Sana'a University
Faculty of Engineering
Department Civil Engineering

Master of Science in Engineering Project Management

Program Specifications

June - 2021

Faculty of Engineering, Sana'a University

🖷 01464368, ☎ 01464365, ✉ m.albukhaiti@eng-su.edu.ye, www.eng-su.edu.ye

Sana'a University
Faculty of Engineering
Department: Civil Engineering
Title of the Program:
Master of Science in Engineering Project Management

Program Specification

1. Program Introduction/Description

The Engineering Project Management is a mixed program offering courses and research for a duration of up to three years. The program exposes students to the project management industry standards and prepares them to successfully plan, manage, and execute engineering projects. It also provides students with research insights and the ability to perform research in the field of engineering project management.

2. Program Identification and General Information

Program Title	Master of Science in Engineering Project Management
Awarding Institution	Sana'a University
Department	Department of Civil Engineering
Other Departments with major Teaching Contributions	All Engineering Departments
Language of study	English Language.
Date of Specification Preparation/Revision	May 2021
Mode of Study	Full time
Study System	Courses & Thesis
Main Location of Study	Faculty of Engineering/Sana'a University
Mode of Delivery	Full-time
Study Duration	Minimum: 2 Academic years (Two terms each, full-time) Maximum: 3 Academic years (two terms each - full time)
Award(s) or Final Award	Master of Science (MSc.) in Engineering Project Management
Qualification required to join the program:	BSc. in any Engineering and/or related fields
Minimum grade requirements to enroll in the program	Good 65%
Other admission requirements	Detailed below
Name of the program coordinator	Dr Tarek Barakat
Approval date:	

3. Program Curriculum Committee:

Dr Omar Al-Sakaf **Dr Tarek Barakat**	**Dr Wael alAghbari** **Dr. Mohammad A. Algorafi**

Head of the Department	Quality Assurance Unit Assoc. Prof. Dr. Mohammad Algorafi	Dean of the Faculty Prof. Dr. Mohammed AL-Bukhaiti	Academic Development Center & Quality Assurance Assoc. Prof. Dr. Huda Al-Emad
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4. Vision, Mission & Aims of the University

Vision of the University

Sana'a University aspires to achieve a national leading role in teaching, learning, scientific research and community service; and to be among the best regional universities and the foremost house of expertise and think tank in Yemen.

Mission of the University

To contribute to the sustainable development efforts by providing an accredited higher education environment and excellent research services within a fruitful national partnership based on transparency, professionalism and creativity.

Aims of the University

The University seeks to achieve the following objectives:

- To provide specialized and in-depth academic opportunities for students in different fields of knowledge to meet the country's needs of specialties, technicians and experts, with special focus on the following:

- To boost the level and quality of preparation and qualification tasks.
- To create a general culture aiming at developing the elements of sound Islamic personality and the proper cognitive and scientific training.
- To stabilize the true Islamic vision emanating from the broad horizons of Islamic knowledge and its perception of the universe, man and life.
- To develop innovative and critical scientific thinking skills.
- To provide students with the required knowledge and scientific and applied skills for solving problems effectively and efficiently.

5. Vision, Mission & Aims of the Faculty

Vision of the Faculty

To excel in engineering education & scientific research with distinction at the local and regional levels.

Mission of the Faculty

To provide excellent and accredited engineering education to meet the development needs and match the labor market requirements locally and regionally.

Aims of the Faculty

1. To offer study programs in various fields of knowledge and equip students with required knowledge and scientific and know-how skills to utilize them in resolving problems effectively and efficiently.
2. To develop positive trends towards engineering science and its accelerating developments and enable students to use the techniques and methods of conducting scientific research in

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engineering fields.
3. To develop skills of scientific, innovative and critical thinking as well as the concept of continuous self-education.
4. To strengthen scientific ties with national and international colleges, scientific bodies, and research & development centers.
5. To provide technical and specialized studies and consultations to various state bodies and institutions, both public and semi-public, and utilize them in resolving the environment and society issues to promote sustainable development.
6. To develop a spirit of co-operation, group work, effective leadership, sense of responsibility, and ethical commitment.

6. Mission & Aims of the Department

Mission of the Department

To provide students with good quality Civil Engineering education that prepares them to be qualified and committed professionals who could pursue graduate studies and research and play a leading role in the sustainable development of the country and its integration into the regional economy.

Aims of the Department

1. provide a high-quality educational experience through an appropriate depth over the full range of core engineering subject areas for undergraduate and postgraduate programs,
2. applying the quality assurance standards and targeting the academic accreditation levels (local, regional and international levels).
3. Serving the community and labor market needs through the consultancy, research, laboratory tests and training services.

7. Mission & Aims of the Program

Mission of the Program

To graduate distinguished Master holders in the field of engineering project management through a strong academic program, qualified staff, and suitable research infrastructure that meet local development requirements and regional labor market needs.

Aims of the Program

1. To develop students who understand project management methods and tools, and are able to employ them in the planning and execution of projects.
2. To bridge the gap between the academic and industrial and technological environments.
3. To provide graduates who are able to document and communicate, using oral and written presentations, project plans and results.
4. To provide graduates with up-to-date advanced knowledge and skills needed to plan, manage and execute projects successfully.

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5.	To graduate researchers in engineering project management who can pursue further studies and research contributing to the scientific research community.
6.	To provide graduates able to effectively contribute to the engineering project management profession by applying ethical practices and communication skills, sharing innovative and clear ideas and pursuing further education through lifelong learning.

8. Program Standards & Benchmarks

Program Standards		
• Rules and Regulations of the Ministry of Higher Education and Scientific Research, Yemen.		
• Accreditation Board for Engineering and Technology (ABET)		
Program Benchmarks		
Project management Institute (PMI)		

9. Summary of Similar Programs (Benchmarks) for Engineering Project Management Program

	The Similar Programs (Benchmarks)						Current Program
	1st Program	2nd Program	3rd Program	4th Program	5th Program	6th Program	
Program Title	MSc Engineering Project Management	MSc. Project Management	Master of Engineering Management	MSc. Project Management	MSc Engineering Management	Master of Engineering Project Management	MSc. in Engineering Project management
Faculty	Faculty of Science and Technology	Faculty of Engineering	Faculty of Engineering	-------	Faculty of Engineering	-----	Faculty of Engineering
University	Bournemouth University	Universiti Teknologi Malaysia (UTM)	American University of Beirut (AUB)	University of Wisconsin	University of Sharjah	Vaasan ammattikorkeakoulu, (VAMK) University of Applied Sciences	Sana'a University
Country	UK	Malaysia	Lebanon	USA	UAE	Finland	Yemen

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	The Similar Programs (Benchmarks)						Current Program
	1st Program	2nd Program	3rd Program	4th Program	5th Program	6th Program	
Type of Program	Courses + individual project	Mixed Mode/Coursework	Mixed Mode/Coursework	Online	Mixed Mode/Coursework	Mixed Mode/Course work	Courses and Research
Study methods in the program:	Full and part-time regular	Full and part-time regular	Full time regular	Full and part-time online	Full time	Full time and part time regular and online	Full-time
Number of semesters	Full time 12-24 months Part-time 24-36 months	Full time 3 semesters Part-time 4-8 semesters	Full time 4 semesters	Full time 4 semesters Part time 5-10	Full and part time 4 semesters	Full time and part time 4 semesters	4
Total Credit Hours (without Thesis)	180 (90 ECTS) equivalents to 27 credit hours Including equivalent 9 credits individual project	36credit hours	30 credits	36 credit hours	33 credit hours	60 credit hours	30
No. of Compulsory Courses	6	6	4	5	4	6	8
Credit Hours for	120 (equival	18 credit hours	12 credit hours	15 credit hours	12 credit hours	30 credit hours	30

