



14 Course Specification of Engineering Drawing

I. Course Identification and General Information:					
1	Course Title:	<i>Engineering Drawing</i>			
2	Course Code & Number:	BR005			
3	Credit hours:	C.H			Credit Hours
		Th.	Tu.	Pr.	Tr.
		1	-	4	-
4	Study level/ semester at which this course is offered:	First Level/ Second semester			
5	Pre –requisite (if any):	Nil			
6	Co –requisite (if any):	Nil			
8	Program (s) in which the course is offered:	Civil Engineering program			
9	Language of teaching the course:	English – Arabic			
10	Location of teaching the course:	Drawing Room			
11	Prepared By:	Dr. Eng. Hamoud A. Al-Nahari.			
12	Date of Approval				

II. Course Description:
This is an introductory course that focuses on engineering drawing, a necessary skill for communicating design ideas, including geometric construction, methods of projection, free hand sketching, orthogonal projection, missing views and dimensioning, pictorial projection (Isometric), and sectional views.

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III. Course Intended learning outcomes (CILOs) of the course		Referenc d PILOs
a.1	Define the fundamentals of engineering drawing and graphics.	A3
a.2	Visualize objects in hand sketch and standard engineering drawings.	
b.1	Formulate solutions for engineering problems based on analytical thinking.	B1
b.2	Create own design ideas expressed in visualizing the various views of 3D parts.	
c.1	Enlarge imagination capability for understanding the engineering Design.	C2
c.2	Use techniques and modern engineering tools for engineering practice.	
d.1	Achieve self-development and ability to communicate effectively.	D1

(A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:			
Course Intended Learning Outcomes		Teaching strategies	Assessment Strategies
a.1	Know the fundamentals of engineering drawing and graphics.	<ul style="list-style-type: none"> • Active Lectures, • Interactive class discussions, • Directed self-study, • Problem based learning, 	<ul style="list-style-type: none"> • Coursework Activities, • Homework and assignments, • Quizzes, • Major Exams, • Problem Sets (Exercises), • Class participation
a.2	Visualize objects in hand sketch and standard engineering drawings.		

(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:			
Course Intended Learning Outcomes		Teaching strategies	Assessment Strategies
b.1	Formulate, and select solutions for engineering problems based on analytical thinking.	<ul style="list-style-type: none"> • Active Lectures, 	<ul style="list-style-type: none"> • Coursework Activities,

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b.2	Create own design ideas expressed in visualizing the various views of 3D parts.	<ul style="list-style-type: none"> • Interactive class discussions, • Directed self-study, • Problem based learning, 	<ul style="list-style-type: none"> • Homework and assignments, • Quizzes, • Major Exams, • Problem Sets (Exercises), • Class participation
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C Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:

Course Intended Learning Outcomes		Teaching strategies	Assessment Strategies
c.1	Enlarge imagination capability for understanding the engineering Design.	<ul style="list-style-type: none"> • Lectures & Class activity • Exercises and home works, • Problem based learning, 	<ul style="list-style-type: none"> • Coursework Activities, • Homework, • Quizzes, • Major Exams, • Class work Exercises, • Class participation
c.2	Use techniques and modern engineering tools for engineering practice.		

(D) Alignment Course Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:

Course Intended Learning Outcomes		Teaching strategies	Assessment Strategies
d.1	Achieve self-development and ability to communicate effectively.	<ul style="list-style-type: none"> • Class activity • Exercises and homework, • Problem based learning 	<ul style="list-style-type: none"> • Coursework Activities, • Quizzes, • Major Exams, • Class participation

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Learning Outcomes	Sub Topics List	Number of Weeks	contact hours
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1	Introduction to Engineering Drawing	a1	1. Importance of Engineering Drawings 2. Drawing equipment's and their use. 3. Units and Scale 4. Standard Sheet Sizes 5. Kinds of Lines and Lettering.	1	1
2	Geometrical Constructions	a1	Geometrical constructions and Tangency	2	2
3	Projection Methods -	a1, a2, b1, b2, c1, c2, d1	1. Projection Methods 2. Perpendicular (Orthogonal) Projection 3. First and Third Angle Projections 4. Orthogonal Projection of point, Line & planes 5. Construction orthographic projection of models from their Pictorial views. 6. Free hand sketching.	2	2
4	Orthogonal Projection	a1, a2, b1, b2, c1, c2, d1	Choice of Front Elevation First angle Projection of Isometric on Three Planes	2	2
5	Dimensioning	a1, a2, b1, b2, c1, c2, d1	Principle of Dimensioning	1	1
6	Missing views	a1, a2, b1, b2, c1, c2, d1	Two views are known; one view is missing (to find third missing view)	2	2
7	Pictorial projection	a1, a2, b1, b2, c1, c2, d1	Kinds of Pictorial projection (Isometric & oblique)	2	2
8	Sectioning views	a1, a2, b1, b2, c1, c2, d1	1- Full Sections 2- Offset Sections 3- Half Sections	2	2
Number of Weeks /and Units Per Semester				14	14

B - Practical Aspect:

Order	Tasks/ Experiments	Number of Weeks	contact hours	Learning Outcomes
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1	Introduction to Engineering Drawing	1	4	a1
2	Geometrical Constructions	2	8	a1
3	Projection Methods -	2	8	a1, a2, b1, b2, c1, c2, d1
4	Orthogonal Projection	2	8	a1, a2, b1, b2, c1, c2, d1
5	Dimensioning	1	4	a1, a2, b1, b2, c1, c2, d1
6	Missing views	2	8	a1, a2, b1, b2, c1, c2, d1
7	Pictorial projection	2	8	a1, a2, b1, b2, c1, c2, d1
8	Sectioning views	2	8	a1, a2, b1, b2, c1, c2, d1
Number of Weeks /and Units Per Semester		14	56	

V. Assignments:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	Weekly drawing homework	a1, a2, b1, b2, c1, c2, d1	2-14	20

VI. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Weekly drawing homework	2-14	20	20%	a1, a2, b1,b2, c1,c2, d1
2	Midterm Exam	8	20	20%	a1, a2, b1,b2, c1,c2, d1
3	Final Exam	16	60	60%	a1, a2, b1,b2, c1,c2, d1

VII. Learning Resources:

- Written in the following order: (Author - Year of publication – Title – Edition – Place of publication – Publisher).

