QU
Saudi Arabia

Qassim University
جامعة القصيم

COLLEGE OF ENGINEERING
DEPARTMENT OF CIVIL ENGINEERING
MSc PROGRAM HANDBOOK

1446 A.H.

2024/2025 A.D.

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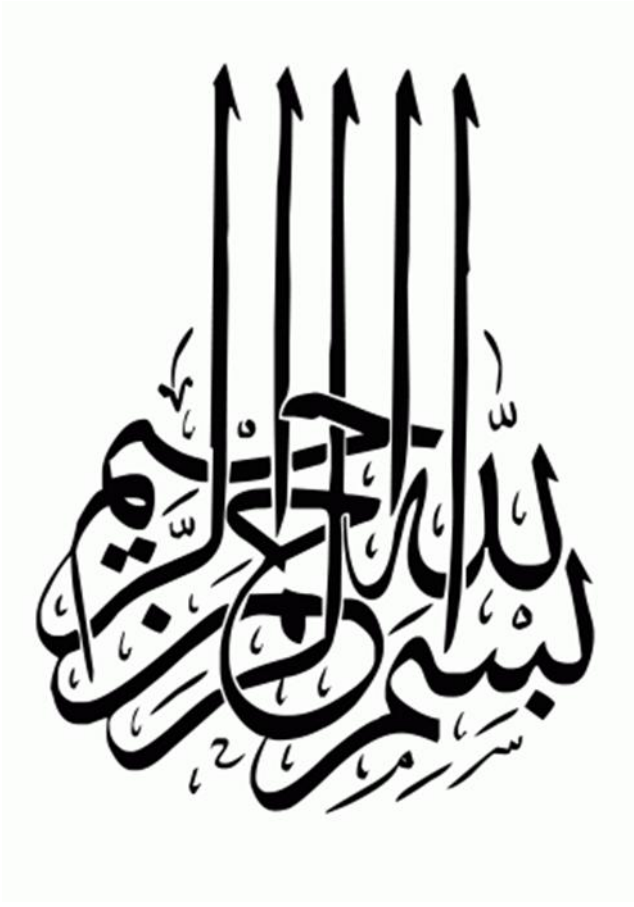
بسم الله الرحمن الرحيم

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1. CE-MSC PROGRAM

Welcome to MSc in CE

We extend our heartfelt congratulations to you for deciding to pursue your educational aspirations. We want to emphasize our unwavering commitment to ensuring that your journey is not only successful but also filled with joy and fulfillment.

We stress our dedication to helping the students accomplish their objectives and aspirations. Feel free to contact your faculty advisor or any of our knowledgeable and skilled faculty members for any support you may require.

1.1 An Overview

The Master of Science in Civil Engineering program is a general program with one track. However, it covers different areas within the program such that the student determines his field of study based on the group of elective courses he registers for and the research topic of the thesis. The program has 30 credit hours including six credit hours allocated for the thesis, nine hours for compulsory courses (3 courses) and 15 hours for elective courses (5 courses).

This handbook has been prepared with the guidance and review of the Development and Quality Unit (DAQU). The contents were made to be extensive with the students' need in accordance with the National Center of Academic Accreditation and Evaluation systems (NCAAA).

1.2 Department and Program Mission

Department Mission

The Department of Civil Engineering seeks to meet the needs of the Saudi society and the region through offering outstanding civil engineering programs in education, research, and community service.

MSc Program Mission

Offering distinguished civil engineering master studies and performing advanced research and valuable community services in an inspiring, energizing and governable environment to promote self-resources, adopt recent technologies and

sustainably develop the Saudi society.

1.3 Program Educational Objectives

According to the Accreditation Board for Engineering and Technology (ABET) accreditation system, these are broad statements about what the student can attain. These should satisfy the employers and alumni. The program educational objectives (PEO) are listed in Table 1:

Table 1: Program Educational Objectives

PEO 1	Attain a successful research, development and leadership careers in the industry, energy, and academic sectors.
PEO 2	Properly plan their professional development through self-learning and advanced degrees.
PEO 3	Efficiently progress to positions of leadership in their profession.
PEO 4	Effectively contribute to adopting recent technologies, and experience abilities for performing advanced scientific research and offering innovations.
PEO 5	Skillfully contribute to the sustainable development of the Saudi society.

1.4 Program Strategic Goals

For the NCAAA accreditation system, the strategic goals of the MSc programs in the College of Engineering at Qassim University (QEC) have been set to be as follows:

1. Prepare the graduates to have successful research, development and leadership careers in the industry, energy, and academic sectors.
2. Carry out scientific advanced research and provide engineering consultation services.
3. Strengthen the communication and cooperation with the community and establish regional and international partnerships.
4. Participate in adopting advanced technologies and offering innovations.
5. Contribute effectively to the sustainable development of the Saudi society.

1.5 MSc Program Learning Outcomes

According to the NCAAA accreditation system, Program Learning Outcomes are the characteristics and qualities gained by the program graduates in the field. The

general attributes of the MSc graduates of QEC programs have been set to agree with Qassim University (QU) graduate attributes and the employers' needs. The Program Learning Outcomes of the CE Program are given Table 2.

Table 2. Program Learning Outcomes (PLOs) for MSc Program

Knowledge and Understanding	
K1	Identify in-depth and specialized body of knowledge and understanding covering theories, principles, and concepts in the field of civil engineering.
K2	Express critical knowledge and understanding of processes, materials, techniques, practices, conventions, and/or terminology relevant to the civil engineering field.
K3	Define advanced knowledge and understanding of recent developments in the field of civil engineering.
K4	Discover advanced knowledge and understanding of a range of established and specialized research and/or inquiry techniques in the field of civil engineering.
Skills: Cognitive	
S1	Apply specialized theories principles and concepts advanced contexts in the field of civil engineering.
S2	Solve problems in complex and advanced contexts in the field of civil engineering.
S3	Critically assess, review, and reflect on key concepts, principles, and theories; and provide creative solutions to current issues and problems in complex and advanced contexts in the field of civil engineering.
S4	Carry out advanced research or professional projects using specialized research and enquiry methodologies in the field of civil engineering.
Skills: Practical and Physical	
S5	Use processes, techniques, tools, and/or materials that are advanced and specialized to deal with complex and advanced practical activities in the field of civil engineering.
S6	Carry out complex and advanced practical tasks and procedures in specialized areas related to civil engineering field.
Skills: Communication and ICT	
S7	Communicate in various forms to disseminate knowledge, skills, research results, and innovations related to civil engineering field to specialist and non-specialist audiences.
S8	Process data and information quantitatively and/or qualitatively in complex and advanced contexts related to the civil engineering field.
S9	Select, use, and adapt advanced digital technological and ICT tools and applications to process and analyze a variety of data and information sets to support and advance leading research and/or projects related to civil engineering field.

Values, Autonomy and Responsibility	
V1	Demonstrate integrity and professional and academic values when dealing with various issues.
V2	Initiate professional planning for learning and/or work, professional development, monitor learning and performance, and participate in academic and/or professional strategic decisions, with high autonomy.
V3	Effectively manage specialized tasks and activities in civil engineering and related discipline with high autonomy.
V4	Effectively collaborates and participates in research or professional projects, undertake leadership roles, and take high responsibility of the work.
V5	Contribute to the fostering of the community quality life.