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	The Similar Programs (Benchmarks)						Current Program
	1st Program	2nd Program	3rd Program	4th Program	5th Program	6th Program	
Compulsory Courses	ent 18 credit hours)						
No. of Elective Courses	None	6	4	5	2	----	0
Credit Hours for Elective Courses	0	18 credit hours	12 hours	15 credit hours	6 credit hours	---	0
Complementary courses to join the program and their number	None	None	None	None	None	None	-
Credit Hours for Thesis	0	10	6	6	15	30	6
Total Credit Hours for courses & Thesis	180 (equivalent 27 credit hours)	46 credit hours	30 credit hours	36 credit hours	33 credit hours	60 credit hours	36
The period for thesis completion	N/A	1-6 semesters (each semester is 14 weeks)	1 year	1 year	1 year	1 year	2 Semesters
The min. period to complete the program	12 months	12 months	2 years	3 semesters	------	1 year	2 Years (Min. years for courses: 1)
The max. period to complete the program	36 months	48 months	-----	5 years	------	2 years	1+2 Years (Max. years for courses 1)

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10. Program Intended Learning Outcomes (PILOs)

A. Knowledge and Understanding

Upon successful completion of the Master of Science in Engineering Project Management Program, graduates should be able to:

A1.	Describe the various project management knowledge areas.
A2.	Demonstrate knowledge and understanding of planning, analysis, supervision and monitoring and control of works related to the engineering disciplines.
A3.	Demonstrate knowledge and understanding of methodology, research planning, and analysis techniques.
A4.	Demonstrate knowledge and understanding of skills and techniques of engineering and management to execute contemporary projects and operations effectively and efficiently

B. Intellectual Skills

Upon successful completion of the Master of Science in Engineering Project Management Program, graduates should be able to:

B1.	Identify, analyze, formulate, and solve engineering management problems that involve constrained resources considering factors such as socio-economic, environmental, health and safety.
B2.	Critically evaluate decision making techniques to aid management judgement;
B3.	Analyze and think critically with respect to the planning of engineering design and project development;
B4.	Formulate hypotheses, design and perform experiments/research scientifically to solve and explain phenomena.

C. Practical and Professional Skills

Upon successful completion of the Master of Science in Engineering Project Management Program, graduates should be able to:

C1.	Apply expertly several different techniques used in the management and control of projects.
C2.	Collect, interpret, and use data effectively to make decisions and assess their associated impacts including socio-economic, environmental, health and safety.
C3.	Initiate, plan, execute, and close out a project utilizing project management concepts.
C4.	Develop, conduct, defend and disseminate academic research or a research project in one of the engineering management areas.

D. Key Transferrable Skills

Upon successful completion of the Master of Science in Engineering Project Management Program, graduates should be able to:

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D1.	Prepare complete theses and reports, present the ideas clearly and defend them.
D2.	Balance professional and ethical responsibilities including contemporary issues and health, safety, and environmental awareness.
D3.	Conduct independently and communicate research that advances and extends knowledge and scholarship in related fields.

1. Teaching Strategy to Achieve Program Learning Outcomes

ILOs	Teaching Strategy	Assessment Methods
A1	Lectures, Seminars, Self-Learning., independent study, active learning, computer hands-on sessions.	Field work, projects, survey, Written Exam, Assignments
A2	Lectures, Seminars, Self-Learning., independent study, active learning, computer hands-on sessions.	Field work, projects, survey, Written Exam, Assignments
A3	Lectures, Seminars, Self-Learning., independent study, active learning, computer hands-on sessions.	Field work, projects, survey, Written Exam, Assignments
A4	Lectures, Seminars, Self-Learning., independent study, active learning, computer hands-on sessions.	Field work, projects, survey, Written Exam, Assignments
B1	Project supervision, Self-Learning, simulation exercises, independent study, Analysis and Problem Solving, Lectures, Brain storming, case studies, discussion. Presentations, Presenting research	Field work, projects, survey, Written Exam, Assignments
B2	Project supervision, Self-Learning, simulation exercises, independent study, Analysis and Problem Solving, Lectures, Brain storming, case studies, discussion. Presentations, Presenting research	Field work, projects, survey, Written Exam, Assignments
B3	Project supervision, Self-Learning, simulation exercises, independent study, Analysis and Problem Solving, Lectures, Brain storming, case studies, discussion. Presentations, Presenting research	Field work, projects, survey, Written Exam, Assignments
B4	Project supervision, Self-Learning, simulation exercises, independent study, Analysis and Problem Solving, Lectures, Brain storming, case studies, discussion. Presentations, Presenting research	Field work, projects, survey, Written Exam, Assignments
C1	Project supervision, lectures, independent study, case studies, analysis and problem solving	Field work, reports, written research proposal, thesis and publication.

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ILOs	Teaching Strategy	Assessment Methods
C2	Project supervision, lectures, independent study, case studies, analysis and problem solving	Field work, reports, written research proposal, thesis and publication.
C3	Project supervision, lectures, independent study, case studies, analysis and problem solving	Field work, reports, written research proposal, thesis and publication.
C4	Project supervision, lectures, independent study, case studies, analysis and problem solving	Field work, reports, written research proposal, thesis and publication.
D1	Dissertation and presentation, independent study, presenting reports, brainstorming, presenting research, publish research papers.	Written research proposal, thesis and publication, written exam, individual and team assignments, field work, report, survey, presentation, written report.
D2	Dissertation and presentation, independent study, presenting reports, brainstorming, presenting research, publish research papers.	Written research proposal, thesis and publication, written exam, individual and team assignments, field work, report, survey, presentation, written report.
D3	Dissertation and presentation, independent study, presenting reports, brainstorming, presenting research, publish research papers.	Written research proposal, thesis and publication, written exam, individual and team assignments, field work, report, survey, presentation, written report.

Teaching Strategy	Description of the Main Strategy Used
Lectures.	The weekly interactive lectures are to be conducted according to course plan in a classroom and supported with a variety of teaching formats including: lectures and multimedia presentations, use of whiteboard and solved examples, and class discussions in which concepts, approaches, and case studies are presented, explored, and debated between students.
Independent study	Independent study is an individualized learning experience that allows students to select a topic focus, define problems or questions, gather and analyze information, apply skills, and create a product to show what has been learned.
Self-Learning.	Students are encouraged to undertake independent study to both supplement and consolidate what is being taught.
Active learning	Students are to be involved in teamwork with their peers to discuss and solve case studies. Students are to be involved in ongoing projects to get practical hands-on experience.

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Computer hands-on sessions.	Practical hands-on computer applications using a variety of software that assist as tools for project management (planning and estimating software). Students are to be active in a variety of web-based searches to learn how they can search for information and solutions using the Web.
Simulation exercises	Students are to be exposed to a variety of case studies to simulate projects and outcomes within a certain set of circumstances.
Analysis and Problem Solving.	The study of engineering project management involves applying knowledge and problem-based learning. This allows students to become more active in their learning as they work out what information they need to find out, how to critically analyze the information and how to solve problems. They can work out a problem individually or collaboratively and practice research to come up with a valid solution.
Laboratory works.	N/A
Presentations/ Presenting researches	Students are to present their work to the whole group for discussion, criticism, and suggestions for improvement. Presentation sessions provide an opportunity to address questions, queries, and problems.
Project supervision	The students will be assigned to projects to get practical hands-on experience which they will present their work to the whole group, for discussion, criticism, and suggestions for improvement. Project sessions provide an opportunity to address questions, discuss alternatives and develop solutions to problems.
Brain storming	Brainstorming is an effective technique for generating lists of ideas and creating interest and enthusiasm for new concepts or topics. Brainstorming provides teachers and students with an overview of what students know and/or think about a specific topic. Students can use brainstorming to organize their knowledge and ideas.
Dissertation	Students are encouraged to discuss their thesis plans with their supervisor(s). The supervisor(s) are to provide their students step by step guidance to complete their thesis and defend it. Throughout the student coursework critical thinking and analysis shall be engrained within the classroom environment to assist students during their thesis preparation.
Publish research	Students are to be encouraged to publish their works in conferences and reviewed journals. Professors are to assist the students by encouraging critical thinking and

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	analysis and toning their writing skills.
Seminar	Professors need to set advance work for a group of students and have them present their work to the whole group for discussion, criticism, and suggestions for improvement. Seminar sessions provide an opportunity to address questions, queries, and problems.
Research activities	Research-led activities envisage activities in which students learn about current research in the discipline and are frequently an audience. The emphasis is put on the research content.