1- Required Textbook(s) (maximum two).

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1	Gary Robert, and Eric N. Webe, "Fundamentals of Graphics Communications", McGraw Hill, 2006.
2	محي الدين قشلان " الرسم الميكانيكي و الكهربائي " دار الراتب الجامعية -لبنان
2- Essential References.	
1	1. William Howard, and Joe Musto, "Introduction to Solid Modeling Using Solid Works", McGraw Hill, 2005.
2	2. Thomas, E.F., "Fundamentals of Engineering Drawing", McGraw-Hill, 2004.
3	3. Thomas, E.F. and Vierck, C.J., "Engineering Drawing and Graphic Technology", McGraw-Hill, 2001
3- Electronic Materials and Web Sites etc.	
	1- http://www.ces.clemson.edu 2- http://www.prenhall.com/Giesecke 3- http://www.osu.okmulgee.edu2

VIII. Course Policies:	
1	Class Attendance: The students should have more than 75 % of attendance according to rules and regulations of the faculty.
2	Tardy: The students should respect the timing of attending the lectures. They should attend within 1 minutes from starting of the lecture.
3	Exam Attendance/Punctuality: 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.
4	Assignments & Projects: The assignment is given to the students after each chapter, the student has to submit all the assignments for checking on time.
5	Cheating: If any cheating occurred during the examination, the student is not allowed to continue and he/she has to face the examination committee for enquiries .
6	Plagiarism: 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.
7	Other policies:

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	<ul style="list-style-type: none"> -All the teaching materials should be kept out the examination hall. -The mobile phone is not allowed. -There should be a respect between the student and his teacher.
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Reviewed By	<u>Vice Dean for Academic Affairs and Post Graduate Studies</u> <u>Dr. Tarek A. Barakat</u> <u>Dr. Mohammad Algorafi</u>
	<u>Deputy Rector for Academic Affairs Dr. Ibrahim AlMutaa</u> <u>Dr. Ahmed mujahed</u> <u>Dr. Munaser Alsubri</u>

Course Plan (Syllabus) of Engineering Drawing

I. - Information about Faculty Member Responsible for the Course:							
Name of Faculty Member	Dr. Eng. Hamoud A. Al-Nahari.	Office Hours					
Location& Telephone No.		SAT	SUN	MON	TUE	WED	THU
E-mail	h_nahary@hotmail.com						

II. Course Identification and General Information:						
1-	Course Title:	Engineering Drawing				
2-	Course Number & Code:	BR005				
3-	Credit hours:	C.H				Credit Hours
		Th.	Tu.	Pr.	Tr.	
		1	-	4	-	3
4-	Study level/year at which this course is offered:	First Level/ Second semester				
5-	Pre –requisite (if any):	Nil				

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6-	Co –requisite (if any):	Nil
7-	Program (s) in which the course is offered	Civil
8-	Language of teaching the course:	English – Arabic
9-	System of Study:	
10-	Mode of delivery:	
11-	Location of teaching the course:	

IV. Course Description:

This is an introductory course that focuses on engineering drawing, a necessary skill for communicating design ideas, including geometric construction, methods of projection, free hand sketching, orthogonal projection, missing views and dimensioning, pictorial projection (Isometric), and sectional views.

III. Intended learning outcomes (ILOs) of the course:

- | | | |
|------------|---|----|
| a.1 | Define the fundamentals of engineering drawing and graphics. | A3 |
| a.2 | Visualize objects in hand sketch and standard engineering drawings. | A3 |
| b.1 | Formulate solutions for engineering problems based on analytical thinking. | B1 |
| b.2 | Create own design ideas expressed in visualizing the various views of 3D parts. | B1 |
| c.1 | Enlarge imagination capability for understanding the engineering Design. | C2 |
| c.2 | Use techniques and modern engineering tools for engineering practice. | C2 |
| d.1 | Achieve self-development and ability to communicate effectively. | D1 |

V. Course Content:

Distribution of Semester Weekly Plan Of course Topics/Items and Activities.

A – Theoretical Aspect:

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B – Practical Aspect:			
Order	Topics List	Week Due	Contact Hours

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1	Introduction to Engineering Drawing	1	4
2	Geometrical Constructions	2,3	8
3	Projection Methods -	4,5	8
4	Orthogonal Projection	6,7	8
5	Dimensioning	8	4
6	Missing views	9,10	8
7	Pictorial projection	11,12	8
8	Sectioning views	13,14	8
Number of Weeks /and Units Per Semester		14	56

VI. Teaching strategies of the course:

Lectures, Tutorials, Exercises and homework, Interactive class discussion, Simulations using software

VII. Assignments:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	Weekly drawing homework	a1, a2, b1, b2, c1, c2, d1	2-14	20

VIII. Schedule of Assessment Tasks for Students During the Semester:

Assessment	Type of Assessment Tasks	Week Due	Mark	Proportion of Final Assessment
1	Weekly drawing homework	2-14	30	20%
2	Midterm Exam	8	30	20%
3	Final Exam	16	90	60%

IX. Learning Resources:

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