



43 Course Specification of Electrical Engineering

I. Course Identification and General Information:						
1.	Course Title:	<i>Electrical Engineering</i>				
2.	Course Code & Number:	EE321				
3.	Credit hours: 2	C.H				Credit Hours
		T h.	Tu.	Pr.	Tr.	
		2				
4.	Study level/ semester at which this course is offered:	4 th Level/1 st Semester				
5.	Pre –requisite (if any):	Building Physics				
6.	Co –requisite (if any):	Nil				
7.	Program (s) in which the course is offered:	Civil Engineering				
8.	Language of teaching the course:	English/Arabic				
9.	Location of teaching the course:	Faculty of Engineering				
10.	Prepared By:	Dr. Adel Ahmed Al-Shakiri				
11.	Date of Approval					

II. Course Description:
<p>This Course studies the basic principles of electrical engineering including different laws such as Ohm's Law, Current Kirchoff's, and Power and Energy Laws. It also gives Civil Engineer an idea about electrical installation networks for different civil building.</p>

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III. Course Intended learning outcomes (CILOs) of the course		Referenced PILOs
a.1	Show a good ability in understanding the Mathematics, science and engineering principles related to electrical engineering.	A1
a.2	Define the different techniques and rules used in electrical engineering practices, codes and standards.	A2
a.3	Discuss the related applications of Ohm's and Kirchhoff's Laws.	A1
b.1	Analyze the different solution methods of solving engineering problems	B1
b.2	Investigate the appropriate mathematical methods for analyzing engineering problems.	B2
b.3	Create brain storming by solving electrical problems.	B3
c.1	Analyze a simple electrical installation related to civil engineering	C2
c.2	Create solution to electrical circuit problems based on related Laws.	C2
c.3	Supervise electrical parts of civil projects.	C2
d.1	Share with classmates the mathematical ideas applicable to solution of mathematically based engineering problems.	D1
d.2	Work effectively in group and independently.	D3
d.3	Work with responsibility while conducting electrical part of civil projects.	D4

(A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
a1- Show a good ability in understanding the Mathematics, science and engineering principles related to electrical engineering.	<ul style="list-style-type: none"> - Active lectures - Problem based learning 	<ul style="list-style-type: none"> - Written tests (Mid and final Terms) - Short essays - Oral exams

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a2- Define the different techniques and rules used in engineering practices, codes and standards.	<ul style="list-style-type: none"> - Active lectures - Tutorials - Interactive class discussions 	<ul style="list-style-type: none"> - Written tests (Mid and final Terms) - Homework and assignment
a3- Discuss the related applications of Ohm's and Kirchhoff's Laws.	<ul style="list-style-type: none"> - Active lectures - Tutorials - Interactive class discussions 	<ul style="list-style-type: none"> - Written tests (Mid and final Terms) - Homework and assignment

(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
b1- Analyze the different solution methods of solving engineering problems	<ul style="list-style-type: none"> - Active lectures - Tutorials - Interactive class discussions 	<ul style="list-style-type: none"> - Written tests (Mid and final Terms) - Homework and assignment
b2- Investigate the appropriate mathematical methods for analyzing engineering problems.		
b3- Create brain storming by solving electrical problems.		

(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
C1- Apply some mathematical principles during the design and development of electrical installation related to civil engineering	<ul style="list-style-type: none"> - Active Lecture - Presentations - Tutorial 	<ul style="list-style-type: none"> - Written Quizzes - Written exam - Small Project
C2- Create solution to electrical circuit problems based on related Laws.	<ul style="list-style-type: none"> - Active Lecture - Presentations 	<ul style="list-style-type: none"> - Written Quizzes - Written exam - Small Project
C3- Supervise electrical parts of civil projects.	<ul style="list-style-type: none"> - Active Lecture - Presentations - Tutorial 	<ul style="list-style-type: none"> - Written Quizzes - Written exam - Small Project

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(D) Alignment Course Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
D1. Share with classmates the mathematical ideas applicable to solution of mathematically based engineering problems	- Active Lecture - Case study	- Written Report
d.2- Work effectively in group and independently.	- Active Lecture - Case study	- Written Report
d3- Work with responsibility while conducting electrical part of civil projects.	- Active Lecture - Case study	- Small Project