Assessment Strategy	Description of the main strategy used.
Written Exam	The mid-term exam is conducted in the 8th week and the final exam is conducted at the end of each course. Both tests are closed or open book, notes and resources. At least two quizzes must be given during the duration of the course.
Oral Discussion	To know the knowledge of the students.
Presentations	For Final Results displaying, to enhance the level of students in different subjects.
Quizzes	The entire assessment of Quizzes activities during the teaching period of each course.
Laboratory Reports	To demonstrate the personal skills, practical expertise, communication skills, report writing skills, and team work expertise they are expected to be learned and gained through their education.
Experimental and field work	For evaluation, to demonstrate the personal skills, practical expertise, communication skills, report writing skills, and team work expertise they are expected to be learned and gained through their education.
Survey	Students will be provided the opportunity to develop, perform and analyze surveys to be evaluated by the professor.
Assignments	The entire assessment of coursework activities during the teaching period of each course (which includes group and individual work, tests and presentations, etc.)
Seminar	The teacher needs to set advance work for a selected number of students, and then have the selected students present their work to the whole group, for discussion, criticism, and suggestions for improvement. Seminar sessions provide an

	opportunity to address questions, queries, and problems.
Written report/research	Students will be required to provide written reports on various topics as well as on field visits to projects/sub-research, these are to be evaluated in terms of content and writing methods.
Written research proposal	The research proposal for students will be required before starting performing of research. This will be evaluated by the supervisor and evaluation committee from the department.
Thesis and publications	Students are required to perform research towards their thesis and publications are required during their research. The publications and thesis will be evaluated in accordance with the faculty standards.

12. Intended Learning Outcomes Mapping:

See Annex 10

13. Program Structure

Program Requirement	No. of Courses	Credit Hours	%
Complementary Courses	See List below.		
Faculty Requirement	1	3	8%
Compulsory Courses	7	27	75%
Elective Courses	0	0	0%
Thesis	-	6	17%
Total		36	100%

Complementary Courses (00 hrs)						
No	**Course Code**	**Course Title**	**L**	**T**	**P**	**Cr. Hrs.**
1	N/A					
2						
Total						**00**

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Compulsory Courses (7 Courses, 21 CH)						
No	**Course Code**	**Course Title**	**L**	**T**	**P**	**Cr. Hrs.**
1	**FR501**	Research Methodology	3			3
2	**CE590**	Advanced Project Management 1 (Integration, Scope, Time, Cost Management)	4			4
3	**CE591**	Advanced Project Management 2 (Quality, Resource, Communications Management)	4			4
4	**CE592**	Advanced Project Management 3 (Risk, Procurement, Stakeholders Management)	4			4
5	**CE593**	Project Monitoring and Controlling	4			4
6	**CE594**	Health, Safety and Environment HSE Management	4			4
7	**CE595**	Soft Skills for the Project Manager	3			3
8	**CE596**	Pre-Project Planning and Feasibility Analysis	4			4
Total			**30**			**30**

Elective Courses (3 Courses, 9 CH)						
No	**Course Code**	**Course Title**	**L**	**T**	**P**	**Cr. Hrs.**
1	N/A					
2						
Total						**00**

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Thesis
The student must prepare and discuss a Thesis by (6) credit hours. THESIS599 MS Thesis
Thesis and Its Requirements (if any)

1. Registration of the thesis:

(Requirements/conditions and procedures for registration of the thesis as well as controls, responsibilities and procedures of scientific guidance)

- Completion of all required Compulsory & Elective Courses with average grade more than or equal to 75% .
- Completion of all university requirements.
- Field of Research and precise research topic with short Description and suggested time plan.
- First Department Seminar.
- Decision letter (Supervisors) of acceptance of the research topic.
- Thesis work should be done in at least 2-semesters.
- Thesis work should be done in at most 4-semesters.
- Any further requirements and controls based on post-graduate deanship regulations.

2. Scientific Supervision:

(The regulations of the selection of the scientific supervisor and his/her responsibilities, as well as the procedures/ mechanisms of the scientific supervision and follow-up)

- At most 2-supervisors are selected for the supervision of a thesis.
-At least 1-Associate (or Full) Professor is appointed as supervisor either from the department or from another department outside the faculty.

-Any Assistant Professor appointed as supervisor should have at least 4-year experience in the field of research and have published at least one paper.
Candidates may apply for one-year extension (full-time) for completion of the thesis to the Postgraduate Program Administration at the Faculty of Engineering, which will be granted if the candidate provides a valid reason for extension.

The supervisor responsibilities are - :
-Help and assist the candidate/researcher in preparing the research plan.
-Guide the candidate to adhere to certain standards of academic integrity and research ethics, including combating plagiarism.
-Monthly, follow up and meeting with the researcher (at least one meeting per month)- , Guide the researcher at every step to be done during thesis work,
-Write follow-up (progress report) after each meeting
-Write a follow-up (evaluation report) every semesters.
-The supervisor shall submit copies of these reports to the Postgraduate-Program coordinator, the

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Head of the Department and the Head of the Faculty Post-graduate.
-Write the final thesis acceptance report in order to prepare the final department seminar and then initiating the preparation for thesis presentation, defense and approve.

The candidate/student responsibilities are - :
-Student present his/her accomplishment at the end of every semesters;
-plan and actively pursue the research;
-identify and deal with any research-related problems;
-comply with administrative requirement;
-meet ethical guidelines;
-take responsibility for the final form of the thesis
-A thesis or research portfolio is the outcome of independent research, or creative activity conducted under supervision.
-The length of a 6 credit hours thesis or research portfolio will be appropriate to the discipline and must not exceed 30,000 words, including bibliography, footnotes or endnotes and essential appendices, unless specific permission has been granted by the Department.

3.Thesis Defense/Examination:

(The regulations for selection of the defense/examination committee and the requirements to proceed for thesis defense, the procedures for defense and approval of the thesis, and criteria for evaluation of the thesis)

-A thesis proceeds for defense following completion of:
-At least one research paper is accepted in a journal in the field of research.
-Final acceptance letters provided by the supervisor(s) and the department final seminar committee (at least 3-department members)،
-The examination committee should consist of - :
-One -Associate (or Full) Professor specialized in the field of research from an external university ,
-One -Associate (or Full) Professor from the department of electrical engineering in addition to the supervisor of the thesis.
-A session for presentation, defense and approval of the thesis should be done based on the following- :
-At least two members of the examination committee accept their assignment and reply by acceptance letter and approve the thesis for defense within one month.
-The session of defense should be declared within two weeks after receiving of examination committee members' approval letters.

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14. System of Study

Type of program	Courses and Research
Study methods in the program:	Regular
The period to complete the program	Min. 2 Years (4 Terms) Max. 3 Years (6 Terms)
Total Credit Hours for courses & Research	36

15. Study Plan

FR stands for Faculty Requirements.
CE5XX stands for Civil Department Requirements.

