responsible for all assignments on a weekly basis.

No make-up will be given for missed quizzes, tests or assignments, unless a case is made in advance with Instructor's approval.

References

- Waste Management Practice, 2^{ed} edition., John Pichtel, CRC Press
- Hazardous Waste Management, International Edition 1994, La Grega, P. Buckingham and J. Evans. Mc Graw Hill

Philadelphia University
Faculty of Engineering
Department of Civil Engineering
Second Semester, 2016-2017

Course Syllabus

Course Title: <u>Special Topics in Civil Engineering:</u> **<u>Building Construction</u>**	**Course code: 0670553**
Course Level: 5rd year	**Course prerequisite(s): 0670531**
Lecture Time **Sun. ,Tue. &Thu.:** 11:10-12:10	**Credit hours: 3**

Academic Staff Specifics				
Name	**Rank**	**Office No.**	**Office Hours**	**E-mail Address**
Dr. Monther Alawneh	Assistant Prof	61 -	Sun Tue Thu 11:10 – 12:10	Dr_alawneh@yahoo.com

Course description:

This course covers the types of building, constructional elements in building, loads types of stairs, formwork, floors, plastering and painting, isolation, drawing civil engineering details including: brick and stone walls, retaining walls, earth works, steel structures, concrete structures. In addition ,the types of buildings are discussed in this course based on the purpose and function of each building, the considerations regarding each type of building is also introduced .

The formwork is explained ,i.e. the requirements, the materials used as well as the list of all wood and steel formwork is introduced.

The all types of building insulation are presented in this course.

The engineering structural cross sections are also discussed, example (Brick walls and Masonry walls),excavations and all its related topics is covered.

Site inspection for the purpose of newly construction buildings regarding the two types ,concrete and steel works is explained.

Reinforced steel manufacturing, concrete cover and its requirements as well as the manufacturing of concrete(concrete mixes) and its constituents for the different types and classes and all manufacturing stages is also introduced in this course.

Footings and foundations ,their types, specifications are presented.

Masonry and brick construction are explained in details.

Types of buildings (Resedential,Medical,Educational , andCommercial) is presented and discussed. Slabs,columns,beams and walls are printed as analysis and design.

Finishing works(Plastering,Tiles.Ceramics,and painting) are discussed.

Practical applications for most of the covered items is required from the students who enrolled in this course.

Course goals:
This course introduces the basic information and skills of Building Construction. You will be trained to apply procedures to different problem statements, emphasizing the engineering approach to problem solving.

Text Book:

Teaching methods:
Lectures, problem solving, etc.

Assessment Instruments
- **Quizzes:** Three Quizzes will be offered.

A allocation of Marks

Assessment Instruments	Mark
1st examination	20%
2nd examination	20%
Quizzes	20%
Final Examination:	40%
Total	100%

Documentation and academic honesty
- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.

Ethics and Disability Act:
- Students may consult with one another on solutions, but copying another student's code is strictly prohibited.
- Students should write their own code. Using code found on books or internet is prohibited.
- The Instructor follows general university "Academic Dishonesty/Cheating Policy".

Expected workload:
On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

Attendance policy:
Absence from lectures and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.
The student is responsible for all assignments on a weekly basis.
No make-up will be given for missed quizzes, tests or assignments, unless a case is made in advance with Instructor's approval.

Philadelphia University
Faculty of Engineering
Department of Civil Engineering
Second Semester, 2016/2017

Course Syllabus	
Course Title: Project Management	**Course code:0670571**
Course Level: 5th year	**Course prerequisite(s): 0670412**
Lecture Time: 11:10 - 12:00 Sun/ Tue/ Thu **1:10 - 2:00**	**Credit hours: 3**

Academic Staff Specifics				
Name	**Rank**	**Office No.**	**Office Hours**	**E-mail Address**
Dr.Atef Issa	Assistant Professor	61=314	10:00 – 11:00 Sun. / Tue. / Thu	atefissa1961@hotmail.com

Course module description:

Planning, project management concepts, network analysis using arrow techniques network analysis. Overlapping networks, project monitoring, project control, time- cost trade off.

Course module objectives& outcomes:

This module mainly is intended to provide information and aspects on construction project management.

At Completing this module the student should be able to:
1. Determine the role of project managers.
2. Plan the work: perform WBS, estimate activity duration, and establish relationships among the project activities.
3. Perform network analysis and scheduling calculations.
4. Optimize the plan: perform time-cost tradeoff
5. Evaluate the project status
6. Perform earned value analysis to control schedule and cost variances.

