5- Course Specification of: Advanced Engineering Project Management
Course Code (PME5314)

I. General Information About the Course:						
1.	**Course Title:**	Advanced Engineering Project Management				
2.	**Course Code and Number:**	PME5314				
3.	**Credit Hours:**	**Credit Hours**			**Total**	
		Lecture	Practical	Seminar/Tutorial		
		3	-	-	3	
4.	**Study Level and Semester:**	First Semester				
5.	**Pre-requisites (if any):**	-				
6.	**Co-requisites (if any):**	-				
7.	**Program (s) in which the course is offered:**	MSc. in Electrical Power Engineering				
8.	**Language of teaching the course:**	English				
9.	**Study System:**	Courses & Thesis				
10.	**Prepared By:**	Prof. Dr. Eng. Omar H. Al-Sakaf				
11.	**Reviewed by:**	Dr. Radwan M. AL Bouthigy				
12.	**Date of Approval:**					

II. Course Description:

This course presents advanced principles and techniques of managing engineering projects from the initiation phase, through planning, execution, control and closeout. Students will develop the analytical skills and awareness necessary on the management side of engineering projects. Topics include project initiation, estimating, budgeting, developing work plans, scheduling, tracking work, resource allocation, project coordination, quality management, leadership, managing teams, conflict, negotiations, ethics, and professional responsibility and close out.

III. Course Intended Learning Outcomes (CILOs):

Upon successful completion of **Advanced Engineering Project Management** Course, the graduates will be able to:

a1 - Understand advanced principles and techniques of project management.

a2 - Recognize the dynamically changing project management practices in increasing complex disciplines of engineering and industrial setup.

b1 - Integrate technical aspects of electrical and computer engineering with other practical aspects to successfully manage a project in the industry framework.

b2 - Select appropriate project management techniques and tools to achieve project objectives.

c1 - Apply project management processes, techniques and tools to solve electrical and computer engineering problems.

c2 - Manage project progress by applying performance reporting, analysis and progress measurement techniques to ensure activities are executed as planned.

d1 - Function effectively as an individual or leader in diverse teams and in multi-disciplinary settings throughout the project cycle.

d2 - Practice organizational, communication, technical writing, presentation and other skills.

IV. Alignment of Course Intended Learning Outcomes (CILOs) to Program Intended Learning Outcomes (PILOs)

CILOs		PILOs	
e. Knowledge and Understanding: Upon successful completion of **the Advanced Engineering Project Management Course**, the graduates will be able to:		**E. Knowledge and Understanding:** Upon successful completion of the **MSc. in Electrical Power Engineering Program**, the graduates will be able to:	
a1.	Understand advanced principles and techniques of project management.	**A1.**	Demonstrate in-depth understanding of the theory and practice of modern electrical power systems design and operation and system identification.
a2.	Recognize the dynamically changing project management practices in increasing complex disciplines of engineering and industrial setup.	**A2.**	Recognize and comprehend the key role of sustainable energy for national and global sustainable development.
f. Cognitive/ Intellectual Skills: Upon successful completion of the **Advanced Engineering Project Management Course,** the graduates will be able to:		**F. Cognitive/ Intellectual Skills:** Upon successful completion of the **MSc. in Electrical Power Engineering Program,** the graduates will be able to:	
b1.	Integrate technical aspects of electrical and computer Engineering with other practical aspects to successfully manage a project in the industry framework.	**B1.**	Identify, formulate, and solve complex power engineering problems by selecting and applying appropriate tools and techniques.

b2.	Select appropriate project management techniques and tools to achieve project objectives.	**B3.**	Select appropriate techniques and tools for successful problem solving.
g. Professional and Practical Skills: Upon successful completion of the **Advanced Engineering Project Management Course,** the graduates will be able to:		**G. Professional and Practical Skills:** Upon successful completion of the **MSc. in Electrical Power Engineering Program,** the graduates will be able to:	
c1.	Apply project management processes, techniques and tools to solve electrical and computer engineering problems.	**C1.**	Apply modern tools for research, computation, simulation, analysis, and design of modern power systems.
c2.	Manage project progress by applying performance reporting, analysis and progress measurement techniques to ensure activities are executed as planned.	**C2.**	Recognize the interdisciplinary nature of technical problems and apply other areas of knowledge to the solution, and work with other professions to arrive at a solution for complex engineering problems.
h. Transferable Skills: Upon successful completion of the **Advanced Engineering Project Management Course,** the graduates will be able to:		**H. Transferable Skills:** Upon successful completion of the **MSc. in Electrical Power Engineering Program,** the graduates will be able to:	
d1.	Function effectively as an individual or leader in diverse teams and in multi-disciplinary settings throughout the project cycle.	**D1.**	Demonstrate leadership skills in the workplace, to function professionally in a globally competitive world, and to communicate engineering results effectively.
d2.	Practice organizational, communication, technical writing, presentation and other skills.	**D2.**	Realize the relevance of economics, ethics and teamwork to the profession.