First Semester

No.	Course Code	Course Name	اسم المقرر	Credit Hours				Prerequisites
				Lec.	Pr.	Tut.	Total C.H.	
1	CE590	Advanced Project Management 1 (Integration, Scope, Time, Cost Management)		4			4	
2	CE591	Advanced Project Management 2 (Quality, Resource, Communications Management)		4			4	
3	CE594	Health, Safety and Environment HSE Management		4			4	
4	CE595	Soft Skills for the Project Manager		3			3	
5								
		Total Credit Hours		**15**			**15**	

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Second Semester								
No.	Course Code	Course Name	اسم المقرر	Credit Hours				Prerequisites
				Lec.	Pr.	Tut.	Total C.H.	
1	FR501	Research Methodology		3			3	
2	CE592	Advanced Project Management 3 (Risk, Procurement, Stakeholders Management)		4			4	
3	CE593	Project Monitoring and Controlling		4			4	CE590
4	CE596	Pre-Project Planning and Feasibility Analysis		4			4	CE590
5								
		Total Credit Hours		15			15	

Elective Courses								
No.	Course Code	Course Name	اسم المقرر	Credit Hours				Prerequisites
				Lec.	Pr.	Tut.	Total C.H.	
1	N/A							

Course Code	Course Name	Cr. Hrs.
THESIS599	Research	6

6. Admission Requirements:

1. Bachelor of any Engineering and/or related fields, discipline with not less than 65 % grade point average, or equivalent (grade is good).
2. Interview
3. TOEFL / IBT: 60 or equivalent
4. ICDL (Computer Skills): to satisfy university requirements.
5. Arabic Language: to satisfy university requirements.
6. Student number capacity of 20 students per year
7. Transfer Requirements and Courses Equivalency
8. Annex -13: shows the Admission Requirements for the Program.

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17. Graduation Requirements:

Student attendance should not be less than 75%.

Student will graduate after successfully passing the 30 credit hours courses and 6 credit hours Research.

Student must achieve a minimum average score for all courses is 75% degree

Minimum score for any student to pass any credit hours course is 65% degree.

Grading System:
From 90% to 100% of total marks Excellent
From 80% to less than 90% Very Good
From 75% to less than 80% Good
From 65% to less than 75% Pass
Less than 65% Poor/Fail

18. Learning Resources, Facilities, and Equipment for Running the Program

Learning Resources.
Policies and Procedure for providing and quality assurance of learning resources textbooks, references and other resource materials, including electronic and web-based resources, Journal Database, etc.

- textbooks, reference

electronic library- university database which allows access to most of the international publishing houses

Facilities and Equipment
Policies and Procedure for providing and quality assurance of Facilities and Equipment (Library, laboratories (Structure, material Labs), medical facilities, classrooms, etc.).

:List of laboratories
Computer Laboratory

Project management software

19. Teaching staff:

	Professor	Associate Professor	Assistant Professor	Technicians Assistants
Required Number	1	1	3	N/A
Available Number	1	1	1	N/A
Note:				

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Program Specification

20. Program Management and Regulations

1. Program Management

1.1 Program Structure

(Including boards, councils, units, committees, etc.)

Civil Engineering Department Board
Postgraduate Studies Administration
Vice Dean for Postgraduate Studies
Faculty of Engineering Board
Vice Presidency of the University for Postgraduate Studies

1.2 Stakeholders' Involvement

Describe the representation and involvement of stakeholders in the program planning and development. (Students, professional bodies, scientific societies, alumni, employers, etc.)

The stakeholders were involved in designing the program, including universities, research centers, the public and private sectors, through their participation in a workshop as well as in responding to and submitting a questionnaire.

2. Program Regulations

Provide a list of related program regulations, including their link to online version: admission, study and exams, recruitment, appeals and complaint regulations, etc.)

Decision of the Presidency of the Council of Ministers No. 40 of 2008
Decision of the Presidency of the Council of Ministers No. 141 of 2008
Graduate Studies Guide to Sana'a University

21. Evaluation of Program Quality Matrix:

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time

Note:
Evaluation Areas/Aspects (e.g., leadership, effectiveness of teaching & assessment, learning resources, partnerships, etc.)
Evaluation Sources (students, graduates, alumni, faculty, program leaders, administrative staff, employers, independent reviewers, and others (specify)
Evaluation Methods (e.g., Surveys, interviews, visits, etc.)
Evaluation Time (e.g., beginning of semesters, end of academic year, etc.)

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22. List of Annexes

Annex (1)	Academic Standards Curriculum Criteria of the Project Management Institute (PMI) for engineering project management programs.
Annex (2)	Survey of names of similar Accredited Programs at International Universities (Benchmarks) for Engineering Project Management Programs.
Annex (3)	Survey of Intended Learning Outcomes for similar Accredited Engineering Project Management Programs at International Universities.
Annex (4)	Summary of similar Programs (Benchmarks) for Master of Science in engineering project management program.
Annex (5)	Survey of course names of similar programs.
Annex (6)	Survey/Mapping of vision, mission and objectives of similar accredited programs at International Universities (Benchmarks) for Masters of Science in engineering project management programs.
Annex (7)	Mapping of the mission and objectives of the program with the vision, mission and objectives of faculty, and the university.
Annex (8)	Main Themes/Sub-Themes with Relative weight for Program (if needed)
Annex (9)	PILOs Distribution to General Themes for Program (if needed)
Annex (10)	Matrix of mapping program PILO's with courses
Annex (11)	Mapping the benchmarks with PILO's (if needed)
Annex (12)	Mapping Program's Goals with Intended Learning Outcomes
Annex -13	The Admission Requirements for the Program.

23. Attachment of Courses specification and Syllabi of the Program

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ملحق (1) المعايير الأكاديمية للمحتوى لهيئة الاعتماد المقترحة لبرنامج ماجستير إدارة مشاريع هندسية

(Annex-1): Academic Standards Curriculum Criteria of Accreditation Board for Master of Science in Engineering Project Management program

UK Quality Code for Higher Education: https://www.bournemouth.ac.uk/search/msc%20engineering%20project%20management?type=course

MQA: https://admission.utm.my/postgraduate-school-of-civil-engineering/

Project Management Institute's Global Accreditation Center: https://www.uwplatt.edu/program/project-management-online

Finnish national degree system: https://www.vamk.fi/apply/degree_programmes/project_management/

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ملحق (2) مسح أسماء البرامج المعتمدة المماثلة لبرنامج ماجستير ادارة مشاريع هندسية

Annex (2) Survey of names Similar Accredited Programs at International Universities (Benchmarks) for Master of Science in Engineering Project Management Program

#	The Academic Program اسم البرنامج المماثل	The University الجامعة	The Faculty الكليّة	The Department القسم	The Country الدولة	Program Accrediting Body جهة اعتماد البرنامج	Degree Award at Program Completion الدرجة التي يمنحها البرنامج للخريج	Year of accreditation سنة الحصول على الاعتماد	Type of program
The 1st Program البرنامج الاول	MSc. Engineering Project Management	Bournemouth University	Faculty of Science and Technology	Department of Design and Engineering	UK	AACSB The Association to Advance Collegiate School of Business	MSc Engineering Project Management	------	Courses + individual project
The 2nd Program البرنامج الثاني	MSc. Project Management	University Teknologi Malaysia (UTM)	Faculty of Engineering	Department of Civil Engineering	Malaysia	MQA	MSc. Project Management	——	Mixed Mode/Coursework
The 3rd Program	Master of Engineering Management	American University of Beirut	Faculty of Engineering and	Department of Industrial Engineering	Lebanon	-------	Master of Engineering Management	——	