2. ADMISSION REQUIREMENT

The Deanship of Graduate Studies works in corporation with the MSc Program to facilitate the admission and registration procedures at Qassim University. The Deanship has developed procedures for admission to the programs through electronic platforms available to students on the university website (https://guest.qu.edu.sa/login). The Deanship is committed to maintaining the privacy and confidentiality of students' information.

The number of students who can be accepted is determined yearly by the MSc program in the Department of Civil Engineering and approved by the Graduate Studies Council, taking into consideration the department and college capacity. Then, the students who have the desire to join the MSc program compete based on their GPA and other criteria stated in the next subsections.

2.1 Admission requirements:

In general, the following are the requirements for admission to CE-MSc https://qec.qu.edu.sa/content/pages/2001 :

- The applicant must be a Saudi citizen or have a scholarship grant for graduate studies if non-Saudi citizen.
- Bachelor of Science degree in Civil Engineering from a Saudi University or recognized International University.
- Two academic recommendation letters from two professors who have taught the applicant.
- Passing undergraduate program supplementary courses if necessary.

- Passing the Post-Graduate General Aptitude Test (PGAT) offered by the National Center for Assessment. This requirement is waved for international applicants.
- Minimum GPA of 3.25 out of 5 or equivalent.
- Minimum English language test score of 65 (STEP), or 8 (QUEPT), or 49 (TOEFL iBT), or 460 (TOEFL PBT), or 4.5 (IELTS)
- Application fee is 100 riyals (one hundred Saudi riyals) (non-refundable).
- Fulfilling any additional requirements from Qassim University

2.2 Online Application and Procedures

Documents required to be uploaded to the website when filling out the data on the university website (https://guest.qu.edu.sa/login):

- Bachelor's graduation document for applicants to master programs.
- Academic transcript.
- National identity for Saudi citizens.
- A copy of a valid passport (at least one year) for international applicants (including GCC countries).
- A copy of the residence permit and a valid passport (at least one year) for scholarship students (for internal scholarship applicants for non-Saudi).

2.3 Fees and Payment

- Tuition fees for the CE MSc program are 40,000 riyals (forty thousand Saudi riyals), paid as 4 payments of 10,000 riyals (Ten thousand Saudi riyals) before the beginning of each semester.
- Tuition fees for one supplementary semester are 5,000 riyals (five thousand Saudi riyals).
- Tuition fees when exceeding the regular duration of study at the master's level 5,000 (five thousand) riyals per semester.

2.4 Transferring Students

The MSc Program may accept transfer applications from Saudi Universities or recognized international universities. A transfer depends on the recommendation of the department council and is subjected to college council approval. The

accepted applicant may transfer previously achieved courses to the equivalent courses at the CE MSc program at the College of Engineering at Qassim University under certain conditions. A student from outside the University may be admitted according to the following Article number 30 in the Regulations governing postgraduate studies in universities that states that:

"Taking into account Article (Fifteen) of these regulations, the Executive Management Accepting a student's transfer to the university from a university or educational institution Inside or outside the Kingdom, provided that it is licensed by the competent authority. In the country of study, provided that he is not separated from it for any reason, based on the recommendation of the department and college councils, the academic curricula are confirmed that has been equalized in the student's academic record, and the Council determines"

2.5 Visiting Students

A student who studies some courses in another university or college or in a branch of the university to which he belongs:

First: A student from the QU Engineering College who wishes to study as a visitor at another university or college:

- The student must have an academic record (cumulative GPA) for at least one semester at the university before applying to study as a visiting student.
- The student should have been studying in a recognized university or college.
- The student should bring a description of the courses to be studied at the visiting university. Those courses should be equated by the college and after determining the equivalent materials to be officially submitted to the Deanship of Admission and Registration to address the visiting university.
- The courses to be studied by the student outside the university should be equalized in the vocabulary and the number of units of study.
- The maximum number of credits that can be calculated from outside the university for a visiting student is (20%) of the total graduation units from QU.
- Course rates that are equivalent to a visiting student at another university are not counted within their cumulative GPA, and the courses are recorded in their academic record.

- The student must provide the Deanship of Admission and Registration with the results obtained within a week of the start of study in the first semester following the period of study as a visitor.
- The maximum number of semesters a student is allowed to study as a visitor is two semesters.

Second: Another university student who wishes to study as a visitor at QU Engineering College:

- The student should take a description of the courses that he would like to study from the QU Engineering College to be equated by the home university.
- The proposed courses to be admitted for visiting students should be equivalent to the number of units of study at their home colleges.
- The courses should be registered for the student by the competent authority from the college deanship.
- At the end of the student's study, the student shall be provided with a letter explaining the results obtained of the studied courses.

3. REGISTRATION

The "E-register" system allows MSc students to register, add and drop courses, cancel registrations, withdraw, make payments, and credit balance refunds, as well as other options. Students must make the required payment before the announced deadline, or they will be dropped for non-payments issue.

3.1 Registration Guidelines

- All students who want to register must log to the "E-register" system online.
- Late registration starts on the first day of the beginning of classes according to the college academic calendar and finishes on the last day for adding courses.
- A maximum of 12 credit hours can be registered in one semester.
- Students should follow and respect timetables of registration, add, drop and withdrawal according to the college academic calendar.

- New students should register the compulsory courses before they register for specialization.
- Registration steps are:
    a. Pay your fees (Scholarship students are waved).
    b. Register online.

3.2 Add/Drop Policies

Students may add or drop courses without any penalties during the first two weeks of each term. An Add/Drop Form can be completed by the student through their QU account online, or by a signed request to the department. Students are advised to consult their academic advisors before registering and enrolling in courses.

3.3 Withdraw Policy

A student may withdraw from a course or all courses until the end of the 14th week of the term without an academic penalty, provided they meet the eligibility criterion set by the Deanship of Graduate Studies. It will be shown as a "W", withdraw, on the transcript. After week 14 of the term elapsed, all students will be awarded grades for their registered courses based on their assessment.

3.4 The Curriculum

The curriculum for the MSc program is divided into compulsory and elective courses. Table 3 provides the list of compulsory courses of the program. The specialization elective courses are listed in Table 4, while the Thesis in Table 5.