IV. Course Content:					
A – Theoretical Aspect:					
Order	Units/Topics List	Learning Outcomes	Sub Topics List	Number of Weeks	contact hours
1	Basics of Electrical Engineering	a1, a2, b1	Basics of Electrical Engineering	1	2
2	Electrical resistance	a1,a2,a3	Electrical resistance	1	2
3	Ohms Law	a1,a2,a3,b1,b2	Ohms Law	1	2
4	Power and Electrical Energy	a1,a2,a3,b1,b2, c1	Power and Electrical Energy	1	2
5	Kirchhoff's Law	a1,a2,a3,b1,b2, c1,c2	Kirchhoff's Law	1	2
6	Electrical Projects 1	a1, b2, c1, c2, c3	Electrical Projects 1	1	2
7	Electrical Projects 2	a1, b2, c1, c2, c3	Electrical Projects 2	1	2
8	Basic Devices used in Electrical Installation	a1, b2, c1, c2, c3	Basic Devices used in Electrical Installation	2	4

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IV. Course Content:					
A – Theoretical Aspect:					
Order	Units/Topics List	Learning Outcomes	Sub Topics List	Number of Weeks	contact hours
9	Assessment and calculation of Electrical Loads	b1, b2, c1, c2	Assessment and calculation of Electrical Loads	1	2
10	Design of Branch Circuits 1	b1, c1, d1, d2, d3	Design of Branch Circuits 1	2	4
11	Design of Branch Circuits 2	b1, c1, d1, d2, d3	Design of Branch Circuits 2	2	4
Number of Weeks /and Units Per Semester				14	28

V. Teaching strategies of the course:
<ul style="list-style-type: none"> - Active Lecture - Presentations - Tutorial - Case Study - Tutorial

VI. Assignments:				
No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	Home Work 1	a1-a2-b1-b2-b3-c1-c3	2	1
2	Home Work 2	a1-a2-b1-b2-b3-c1-c3	3	1
3	Home Work 3	a1-a2-b1-b2-b3-c1-c3	4	1
4	Home Work 4	a1-a2-b1-b2-b3-c1-c3	5	1
5	Home Work 5	b1-b2-b3-b4-c1-c2-c3-d1, d2, d3	6	0.5
6	Home Work 6	b1-b2-b3-b4-c1-c2-c3-d1, d2, d3	12	0.5

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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	2-3-4-5-6-11	5	5	a1-a2-b1-b2-b3-c1-c3
2	Quizzes.	8, 9	5	5	b3-c1
3	Mid-term exam.	7th	20	20	a1-a2-b1-b2-b3-c1-c3
4	Final-exam.	13	60	60	a1-a2-b1-b2-b3-c1-c3
5	Project	12	10	10	b1-b2-b3-b4-c1-c2-c3-d1, d2, d3
	Sum		100	100%	

VIII. Learning Resources:	
<ul style="list-style-type: none"> Written in the following order: (Author - Year of publication – Title – Edition – Place of publication – Publisher). 	
1- Required Textbook(s) (maximum two).	
	1-Matthew N. O. Sadiku, 2009, Fundamentals of Electric Circuits, 4 th Edition, USA, The McGraw Hill Companies, Inc. 2- أ.د. محمود جيلاني، 2019، المرجع في التركيب والتصميمات الكهربائية، الطبعة الثالثة، جمهورية مصر العربية، جامعة القاهرة
2- Essential References.	
	1-V.HimaBindu, V.V.S Madhuri, Chandrashekar.D, 2014: BASIC ELECTRICAL ENGINEERING, India.
3- Electronic Materials and Web Sites etc.	
	1- http://www.tkne.net/vb/archive/index.php/t-4791.html 2- https://www.edx.org/learn/electrical-engineering

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IX. 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: _ 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.

