جامعة الإسراء
ISRA UNIVERSITY

Course Syllabus

According to JORDAN National Qualification Framework (JNQF)

Course Name: Building Materials

Course Number: 04033221

General Course Information:

Course title	Building Materials
Course number	04033221
Credit hours	Three hours theory
Education type	[Face-to-Face]
Prerequisites/corequisites	Strength of Materials
Academic Program	BSc in Civil Engineering
Program code	04
Faculty	Engineering
Department	Civil Engineering
Level of course	2
Academic year /semester	2021-2022/Second
Awarded qualification	Structural Engineer
Other department(s) involved in teaching the course	NON
Language of instruction	English
Date of production/revision	March 2022

Course Coordinator:

Coordinator's name	Dr. Mohammed Al-lami
Office No	4251
Office Phone extension number	2454
Office Hours	Sun, Tu.&Th.: 11-1 Mon. &Wen.: 11-12:30
Email	mohammed.allamy@iu.edu.jo

Other Instructors:

Instructor name	NON
Office No	
Office Phone extension number	
Office Hours	
Email	

Course Description *(English/Arabic)*:

English	Portland cement ,Manufacturing of Portland cement, The chemical composition of cement, Hydration of Portland cement, Properties of Portland cement, Types of Portland cement, Storage of cement, Aggregate for concrete, Classification of aggregate, Condition for the validity of aggregate for concrete, Properties of aggregate for concrete, Concrete mix design, Initial and final setting of concrete, Consistency of concrete, Workability of concrete, Segregation of concrete, Strength of concrete (compression, tension, and bending, Modulus of elasticity, Shrinkage and creep of concrete, Durability of concrete, Classifications of Steel, Characteristics of Steel, Standards and Selection of Building Steel
Arabic	أنواع الأسمنت وصناعة الأسمنت، خواص الأسمنت، إماهة الأسمنت، خواص الركام، تصميم الخلطات الخرسانية، الشك الابتدائي، الشك النهائي، قوام الخرسانة، قابلية التشغيل، الانفصال الحبيبي، مقاومة الخرسانة، الضغط، الشد، الانحناء، مرونة الخرسانة والتقلص والزحف، ديمومة الخرسانة، تصميم الخلطات الخرسانية، خواص الفولاذ الانشائي وأنواعه.

Textbook: ***Author(s), Title, Publisher, Edition, Year, Book website.***

Neville, A.M., and Brooks J.J, Concrete Technology, Second Edition, Pearson, 2010

References: ***Author(s), Title, Publisher, Edition, Year, Book website.***

M.S. SHETTY, CONCRETE TECHNOLOG THEORY AND PRACTICE, S. CHAND & COMPANY LTD.

Course Educational Objectives (CEOs):

1.	**Develop a basic understanding of the physical and chemical properties of concrete, including the role of the key ingredients of lime, Portland cement and aggregate.**
2.	**List processes involved in manufacturing, mixing and placing concrete**
3.	**Understand the proportioning, mixing and testing of concrete.**
4.	**List the physical and performance characteristics of structural steel.**
5.	**Understand the steel fabrication and erection process.**

Intended Learning Outcomes (ILO's):

	Subject Intended learning outcomes (ILOs) describe what students are expected to know and be able to do at the end of the course. These outcomes are related to the knowledge, skill and competence that students acquire:	**Relationship to CEOs**	**Contribution to PLOs**	**Bloom Taxonomy Levels***	**Descriptors****
A	**Knowledge and Understanding:**				
A1	Is prepared to demonstrate by examination that the student possesses and understand of basic material properties with respect to cement.	1	5,6	2	K
A2	Is prepared to demonstrate by examination that the student possesses and understanding of basic material properties with respect to aggregate	1	5,6	2	K
A3	Is prepared to demonstrate by examination that the student possesses and understands basic material properties with respect to concrete.	2,3	5,6	2	K
A4	Is prepared to demonstrate by examination that the student possesses and understands basic material properties with respect to steel.	4,5	5,6	2	K
B	**Intellectual skills:**				
B1					
B2					
B3					
C	**Subject specific skills:**				

C1					
C2					
C3					
D	**Transferable skills:**				
D1					
D2					
D3					

***Bloom Taxonomy Levels**

Level #	**1**	**2**	**3**	**4**	**5**	**6**
Level Name	**Knowledge**	**Comprehension**	**Application**	**Analysis**	**Evaluation**	**Synthesis**

**** Descriptor (National Qualification Framework Descriptors): K : Knowledge, S: Skill, C: Competency.**

Program Learning Outcome (PLOs):

