



## Course Specification of BUILDING MATERIALS

I. Course Identification and General Information:						
1.	Course Title:	<b>BUILDING MATERIALS (مواد البناء)</b>				
2.	Course Code & Number:	AE205				
3.	Credit hours:	C.H				TOTAL
		Th.	Seminar	Pr	Tr.	
		2				2
4.	Study level/ semester at which this course is offered:	2nd year level / 1st Semester				
5.	Pre –requisite (if any):	None				
6.	Co –requisite (if any):	None				
7.	Program (s) in which the course is offered:	Bachelors of science in Architectural Engineering				
8.	Language of teaching the course:	Arabic				
9.	Study system	Semester				
10.	Location of teaching the course:	Class room				
11.	Prepared By:	Dr. Abdulkareem Yahya Al khattabi				
12.	Date of Approval	6/3/2020				

II. Course Description:
<p>This course is intended to provide the students of the department of architectural engineering at the basic stage with basic principles of behavior and physical and engineering properties of building materials, such as natural stones, sand, aggregate, cement, concrete, and steel, and the goal is to enable students to choose building materials on the occasion.</p>

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III. Course Intended learning outcomes (CILOs) of the course (maximum 8CILOs)		Referenced PILOs (Only write code number of reference d Program Intended learning outcomes )
a1.	Achieve mastery of the fundamental knowledge of construction materials	A1 (I)
a2.	Define suitable materials for construction	A3 (E)
a3.	Consider modern software to design concrete mixes	A3 (I)
a4.	Demonstrate understanding of the physical and mechanical properties of construction materials	A1 (I)
a5.	Describe the procedures of laboratory tests of building Materials	A5 (I)
b1.	Conduct lab experiments for determining the properties and the behavior of construction materials	B2 (I)
b2.	Demonstrate understanding of the state-of-the-art concrete technology including analyze and design and produce concrete mixtures according to standards	B3 (I)
c.1	analyze the data obtained through standard laboratory testing procedures.	C1 (I)
d.1	Write technical reports and making presentations	D7 (I)
d2.	collaborate lab work in groups and divide responsibilities among group members	D1 (I)

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<b>(A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:</b>		
<b>Course Intended Learning Outcomes</b>	<b>Teaching strategies</b>	<b>Assessment Strategies</b>
a1. Achieve mastery of the fundamental knowledge of building materials.	Lecture Directed self-study Student presentation Practical classes Site visit	Written exam Written assignment Reports
a2. Define suitable materials for Construction	Lecture Directed self-study Student presentation Practical classes Site visit	Written exam Written assignment Reports
a.3 Consider modern software to design concrete mixes	Lecture Directed self-study	Written exam Written assignment Reports
a4. Demonstrate understanding of the physical and mechanical properties of construction materials.	Lecture Directed self-study Student presentation Practical classes	Written exam Written assignment Reports
a5. Describe the procedures of laboratory tests of building materials	Lecture Directed self-study Student presentation Practical classes	Written exam Written assignment Reports

<b>(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:</b>		
<b>Course Intended Learning Outcomes</b>	<b>Teaching strategies</b>	<b>Assessment Strategies</b>
<b>b.1</b> Conduct lab experiments for determining the properties and the behavior of	Lecture           Directed self-study	Written exam           Written assignment

construction  
materials

Student presentation  
Practical classes

Reports  
Lab exam

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b2. Demonstrate understanding of the state-of-the-art concrete technology including analyze and design and produce concrete mixtures according to standards.	Lecture Directed self-study Student presentation Practical classes	Written exam Written assignment Reports Lab exam
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<b>(C) Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:</b>		
<b>Course Intended Learning Outcomes</b>	<b>Teaching strategies</b>	<b>Assessment Strategies</b>
c.1 analyze the data obtained through standard laboratory testing procedures	Lecture Directed self-study Student presentation Practical classes	Written exam Written assignment Reports Lab exam

<b>(D) Alignment Course Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:</b>		
<b>Course Intended Learning Outcomes</b>	<b>Teaching strategies</b>	<b>Assessment Strategies</b>
d.1 write technical reports and making presentations	Lecture Directed self-study Student presentation Practical classes	Written exam Written assignment Reports
d2. Collaborate lab work in groups and divide responsibilities among group members	Lecture Directed self-study Student presentation Practical classes	Written exam Written assignment Reports Lab exam