Table 3: Compulsory courses

Course	Course Title	Cr. Hrs.	Prerequisite
GE 605	Modeling and Simulation of Engineering Systems	3	-
GE 608	Experimental Methods and Analysis	3	-
MATH 621	Engineering Mathematics	3	-
	Total	9	

Table 4: Elective courses

Subject	Course	Course Title	Cr. Hrs.	Prerequisite
Structural Engineering	CE600	Concrete Technology	3	-
	CE601	Advanced Structural Analysis	3	-
	CE602	Finite Elements Method in Structural Analysis	3	-
	CE603	Theory of Plates and Shells	3	-
	CE605	Advanced Mechanics of Materials	3	-
	CE606	Building Structural Systems	3	-
	CE607	Structural Fire Engineering	3	-
	CE610	Advanced Concrete Design	3	-
	CE611	Prestressed Concrete	3	-
	CE 612	Earthquake Engineering	3	-
	CE 613	Advanced Steel Design	3	-
	CE 614	Designof Blast Resistant Structures	3	-
	CE 690	Selected Topics in Structural Engineering	3	-
Construction and Management Engineering	CE 680	System Engineering Management	3	-
	CE 620	Construction Planning and Control	3	-
	CE 681	Construction Engineering Management	3	-
	CE 682	Risk Management in Construction Engineering	3	-
	CE 621	Cost Analysis and Control	3	-
	CE 622	Legal Aspects of Engineering and Construction	3	-
	CE 623	Computer Applicationsin Construction Engineering	3	-
	CE 624	Value Engineering	3	-
	CE 683	Human Resources Management for Engineers	3	-
	CE 691	Selected Topics in Construction Engineering and Management	3	-
Environmental Engineering	CE 670	Chemistry in Environmental Engineering	3	-
	CE 671	Microbiology in Environmental Engineering	3	-
	CE 672	Physical-Chemical Treatment Processes	3	-
	CE 673	Biological Treatment Processes	3	-
	CE 674	Unit Operations and Processes Laboratory	3	-
	CE 675	Planning and Design of Water and Sewerage Networks	3	-
	CE 676	Solid Waste Management	3	-
	CE 677	Environmental Air Pollution	3	-
	CE 678	Industrial Wastewater Treatment	3	-
	CE 692	Special Topics in Environmental Engineering	3	-

Water Resources Engineering	CE 630	GIS and Natural Resources Management	3	-
	CE 631	Hydrometry	3	-
	CE 632	Drainage Engineering	3	-
	CE 633	Irrigation Engineering	3	-
	CE 634	Groundwater Hydrology	3	-
	CE 635	Probability and Statistics in Hydrology	3	-
	CE 636	Water Resources Planning	3	-
	CE 637	Applied Groundwater Flow Modeling	3	-
	CE 638	Design of Hydraulic Structures	3	-
	CE 639	Physical Hydrology	3	-
	CE 693	Special Topics Water Resources Hydraulics	3	-
Transportation and Traffic Engineering	CE 640	Urban Transportation Planning & Modeling	3	-
	CE 641	Advanced Transportation Systems Analysis	3	-
	CE 642	Traffic Flow Theory and Control	3	-
	CE 643	Traffic Safety, Operations, and Maintenance	3	-
	CE 650	Advanced Asphalt Materials	3	-
	CE 651	Advanced Highway Design	3	-
	CE 652	Advanced Pavement Design	3	-
	CE 653	Pavement Management Systems	3	-
	CE 654	Airport Planning and Design	3	-
	CE 694	Special Topics in Transportation Engineering	3	-
Geotechnical and Foundation Engineering	CE 604	Structural Dynamics	3	-
	CE 660	Advanced Foundation Engineering	3	-
	CE 661	Dynamics of Soil and Foundations	3	-

Table 5: Thesis

Course	Course Title	Cr. Hrs.	Prerequisite
CE 699	Thesis	6	-
	Total	6	

3.1 Course Plan Per Semester

The candidate must complete at least 30 credit hours of coursework including 9 credit hours of compulsory courses, 15 credit hours of elective courses, and 6 credit hours of thesis. The distribution of courses and credit hours per semester is as shown in Table 6.

Table 6. The MSc Program plans the courses in four semesters

Year 1 – Level 1 (Semester 1)			
Course	Course Title	Cr. Hrs.	Prereq
GE 605	Modeling and Simulation of Engineering Systems	3	---
GE 608	Experimental Methods and Analysis	3	---
MATH 621	Engineering Mathematics	3	---
	Total	9	

Year 1 – Level 2 (Semester 2)			
Course	Course Title	Cr. Hrs.	Prereq
CE 6--	Elective 1	3	---
CE 6--	Elective 2	3	---
ECE 6--	Elective 3	3	---
	Total	9	

Year 2 – Level 3			
Course	Course Title	Cr. Hrs.	Prereq
CE 6--	Elective 4	3	---
CE 6--	Elective 5	3	---
	Total	6	

Year 2 – Level 4			
Course	Course Title	Cr. Hrs.	Prereq
CE 699	Thesis	6	---
	Total	6	

Total Hours in MSc- Civil Engineering Program	30 H

3.2 Supplementary Courses

For applicants who lack sufficient learning outcome as determined from the BSc transcripts by the graduate studies committee in the department, are required to

take and pass the courses from one of the following groups, in accordance with the requirements of the scientific field desired. The decision to require an applicant to study these courses is determined by the department and the college councils. The passing grade of these courses for the applicants is 3.75 out of 5.

First Group

Course Code	Course Title	Credit
CE 315	Reinforced Concrete	3
CE 363	Foundation Engineering	3
CE 375	Steel Structures Design	3

Second Group

Course Code	Course Title	Credit
CE 331	Hydrology	3
CE 456	Hydraulic Engineering	3
CE 458	Design of Water Structures	3

3.3 Courses Description

Brief course descriptions provide overviews of course contents in the MSc Program and are presented in the following subsections.

3.3.1 College requirements

The College of Engineering requires that students complete nine credit hours before the elective courses and the thesis in the department.

***GE 608- Experimental Methods and Analysis - 3 (3,0)*:** Design of Experiments, the application of statistical techniques and concepts to maximize the amount and quality of information resulting from experiments. And Use of Commercial Software for Analysis of Experiments.

***GE 605- Modeling and Simulation of Engineering Systems - 3(3,0)*:** Apply modern software packages to conduct analysis of real-world data, General concepts of modeling, discrete simulation, Continuous simulation, Signal flow module of PSM++ - link types, Bond graphs, System Dynamics (SD), and

Advanced case study: Stock market simulation using DIs.

MATH 621- Engineering Mathematics - 3(3,0): Fourier Analysis and Partial Differential Equations (PDE), Complex Numbers and Functions, Complex Integration, Power Series, Taylor Series, Laurant Series and Residue Integration, Complex Analysis to Potential Theory.

3.3.2 Departmental Requirements

The program and/or department requires that students must complete five courses (15 hours) and six-hours for thesis in the department.

***CE 600 - Concrete Technology - 3(3,0)*:** Manufacturing of cement, Flash and false setting of cement, Cement and secondary raw materials like silica fume, fly ash, metakaolin and slag, testing of rheological properties of cement, effect of SRM on setting time of cement, fineness of cement, soundness of cement. Rheological properties of the concrete, mix design of the concrete for normal and high strengths, strength development of concrete, plastic and drying shrinkage of concrete, compressive, tensile and shear strength of concrete, Mineral admixtures for concrete, plasticizers, elastic and plastic behavior of hardened concrete, fracture mechanics of concrete, concrete under fire, freezing of concrete, hot weather concrete.

***CE 601 - Advanced Structural Analysis - 3(3,0)*:** Review of classical methods in structural analysis, approximate analysis of indeterminate structures, deflections using energy methods, force method of analysis, displacement method of analysis, moment distribution, analysis of beams & frames having non-prismatic members, truss analysis using stiffness method, and beam analysis using stiffness method.