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#	The Academic Program اسم البرنامج المماثل	The University الجامعة	The Faculty الكليّة	The Department القسم	The Country الدولة	Program Accrediting Body جهة اعتماد البرنامج	Degree Award at Program Completion التي الدرجة يمنحها البرنامج للخريج	Year of accreditation سنة الحصول على الاعتماد	Type of program
البرنامج الثالث			Architectural	and Management					
The 4th Program البرنامج الرابع	Master of Science in Project Management	University of Wisconsin - Platteville	Faculty of Project Management	N/A	USA	Project Management Institute's Global Accreditation Center	MSc in Project Management	------	Online
The 5th Program البرنامج الخامس	Master of Science in Engineering Management (MEM)	University of Sharjah	Faculty of Engineering	N/A	UAE	-------	MSc in Engineering Management	-------	Mixed Mode/Coursework
The 6th Program	Master of Engineering	Vaasan ammattikorkeakoulu, (VAMK) University	-----	N/A	Finland	Finnish national degree system	Master of Engineering Project	------	Mixed Mode/Coursework

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#	The Academic Program اسم البرنامج المماثل	The University الجامعة	The Faculty الكليّة	The Department القسم	The Country الدولة	Program Accrediting Body جهة اعتماد البرنامج	Degree Award at Program Completion التي الدرجة يمنحها البرنامج للخريج	Year of accreditation سنة الحصول على الاعتماد	Type of program
البرنامج السادس		of Applied Sciences					Management		

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ملحق (3) مسح مخرجات التعلم في البرامج المماثلة لبرنامج ماجستير ادارة مشاريع هندسية

Annex-3, Survey of Intended Learning Outcomes for Similar Accredited for Master of Science in Engineering Project Management Program at International Universities

Program Intended Outcomes	Suggested PILOs for the Current Program: Engineering Project Management Program at Sana'a University		1st Program	2nd Program	3rd Program	4th Program	5th Program	6th Program
A. Knowledge and Understanding	**Upon successful completion of a Master of Science in Engineering Project Management Program, graduates should be able to:**							
	A1.	Describe the various project management knowledge areas.		X	X	X	X	
	A2.	Demonstrate knowledge and understanding of planning, analysis, supervision and monitoring and control of works related to the engineering disciplines.	X	X	X		X	

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Program Intended Outcomes	Suggested PILOs for the Current Program: Engineering Project Management Program at Sana'a University		1st Program	2nd Program	3rd Program	4th Program	5th Program	6th Program
	A3.	Demonstrate knowledge and understanding of methodology, research planning, and analysis techniques.	X					
	A4.	Demonstrate knowledge and understanding of skills and techniques of engineering and management to execute contemporary projects and operations effectively and efficiently	X	X	X			X
B. Cognitive/ Intellectual Skills	**Upon successful completion of a Master of Science in Engineering Project Management program, graduates should be able to:**							
	B1.	Identify, analyze, formulate, and solve engineering problems that involve constrained resources considering factors	X	X			X	X

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Program Intended Outcomes	Suggested PILOs for the Current Program: Engineering Project Management Program at Sana'a University		1st Program	2nd Program	3rd Program	4th Program	5th Program	6th Program
		such as socio-economic, environmental, health and safety.						
	B2.	Critically evaluate decision making techniques to aid management judgement;	**X**					
	B3.	Engage in analytical and critical thinking with respect to the planning of engineering design and development projects;			**X**			
	B4	Formulate hypothesis, design and perform experiments/research scientifically to solve and explain observed phenomena.	**X**	**X**			**X**	

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Program Intended Outcomes	Suggested PILOs for the Current Program: Engineering Project Management Program at Sana'a University		1st Program	2nd Program	3rd Program	4th Program	5th Program	6th Program
C. Practical and Professional Skills	**Upon successful completion of a Master of Science in Engineering Project Management program, graduates should be able to:**							
	C1.	Apply expertly several different techniques used in the management and control of projects.	**X**		**X**	**X**	**X**	**X**
	C2.	Collect, interpret, and use data effectively to make decisions and assess their associated impacts including socio-economic, environmental, health and safety.					**X**	
	C3.	Initiate, plan, execute, and close out a project utilizing project management			**X**	**X**		

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Program Intended Outcomes	Suggested PILOs for the Current Program: Engineering Project Management Program at Sana'a University		1st Program	2nd Program	3rd Program	4th Program	5th Program	6th Program
		concepts.						
	C4.	Develop, conduct, defend and disseminate academic research or a research project in one of the engineering management areas.		**X**	**X**			
D. General and Transferable Skills	**Upon successful completion of a Master of Science in Engineering Project Management program, graduates should be able to:**							
	D1.	Prepare a complete thesis and reports, present the ideas clearly and defend them.		**X**	**X**			
	D2.	Balance professional and ethical responsibilities including contemporary issues and environmental awareness.		**X**		**X**		

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Program Intended Outcomes	Suggested PILOs for the Current Program: Engineering Project Management Program at Sana'a University		1st Program	2nd Program	3rd Program	4th Program	5th Program	6th Program
	D3.	Conduct independently and communicate research that advances and extends knowledge and scholarship in related fields.	X	X	X		X	

Intended Outcomes for Similar Programs

Program 1: Bournemouth University - MSc in Engineering Project Management

A: Subject knowledge and understanding

This program provides opportunities for students to develop and demonstrate knowledge and understanding of*:*

A1 the reasons for, and benefits and disadvantages of, Knowledge Transfer;
A2 the global context and in particular low-cost manufacturing issues and import / export opportunities;
A3 modern computer tools for product design, evaluation and manufacture, and of their place and role in the various stages of product development;
A4 the implications of design management decisions**;**
A5 methodology, research planning, and experiment design and analysis techniques;
A6 selection and application of different techniques used in the management and control of projects, with special emphasis on project management;

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A7 life cycle assessment and influencing sustainable development within the design process.

B: Intellectual skills
This program provides opportunities for students to:
B1 to identify and fully analyses the stages in the product development and life cycle, in terms of time and resources;
B2 gain critical understanding of IPR mechanisms and have the ability to critically evaluate innovation drivers;
B3 critically evaluate decision making techniques to aid management judgement;
B4 identify appropriate sources of information and evaluate them critically in terms of reliability and relevance to a particular topic;
B5 engage in analytical and critical thinking with respect to the planning of engineering design and development projects;
B6 quantify the environmental impact of a product/system through Life Cycle Analysis techniques;
B7 deal with complex issues both systematically and creatively, make sound judgements in the absence of complete data.

C: Practical skills
This program provides opportunities for students to:
C1 apply expertly a number of different techniques used in the management and control of projects;
C2 be able to apply typical product/service lifecycle scenarios to a project at the initial concept stage.

D: Transferable skills
This program provides opportunities for students to:
D1 demonstrate problem solving skills and the application of knowledge across the discipline areas;
D2 gather, select, and analyses a range of experimental and fieldwork data and present professionally using appropriate media;
D3 distil, synthesis and critically analyses alternative approaches and methodologies to problems and research results reported in literature and elsewhere;
D4 demonstrate initiative, self-direction and exercise personal responsibility for management of own learning;
D5 work autonomously and become reflective learners;

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D6 communicate effectively and confidently to appropriate professional and academic standards.

Program 2: University Teknologi Malaysia (UTM) - MSc in Project Management

(a)Technical Knowledge and Competencies

PLO1 Advanced Knowledge Graduates are able to incorporate in-depth relevant knowledge in professional practices for the benefits of both national and international communities. Graduates are able to apply their knowledge and skills in the planning, analysis, design and supervision of works related to the Engineering Project Management discipline.

PLO2 Research Skills Graduates are able to formulate hypothesis, design and perform experiments/research scientifically to solve and explain observed phenomena.

PLO3 Critical Thinking & Problem-Solving Graduates are able to manage conducive working environment qualities problem solving and higher order thinking skills. Graduate are technically competent in solving problems logically, analytically and creatively based on sound facts and ideas.

(b) Generic Skills

PLO4 Ethics, Values and Professionalism Graduates are able to balance professional and ethical responsibilities including contemporary issues and environmental awareness.

PLO5 Communication Graduates are able to apply a wide range of relevant knowledge through effective oral and written communication. Graduate are able to communicate effectively across a range of contexts and audiences.