IV. Course Content:					
A – Theoretical Aspect:					
Order	Units/Topics List	Learning Outcomes	Sub Topics List	Number of Weeks	contact hours
1	Introduction	a1., a2. , a4.	Introduction to traditional and new materials used in construction industry; Physical properties Mechanical properties	1	2
2	Concrete aggregates	a1., a2. , a4., b2. c.1	Natural rocks; aggregate sources; geological classification; aggregate uses; types of aggregates and aggregates properties;	2	4
3	cement and water	a1., a2. , a4., b2. c.1	Portland cement production; chemical composition of Portland cement; basic characteristics of Portland cements; types of Portland cement; mixing water; water-cement ratio;	2	4
4	Properties of Fresh Concrete	a1., a2. , a4., b2. c.1	Workability; workability tests ; factors affecting workability; mixing placing and handling fresh concrete bleeding; segregation; curing concrete; admixtures	2	4



			for concrete;		
	Midterm Exam			1	2
5	Properties of Hardened Concrete	a1., a2. , a4., b2. c.1	Compressive strength; factors influencing strength; deformation; permeability ;durability; shrinkage; non-destructive testing;	2	4
6	Design of Concrete Mixes	a1., a2. ,a3, a4., b2. c.1	Proportioning of concrete mixes; introduction to mix design; factors affecting the Mix Design;	2	4
7	Steel	a1., a2. , a4., b2. c.1	Steel production; heat treatment of steel; structural steel; cold form steel; reinforcing steel; Steel fastening products; mechanical testing of steel; welding; steel corrosion	1	2
8	Bricks	a1., a2. , a4., b2. c.1	Introduction Types of bricks Properties of bricks	1	2
9	Natural rocks	a1., a2. , a4., b2. c.1	Introduction Types of rocks Properties of rocks	1	2
	Final exam			1	2
<b>Number of Weeks /and Units Per Semester</b>				<b>16</b>	<b>32</b>

<b>B - Practical Aspect: (if any)</b>				
Order	Tasks/ Experiments	Number of Weeks	contact hours	Learning Outcomes

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<b>Number of Weeks /and Units Per Semester</b>				

<b>V. Teaching strategies of the course:</b>	
Lecture Directed self-study Student presentation Practical classes Site visit	





VI. Assignments:				
No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	Assignment 1	a1, a3,b2, b3, c1, d2.1, d2.2	3	2.5
2	Assignment 2	a1, a3,b2, b3, c1, d2.1, d2.2	10	2.5

VII. Schedule of Assessment Tasks for Students During the Semester:					
No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Written assignment	3, 10	5	5	a1., a2. , a4., b2. c.1
2	Quizzes	Two times randomly	5	5	a1., a2. , a4., b2. c.1
3	Midterm Exam	9	10	10	a1., a2. , a4., b.1, b2. c.1, d.1, d2., d.5
5	practical (reports, mid& final exam)	14	20	20	a1., a2. , a4., b.1, b2. c.1, d.1, d2., d.5.
6	Final-exam	16	60	60	a1., a2. , a4., b.1, b2. c.1, d.1, d2., d.5
<b>Total</b>			<b>100%</b>	<b>100%</b>	

VIII. Learning Resources:	
<ul style="list-style-type: none"> <li>Written in the following order: ( Author - Year of publication - Title - Edition - Place of publication - Publisher).</li> </ul>	
<b>1- Required Textbook(s) ( maximum two ).</b>	
	1- خواص المواد واختباراتها، أ.د/محمود محمد أمام 2- الخرسانة الخواص -الجودة - والاختبارات، أ.د/محمود محمد أمام
<b>2- Essential References.</b>	
<b>3- Electronic Materials and Web Sites etc.</b>	
	- None

IX. Course Policies:

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<b>1.</b>	<p><b>Class Attendance:</b></p> <p>The students should have more than 75 % of attendance according to rules and regulations of the faculty.</p>
<b>2.</b>	<p><b>Tardy:</b></p> <p>The students should respect the timing of attending the lectures. They should attend within 10 minutes from starting of the lecture.</p>
<b>3.</b>	<p><b>Exam Attendance/Punctuality:</b></p> <p>The student should attend the exam on time. The punctuality should be implemented according to rules and regulations of the faculty for midterm exam and final exam.</p>
<b>4.</b>	<p><b>Assignments &amp; Projects:</b></p> <p>The assignment is given to the students after each chapter, the student has to submit all the assignments for checking on time.</p>
<b>5.</b>	<p><b>Cheating:</b></p> <p>If any cheating occurred during the examination, the student is not allowed to continue and he/she has to face the examination committee for enquires.</p>
<b>6.</b>	<p><b>Plagiarism:</b></p> <p>The student will be terminated from the Faculty, if one student attends the exam on another behalf according to the policy, rules and regulations of the university.</p>
<b>7.</b>	<p><b>Other policies:</b></p> <ul style="list-style-type: none"> <li>• All the teaching materials should be kept out the examination hall.</li> <li>• the mobile phone is not allowed.</li> <li>• There should be a respect between the student and his teacher.</li> </ul>