***CE 602 - Finite Elements Method in Structural Analysis – 3(3,0)*:** Basic principles and concepts of Finite element methods. Potential Energy and Approximate Analysis. Finite Element Formulation and Application of Bar Elements. Introduction to Theory of Elasticity. Shape Functions for 2-D Problems. FE Formulation and Application by Constant Stress Triangular (CST) Element. Practical Consideration in Modelling. Isoparametric 2-D Elements. FE Formulation of the 4 Node Isoparametric Element Steady State Field Problems

CE 603 - Theory of Plates and Shells - 3(3,0): This course is an advanced course in theory of elasticity and is equally important for the postgraduate students in civil engineering as well as for practicing engineers to understand the behavior of thin/thick curved structural members under applied loads. The course starts with the introduction to the theory of plate bending; rectangular and circular plates; energy methods; numerical methods; vibration of plates, stability of plates. Later, the concept of curvature is introduced to study the behavior of shells, study membrane and bending stresses, cylindrical shells.

***CE 604 - Structural Dynamics – 3(3,0)*:** This course is suitable for post graduate level. The course covers several topics in the theory of structural dynamics representation such as single (multi) degree(s) of freedom. The course covers the dynamic responses of structures to free or forced excitation. The course also explains structural analysis and responses of some applications of excitations, such as earthquakes.

***CE 605 - Advanced Mechanics of Materials – 3(3,0)*:** This course is an advanced course in mechanics of materials and is equally important for the postgraduate students in civil engineering as well as for practicing engineers to relate to the analysis of stresses, strains, deformation, and strength in solid materials and simple components. Specific topics include stress and strain tensors, elasticity, plasticity, elementary solutions of theories of elasticity and plasticity, principles of minimum potential energy, torsion theories and introduction to finite element modelling.

***CE 606 - Building Structural Systems – 3(3,0)*:** This course will cover the design of building systems, considering structural steel as the primary building material. The major aspects of building system behavior and the design process are covered, including determination of code-compliant design loads, load paths, structural system concepts, 3-D structural modeling and analysis of building systems, system stability, floor diaphragm system design for gravity and lateral loading, member and connection design, and structural detailing. Current professional design office practice will be used, along with commercial software to analyze and design building structural systems.

CE 607 - Structural Fire Engineering – 3(3,0): Fire safety, fire codes, and fire engineering design methods. High-temperature material properties, and behavior

of materials and structures exposed to fires. Fire resistance design of steel, concrete, and composite structures. Use of the computer program for thermal and structural analysis.

***CE 610 - Advanced Concrete Design – 3(3,0)*:** course covers topics in advanced concrete design: Modified compression field theory, Strut and tie modeling of structural members, Beam column joints, Design of shear walls, Design of two-way slabs, Seismic design, Design for lateral wind loads, Concrete folded plates, Concrete shells, Deep beams.

***Pre-Stressed Concrete (CE 611)*:** The course aims covers the behavior of pre-stressed concrete simple or continuous beams, and their responses to different types of loads, particularly the pre-stressing effect at various stages. It also covers losses of pre-stressing and end zone behavior. It also involves the design pre-stressed members subjected to various types of loads. In addition, it introduces deformations of pre-stressed concrete members.

***Earthquake Engineering (CE 612)*:** This course serves as a multi-disciplinary field of earthquake engineering. topics covered include seismic hazards, continental drift and plate tectonics, earthquakes measurement, analysis of single and multiple degree of freedom system under strong ground motion excitation, elastic and inelastic design spectra, modal and response spectrum analyses, seismic lateral force procedures.

***CE 613 - Advanced Steel Design – 3(3,0)*:** Theories of ultimate behavior of metal structural members with emphasis on buckling and stability of members and frames; theory of torsion applied to beam torsion, lateral-torsional buckling, curved beams with emphasis on design criteria; post-buckling strength of plates and post-buckling versus column behavior.

***CE 614 - Design of Blast Resistant Structures – 3(3,0)*:** An overview of structural response and behavior under blast demands generated from accidental or intentional detonation of high explosives. The course will also cover blast demands and characterize pressure distributions on structural systems and components, evaluate response of systems to dynamic pressure demands, model structural components, conduct dynamic time history analysis of systems, allowable response limits and stand-off requirements for facilities. The design structures to resist the effects of close-in detonation of high explosives and

sustain the impact of ballistic fragments will also be taught.

***Building Systems Design (CE 615)*:** This course will cover the design of building systems, considering structural steel as the primary building material. The major aspects of building system behavior and the design process are covered, including: determination of code-compliant design loads, load paths, structural system concepts, 3-D structural modeling and analysis of building systems, system stability, floor diaphragm system design for gravity and lateral loading, member and connection design, and structural detailing. Current professional design office practice will be used, along with commercial software to analyze and design building structural systems.

***CE 660 - Advanced Foundation Engineering – 3(3,0)*:** Soil structure interaction, numerical methods for analysis of foundation, bearing capacity and settlement of foundation using in situ tests, load-deformation behavior of axially loaded piles, prediction of pile capacity during driving, beams and plates on foundations, laterally loaded piles, foundation on difficult soils.

***CE 661 - Dynamics of Soil and Foundations - 3(3,0)*:** Concepts, theories of soil properties, behavior and response to types of dynamic loading, basic principles and concepts of advanced analysis and design of dynamic foundations.

***CE 690 - Selected Topics in Structural Engineering - 3(3,0)*:** This course covers special topics in Structural Engineering selected by instructor and students.

***CE 680 - System Engineering Management - 3(3,0)*:** This course is concerned with offering an introduction to System Engineering Management; System Design Requirements; Engineering Design Methods and Tools; Design Review and Evaluation; Organization for System Engineering; System Engineering Program Evaluation and case studies.

***CE 620 - Construction Planning and Control - 3(3,0)*:** The course is concerned with construction Industry; Construction Contracts; Procurement Methods; Management & Organization; Planning and Scheduling Methods; Linear Projects; Project Control Procedures; Controlling time, money & resources; Delay Analysis; Case Studies.

***CE 681 - Construction Engineering Management - 3(3,0)*:** Introduction to construction industry; Stakeholders management, project management process

and organization; Project life cycle, contracts and project delivery; Construction site layout planning, construction issues, construction law, scheduling of linear projects; Economic decisions, revenue sources dispute, interest/equivalence, present worth & cash flow; Construction methods, equipment productivity, specifications and drawings, quantity take off, cost management; Productivity, project control and monitoring, safety planning, workforce, Human resources management.

***CE 682 - Risk Management in Construction Engineering - 3(3,0)*:** The course is concerned with risk management planning and levels, planning in an environment of un-certainty, Features and procedures of qualitative and quantitative risk assessment, various risk response strategies, and case Studies.

***CE 621 - Cost Analysis and Control - 3(3,0)*:** Course overview, expectations and teaming; Cost terms and purposes; Cost volume profit and analysis; Activity based costing/management; Master budget/responsibility accounting; Flexible budgets, direct cost- variances, team self-assessments due as needed; Capacity analysis, decision making-relevant information; Pricing decisions/cost management; Allocations/profitability analysis; Management control systems, transfer pricing.

***CE 622 - Legal Aspects of Engineering and Construction - 3(3,0)*:** The course is concerned with construction contracts; bidding strategies, contract management, contract termination, claims management, construction conflicts management and resolving, litigation and arbitration, case studies.