PLO6 Lifelong Learning Graduates are able to adopt the latest relevant knowledge and cutting-edge technologies through life-long learning process.

Program 3: American University of Beirut (AUB) – Master of Engineering Management

Upon graduation, MEM graduates will be able to:

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- Describe the general theories, methods, and tools for managing (a) resources, (b) finance, (c) risk, and (d) information for enhanced decision-making in engineering and business environments.
- Apply analytical (mathematical, statistical, and computer-based) tools to optimize the performance of socio-technical systems, such as infrastructure, logistics, manufacturing, construction, financial, and healthcare systems.
- Develop scientific managerial skills in fields that promote innovation, such as management of technology, entrepreneurship, financial engineering, and complex project management.
- Design tools for complex systems using empirical approaches that optimize user cognitive and physical wellbeing.
- Develop skills that foster interdisciplinary collaboration, teamwork, and leadership, especially in different project and industrial settings.
- Develop effective verbal and written communication skills.
- Exhibit self-directed learning and critical-thinking skills.
- Develop and defend a thesis topic or a research project in one of the engineering management areas.

Program 4: University of Wisconsin - MSc in Project Management

Graduates will:

1. Describe and apply the various project management knowledge areas and process groups identified in *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)*;
2. Demonstrate effective electronic, verbal, and written communication skills;
3. Apply interpersonal skills in the project environment;
4. Analyze the benefits of and develop appropriate strategies for diversity in the project environment;

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5. Apply ethical business principles in the project environment;
6. Initiate, plan, execute, and close out a project utilizing project management concepts.

Program 5: University of Sharjah - MSc in Engineering Management

The learning outcomes for the three options of the MEM program are as follows:

- Apply knowledge, skills and techniques of engineering and management to execute contemporary projects and operations effectively and efficiently
- Understand the concepts and application of good management practices to foster innovation and sustain global competitiveness
- Identify, analyze, formulate, and solve engineering problems that involve constrained resources taking into account factors such as socio-economic, environmental, health and safety
- Collect, interpret, and use data effectively to make decisions and assess their associated impacts including socio-economic, environmental, health and safety
- Demonstrate leadership and effectively communicate skills
- The following is an additional learning outcome for students completing the MEM with Thesis and Courses (Option 3)
- An ability to conduct and disseminate academic research

Program 6: American University of Beirut (AUB) – Master of Engineering Management

After completing the courses, you have the skills to:

- develop and apply appropriate project management methodologies to suit different projects in local and international contexts

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• communicate across culturally diverse projects

• develop the ability to take a leadership role in project, program and portfolio management

• form, select and apply creative problem-solving skills to all stages of the project life cycle

• develop critical thinking and research skills to a range of project and program management contexts%

%

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ملحق (4) مسح ملخص البرامج المماثلة لبرنامج ماجستير ادارة مشاريع هندسية

Annex-4,Summary of Similar Programs (Benchmarks) for Master of Science in Engineering Project Management Program

Summary of Similar Programs (Benchmarks) for Engineering Project Management Program							
	The Similar Programs (Benchmarks)						Current program
	The 1st Program	The 2nd Program	The 3rd Program	The 4th Program	The 5th Program	The 6th Program	
The Program Tittle	MSc Engineering Project Management	MSc. Project Management	Master of Engineering Management	MSc. Project Management	MSc Engineering Management	Master of Engineering Project Management	MSc. in Engineering Project management
The Faculty	Faculty of Science and Technology	Faculty of Engineering	Faculty of Engineering	-------	Faculty of Engineering	-----	Faculty of Engineering
The University	Bournemouth University	University Teknologi Malaysia (UTM)	American University of Beirut (AUB)	University of Wisconsin	University of Sharjah	Vaasan ammattikorkeakoulu, (VAMK) University of Applied Sciences	**Sana'a University**
The Country	UK	Malaysia	Lebanon	USA	UAE	Finland	**Yemen**

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Summary of Similar Programs (Benchmarks) for Engineering Project Management Program							
	The Similar Programs (Benchmarks)						Current program
	The 1st Program	The 2nd Program	The 3rd Program	The 4th Program	The 5th Program	The 6th Program	
Type of program	Courses + individual project	Mixed Mode/Coursework	Mixed Mode/Coursework	Online	Mixed Mode/Coursework	Mixed Mode/Coursework	**Courses and Research**
Study methods in the program:	Full and part-time regular	Full and part-time regular	Full time regular	Full and part-time online	Full time	Full time and part time regular and online	**Full-time**
Number of semesters	Full time 12-24 months Part-time 24-36 months	Full time 3 semesters Part-time 4-8 semesters	Full time 4 semesters	Full time 4 semesters Part time 5-10	Full and part time 4 semesters	Full time and part time 4 semesters	**4**
Total Credit Hours (without	120 (90 ECTS) equivalents to	36credit hours	24 credits	30 credit hours	18 credit hours	30 credit hours	**30**

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Summary of Similar Programs (Benchmarks) for Engineering Project Management Program							
	The Similar Programs (Benchmarks)						Current program
	The 1st Program	The 2nd Program	The 3rd Program	The 4th Program	The 5th Program	The 6th Program	
Thesis)	27 credit hours Including equivalent 9 credits individual project						
Credit Hours for compulsory courses	120 (equivalent 18 credit hours)	18 credit hours	12 credit hours	15 credit hours	12 credit hours	30 credit hours	**8**
Credit Hours for Electives courses	Full and part-time regular	Full and part-time regular	Full time regular	Full and part-time online	Full time	Full time and part time regular and online	**30**

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Summary of Similar Programs (Benchmarks) for Engineering Project Management Program							
	The Similar Programs (Benchmarks)						Current program
	The 1st Program	The 2nd Program	The 3rd Program	The 4th Program	The 5th Program	The 6th Program	
No. of Courses for Electives courses	0	18 credit hours	12 hours	15 credit hours	6 credit hours	---	**0**
No. of Courses for compulsory courses	6	6	4	5	4	6	**0**
Complementary courses to join the program and their number	None	None	None	None	None	None	-
Credit Hours for Thesis	0	10	6	6	15	30	**6**
Total Credit Hours for courses	180 (equivalent 27	46 credit hours	30 credit hours	36 credit hours	33 credit hours	60 credit hours	**36**

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Summary of Similar Programs (Benchmarks) for Engineering Project Management Program							
	The Similar Programs (Benchmarks)						Current program
	The 1st Program	The 2nd Program	The 3rd Program	The 4th Program	The 5th Program	The 6th Program	
& Thesis	credit hours)						
The period for thesis completion	N/A	1-6 semesters (each semester is 14 weeks)	1 year	1 year	1 year	1 year	**2 Semesters**
The min. period to complete the program	12 months	12 months	2 years	3 semesters	------	1 year	**2 Years (Min. years for courses: 1)**
The max. period to complete the program	36 months	48 months	-----	5 years	------	2 years	**1+2 Years (Max. years for courses 1)**

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ملحق (5) مسح أسماء المقررات الدراسية في البرامج المماثلة لبرنامج ماجستير ادارة مشاريع هندسية

Annex-5, Survey of Course Names of Similar Engineering Project Management Program

University	Bournemouth University	University Teknologi Malaysia (UTM)	American University of Beirut (AUB)	University of Wisconsin	University of Sharjah	Vaasan ammattikorkeakoulu, (VAMK) University of Applied Sciences	
Faculty	Faculty of Science and Technology	Faculty of Engineering	Faculty of Engineering	------	Faculty of Engineering	----	
Program	MSc Engineering Project Management	MSc. Project Management	Master of Engineering Management	MSc. Project Management	MSc Engineering Management	Master of Engineering Project Management	
Country	UK	Malaysia	Lebanon	USA	UAE	Finland	
No. of Courses	6	12	8	10	6	6	
Total Cr. Hrs.	180	36	30	36	33	60	