Program Learning Outcomes describe what students are expected to know and be able to do by the time of graduation. These relate to the knowledge, skills, and behaviours that students acquire as they progress through the program. A graduate of the (_____) program will demonstrate:		**Descriptors****		
		K	**S**	**C**
1.	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics			
2.	An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors			
3.	An ability to communicate effectively with a range of audiences			
4.	An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts			
5.	An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	K		
6.	An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	K		
7.	An ability to acquire and apply new knowledge as needed, using appropriate learning strategies			

**** Descriptors according to the national qualifications framework (K: knowledge, S: skill, C: Competency)**

Weekly Schedule *(please choose the type of teaching)*

□ Face to Face

Week	**First Lecture (……..)**	**Second Lecture (……..)**	**Third Lecture (……..)**	**Ach. ILOs**	**Ach. PLOs**	**Descriptors****

1	Portland cement ,Manufacturing of Portland cement	The chemical composition of cement, Hydration of Portland cement, Properties of Portland cement	The chemical composition of cement, Hydration of Portland cement, Properties of Portland cement	1	5,6	K
2	The chemical composition of cement, Hydration of Portland cement, Properties of Portland cement	The chemical composition of cement, Hydration of Portland cement, Properties of Portland cement	Types of Portland cement, Storage of cement	1	5,6	K
3	Types of Portland cement, Storage of cement	Aggregate for concrete, Classification of aggregate	Aggregate for concrete, Classification of aggregate	1,2	5,6	K
4	Aggregate for concrete, Classification of aggregate	Condition for the validity of aggregate for concrete	Condition for the validity of aggregate for concrete	2	5,6	K
5	Condition for the validity of aggregate for concrete	Properties of aggregate for concrete	Properties of aggregate for concrete	2	5,6	K
6	Concrete mix design	Concrete mix design	Concrete mix design	3	5,6	K
7	Concrete mix design	Concrete mix design	Concrete mix design	3	5,6	K
8	Initial and final setting of concrete, Consistency of concrete	Initial and final setting of concrete, Consistency of concrete	Segregation of concrete	3	5,6	K
9	Strength of concrete	Strength of concrete	Strength of concrete	3	5,6	K
10	Strength of concrete	Strength of concrete	Strength of concrete	3	5,6	K
11	Shrinkage and creep of concrete	Shrinkage and creep of concrete	Durability of concrete	3	5,6	K
12	Durability of concrete	Durability of concrete	Durability of concrete	3	5,6	K
13	Durability of concrete	Durability of concrete	Classifications of Steel, Characteristics of Steel	3,4	5,6	K
14	Classifications of Steel, Characteristics of Steel	Standards and Selection of Building Steel	Standards and Selection of Building Steel	4	5,6	K
15	Final exam					
14						
15						

* K: Knowledge, S: Skills, C: Competency

Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

- Interactive videos
- Practice Labs
- Discussion Forums
- Quizzes
- Other Interactive online activities
- Reports

Course Policies:

A- Attendance policies:

The maximum allowed absences is 15% of the lectures.

B- Absences from exams and handing in assignments on time:

Midterm exam can be retaken based on approval of excuse by the instructor's discretion.

Not handing assignment on time will incur penalties.

C- Academic Health and safety procedures

D- Honesty policy regarding cheating, plagiarism, and misbehaviour:

Cheating, plagiarism, misbehaviour will result in zero grade and further disciplinary actions may be taken.

E- Grading policy:

- All homework is to be posted online through the e-learning system.
- Exams will be marked within 72 hours and the marked exam papers will be handed to the students.
- Online Activities (Course Videos, Practice labs, Discussion Forums, Quizzes) **___%**
- Midterm **___%**
- Final Exam **___%**

F- Available university services that support achievement in the course: **E-Learning Platform, Labs, Library.**

Required equipment:

- PC / Laptop with webcam and mic
- Internet Connection
- Access to the IU E-Learning Platform at: https://elearn.iu.edu.jo/
- E-learning plan
- Satisfaction questionnaires for online and face-to-face learning
- Software for e-learning
- Training

Assessment Tools implemented in the course:

- Final Exam
- Midterm Exam
- Quizzes
- Homework
- Practice Labs
- Discussion Forums

- Periodic reports for learning assessment
- Improvement plans for online or face-to-face teaching
- Others:…….

Responsible Persons and their Signatures:

Course Coordinator	**Dr. Mohammed Al-lami**	**Completed Date**	/ /
		Signature	

Received by (Department Head)	**Dr. Ibrahim Varouqa**	**Received Date**	/ /
		Signature	