***CE 623 - Computer Applications in Construction Engineering - 3(3,0)*:** The course is concerned with computer applications in construction management; Computer applications in planning and scheduling; Computer applications in cost estimate; Fundamentals of Expert systems; Implementation and use of Expert Systems programming techniques for Planning and organization; Integrating Expert system and Decision support system.

***CE 624 - Value Engineering - 3(3,0)*:** The course is concerned with offering an introduction about Value Engineering; Value Engineering and Constructing process; Integrating value engineering, life-Cycle costing and sustainable development; Application of Value Engineering in different Civil Engineering topics; Computerized System for Application of Value Engineering

Methodology; Techniques of Economics of Reduction Variation; Introduction to Engineering Psychology and human performances; Human resources and Value Engineering

CE 683 - Human Resources Management for Engineers - 3(3,0): Strategic Human Resource Management; construction Workforce Planning/Budgeting, Workload and Turnover Analysis; Job Analysis, Job Design, including Job Description development; HR Planning and Recruiting; Performance Management and Employee Evaluation; Organized Labor and Unions; Job Evaluation; Establishing Strategic Pay, Bonus and Incentive Plans.

CE 691 - Special Topics in Construction Engineering and Management - 3(3,0): This course covers Special Topics in Construction Engineering and Management selected by instructor and students.

CE 670 - Chemistry in Environmental Engineering - 3(3,0): This course aims to equip students with: Acquire advance knowledge in Physical chemistry, biochemistry and organic chemistry to apply in the field of environmental engineering; Acquire the analytical methods for the analysis of biological and chemical properties of water and wastewater; Selection the suitable chemical parameters to control the operation of water and wastewater plants. Experiments on various water and wastewater quality using potable meter, conventional chemical methods and advance equipment including, TOC analyzer, ICP-MS, Gas-chromatography etc. Quantitative chemistry; water and wastewater analysis including pH, turbidity, acidity, alkalinity, Hardness, chloride, DO, BOD, COD, Solids, Fe, Mn N, P, S, F, oil and grease, gases, trace contaminants.

CE 671 - Microbiology in Environmental Engineering - 3(3.0): This course aims to equip students with: A knowledge base on the fundamental aspects of microbiology and biochemistry that are relevant to environmental engineering. characteristics of Bacteria, Archaea, Unicellular Eukaryotes (protozoa, algae, fungi), and viruses. cell structure, bioenergetics and metabolism, and microbial genetics. roles of microbes in the carbon, nitrogen, and sulfur cycles; enzymes; bioremediation, bioenergy, molecular microbiology; and microbial ecology in various environmental engineering processes.

CE 672 - Physical-Chemical Treatment Processes - 3(3,0): This course aims to equip students with: Advance knowledge in Gas-liquid transfer, water

desalination, and water and wastewater disinfection in natural and artificial environments. various pollutant removal from water and wastewater by Physical and chemical treatment process; various disinfectants in pathogen destruction. optimum process for solids separation. factors that influence gas-liquid transfer. Design basic physical and chemical processes used by environmental engineers using newly gained knowledge, computer applications in analysis and design.

***CE 673 - Biological Treatment Processes - 3(3,0)*:** This course aims to equip students with: major biochemical reactions exploited in wastewater treatment; how these reactions are applied in contemporary wastewater treatment; mathematical models of the main biochemical processes, steady-state solutions for the main constituents and their interactions in wastewater technologies [C, N, P]; This course will prepare students interested in biochemical processes for the treatment/management of municipal wastewater for restricted and unrestricted irrigation and other beneficial uses.

***CE 674 - Unit Operation and Processes Laboratory - 3(2,2)*:** This course aims to equip students with: wet laboratory; standard operating procedures for sampling, handling, storage of water and wastewater samples, standards operating procedures for performing laboratory experiments to determine physical, chemical, and biological water quality parameters. experiments for physical water quality parameters using jar test apparatus, Imhof cone, filters, ovens, and digital probes-based meters. an ability to perform experiments for chemical water quality parameters using titration-based techniques, HPLC, and AASP. experiments for biological water quality parameters using membrane technique. This course will prepare students interested in water quality management of water distribution systems, natural environment, and water and wastewater treatment facilities.

***CE 675 - Planning and Design of Water and Sewerage Networks - 3(3,0)*:** This course aims to equip students with: a knowledge of functions and components of water supply systems. design period and population forecasting methods. types of supply, types of layouts, and types of distribution. estimate water consumption and fire demand using different methods. design water distribution systems using EPANET software. storm drainage system and sanitary drainage system. design storm drainage system for urban areas using Rational Method. design sanitary

drainage systems using hydraulic statement. risk-based infrastructure management, develop proactive maintenance schedules for water infrastructure using a risk-based approach. This course will prepare students interested in municipal water infrastructure planning and design.

***CE 676 - Solid Waste Management - 3(3,0)*:** This course aims to equip students with: a knowledge of the six functional elements of solid waste management, including generation, handling and storage, collection, transfer and transport, process and recovery, and final disposal. characterize (solid and hazardous) and quantify solid waste at the point of generation. evaluate and design onsite handling, storage, and processing facilities. collection systems and collection routes. evaluate different types of transfer stations. different types of processing techniques. design and evaluate disposal systems of solid waste, including landfilling, incineration, and composting. This course will prepare students interested in solid and hazardous waste management for the sustainability of urban areas.

***CE 677 - Environmental Air Pollution - 3(3,0)*:** This course aims to equip students with: A knowledge base of air pollution sources, regulations, and adverse effects. the impact of air emission regulations and engineering controls. alternative technologies used to control and remove air pollutants.

***CE 692 - Selected Topics in Environmental Engineering - 3(3,0)*:** This course covers special topics in Environmental Engineering selected by instructor and students.

***CE 630 - GIS and Natural Resources Management - 3(3,0)*:** The course deals with various aspects related to the broad issue of environmental information and data for decision-making in the context of environmental and natural resources management. The course covers different aspects related to the provision of new data and information (increasing information density) by means of Geographic Information systems (GIS). This is achieved through several compulsory exercises that demonstrate how this tool together with other related tools can be applied to derive new, relevant information within various planning and management contexts.

***CE 631 - Hydrometry - 3(3,0)*:** This course deals with the main themes of hydrometry by monitoring water in natural water resources including the

measurement of water levels and bed levels, of discharge, and of sediment transport; it considers the use of flow measuring structures, hydrological networks, and the organization of surveys.

***CE 632 - Drainage Engineering - 3(3,0)*:** Introduction to drainage engineering, Waterlogging and salinity problems, Drainage investigation and scope for improvement, drainage coefficient and its determination, Surface Drainage System: Types and design of surface drainage system, Subsurface Drainage System: Types, steady and unsteady state flow through subsurface drains, installation and design of subsurface drains, filter design for tiles drains, Integrated planning for irrigation and drainage in command area.

***CE 633 - Irrigation Engineering - 3(3,0)*:** The need and mode of irrigation, Irrigation management practices of the past, present and future, Hydraulic design of different structures involved in irrigation, collect different methods of design and maintenance of irrigation modes, Define and describe any type of irrigation project, Advanced concepts of design of various modes of irrigation, Advanced irrigation problem modeling, Investigation of irrigation system design alternatives.

