



PROGRAM SPECIFICATION

Master of Science in Engineering Management (2020 – 2021)

Awarding Institution	George Washington University
College / Centre	College of Engineering/ A'Sharqiyah University
Department	Engineering and Construction Management
Program Title	Master of Science in Engineering Management
Program Code	
Accredited By	
Final Award	Master of Science in Engineering Management
Level of Study	Postgraduate
Language of Study	English
Benchmarks	The Omani Qualifications Framework. QAA Subject Benchmark statement: engineering February 2015.
Entry requirements	<ul style="list-style-type: none"> a. A student should have successfully completed an appropriate bachelor's degree from a recognized institution. b. A minimum grade point average of B (3.0 on a 4-point scale) or better in the bachelor's degree; otherwise qualified applicants may be offered conditional acceptance c. TOEFL, IELTS or PTE scores are required of all applicants who are not citizens of countries where English is the official language. Test scores may not be two years old. d. GRE and GMAT scores are not required to complete the application packet, but can be submitted to strengthen the application.
Minimum period of registration	4 Semesters
Maximum period of registration	8 Semesters
Date specification produced	21/01/2018
Date specification last reviewed	21/01/2018



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1. THE COLLEGE OF ENGINEERING

The College of Engineering at A'Sharqiyah University (ASU) opened in 2011 and has grown quickly to a current enrollment of over 300 students. The College will continue to grow at this rapid pace in order to accommodate over 1000 students in new classrooms and laboratories located in the new College of Engineering building that was completed in September 2017. With a first-rate building and state-of-the-art laboratories, the ASU Engineering College will continue to draw community members and prospective students to the growing campus. The College of Engineering at present offers undergraduate academic programs at Diploma/Degree levels in Civil Engineering, Environmental Engineering, Electronics and Communications Engineering and Construction Project Management.

The mission of the College is to educate creative professional engineers, technologists and technicians and to equip them to serve society in a globalized knowledge economy. Working in partnership with its stakeholders; the College is committed to the creation and transfer of new knowledge and technologies through the efforts of faculty, staff and students. The College vision is to achieve national and international stature as a College of Engineering through excellence in engineering education, research and innovation, outreach and external community engagement whilst contributing to the competitiveness, social and economic development and prosperity of the Sultanate of Oman.

The proposed MSc Engineering Management program will be delivered by the College of Engineering at A'Sharqiyah University in collaboration with the School of Engineering and Applied Science, The George Washington University, a congressionally Chartered not-for-profit corporation located in the District of Columbia, USA.

2. PROGRAM OUTLINE

The Master of Science in Engineering Management program bridges the gap between Engineering and Management. The discipline involves the overall management of organizations oriented to manufacturing, construction, engineering, technology, production and the service sectors. Applying the principles of engineering management enables engineers to work and lead effectively in the business environment.

A Master's degree in Engineering Management provides a technical-based alternative to traditional postgraduate business or management degrees. Students will complete specialized courses in such areas as management of technology, products and processes, and quality control to supplement broader courses in organizational management, operations, marketing and finance.

3. PROGRAM AIMS

The objectives of the master's program in engineering management are to ensure that graduates:

- Work and lead effectively in the business environment by applying engineering management principles in the overall management of organizations oriented to manufacturing, construction, engineering, technology, production or the service sectors.

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- Coordinate critical organizational functions—organizational management and behavior, operations, project management, marketing, cost and quality control, finance, staff, technical requirements, engineering contract management—and supervise technical developments while maintaining high performance.
- Prepare to take the examination for certification as a Project Management Professional (PMP) offered by the Project Management Institute to further establish their professional credentials.

4. LEARNING OUTCOMES

Upon completion of the program, students will have/ will be able to:

A. KNOWLEDGE AND UNDERSTANDING	(a) A critical understanding of engineering management principles and practices. (b) Identify managerial and leadership issues in engineering and technical organizations and develop appropriate solutions. (c) A comprehensive knowledge of the external business environment and how it affects engineering and technical organizations. (d) A comprehensive knowledge of the principles of planning, organization and control applied to engineering projects and technical organizations.
B. SUBJECT-SPECIFIC INTELLECTUAL SKILLS	(a) Critically apply concepts and tools previously studied to solve real-world problems in engineering management. (b) Demonstrate the capability to use conceptual skills, critical thinking, reasoning, analysis and interpretation. (c) Apply theoretical and practical knowledge to plan, organize and manage research and development activities.
C. PROFESSIONAL / PRACTICAL SKILLS	(a) Apply theoretical and practical knowledge to strategic management of innovation and technology. (b) Analyze engineering and managerial decision making problems and make informed financial decisions. (c) Evaluate where and how Knowledge Management can be applied to achieve organizational objectives. (d) Analyze and design organizational information systems. (e) Estimate project costs and resources during the planning and implementation phases. (f) Plan, organize, control, lead and deliver engineering projects and programs. (g) Apply a systems approach to the architecting and engineering of large scale systems.
D. TRANSFERABLE SKILLS	(a) Communication Skills (b) Teamwork and interpersonal Skills