V. Alignment of CILOs to Teaching and Assessment Strategies

e. Alignment of Knowledge and Understanding CILOs:

Knowledge and Understanding CILOs		Teaching Strategies	Assessment Strategies
a1.	Understand advanced principles and techniques of project management.	▪ Lectures ▪ Demonstrations ▪ Interactive class discussions	▪ Group work ▪ Assignments ▪ Oral Presentations ▪ Written Exams
a2.	Recognize the dynamically changing project management practices in increasing complex disciplines of engineering and industrial setup.		

f. Alignment of Intellectual Skills CILOs:

Intellectual Skills CILOs		Teaching Strategies	Assessment Strategies
b1.	Integrate technical aspects of electrical and computer Engineering with other practical aspects to successfully manage a project in the industry framework.	▪ Lectures ▪ Demonstrations ▪ Interactive class discussion	▪ Assignments ▪ Oral Presentations ▪ Exams

b2.	Select appropriate project management techniques and tools to achieve project objectives.		

g. Alignment of Professional and Practical Skills CILOs:

Professional and Practical Skills CILOs		Teaching Strategies	Assessment Strategies
c1.	Apply project management processes, techniques and tools to solve electrical and computer engineering problems.	▪ Lectures ▪ Demonstrations ▪ Interactive class discussion	▪ Assignments ▪ Oral Presentations ▪ Exams
c2.	Manage project progress by applying performance reporting, analysis and progress measurement techniques to ensure activities are executed as planned.		

h. Alignment of Transferable (General) Skills CILOs:

Transferable (General) Skills CILOs		Teaching Strategies	Assessment Strategies
d1.	Function effectively as an individual or leader in diverse teams and in multi-disciplinary settings throughout the project cycle.	▪ Demonstrations ▪ Interactive class discussion	▪ Assignments ▪ Oral Presentations.
d2.	Practice organizational, communication, technical writing, presentation and other skills.		

VI. Course Content

4. Theoretical Aspect

Order	Topic List / Units	Sub -Topics List	Number of Weeks	Contact Hours	Course ILOs
1	Overview of Project Management	• What is project management • Project life cycle • Project Management Framework • Project Management Statistics	1	3	a.1, a.2, b.1, b.2
2	The Logical Framework Approach	• The logic of the framework (LogFrame) • Main Stages of the LogFrame • SMART Objectives • The Project Planning Matrix	2	6	a.1, a.2, b.1, b.2, c.1, c.2
3	Project Management Process Groups & Project Integration Management	• Project Management Process Groups • Process Groups and Project Phases • The 10 Knowledge Areas of Project Management • Mapping the Process Groups to the Knowledge Areas	1	3	a.1, a.2, b.1, b.2, c.1, c.2, d.2

		• Project Integration Management			
4	Core Knowledge Areas	• Project scope management • Project schedule management • Project cost management • Project quality management	4	12	a.1, a.2, b.1, b.2, c.1, c.2
5	Midterm Exam		1	3	a.1, a.2, b.1, b.2
6	Facilitating Knowledge Areas	• Project resource management • Project communications management • Project risk management • Project procurement management • Project stakeholders management	3	9	a.1, a.2, b.1, b.2, c.1, c.2, d.1, d.2
7	Soft skills for Project Managers and Teams	• Importance of Soft Skills • Developing Soft Skills • Best Ways to Enhance Your Soft Skills • Summary of Soft Skills	1	3	a.1, a.2, b.1, b.2, d.1, d.2
8	Case Studies – Application of Project Management to Electrical Engineering and Energy Projects	• Financing projects • Terms and conditions of contract • Monitoring and Evaluation (M&E) • Economic assessment of projects	2	6	a.1, a.2, b.1, b.2, c.1, c.2, d.1, d.2
9	Final Exam	All Topics	1	3	a.1, a.2, b.1, b.2
Number of Weeks /and Contact Hours Per Semester			**16**	**48**	