Course Syllabus
7. Estimate equipment cost, productivity and production cost
8. Understand Quality management
9. Understand Risk Management

Text Book:

Construction Management Fundamentals / Knutson, Schexnayder, Fiori and Mayo. 2009
Construction management: principles and practice / Alan Griffith and Paul Watson. 2004
Assessment instruments
- 1st Exam :(20 mark).
- 2nd Exam :(20 mark).
- Quizzes, Homework's, Attendance. Quizzes/ Homework / Attendance/ and coursework project (20 marks).
- Final examination: (40 marks)

A allocation of Marks	
Assessment Instruments	**Mark**
1st examination	20%
2nd examination	20%
Quizzes/Homework/Attendance/and coursework project	20%
Final Examination:	40%
Total	100%

- Ethics and Disability Act:
  - ❖ Students may consult with one another on solutions, but copying another student's work is strictly prohibited.
  - ❖ Students should write their own work.
  - ❖ The Instructor follows general university "Academic Dishonesty / Cheating Policy".

Expected workload:

On average students need to spend 2 to 3 hours of study and preparation for each 75-minute lecture/tutorial.

Course Syllabus
Attendance policy:

Absence from lectures and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.
The student is responsible for all assignments on a weekly basis.
No make-up will be given for missed quizzes, tests or assignments, unless a case is made in advance with Instructor's approval.

Attendance policy:

Course Academic Calendar			
Week	Subject	Start on:	Notes
1	Introduction, Define Projects and Project Management, The need for Construction Management, What is PMBOK. Gide		
2	Understand the main components of projects, Fundamental Components of PM.		
3	Critically analyses and apply the different phases of the project Life Cycle		
4	Critically analyses and apply the different phases of the project Life Cycle, Exercise: London 2012 Olympics: Stadium		
5	Project planning and scheduling, Activity duration &Direct Cost,		
6	Techniques of Project Planning and control, using Critical Path Method (CPM),), Activity on Arrow Method, (AOA) .		
			1st Exam
7	Techniques of Project Planning and control, using Critical Path Method (CPM),), Activity on Arrow Method, (AOA)		
8	Techniques of Project Planning and control, using Resource Allocation, Managements Techniques		
9	Techniques of Project Planning and control, using Resources, Time- Cost Tradeoffs, (Crashing)		
10	Techniques of Project Planning and control, using the Program Evaluation and Review Technique (PERT)		

Course Syllabus

11	Project Monitoring and control, using the Mechanics of Comparing Actual Work With Planned Work Effort.		
			2nd Exam
12	Project Monitoring and control, Cost and Schedule Variation, (Earned Value Analysis).		
13	Risk Management, Types of risk, Methods of handling Risk, Review		
14	Projects Presentation.		
15	Final exam		Final Exam

Module references Books

	References
1-	Modern Construction Management / Frank Harris and Ronald McCaffer, 6th ed, 2006
2-	PMBOK Guide (Project Management Body of Knowledge) USA-Project Management Institute 5th ed, 2014 الدليل المعرفي لادارة المشاريع الاصدار الخامس المعهد الامريكي للمقاييس القومية/معهد ادارة المشروعات

Philadelphia University
Faculty of Engineering
Department of Civil Engineering
Second Semester, 2016-2017

Course Syllabus

Course Title: Specifications, Contracts, and Quantity Surveying	Course code: 0670572
Course Level : 5th year	Course prerequisite(s): 0670412 Reinforced Concrete (2)
Lecture Time:,9:10-10:00 Sun/Tues/ Thurs	Credit hours: 3

Academic Staff Specifics				
Name	**Rank**	**Office No.**	**Office Hours**	**E-mail Address**
Dr. Atef. Issa	Assistant Professor	61 - 213	10:00 – 11:00 12:00 – 1:00 Sun, Tues, & Thurs.	atefissa1961@hotmail.com

Course module description:
This course is designed for civil engineering students in their fifth year. The course intends to introduce types of contractual procedures, types of contracts, contract conditions, technical specification for buildings, bills of quantities, pricing and quantity measurement.

Course objectives:
To provide an introduction to the role of quantity surveying in within the client's specifications and understand contracts, budgets, quantities and measurements.

Text Book:

1. داود خلف ، " العقود والمواصفات وحساب الكميات " ، الطبعة الثالثة ، جمعية عمال المطابع التعاونية ، عمان ، الاردن ، 1999 .

2. Conditions of contracts for construction, Federation International des Ingenious–Consoles (FIDIC).
دفتر عقد المقاولة الموحد للمشاريع الانشائية (فيديك 1999)

Teaching methods:
Lectures, PowerPoint presentation, discussion groups, problem solving, mini project etc.