***CE 634 - Groundwater Hydrology - 3(3,0)*:** This course covers the topics: Need of hydrology as an engineering science essential for the planning, design and operation of water resource systems, use of analytical and empirical methods for modelling the hydrological processes, (precipitation, evaporation, transpiration, infiltration and runoff), flow in confined and unconfined aquifers, steady and unsteady flow problems in groundwater, mechanics of wells, groundwater recharge and saline water intrusion.

***CE 635 - Probability and Statistics in Hydrology - 3(3,0)*:** Since hydrologic processes in nature are governed by the laws of chance, the use of probability theory and mathematical statistics is unavoidable in the extraction of information from hydrologic data and for the best mathematical description of these processes. This course will focus on extreme hydrologic events which are largely random and unpredictable. Certain concepts will be applied for quantifying the magnitude, frequency, and probability of extreme hydrologic events.

***CE 636 - Water Resources Planning - 3(3,0)*:** Principles and standards for planning water resources, Water uses and water demand estimation

methods Water supply alternatives and water supply estimation methods, Benefit -cost analysis, economic and financial analysis, Environmental impact assessment, Legal and institutional aspects, Elements of project formulation and appraisal.

CE 637 - Applied Groundwater Flow Modeling - 3(3,0): This course covers the principles governing groundwater flow, creation of a groundwater model using numerical and analytical solution methods, use of MODFLOW to develop different types of groundwater models, calibration of flow and transport models with observed field data.

CE 638 - Design of Hydraulic Structures - 3(3,0): Integrating the hydraulic and water resources background, water structures design and its applications. In-depth introduction of professional practice and design codes. Formulating and solving multi-variable hydraulic design problems in an open-ended solution space. Principles and concepts of analysis and design of hydraulic structures.

CE 639 - Physical Hydrology - 3(3,0): Hydrology deals with the occurrence, circulation and distribution of water on earth and investigates the spatio-temporal storages and fluxes of water (in all its forms) in the terrestrial, oceanic, and atmospheric components of the global water system. Hydrology originated as an engineering discipline mainly focused on problems such as estimating extremes for hydrologic design applications. The role of hydrology currently has expanded to account for rapid increases in data and technology. Today, the societal need for water, human security, and ecosystem functioning in a rapidly changing world requires quantitative hydrologic understanding to generate the necessary predictive capability across space and time scales to solve our pressing water resources challenges.

CE 693 - Selected Topics in Water Resources and Hydraulic - 3(3,0): This course covers special topics in water resources and hydraulic engineering selected by instructor and students.

CE 640 - Urban Transportation Planning & Modeling – 3(3,0): Analytical techniques for estimating future travel demands; planning of transportation facilities and locations, transportation technology and future systems, mathematical models for decision making in planning and operations of urban highway and transit systems.

***CE 641 - Advanced Transportation Systems Analysis – 3(3,0)*:** Systems analysis in transportation planning and engineering, supply, demand, equilibrium, evaluation, and decision analysis.

***CE 642 - Traffic Flow Theory and Control – 3(3,0)*:** Fundamentals of macro and microscopic traffic flow characteristics, continuum flow models, control of signalized and un signalized intersections, and traffic simulation.

***CE 643 - Traffic Safety, Operations, and Maintenance – 3(3,0)*:** Highway capacity manual, concepts and analyses, engineering aspects of highway traffic safety, reduction of accident incidence and severity through highway design and traffic control, accident analysis, Legal implications, Safety in highway design, maintenance, and operation.

***CE 650 - Advanced Asphalt Materials - 3(3,0)*:** This course covers highway materials, asphaltic materials, and pavement mechanics. The course covers asphalt and asphalt-aggregate mix, properties of asphalt binder and aggregate, design pavement structure.

***CE 651 - Advanced Highway Design - 3(3,0)*:** This course covers the principle of pavement design of rural and urban highways. The course includes principles of designs intersection, interchange and geometric design considering safety and operational concern.

***CE 652 - Advanced Pavement Design - 3(3,0)*:** This course covers advanced pavement design and analytical including overlay design. Also, it covers the pavement structural analysis.

***CE 653 - Pavement Management Systems - 3(3,0)*:** This course covers the related fundamental concepts in the process of pavement management at both network level and project level. Distress identification and evaluation; concepts and methods for rehabilitation and maintenance techniques; non-destructive testing of pavements; performance prediction models; and principles of prioritization/optimization

***CE 654 - Airport Planning and Design - 3(3,0)*:** Concepts, theories of air transportation system and demand forecasting, process for planning various airport systems including site studies, master plan and environmental studies, geometric design characteristics of an airport including taxiways, aprons and

runways, designing airport systems, airport design process, managerial, operational, financial, technical and environmental issues related to airport planning and development.

CE 694 - Special Topics in Transportation Engineering - 3(3,0): This course covers special topics in Transportation Engineering selected by instructor and students.

4. GRADES & GRADUATION REGULATIONS

Grade Point Average (GPA) Semester/Level: It is the average of the total points of all academic units divided by the number of credit hours for the specific semester. Points are calculated by multiplying each academic unit by its corresponding weight of points.

Grade Point Average, Cumulative: It is the average of total points divided by the number of credit hours for all completed credit hours by a student for all semesters.

Grade Reports: Semester grade reports are not mailed to students. Semester final grades are typically available online. Students may view their grades by logging onto the "E-register" system.

Grades Breakdown: The grades breakdown and their equivalent description are shown in Table 6.

Table 6: Grading System

Marks	Grade	Points	GPA	Description
95 – 100	A+	5.00	4.75 - 5.00	Exceptional
90 – 94	A	4.75	4.50 - < 4.75	Excellent
85 – 89	B+	4.50	4.25 - < 4.50	Superior
80 – 84	B	4.00	3.75 - < 4.25	Very Good
75 – 79	C+	3.50	3.25 - < 3.75	Good
70 – 74	C	3.00	2.75 - < 3.25	Pass
Below 70	F			Fail

5. ACADEMIC PROGRESSION, DISRUPTION AND DISMISSAL

5.1 Academic Progression

MSc students must maintain a grade point average (GPA) of at least 3.75 out of

5. Moreover, each graduate student should, at start of enrolment in a program, have an academic advisor to direct the study, assist in selecting a thesis topic and preparing a research plan according to MSc program requirements initiated by the Deanship of Graduate Studies. The student should follow the process and procedures regarding all the required credit hours for graduation conditions (where applicable).

5.2 Attendance

Students are expected to attend all classes and to participate actively in class discussions. Absence should not exceed 25%.

5.3 Disruption

Qassim University recognizes that freedom requires order, discipline, and responsibility, and stands for the right of all students to pursue their legitimate goals without interference. Therefore, will not tolerate any attempt by any individual or group to disrupt the regularly scheduled activities of the University. Any such effort to impede the holding of classes, the carrying forward of the University's education objective, or the arrangements for properly authorized and scheduled events would constitute an invasion of the rights of faculty and students and cannot be permitted. If any such attempt is made to interfere with any University education objective, the leaders and participants engaged in disruptive tactics will be held responsible and will be subject to appropriate legal and disciplinary action, including expulsion.