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>

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Template for Course Plan (Syllabus)

I. Information about Faculty Member Responsible for the Course:							
Name of Faculty Member	Dr. Adel Ahmed Al-Shakiri	Office Hours					
Location & Telephone No.	Department of Electrical Engineering, 772771672	SAT	SUN	MON	TUE	WED	THU
E-mail	ashakiri62@gmail.com	10-12			12-2		

II. Course Identification and General Information:						
1-	Course Title:	<i>Electrical Engineering</i>				
2-	Course Number & Code:	EE321				
3-	Credit hours:	C.H				Credit Hours
		Th.	Tu.	Pr.	Tr.	
		2				2
4-	Study level/year at which this course is offered:	4 th Level/1 st Semester				
5-	Pre –requisite (if any):	Building Physics				
6-	Co –requisite (if any):	Nil				
7-	Program (s) in which the course is offered	Civil Engineering				
8-	Language of teaching the course:	English/Arabic				
9-	System of Study:	Semester				
10-	Mode of delivery:					
11-	Location of teaching the course:	Faculty of Engineering				

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III. Course Description:

This Course studies the basic principles of electrical engineering including different laws such as Ohm's Law, Current Kirchhoff's, and Power and Energy Laws. It also gives Civil Engineer an idea about electrical installation networks for different civil building.

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

- Brief summary of the knowledge or skill the course is intended to develop:
 - a.1 Show a good ability in understanding the Mathematics, science and engineering principles related to electrical engineering. A1
 - a.2 Define the different techniques and rules used in electrical engineering practices, codes and standards. A2
 - a.3 Discuss the related applications of Ohm's and Kirchhoff's Laws. A1
 - b.1 Analyze the different solution methods of solving engineering problems B1
 - b.2 Investigate the appropriate mathematical methods for analyzing engineering problems. B2
 - b.3 Create brain storming by solving electrical problems. B3
 - c.1 Analyze a simple electrical installation related to civil engineering C2
 - c.2 Create solution to electrical circuit problems based on related Laws. C2
 - c.3 supervise electrical parts of civil projects. C2
 - d.1 Share with classmates the mathematical ideas applicable to solution of mathematically based engineering problems. D1
 - d.2 **Work** effectively in group and independently. D3
 - d.3 **Work** with responsibility while conducting electrical part of civil projects. D4

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V. Course Content:				
<ul style="list-style-type: none"> Distribution of Semester Weekly Plan of Course Topics/Items and Activities. 				
A – Theoretical Aspect:				
Order	Topics List	Sub Topics List	Week Due	Contact Hours
1	Basics of Electrical Engineering	Basics of Electrical Engineering	1	2
2	Electrical resistance	Electrical resistance	2	2
3	Ohms Law	Ohms Law	3	2
4	Power and Electrical Energy	Power and Electrical Energy	4	2
5	Kirchhoff's Law	Kirchhoff's Law	5	2
6	Electrical Projects 1	Electrical Projects 1	6	2
7	Electrical Projects 2	Electrical Projects 2	7	2
8	Mid-Term Exam.		8	2
9	Basic Devices used in Electrical Installation	Basic Devices used in Electrical Installation	9,10	4
10	Assessment and calculation of Electrical Loads	Assessment and calculation of Electrical Loads	11	2
11	Design of Branch Circuits 1	Design of Branch Circuits 1	12,13	4
12	Design of Branch Circuits 2	Design of Branch Circuits 2	14,15	4
13	Final Exam		16	2
Number of Weeks /and Units Per Semester			16	32

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VI. Teaching strategies of the course:	
-	Active Lecture
-	Presentations
-	Tutorial
-	Case Study
-	Tutorial

VII. Assignments:				
No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	Home Work 1	a1-a2-b1-b2-b3-c1-c3	2	1
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3	Home Work 3	a1-a2-b1-b2-b3-c1-c3	4	1
4	Home Work 4	a1-a2-b1-b2-b3-c1-c3	5	1
5	Home Work 5	b1-b2-b3-b4-c1-c2-c3-d1, d2, d3	6	0.5
6	Home Work 6	b1-b2-b3-b4-c1-c2-c3-d1, d2, d3	12	0.5

VIII. Schedule of Assessment Tasks for Students During the Semester:				
Assessment	Type of Assessment Tasks	Week Due	Mark	Proportion of Final Assessment
1	Written assignment	2-3-4-5-6-11	5	5
2	Quizzes.	8, 9	5	5
3	Mid-term exam.	7th	20	20
4	Final-exam.	13	60	60
5	Project	12	10	10

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X. Course Policies:	
Unless otherwise stated, the normal course administration policies and rules of the Faculty of ----- apply. For the policy, see: -----	
1	Class Attendance: The students should have more than 75 % of attendance according to rules and regulations of the faculty.
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