



# Course Specifications

<b>Course Title:</b>	<b>Material Technology</b>
<b>Course Code:</b>	<b>213 AAD-3</b>
<b>Program:</b>	<b>Bachelor of Applied Arts</b>
<b>Department:</b>	<b>Applied Arts</b>
<b>College:</b>	<b>Faculty of Architecture and Design</b>
<b>Institution:</b>	<b>Jazan University</b>

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## A. Course Identification

<b>1. Credit hours:</b> <b>3 Hours</b>
<b>2. Course type</b> a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/> b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
<b>3. Level/year at which this course is offered:</b> Level 3/ second year
<b>4. Pre-requisites for this course (if any):</b> None
<b>5. Co-requisites for this course (if any):</b> Non

### 6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	5	100%
2	Blended	0	0%
3	E-learning	0	0%
4	Correspondence	0	0%
5	Other	0	0%

### 7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
<b>Contact Hours</b>		
1	Lecture 2×15	30
2	Laboratory/Studio 1×3×15	45
3	Tutorial	
4	Others (specify) Assessment 1 Continuous assessment (1 hour only) 1 presentation (0.5 hour only) 1 mid-term exam (1 hour only) 1 final exam (theoretical and practical 5 hours)	6.5
	<b>Total</b>	<b>81.5</b>
<b>Other Learning Hours*</b>		
1	<b>Study</b> Theoretical study(1 hour for 1 CH) 1×2×15 Practical(0.5 hour for 1 CH) 0.5×2×15	30
2	<b>Assignments</b> 1 Continuous assessment for 1 hour CH 1×3=3 1 mid-term exam for 1 hour 1 CH 1×3=3 1 final exam (theoretical 2 hours- practical 4 hours) 2+4=6	12
3	<b>Library</b> Preparation for 0.5 hour 1CH - 0.5×3= 1.5	1.5
4	<b>Projects/Research Essays/Theses</b> 4 hours for 1 CH 4×3= 12	12
5	Others (specify)	
	<b>Total</b>	<b>55.5</b>

\* The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

## B. Course Objectives and Learning Outcomes

### 1. Course Description

The course focuses on the definition of the raw materials used in the formation of the applied arts product and their names (scientific and commercial), which are used for each material, its characteristics and the modern technologies of the raw materials and their manufactured or natural components, the bases of their selection, methods of measurement, installation, connection and application on some Samples

### 2. Course Main Objective

This course aims to demonstrate the knowledge of the mechanical and physical properties of the materials forming the vocabulary of the applied arts product. And defines the basics of selection of different materials used in the field of applied arts.

Analyze the nature of the operational potential of each yak including compatible with different stages and methods of production technology and functions of the product through Joining between using materials technology and its modeling tools. Chooses the technical specifications of different materials in terms of advantages, defects and use. Apply designs and primary models after acquiring the skills of conducting experiments and methods of assembling raw materials and creating simple models. Follow new materials through new technological means and discover different information using the network.

### 3. Course Learning Outcomes

CLOs		Aligned PLOs
<b>1</b>	<b>Knowledge:</b>	
1.1	Demonstrate the knowledge of the mechanical and physical properties of the materials forming the vocabulary of the applied arts product.	K3
1.2	Defines the basics of selection of different materials used in the field of applied arts	K4
1.3	Demonstrate the knowledge of different materials and their relation to design and production methods	K4
<b>2</b>	<b>Skills :</b>	
2.1	Connects the use of raw materials technology and their modeling tools	S4
2.2	Chooses the technical specifications of different materials in terms of advantages, defects and use.	S1
2.3	Analyze the nature of each material, its plasticity and the determinants of production and its suitability for the job	S4
<b>3</b>	<b>Competence:</b>	
3.1	Acquires the skills of conducting experiments and methods of assembling raw materials and creating simple models	C3
3.2	Interact with the work team	C2
3.3	Develops her creative skills both individually and collectively	C2

## C. Course Content

No	List of Topics	Contact Hours
1	<p><b>Definition of materials forming applied arts product</b></p> <p><b>1- Technology of Textile Materials</b></p> <p>Classification of different fiber types:</p> <p><b>1. Morphological Classification:</b></p> <p><b>A-Natural fibers</b></p> <ul style="list-style-type: none"> <li>- Vegetable fiber (cotton, linen, jute)</li> <li>- Animal fibers (wool - silk)</li> </ul>	2