Students who commit a disruption or attempt a disruption shall be subject to university disciplinary procedures, which may include probation, suspension, or exclusion from the University. Disruption is any action that interferes with, interrupts, or impedes the holding of classes, the carrying out of university business, or the arrangements for properly authorized and scheduled University events. A person attempts to disrupt when, with intent to disrupt, that person does any act that constitutes a substantial step toward disruption.

5.4 Dismissal from the University

The student shall be dismissed from the university in the following cases:

- If he receives three academic warnings for his cumulative GPA being below (3.75 out of 5).
- If he does not complete the graduation requirements within a maximum period of half of the period prescribed for graduation in addition to the duration of the program.
- If the student does not complete the graduation requirements within a maximum of six semesters, the College Council may grant an exceptional opportunity.
- If it becomes apparent that the student is not serious about his academic progress, the College Council may terminate his registration.

6. CODE OF CONDUCT

The rules and regulations governing the actions and interactions of administrative personnel, faculty, and students are intended to ensure that the aims and objectives of the MSc Program are accomplished according to the highest standards of academic rigor and ethical behavior.

6.1 Academic Misconduct

The MSc student is expected to act in a responsible manner, as expected in a department and college setting, in all activities connected with his studies. Incidents of cheating, plagiarism, lying, violating courses rules, copyright infringement, or damaging/destroying the department/College facilities or equipment, violate the Code of Student Ethics. If it is determined, by a faculty or other university official, that a student has acted unprofessionally, he will be subject to disciplinary action. Such action shall include but not to be limited to: a failing grade on the work submitted, a failing grade in the course, or expulsion from the program. The MSc program and the Postgraduate Graduate Studies shall jointly determine the severity of the action. However, the student has the right to appeal to the department, and in writing, stating the reason for the appeal.

6.2 Cheating

Using or attempting to use or provide unauthorized assistance, materials, information, study aids or mobiles in any form in any academic exercise or environment. The term academic exercise includes all forms of work submitted

for credit or hours.

- Using or attempting to use books, notes, study aids mobiles, calculators, or any other documents, devices, or information in any academic exercise or environment without prior consent by the instructor.
- Copying or attempting to copy from another person's paper, report, computer labs, computer program, or other work material in any academic exercise.
- Sending a substitute or acting as a substitute for another student to take one's examination, test, or quiz, or to perform one's field or lab work.
- Conducting research, preparing a project, or any assignment for another student without prior consent by the faculty.
- Changing a grade, score, answers on a returned exam, or assignment for credit.

6.3 Plagiarism and Similarity Checks

Plagiarism is defined as copying another student's work, lending work to another student, or representing extracts or whole articles and texts from books or handouts as one's own work. Presenting the words or ideas of someone else as one's own in any academic exercise, such as:

- Submitting any course related articles, assignments, projects by another person or by a commercial writing service.
- Exact reproduction of someone else's words without identifying the words with quotation marks, and without properly citing the quotation in a footnote or reference.
- Paraphrasing or summarizing someone else's work without acknowledgment in the footnotes or references.

The following rules are applied for the similarity check:

- The permitted similarity index for the entire thesis is 20%; any similarity checks beyond this threshold requires a review.
- Quoting from a single source should not exceed 5%
- Similarity (plagiarism) checks to be applied for all course work not only master's thesis with a permitted similarity index of 25%.
- When checking similarity of a thesis, the following sections are excluded to ensure a fair evaluation:

- Thesis title, author, and institution information.
- Thesis summary, Table of contents, Acknowledgement and List of Acronyms.
- Lists of chapters and sections.
- Appendices, supplementary material, such as raw data or additional information.
- References and Bibliography.
- Any published work out of the thesis.

6.4 Intellectual Property

Qassim University has a big Center for Innovation and Intellectual Property (CIIP) protects and commercializes intellectual properties (IP). The CIIP manages the entire IP lifecycle management from the discovery process and IP protection such as copyright, trademark, trade secret or patent to the deployment of the technology to industry partners or inventor-led startups as well as raising the technology readiness level.

7. STUDENT RIGHTS

7.1 Appeals

The MSc program convene to monitor the academic progress of all students at least once result/report in each semester, this result/report may case academic honors, places poorly performing students on probation, and issues suspensions and dismissal according to the postgraduate policies. Also considers and adjudicates on matters of disciplinary action. A faculty member (Instructor/Supervisor) normally brings cases forward to the Postgraduate Studies through online monitoring. The student who has been accused of academic misconduct will also be reported. Decisions of the Department of Civil Engineering council meeting will be conveyed to the Dean of graduate studies for final decision.

7.2 Academic Rights of Graduates Students

- Understand the procedures and rules of graduate studies, which is available on the webpage of the MSc program and Deanship of Graduate Studies. It

includes the rules regulating postgraduate studies of objectives and degree requirements, terms of admission and registration, deletion and postponement, withdrawal, enrollment dismissal, extra opportunities, and thesis proposal and final presentation.

- Obtain the necessary orientation to clarify rules and regulations of postgraduate studies.
- Have an academic advisor to help plan the schedule and provide guidance and direction for the best ways to advance in the academic and scientific research process to achieve the goal of joining the program.
- Have the academic calendar with important dates and deadlines.
- Have a study plan for compulsory and elective courses.
- Have course descriptions (course objectives and educational outcomes - course timetable - course evaluation methods - grade distribution - and references)
- Have the right to add – drop compulsory or elective courses.
- Obtain a list of faculty members, specializations and research directions.
- Get a scientific supervisor for the thesis after approving the research proposal plan.
- Change the thesis supervisor after submitting a written statement to justify the request.
- Get one additional opportunity to improve the marks for one semester (after the completion of all courses given that the student's grades are less than very good and have been received a warning letter to improve the GPA).
- Postpone the admission for one or two semesters.
- Postpone the study for one or two semesters and submit a written statement to justify the request.
- Ensure confidentiality of complaints.
- Solving problems and obstacles that negatively impact academic progress.
- Get the graduation certificate upon completion of the graduation requirements.

7.3 Disciplinary Issues

Violations may be of an academic or non-academic nature. All those who attend activities outside the University as their representatives to attend academic or non-academic activities are subject to the same disciplinary action in case of violation of the charter.

7.4 Academic Issues

Students may appeal to a faculty member's decision regarding a grade. The student can formally appeal or communicate to the faculty member, either orally or in a written form with the reasons he believes the grade to be unfair or inappropriate. If the disagreement continues, a student may appeal in writing to the head of the department. In this case the decision will be made to the CE department council meeting.

7.5 Students Complaints

All complaints must be submitted in writing with the names of the students and sent to the head of the department/ Dean of Postgraduate Studies. Students should not discuss any academic issues with any of the MSc administrators due to confidentiality purposes.

8. THESIS SUPERVISION

Graduate students are assigned an academic guide at the start of their enrolment in a program, to direct the study, assist in selecting a thesis topic, and prepare a research plan according to University Council regulations initiated by Deanship of Graduate Studies and implemented by MSc Program.

The student can register his research plan after passing at least one semester. The proposed research plan is submitted to the Department Council for approval and to assign a supervisor (and an assistant supervisor where applicable) for the thesis. The rules related to thesis supervision are listed below.