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Total Years	1-3	1-4	2	2	2	1-2	
No	**Course Name**	**Course Name**	**Course Name**	**Course Name**	**Course Name**	**Course Name**	**Course Name**
1	Research Methods	Research Methodology		Research Methodology			Research Methodology
2		Planning & Scheduling Principle of Engineering Management	Project Planning Scheduling and Control	Project Management Techniques I			Advanced Project Management 1 (Integration, Scope, Time, Cost Management)
3		Project Quality Management		Project Management Techniques II	Quality Engineering		Advanced Project Management 2 (Quality, Resource, Communications

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							Management)
4				Project Risk Management Project Procurement Management			Advanced Project Management 3 (Risk, Procurement, Stakeholders Management)
5						Project Monitoring and Controlling	Project Monitoring and Controlling
6					Safety Engineering Management	Professional Qualification in PM	Health, Safety and Environment HSE Management
7		Organizational Design & Governance	Project Deliverance and Contracts				Soft Skills for the Project Manager
8			Pre-Project Planning and Feasibility Analysis				Pre-Project Planning and Feasibility Analysis

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ملحق (6) مسح الرؤية والرسالة والاهداف البرامج المعتمدة المماثلة لبرنامج إدارة مشاريع هندسية

Annex (6) Survey/ Mapping of Vision, Mission and Objectives of Similar Accredited Programs at International Universities (Benchmarks) for Master of Science in Engineering Project Management program

	The 1st Program	The 2nd Program	The 3rd Program	The 4th Program	The 5th Program	The 6th Program
Country	UK	Malaysia	Lebanon	USA	UAE	Finland
University	Bournemouth University	University Teknologi Malaysia (UTM)	American University of Beirut (AUB)	University of Wisconsin - Platteville	University of Sharjah	Vaasan ammattikorkeakoulu, (VAMK) University of Applied Sciences
Faculty	Faculty of Science and Technology	Faculty of Engineering	Faculty of Engineering	Faculty of Project Management	Faculty of Engineering	-----
Department/ Program	Department of Design and Engineering / MSc Engineering Project Management	Department of Civil Engineering	N/A	N/A	N/A	N/A
Study Duration	1-3 years	1-4 years	2 years	1-5 years	2 years	1-2 years

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Program Accrediting Body	AACSB The Association to Advance Collegiate School of Business	MQA	-----	Project Management Institute's Global Accreditation Center	-----	Finnish national degree system
Website Link	https://www.bournemouth.ac.uk/search/msc%20engineering%20project%20management?type=course	https://admission.utm.my/postgraduate-school-of-civil-engineering/	https://www.aub.edu.lb/msfea/iem/IE-MEM/Pages/default.aspx	https://www.uwplatt.edu/program/project-management-online	https://www.sharjah.ac.ae/en/academics/colleges/gsr/depts/gradStudies/bylaws/Pages/default.aspx	https://www.vamk.fi/apply/degree_programmes/project_management/
Department Vision	Develop an understanding of project management methods and tools, and how to employ them in the planning and execution of projects, as well as becoming fully aware of engineering design methods and tools.					
Department Mission				-		

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Department Objectives						
Program Mission						
Program Objectives	This program aims to develop creative, innovative and resourceful graduates, who: understand project management methods and tools, and are able to employ them in the planning and execution of projects; □ are fully aware of engineering design methods and tools available and investigate, select and learn to employ those appropriate to the needs of their industries; □ are fully conversant	1-Mastery of competencies and integration of knowledge required in the engineering profession. An appreciation of the value of lifelong learning and possessing enthusiasm and strong commitment to continued acquisition of new knowledge and skills. 2-Advanced leadership and	The Engineering Management (EM) program prepares graduate students to assume the responsibilities of professional engineering management. The EM program provides students from all engineering backgrounds with the necessary leadership abilities, technical expertise, and communication skills to meet the need for both tech-savvy and business-savvy	The purpose of the Master of Science in Project Management is to serve graduate students in the online environment by improving their business and project management competencies, providing them with	The main goals of the MEM program are: • To prepare engineers from various specializations to address advanced and challenging engineering problems in their discipline taking into account the technical and socio-economic factors and implications. • To prepare its graduates to assume leading roles in their organizations	The Master's Degree in Project Management is a professional higher education degree. The program focuses on providing students with skills and competencies to work in both local and an international project environment. This master´s degree in Project Management is suitable for business and engineering professionals interested in project management who are seeking a master´s degree in project

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	with contemporary information resources and use them effectively and efficiently; □ are able to document and communicate, using oral and written presentations, project plans and results; □ have a critical understanding how sustainability impacts the management of the engineering management process; □ are able to plan, conduct and report on small engineering research projects.	team working skills that allow environmental engineers and professionals to become visionary and inspirational leaders. 3-Highly developed oral and written communications skills that fit at all level, appropriate to the field of engineering. 4-An appreciation of the ethics and integrity in management, leadership and good governance	professionals. To achieve this aim, the EM curriculum combines business basics, quantitative methods, and behavioral science in a practical, problem-solving framework. Furthermore, the program is flexible and EM students can tailor their courses to suit their needs and preferences. Students can select from three areas of concentration: -Financial and Industrial Engineering -Project and Program Management -Management of	professional development opportunities as project management practitioners, and enhancing their prospects for continued advancement in their chosen industry or field of endeavor.	in the determination of best approaches to manage changes in the engineering processes and benefit from relevant technological innovations; • To equip its graduates with the knowledge and skills to interact and communicate effectively with professionals from other specializations within and outside their organizations. • To equip its graduates with the knowledge, skills and awareness of the long-term	management and want to assume project managerial and leadership positions in their organizations. Students include project managers, IT and energy professionals, business consultants, etc. The program also includes courses which can lead to professional certification in project management.

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		and responsibility to their professions and community.	Technology and Entrepreneurship.		sustainability factors associated with the adoption of any engineering process or product.	

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ملحق (7) مؤامة رسالة وأهداف البرنامج مع رؤية ورسالة واهداف الكلية والجامعة

Annex (7) Mapping of mission and objective of the program with vision, mission and objectives of faculty, and university

Mapping of program vision with Department, faculty, and university vision			
University Vision	**Faculty Vision**	**Department vision**	**Program vision**
Sana'a University aspires to achieve a national leading role in teaching, learning, scientific research and community service; and to be among the best regional universities and the foremost house of expertise and think tank in Yemen.	To excel in engineering education & scientific research with distinction at the local and regional levels.		To be a distinguished Master program in Engineering Project Management locally and regionally.

Mapping of program mission with Department, faculty and university mission			
University Mission	**Faculty Mission**	**Department Mission**	**Program Mission**
To contribute to the sustainable development efforts by providing an accredited higher education environment and excellent research services within a fruitful national partnership based on transparency, professionalism	To provide excellent and accredited engineering education to meet the development needs and match the labor market requirements locally and regionally.	To provide students with good quality Civil Engineering education that prepares them to be qualified and committed professionals who could pursue graduate studies and research and play a leading role in the sustainable development of the country and its integration into the regional economy.	To graduate distinguished Master holders in the field of engineering project management through a strong academic program, qualified staff, and suitable research infrastructure that meet local development requirements

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and creativity.			and regional labor market needs.