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### Course Plan (Syllabus) of Building materials

I. - Information about Faculty Member Responsible for the Course:							
Name of Faculty Member	Dr. Abdulkareemm Yahya Al khattabi	Office Hours					
Location & Telephone No.	00967-771238817	SAT	SUN	MON	TUE	WED	THU
E-mail	akh_eg@yahoo.com				2		

II. Course Identification and General Information:						
1-	Course Title:	Construction materials (مواد البناء)				
2-	Course Number & Code:	AE205				
3-	Credit hours:	C.H				Total
		Th.	Seminar	Pr.	F. Tr.	
		2				2
4-	Study level/year at which this course is offered:	1st year level / 2nd semester				
5-	Pre –requisite (if any):	None				
6-	Co –requisite (if any):	None				
7-	Program (s) in which the course is offered	Bachelors of science in Architectural Engineering				
8-	Language of teaching the course:	Arabic				
9-	System of Study:	semester				
10-	Mode of delivery:	Lecture				
11-	Location of teaching the course:	Class room				

III. Course Description:	
This course is intended to provide the students of the department of architectural engineering at the basic stage with basic principles of behavior and physical and engineering properties of building materials, such as natural stones, sand, aggregate,	



cement, concrete, and steel, and the goal is to enable students to choose building materials on the occasion.

**IV. Intended learning outcomes (ILOs) of the course:**

- Brief summary of the knowledge or skill the course is intended to develop:

a1.	Achieve mastery of the fundamental knowledge of construction Materials
a2.	Define suitable materials for construction
a.3	Consider modern software to design concrete mixes
a4.	Demonstrate understanding of the physical and mechanical properties of construction materials
a5.	Describe the procedures of laboratory tests of building materials
b.1	conduct lab experiments for determining the properties and the behavior of construction materials
b2.	demonstrate understanding of the state-of-the-art concrete technology including analyze and design and produce concrete mixtures according to standards
c.1	analyze the data obtained through standard laboratory testing procedures
d.1	write technical reports and making presentations
d2.	collaborate lab work in groups and divide responsibilities among group Members

**V. Course Content:**

- Distribution of Semester Weekly Plan of Course Topics/Items and Activities.

**A – Theoretical Aspect:**

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Order	Topics List	Week Due	Contact Hours
1	Introduction	1	2
2	Natural rocks	1	2
3	Concrete aggregates	2	4
4	Bricks	1	2
	Cement and water	2	4
5	Properties of Fresh Concrete	2	4
6	Midterm Exam	1	2
7	Properties of Hardened Concrete	2	4
8	Steel	1	2
9	Design of Concrete Mixes	2	4
	Final exam	1	2
<b>Number of Weeks /and Units Per Semester</b>		<b>16</b>	<b>32</b>

<b>B – Practical Aspect: (if any)</b>			
Order	Topics List	Week Due	Contact Hours
1			
2			
3			
4			
5			
6			



7	Concrete Mix Design Exercise	2	4
	Final exam	1	2
<b>Number of Weeks /and Units Per Semester</b>		<b>15</b>	<b>30</b>

<b>VI. Teaching strategies of the course:</b>	
Lecture Directed self-study Student presentation Practical classes Site visit	

<b>VII. Assignments:</b>				
No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	Assignment 1	a1, a3,b2, b3, c1, d2.1, d2.2	3	2.5
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Assessment	Type of Assessment Tasks	Week Due	Mark	Proportion of Final Assessment
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<b>Total</b>			<b>100%</b>	<b>100%</b>



IX. Learning Resources:	
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1- Required Textbook(s) ( maximum two ).	
<ol style="list-style-type: none"> <li>Michael S. Mamlouk and John P. Zaniewski (2011)*, Materials for Civil and Construction Engineers, 3<sup>rd</sup> Edition, Prentice Hall</li> <li>A.M. Neville, Properties of Concrete, 5<sup>th</sup> Edition, Longman</li> </ol>	
2- Essential References.	
3- Electronic Materials and Web Sites etc.	
- Non	

X. Course Policies:	
<p>Unless otherwise stated, the normal course administration policies and rules of the Faculty of ----- apply. For the policy, see: -----</p>	
<b>1.</b>	<p><b>Class Attendance:</b>            The students should have more than 75 % of attendance according to rules and regulations of the faculty.</p>
<b>2.</b>	<p><b>Tardy:</b>            The students should respect the timing of attending the lectures. They should attend within 10 minutes from starting of the lecture.</p>
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**Department:**

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**7. Other policies:**

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