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	(c) Information Literacy and Study Skills (d) Numeracy Skills (e) Leadership and Entrepreneurship Skills
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5. PROGRAM STRUCTURE

Students must achieve the required 36 credit hours for the program by completing the following compulsory courses:

Total Credit hours 36

Course Code	Course Title	Pre-Requisites	Credits
EMSE 6001	The Management of Technical Organizations		3 Credits
EMSE 6005	Organizational Behavior for the Engineering Manager		3 Credits
EMSE 6014	Management of Engineering Contracts		3 Credits
EMSE 6020	Decision Making with Uncertainty		3 Credits
EMSE 6070	Management of Research and Development		3 Credits
EMSE 6410	Survey of Finance and Engineering Economics		3 Credits
EMSE 6505	Knowledge Management I		3 Credits
EMSE 6580	Information and Software Engineering		3 Credits
EMSE 6801	Systems Engineering		3 Credits
EMSE 6820	Program and Project Management		3 Credits
EMSE 6825	Project Cost and Quality Management		3 Credits
EMSE 6099	Problems in Engineering Management and Systems Engineering		3 Credits
TOTAL			36 Credits

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6. PROGRAM REFERENCE POINTS

This program is the same program of GW courses offered to students enrolled on the GW campus in the United States of America and other GW off-campus sites for the MS in Engineering Management degree.

The MSc Engineering Management program described herein and the intended learning outcomes, have been developed taking account of the UK's QAA benchmark statements for Engineering: February 2015. The program has also been structured with reference to Oman's National Qualifications Framework which sets out the standards for academic awards for all institutions in the Sultanate of Oman.

7. TEACHING AND LEARNING METHODS (indicative)

Lecturers, tutorials, seminars, laboratory experiments, site visits, self-study, projects.

The Department of Engineering and Systems Engineering at the George Washington University will offer the courses that constitute the GW Master of Science degree program in Engineering Management in a blended format.

The program is the same program of GW courses offered to students enrolled on the GW campus in the United States of America and other GW off-campus sites for the MS in Engineering Management degree.

The program consists of 12 courses totaling 36 credit hours. These 12 courses will be taught for students at the ASU facilities in Ibra, Sultanate of Oman: 6 by synchronous distance learning and 6 onsite at A'Sharqiyah University.

The program is presented using a variety of modes of instruction. The underlying strategy for teaching and learning is the development and fostering of a supportive environment in which the students are systematically encouraged to take more responsibility for their own learning as they progress through the program. Topics are introduced so that a thorough grounding and understanding of the relevant theory is fostered. Basic initial concepts are presented and emphasis is then placed on problem solving strategies and applications. The emphasis of lectures, tutorials, seminars, case studies visits between various courses differs but in all cases an interactive environment is encouraged with student-centered learning being the norm.

Each week the instructor posts an item (question, short article or commentary, video, or other) on Blackboard. Students are responsible to spend one hour each week reviewing and researching the material and posting a one- paragraph response onto Blackboard discussion board for the entire class to see. Response due by [time] every [day of week]. This is



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mandatory and performance on this is calculated as part of the homework grade.

People learn best when they are active, not passive. Students' active participation is essential to the class. Participation is more than just attending class and asking an occasional question. Full participation consists of demonstrating that you are prepared for each class, asking thoughtful questions that help you and your peers learn, responding respectfully to peers and engaging productively in all discussions.

8. ASSESSMENT METHODS (Indicative)

Quizzes, midterm exams, final exams, practical assessment in labs, project evaluation, viva questions.

Over 10 weeks, students will spend 3 hours per week in lecture, 1 hour per week in Blackboard discussions, and 8 hours in two exams given outside class hours (about 48 hours of guided instruction for the semester). Homework and other out-of-class work is estimated at around twice the classroom time (96 hours) for a total of about 144 hours of work. Exams are administered online outside of scheduled class meeting times.

Each exam is designed to be completed in 3 or 4 hours, with a 4- or 5-hour window to take it in. Students can download it for a continuous 72 hours and permitted a single reference sheet (front and back). All examinations are closed book.