Assessment instruments
- **Two examinations**
- **Quizzes and homework (mini project)**
- **Final examination**

A allocation of Marks	
Assessment Instruments	**Mark**
1st examination	20%
2nd examination	20%
Homework's, attendance, quizzes/ and mini project.	20%
Final examination	40%
Total	100%

Expected workload:

On average students need to spend 2 to 3 hours of study and preparation for each 50-minute lecture/tutorial.

Attendance policy:

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

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Course outlines:

1- Introduction to course.[Technical Specifications, Quantity Surveying, Contracts]
2- Contract Documents.
3- Contract Types.
4- Contract Reporting.
5- Quantity surveying
6- Types of Quantity Surveying.
7- Units, Dimensions, Measurements.
8- Itemization of Building Works.
9- Taking off estimate
10- Bill of quantities and prices

Module references Books

References
1- Dauglass Douglas D, Gransberg C.M, Clain , Popescu R.C. and Ryan C. " Construction Equipment Management for Engineers, Estimators, and Owners" Taylor and Francis Group , New York , 2006
2- Beal, C. , " Masonry and Concrete " ,McGraw – Hill New York , N.Y., 2001.

Course/module academic calendar

<table>
<tr><td colspan="3" align="center">*Course Academic Calendar*</td></tr>
<tr><td>**lecture**</td><td align="center">**Subject**</td><td>**Dates&Notes**</td></tr>
<tr><td>Week 1</td><td>Introduction :
- Technical Specifications ,
 Quantity surveying,
Quantity surveying,,</td><td></td></tr>
<tr><td>Week 2</td><td>Introduction :Technical Specifications</td><td></td></tr>
<tr><td>Week 3</td><td>Introduction : Quantity surveying,</td><td></td></tr>
<tr><td>Week 4</td><td>Introduction : Quantity surveying,</td><td></td></tr>
<tr><td>Week 5</td><td>- Contracts:</td><td></td></tr>
<tr><td>Week 6</td><td>general principles
 Types of contracts</td><td>[1st Exam]</td></tr>
<tr><td>Week 7</td><td>general principles,
 Types of contracts</td><td></td></tr>
<tr><td>Week 8</td><td>- Participants in construction contracts,
 Standard forms of construction contracts ,
 Contracts conditions documents</td><td></td></tr>
<tr><td>Week 9</td><td>,Tendering procedure,
 Bill of quantities and prices ,
 Dispute resolution,</td><td></td></tr>
<tr><td>Week 10</td><td>- Technical Specifications , Quantity surveying,
Excavation and Fill Works,
 Concrete Works,
 Masonry Works,
 Block Works</td><td>[2nd Exam]</td></tr>
<tr><td>Week 11</td><td> Plaster Work,
Tile and Marble,
Joinery Work,
Metallic Work and Glazing,
Plumbing Installations</td><td></td></tr>
<tr><td>Week 12</td><td align="center">Reading drawing maps & implementation</td><td></td></tr>
<tr><td>Week 13</td><td align="center">Projects presentation</td><td></td></tr>
<tr><td>Week 14</td><td align="center">Projects presentation</td><td></td></tr>
<tr><td>Week 15</td><td align="center">Projects presentation

FINAL EXAM</td><td>Final Exam
To be announced
later</td></tr>
</table>

Philadelphia University
Faculty of Engineering
Department of Civil Engineering
Second Semester, 2016-2017

Course Syllabus

Course Title: Specifications, Contracts, and Quantity Surveying	**Course code: 0670572**
Course Level : 5th Academic year	**Course prerequisite(s):** 0670412 Reinforced Concrete (II)
Lecture Time: 12:10 - 13:00 Sun./Tues/ Thurs (Sect. 2)	**Credit hours:** 3

Academic Staff Specifics				
Name	**Rank**	**Office No.**	**Office Hours**	**E-mail Address**
Eng.Adnan Abdelhadi	Lecturer	A-301	As Shown @ my office	Adnan_m_abdelhadi@yahoo.com

Course module description:

This course is designed for civil engineering students in their fifth year. The course intends to introduce types of contractual procedures, types of contracts, contract conditions, technical specification for buildings, bills of quantities, pricing and quantity measurement.

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التعاونية ، عمان ، الاردن ، ١٩٩٩ .

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دفتر عقد المقاولة الموحد للمشاريع الانشائية (فيديك ١٩٩٩)

Teaching methods:

Lectures, PowerPoint presentation, discussion groups, problem solving, mini project etc.

Assessment instruments

- **Two examinations**
- **Quizzes and homework (mini project)**
- **Final examination**

Allocation of Marks	
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8. Itemization of Building Works.
9. Taking off estimate
10. Bill of quantities and prices

Module references Books

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