5. Practical Aspect NA				
Order	**Practical / Tutorials topics**	**Number of Weeks**	**Contact Hours**	**Course ILOs**
1				
2				
Number of Weeks /and Contact Hours Per Semester				

6. Tutorial Aspect: NA				
No.	**Tutorial**	**Number of Weeks**	**Contact Hours**	**Learning Outcomes (CILOs)**
1				
2				
Number of Weeks /and Units Per Semester		**15**	**30**	

VII. Teaching Strategies:

- Formal lectures
- Interactive discussions
- Group work
- Presentations

VIII. Assessment Methods of the Course:

- Group work
- Assignments
- Presentations
- Written Exams

IX. Tasks and Assignments:

No	Assignments/ Tasks	Individual/ Group	Mark	Week Due	CILOs (symbols)
1	• Group work; groups will develop their own project plan of selected fictive projects from diverse sectors from scratch in parallel with weekly gained knowledge through lectures, group discussions and readings assignments. Based on each reading/topic, students will be asked to deliver the corresponding outputs and present results in following week. • By the end of the semester (Week 14), Student Groups will submit their Project Plan Report and deliver a PowerPoint presentation within a plenary session.	Group	20	3-14	a.1, a.2, b.1, b.2, c.1, c.2, d.1, d.2
	Total Score		**20**	-	-

X. Learning Assessment:

No.	Assessment Tasks	Week due	Mark	Proportion of Final Assessment	CILOs
1	Assignments	3-14	20	20%	a.1, a.2, b.1, b.2, c.1, c.2, d.1, d.2
2	Mid-Term Exam	9	20	20%	a.1, a.2, b.1, b.2
3	Final Exam	16	60	60%	
Total			**100**	**100%**	-

VIII Learning Resources and Facilities

1- Required Textbook(s)

- Omar Al-Sakaf, 'Introduction to Project Management, Based on the Project Management Institute PMI-Project Management Body of Knowledge PMBOK', First Edition 2018.
- Albert Lester, 'Project Management, Planning and Control', Elsevier Ltd., Seventh Edition, 2017.

2- Essential References

- European Integration Office, 'Guide to the Logical Framework Approach', Global Print, 2nd Edition, 2011.
- A Guide to the Project Management Body of Knowledge (PMBOK® GUIDE) 6th Edition, 2017.

- Project Management Institute PMI, 'A Guide to the Project Management Body of Knowledge (PMBOK Guide), Project Management Institute, Inc., 7th Edition, 2021.
- Cynthia Snyder Dionisio, 'A Project Manager's Book of Tools and Techniques', John Wiley & Sons, 2018.
- Randall L. Englund, Alfonso Bucero, 'Complete Project Manager-Integrating People, Organizational, and Technical Skills', Management Concepts, Inc., 2012.

3- Electronic Materials and Websites *etc*.

- Course Power Point.
- Video clips.
- Links to information resources.

Educational and research Facilities and Equipment Required

Technology Resources
(AV, data show, Smart Board, software, etc.)

Other Resources
(Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)

- **الضوابط والسياسات المتبعة في المقرر Course Policies**

بعد الرجوع للوائح الجامعة يتم كتابة السياسة العامة للمقرر فيما يتعلق بالآتي:

1	**سياسة حضور الفعاليات التعليمية Class Attendance:** - يلتزم الطالب بحضور 75% من المحاضرات ويحرم في حال عدم الوفاء بذلك. - يقدم أستاذ المقرر تقريرا بحضور وغياب الطلاب للقسم ويحرم الطالب من دخول الامتحان في حال تجاوز الغياب 25% ويتم اقرار الحرمان من مجلس القسم.
2	**الحضور المتأخر Tardy:** - يسمح للطالب حضور المحاضرة إذا تأخر لمدة ربع ساعة لثلاث مرات في الفصل الدراسي، وإذا تأخر زيادة عن ثلاث مرات يحذر شفويا من أستاذ المقرر، وعند عدم الالتزام يمنع من دخول المحاضرة.
3	**ضوابط الامتحان Exam Attendance/Punctuality:** - لا يسمح للطالب دخول الامتحان النهائي إذا تأخر مقدار (20) دقيقة من بدء الامتحان - إذا تغيب الطالب عن الامتحان النهائي تطبق اللوائح الخاصة بنظام الامتحان في الكلية.
4	**التعيينات والمشاريع Assignments & Projects:** - يحدد أستاذ المقرر نوع التعيينات في بداية الفصل ويحدد مواعيد تسليمها وضوابط تنفيذ التكليفات وتسليمها. - إذا تأخر الطالب في تسليم التكليفات عن الموعد المحدد يحرم من درجة التكليف الذي تأخر في تسليمه.
5	**الغش Cheating:** - في حال ثبوت قيام الطالب بالغش في الامتحان النصفي أو النهائي تطبق عليه لائحة شؤون الطلاب. - في حال ثبوت قيام الطالب بالغش او النقل في التكليفات والمشاريع يحرم من الدرجة المخصصة للتكليف.
6	**الانتحال Plagiarism:** – في حالة وجود شخص ينتحل شخصية طالب لأداء الامتحان نيابة عنه تطبق اللائحة الخاصة بذلك
7	**سياسات أخرى Other policies:** - أي سياسات أخرى مثل استخدام الموبايل أو مواعيد تسليم التكليفات ..... الخ

Academic Year: ……....

Course Plan (Syllabus): Advanced Engineering Project Management

I. Information about Faculty Member Responsible for the Course:

Name	**Prof. Dr. Eng. Omar H. Al-Sakaf**	**Office Hours**						
Location &Telephone No.	Faculty of Engineering Mobile: 733772328/773332328	**SAT**	**SUN**	**MON**	**TUE**	**WED**	**THU**
E-mail	oalsakaf@gmail.com oalsakaf@yahoo.com		08:00 - 12:00				

II. General information about the course:

1.	**Course Title**	**Advanced Engineering Project Management**			
2.	**Course Code and Number**	**PME5314**			
3.	**Credit Hours**	**Credit Hours**			**Total**
		Lecture	**Practical**	**Seminar/Tutorial**	
		3	-	-	**3**
4.	**Study Level and Semester**	**First Semester**			
5.	**Pre-requisites**	-			
6.	**Co –requisite**	-			
7.	**Program (s) in which the course is offered**	MSc. in Electrical Power Engineering			
8.	**Language of teaching the course**	English			
9.	**Location of teaching the course**	**Faculty of Engineering**			

II. Course Description:

This course presents advanced principles and techniques of managing engineering projects from the initiation phase, through planning, execution, control and closeout. Students will develop the analytical skills and awareness necessary on the management side of engineering projects. Topics include project initiation, estimating, budgeting, developing work plans, scheduling, tracking work, resource allocation, project coordination, quality management, leadership, managing teams, conflict, negotiations, ethics, and professional responsibility and close out.

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III. Course Contents

A – Theoretical Aspects

Order	Topics List	Week Due	Contact Hours
1	Overview of Project Management	Week 1	3
2	The Logical Framework Approach	Week 2 - 3	6
3	Project Management Process Groups & Project Integration Management	Week 4	3
4	Core Knowledge Areas	Week 5-8	12
5	Midterm Exam	Week 9	3
6	Facilitating Knowledge Areas	Week 10 - 12	9
7	Soft skills for Project Managers and Teams	Week 13	3
8	Case Studies – Application of Project Management to Electrical Engineering and Energy Projects	Week 14 - 15	6
9	Final Exam	Week 16	3
Number of Weeks and Units Per Semester		**16**	**48**

1. Practical Aspect NA

Order	Practical / Tutorials topics	Number of Weeks	Contact Hours	Course ILOs
1				
2				
Number of Weeks /and Contact Hours Per Semester				

2. Training/ Tutorials/ Exercises Aspects: NA

Order	Tutorials/ Exercises	Week Due	Contact Hours
1			
2			
Number of Weeks /and Contact Hours Per Semester			

V. Teaching Strategies:

- Formal lectures
- Interactive discussions
- Group work
    - Presentations

VI. Assessment Methods of the Course:

- Group work
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IX. Tasks and Assignments:

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	Total Score		**20**	**-**

XI. Learning Assessment:

No.	Assessment Tasks	Week due	Mark	Proportion of Final Assessment
1	Assignments	3-14	20	20%
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7	**سياسات أخرى Other policies:** **- أي سياسات أخرى مثل استخدام الموبايل أو مواعيد تسليم التكليفات ..... الخ**

6- Course Specification of: Energy Storage Systems