Exams are administered by Remote Proctor Now, which records the examinee's webcam, audio, and desktop. Certified video reviewers confirm that the student adheres to the institution's and the faculty member's policies. Additional information about RPNOW is posted to the course Blackboard site.

GW's grading system for graduate students is: A, Excellent; B, Good; C, Satisfactory; F, Fail; other grades that may be assigned are A-, B+, B-, C+, C-. Grades are determined by weighted average values and based on a standard curve relative to the class average.

Example of assessment component:

Homework (includes Blackboard discussion)	15%
Case Study Quizzes	10%
Mid-Term Exam	35%
Final Exam	40%

9. CAREER and STUDY OPPORTUNITIES

The program facilitates entry to job and work opportunities in a number of market and industrial settings such as:

1. Manufacturing companies
2. Engineering firms



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3. Technology companies
4. Services Sector
5. Consulting firms
6. Municipalities and government organizations
7. Oil Companies
8. Building construction
9. Civil and heavy construction
10. Environmental construction, etc

The graduate from this course can also pursue further study and can improve their academic qualification by doing a Doctor of Philosophy.

10. STUDENT SUPPORT

Students attend an orientation week at the start of the program and are supported by a Course Coordinator. The Head of Department is also available to advice on program-related queries.

Students have access to the University's library with a range of reading materials, online resources and study support.

The University's Student Affairs Office supports and advises students on issues such as finance, regulations, legal matters, accommodation, transportation, disabilities and career guidance.

The Student Council is also an important source of support and guidance

The University has a Student Fund which considers applications on a case by case basis.

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11. ASSESSMENT of LEARNING OUTCOMES

KEY: F = Formative assessment S = Summative assessment FS = Formative AND Summative assessment

Upon completion of the program, students will be able to:

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SES:**

	EMSE6001	EMSE6005	EMSE6014	EMSE6020	EMSE6070	EMSE6410	EMSE6505	EMSE6580	EMSE6801	EMSE6820	EMSE6825	EMSE6099
KNOWLEDGE AND UNDERSTANDING												
(a) A critical understanding of engineering management principles and practices.	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS
(b) Identify managerial and leadership issues in engineering and technical organizations and develop appropriate solutions.	FS	FS	FS	FS	FS		FS			FS	FS	FS
(c) A comprehensive knowledge of the external business environment and how it affects engineering and technical organizations.	FS				FS		FS	FS	FS			FS
(d) A comprehensive knowledge of the principles of planning, organization and control applied to engineering projects and technical organizations.			FS	FS		FS				FS	FS	FS
SUBJECT-SPECIFIC INTELLECTUAL SKILLS												
(a) Critically apply concepts and tools previously studied to solve real-world problems in engineering management.	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS
(b) Demonstrate the capability to use conceptual skills, critical thinking, reasoning, analysis and interpretation.	FS			FS		FS		FS	FS			FS
(c) Apply theoretical and practical knowledge to plan, organize and manage research and development activities.			FS	FS	FS			FS	FS	FS	FS	FS
PROFESSIONAL / PRACTICAL SKILLS												

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Upon completion of the program, students will be able to:	REQUI RED COUR SES:	EMSE6001	EMSE6005	EMSE6014	EMSE6020	EMSE6070	EMSE6410	EMSE6505	EMSE6580	EMSE6801	EMSE6820	EMSE6825	EMSE6099
(a) Apply theoretical and practical knowledge to strategic management of innovation and technology.						FS		FS	FS	FS			FS
(b) Analyze engineering and managerial decision making problems and make informed financial decisions.	FS	FS	FS	FS			FS	FS	FS	FS		FS	FS
(c) Evaluate where and how Knowledge Management can be applied to achieve organizational objectives.								FS	FS	FS			FS
(d) Analyze and design organizational information systems.									FS	FS			FS
(e) Estimate project costs and resources during the planning and implementation phases.			FS	FS			FS				FS	FS	FS
(f) Plan, organize, control, lead and deliver engineering projects and programs.			FS	FS			FS				FS	FS	FS
(g) Apply a systems approach to the architecting and engineering of large scale systems.							FS		FS	FS	FS		FS
TRANSFERABLE SKILLS (INCLUDING FOR EMPLOYABILITY)													
Communication Skills	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS
Teamwork and interpersonal skills		FS			FS						FS		FS
Information Literacy and Study Skills				FS			FS		FS	FS	FS		FS
Numeracy				FS			FS		FS	FS	FS		FS
Leadership and entrepreneurship	FS	FS			FS								FS

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4. PROGRAM STRUCTURE DIAGRAM

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