Mapping of program objectives with Department, faculty, and university objectives			
University Objectives	**Faculty Objectives**	**Department Objectives**	**Program Objectives**
To provide specialized and in-depth academic opportunities for students in different fields of knowledge to meet the country's needs of specialties, technicians and experts, with special focus on the following:	To offer study programs in various fields of knowledge and equip students with required knowledge and scientific and know-how skills to utilize them in resolving problems effectively and efficiently.	provide a high-quality educational experience through an appropriate depth over the full range of core engineering subject areas for undergraduate and postgraduate programs,	To develop students who understand project management methods and tools, and are able to employ them in the planning and execution of projects
To boost the level and quality of preparation and qualification tasks.	To develop positive trends towards engineering science and its accelerating developments and enable students to use the techniques and methods of conducting scientific research in engineering fields.	applying the quality assurance standards and targeting the academic accreditation levels (local, regional and international levels).	To bridge the gap between the academic and industrial and technological environments.
To create a general culture aiming at developing the elements of sound Islamic personality and the proper cognitive and scientific	To develop skills of scientific, innovative and critical thinking as well as the concept of continuous self-education.	Serving the community and labor market needs through the consultancy, research, laboratory tests and training services.	To provide graduates who are able to document and communicate, using oral and written presentations, project plans and results;

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training.			
To stabilize the true Islamic vision emanating from the broad horizons of Islamic knowledge and its perception of the universe, man and life.	To strengthen scientific ties with national and international colleges, scientific bodies, and research & development centers.		To provide graduates with up-to-date advanced knowledge and skills needed to plan, manage and execute projects successfully.
To develop innovative and critical scientific thinking skills.	To provide technical and specialized studies and consultations to various state bodies and institutions, both public and semi-public, and utilize them in resolving the environment and society issues to promote sustainable development.		To graduate researchers in engineering project management who can pursue further studies and research contributing to the scientific research community.
To provide students with the required knowledge and scientific and applied skills for solving problems effectively and efficiently.	To develop a spirit of co-operation, group work, effective leadership, sense of responsibility, and ethical commitment.		To provide graduates able to effectively contribute to the engineering project management profession by applying ethical practices and communication skills, sharing innovative and clear ideas and pursuing further education through lifelong learning.

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ملحق (8) المساقات الرئيسية واوزانها الفرعية لبرنامج ماجستير ادارة مشاريع هندسية

Appendix (8) Main Themes/Sub-Themes with Relative weight for the Engineering Project Management Program.

No.	Themes	Credit Hours	Courses Number	Relative weight for Theme	Sub-Themes
0	N/A				-
1					-
2					-
3					-
4					-
5					-
	Total			**100%**	

* This total is the overall total of both Compulsory and Elective courses.

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ملحق (9) توزيع مخرجات التعلم لبرنامج ماجستير ادارة مشاريع هندسية مع المساقات الرئيسية

Appendix (9) P- ILOs Distribution to Main Themes for Master of Science in Engineering Project Management program

No	PILOs	Themes							
		1st Theme	2nd Theme	3rd Theme	4th Theme	5th Theme	6th Theme	7th Theme	8th Theme
1	A1	N/A							
2	A2								
3	A3								
4	A4								
5	B1								
6	B2								
7	B3								
8	B4								
9	C1								
10	C2								
11	C3								
12	C4								

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13	D1								
14	D2								
15	D3								

ملحق (10) موائمة مخرجات تعلم برنامج ماجستير إدارة مشاريع هندسية مع المقررات

Appendix (10) Mapping Program Intended Learning Outcomes with courses for Master of Science in Engineering Project Management program

Course Name	Program Intended Learning Outcomes (P-IOLs)															
	(A)				(B)				(c)				(D)			
	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
Research Methodology													X	X	X	X
Advanced Project Management 1 (Integration, Scope, Time, Cost Management)	X	X		X	X	X	X		X	X	X					
Advanced Project Management 2 (Quality, Resource, Communications Management)	X	X		X	X	X	X		X	X	X					
Advanced Project Management 3 (Risk, Procurement, Stakeholders Management)	X	X		X	X	X	X		X	X	X					

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Course Name	Program Intended Learning Outcomes (P-IOLs)															
	(A)				(B)				(c)				(D)			
	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
Project Monitoring and Controlling	X	X		X	X	X	X		X	X	X					
Health, Safety and Environment HSE Management		X		X	X		X		X	X				X	X	
Soft Skills for the Project Manager				X	X	X	X		X			X	X	X	X	
Pre-Project Planning and Feasibility Analysis		X	X	X	X	X	X		X	X		X	X			
Thesis599			X					X	X	X		X	X		X	

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ملحق (11) موائمة مخرجات تعلم برنامج ماجستير إدارة مشاريع هندسية مع المرجعيات

Appendix (11) Mapping Program Intended Learning Outcomes with the benchmarks for Master of Science in Engineering Project Management program

(IOLs) Intended Learning Outcomes																Standards and Benchmarks
(A)				(B)				(c)				(D)				
A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4	

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ملحق (12) مواءمة أهداف البرنامج مع مخرجات التعلم المقصودة لبرنامج ماجستير ادارة مشاريع هندسية
Annex-12, Alignment of Engineering Project Management Program Objectives with Program Intended Learning Outcomes

Program Objectives رقم ونص المعيار	Program Intended Learning Outcomes (PILOs) رموز مخرجات التعلم للبرنامج PILOs													
	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3
1- To develop students who understand project management methods and tools, and are able to employ them in the planning and execution of projects		X		X	X	X	X		X	X	X		X		
To bridge the gap between the academic and industrial and technological environments.		X	X		X	X	X	X			X	X	X		X
To provide graduates who are able to document and												X	X		X

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Program Objectives رقم ونص المعيار	Program Intended Learning Outcomes (PILOs) رموز مخرجات التعلم للبرنامج PILOs														
	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3
communicate, using oral and written presentations, project plans and results;															
To provide graduates with up-to-date advanced knowledge and skills needed to plan, manage and execute projects successfully.		X		X	X	X	X		X	X	X				
To graduate researchers in engineering project management who can pursue further studies and research contributing to the scientific research community.			X					X				X	X		X
To provide graduates able to		X					X			X	X			X	

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Program Objectives رقم ونص المعيار	Program Intended Learning Outcomes (PILOs) رموز مخرجات التعلم للبرنامج PILOs														
	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3
effectively contribute to the engineering project management profession by applying ethical practices and communication skills, sharing innovative and clear ideas and pursuing further education through lifelong learning.						X									

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Program Intended Learning Outcomes (PILOs):

E. Knowledge and Understanding Upon successful completion of the Master of Science in Engineering Project Management Program, graduates should be able to:	
A1.	Describe the various project management knowledge areas.
A2.	Demonstrate knowledge and understanding of planning, analysis, supervision and monitoring and control of works related to the engineering disciplines.
A3.	Demonstrate knowledge and understanding of methodology, research planning, and analysis techniques.
A4.	Demonstrate knowledge and understanding of skills and techniques of engineering and management to execute contemporary projects and operations effectively and efficiently
F. Intellectual Skills Upon successful completion of the Master of Science in Engineering Project Management Program, graduates should be able to:	
B1.	Identify, analyze, formulate, and solve engineering problems that involve constrained resources considering factors such as socio-economic, environmental, health and safety.
B2.	Critically evaluate decision making techniques to aid management judgement;
B3.	Engage in analytical and critical thinking with respect to the planning of engineering design and development projects;

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B4.	Formulate hypothesis, design and perform experiments/research scientifically to solve and explain observed phenomena.
G. Practical and Professional Skills Upon successful completion of the Master of Science in Engineering Project Management Program, graduates should be able to:	
C1.	Apply expertly several different techniques used in the management and control of projects.
C2.	Collect, interpret, and use data effectively to make decisions and assess their associated impacts including socio-economic, environmental, health and safety.
C3.	Initiate, plan, execute, and close out a project utilizing project management concepts.
C4.	Develop, conduct, defend and disseminate academic research or a research project in one of the engineering management areas.
H. Key Transferrable Skills Upon successful completion of the Master of Science in Engineering Project Management Program, graduates should be able to:	
D1.	Prepare a complete thesis and reports, present the ideas clearly and defend them.
D2.	Balance professional and ethical responsibilities including contemporary issues and environmental awareness.
D3.	Conduct independently and communicate research that advances and extends knowledge and scholarship in related fields.

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