	– Physical and mechanical properties of fibers	
2	<b>B-Industrial fibers</b> - Synthetic fibers (polyester, Poly Acrylic, Polyamide) - Regenerated fibers (Rayon, acetate) - Causes of industrial fiber production - Properties and uses	2
3	<b>2- Fiber Classification on the basis of usage</b> (Textile fiber - bag fiber - fiber brushes .....) Basic performance characteristics of textile fabrics	2
4	<b>Introduction to Engineering Industries</b> • Classification of engineering materials (ceramic materials - metal materials - organic materials - overlays - Nano technology) <b>2- Technology of Glass Material</b> • General introduction to glass material and its beginnings and uses	2
5	• Multiple glass uses • Glass types in terms of chemical composition: (glass soda-Lead glass - quartz glass) • Types of glass in terms of physical treatment: (Plasticized glass - tempered glass)	2
6	Common methods of manufacturing glass -Additional compounds in glass manufacturing Glass industry and some types of glass in terms of use areas - Properties of glass	2
7	Glass manufacturing technology - Chemical composition of glass - Glass coloring	2
8	<b><u>3- the ceramic materials technology</u></b> Introduction to ceramic industries Development of ceramic products <b>Classification of traditional ceramic products:</b> - Ceramic products -Chinese porcelain (Porcelain) -Stoneware products -Earth ware products	2
9	<b><u>Glass and Insulation Coatings</u></b> - Raw Coatings - Ferrite Coatings - Salt coatings	2
10	Classification of advanced ceramic products: - Ceramic glass - Nuclear ceramics	2
11	<b><u>4-metal ore technology</u></b> - Technological division of metals: - ferrous metals - Nonferrous metals - Division in terms of interaction with air oxygen	2
12	- Division in terms of degree of density - Division in terms of the value of the metal	2
13	<b>Mineral properties and their uses in construction:</b> - Properties of iron and its applications in construction - (cast iron - wrought iron - raw cast iron) - Low Carbon Steel - Medium Carbon Steel - High Carbon Steel)	2
14	<b>Non-ferrous metals</b> - Properties of copper	2

	Properties of zinc and its applications Properties of aluminum and its applications in construction Aluminum and high technical architecture	
15	Revision Exams (mid term1- midterm2)	2
<b>Total</b>		30

## D. Teaching and Assessment

### 1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
<b>1.0</b>	<b>Knowledge</b>		
1.1	Demonstrate the knowledge of the mechanical and physical properties of the materials forming the vocabulary of the applied arts product.	Lecture presentations Brainstorming Open debate	Direct method (objective test) By test specification table
1.2	Defines the basics of selection of different materials used in the field of applied arts		
1.3	Demonstrate the knowledge of different materials and their relation to design and production methods		
<b>2.0</b>	<b>Skills</b>		
2.1	Connects the use of raw materials technology and their modeling tools	Lecture Brainstorming workshops Practical work Self-education	Direct method Classroom assignment
2.2	Chooses the technical specifications of different materials in terms of advantages, defects and use.		
2.3	Analyze the nature of each material, its plasticity and the determinants of production and its suitability for the job		
<b>3.0</b>	<b>Competence</b>		
3.1	Acquires the skills of conducting experiments and methods of assembling raw materials and creating simple models	The workshops Team work Practical work Self-education	Direct method Classroom assignment
3.2	Interact with the work team		
3.3	Develops her creative skills both individually and collectively		

### 2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Attendance & Participation	Periodically	5%
	Essay/ Research	4-9	5%
2	Mid term1 & 2 exams	8-12	20%
3	Projects Evaluation	First assessment 10 <sup>th</sup> week Final assessment 15 <sup>th</sup> week	30%

#	Assessment task*	Week Due	Percentage of Total Assessment Score
4	Final Practical Exam	End of semester	15%
5	Final written Exam	End of semester	25%
6	Total		100%

\*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

## E. Student Academic Counseling and Support

**Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :**

Individual consultations and academic advice is supposed to allocate a minimum of 6 hours per week.

Tutorial for week students is supposed to allocate a minimum of 4 hours per week

## F. Learning Resources and Facilities

### 1. Learning Resources

<b>Required Textbooks</b>	Callister, William) 2007). <i>Materials Science and Engineering</i> United States of America: John Wiley & Sons
<b>Essential References Materials</b>	ابراهيم شريف -الهندسية الصناعات
<b>Electronic Materials</b>	-----
<b>Other Learning Materials</b>	-----

### 2. Facilities Required

Item	Resources
<b>Accommodation</b> (Classrooms, laboratories, demonstration rooms/labs, etc.)	For theoretical part Lecture rooms” Classrooms” are required ,and they should be large enough to accommodate the number of registered students and provided with data show For Practical Part Classrooms containing 30 tables for Engineering Drawing &30 chairs:
<b>Technology Resources</b> (AV, data show, Smart Board, software, etc.)	Projector Laptop
<b>Other Resources</b> (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	None

## G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of Teaching	Students	Online system course evaluation (indirect)
Quality of learning resources	Students	Objective test by Test specification table (indirect)
course learning outcomes	Students	Course learning outcomes survey. (indirect)

Evaluation Areas/Issues	Evaluators	Evaluation Methods
		Objective test by Test specification table (indirect)
Effectiveness of Teaching	Students	Online system course evaluation (indirect)

**Evaluation areas** (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

**Evaluators** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

**Assessment Methods** (Direct, Indirect)

## H. Specification Approval Data

<b>Council / Committee</b>	
<b>Reference No.</b>	
<b>Date</b>	