***Thesis related rules*:**

An academic work introduced by the requirements of obtaining the master's degree, which its title and proposal have been approved by the Department Council and Deanship of Graduate Studies as per the recommendation of both the councils of Scientific Department and College. This has to be done according to the Manual of Theses Preparation approved by the MSc program following the rules of Graduate Studies Deanship.

Students related rules:

A graduate student who registers for attaining the theses after getting his/her thesis accredited along with appointing an academic supervisor by the Deanship of Graduate Studies Council as per the recommendation given by the Department and College councils.

Advisor related rules:

An advisor is a faculty member chosen by the academic section dedicated for each graduate student since joining the program. His duty is to guide and assist the student in the selection of the study subject and preparing the research proposal.

Supervisor related rules:

A supervisor is a faculty member appointed by the Council of Graduate Studies to supervise a graduate student as per the recommendation of the Department and College councils. He is the main supervisor in case more than one supervisor is chosen to supervise the Thesis.

Co-supervisor related rules:

A co-supervisor is a faculty member appointed as an assistant supervisor for the student to help the main supervisor. He can also be selected to supervise a part of the thesis.

9. EDUCATION RESOURCES

The MSc program offers a range of resources and expertise to help students meet their target of success. The resource strategies and education literature may be new domains for you and your colleagues. The list of resources is stated below:

- Textbooks
- Lectures
- The World Wide Web (Internet)
- Seminars
- Conferences
- Training Courses

9.1 Students' Affairs Office

The students' Affairs Office which is headed by the vice dean of students' affair and has two full-time expert members. The office is supported and linked to the Deanship of Postgraduate for Registration. The office is equipped with computers connected tothe university local area network. The main tasks of this office are:

- The office helps in the registration of students and supplies the necessary data concerning the students' enrolment and their progress. These documents help in the evaluation process.
- The office staff has access to the registration program to help solve problems which face the students during registration.
- The office director participates in the committee which distributes the students after the first level to the different departments of the college.
- The office monitors the attendance of the students so that the rules of exclusion of attending the final exams are firmly applied.
- The Student Affairs Office arranges and controls all matters related to the midterm, final written exams and written outcomes achievement exam. In this regard, the office prepares the exam timetable, assigns exams places, assigns exams supervisors, collects the exam questions from the faculty members, and arranges for supplying the answer sheets.
- The office also participates in informing the students about any important activities, dates, news, rules through the college website and/or by cellular SMS's.

9.2 Students' Activities

The student affairs deanship supervises most of the students' activities. This includes cultural, recreational, and social activities. These activities enhance the students' learning ability as well as it demonstrates good chance for entertainment and stress relief. Samples of these activities are:

- Cultural activities: in all fields.
- Social activities like traveling and visiting major industrial cities and large-scale engineering projects.
- Recreational activities such as arranging races in football, tennis and billiards.

In addition, the college has a mosque, a cafeteria, and a student club. The club is

a complementary part to the college mission, and it is a center for student activities such as discussions, workshops, competitions, culture, training, sports, social and various student related activities. Students from various departments are enrolled as club members. Members usually contribute with their creative ideas, and discuss events for the future planned activities, during meetings held by the club. All teaching staff supporting student activities can participate in this club.

9.3 College Scientific Journal

The college of engineering supervises the publication of the bi-annual Qassim University Journal of Engineering and Computer Sciences. Contributions to this journal are not limited to staff members of the college but are open to contributors from inside and outside the Kingdom of Saudi Arabia. Papers are published after being refereed by national and international specialists. This journal is considered a good journal for publication and its papers are considered by the scientific councils in all KSA universities for promotion.

9.4 Physical Facilities

In addition to the specialized laboratories in each department, the college contains several laboratories, drawing halls, teaching halls and computer laboratories which will serve all the college departments. These physical facilities are:

- Workshop
- Computer laboratories
- Drawing halls
- Active learning halls
- Teaching halls

9.5 Workshop

A workshop with a lot of equipment and tools is used. The workshop is in the Department of Mechanical Engineering and has Lathes, Milling machines, Shaper, Drill Press, Band Saws, Grinder, Welding and Hydraulic Cutter. Students of the junior levels get trained in the workshop and perform experimental exercises for different industrial programs. Moreover, the students can carry out manufacturing of equipment and experimental models for their master thesis (if needed). The workshop is utilized also in research projects performed by the

college staff members as well.

9.6 Computer Laboratories

The college has two computer laboratories supervised by teaching staff members. The laboratories are well equipped with extensive licensed software libraries and up-to-date printers and scanners. The laboratories are utilized in graduation projects and in teaching computer sciences as well as these engineering courses which require computer application. The computer facilities include the service ofelectronic mail, internet. The capacity of each laboratory is about 40 students.

9.7 Teaching Halls

The college contains several teaching halls. The halls are equipped with the most recent educational equipment like whiteboards, overhead projectors, internet connections, electric supplies, air conditioners and more.

9.8 CE Labs

The CE Program has its own labs that are used for MSc experimental work as given in Table 7.

Table 7: List of laboratories available in CE Department.

No.	Laboratory name	Room	Area (m^2)
1	Concrete Technology	B2-G015	100
2	Materials Engineering	B2-S003	100
3	Structural Engineering	B2-G006	100
4	Geotechnical Engineering	B2-S009	250
5	Environmental Engineering	B1-S183	100
6	Traffic and Transportation engineering	B1-S187	100
7	Highway Engineering	B1-S176	100
8	Computer lab	B1-S060 & B1-S057	100

10. FACULTY MEMBERS

No	Faculty Name	Rank	Specialty
1	Ibrahim Alsalamah	Professor	Water Resources Engineering
2	Abdulrahman Alkhumari	Professor	Water Resources Engineering
3	Husnain Haider	Professor	Environmental Engineering
4	Mohammed Shafiquzzaman	Professor	Environmental Engineering
5	Abdulrazzaq Ghumman	Professor	Water Resources Engineering
6	Emad Elbeltagi	Professor	Construction Engineering and Management
7	Majed Alinizzi	Assoc. Professor	Construction Engineering and Management
8	Mohammad Alresheedi	Assoc. Professor	Environmental Engineering
9	Saleh Alogla	Assoc . Professor	Structural Engineering
10	Abdullah Alodah	Assoc. Professor	Water Resources Engineering
11	Fawaz Alharbi	Assoc. Professor	Transportation and Traffic Engineering
12	Meshal Almoshaogeh	Assoc. Professor	Transportation and Traffic Engineering
13	Omar Alawad	Assis. Professor	Structural Engineering
14	Saud Almutairi	Assoc. Professor	Construction Engineering and Management
15	Saleem Alsaleem	Assoc. Professor	Environmental Engineering
16	Hany Dahish	Assoc. Professor	Structural Engineering
17	Muneer Abdo	Assoc. Professor	Structural Engineering
18	Ahmed Hussin Birima	Assoc. Professor	Environmental Engineering
19	Ahmad Alenezi	Assis. Professor	Structural Engineering
20	Badir Alsaeed	Assis. Professor	Water Resources Engineering
21	Fahad Alshomar	Assis. Professor	Geotechnical and Foundation Engineering
22	Wael Alattyih	Assis. Professor	Construction Engineering and Management
23	Raed Alsalhi	Assis. Professor	Transportation and Traffic

			Engineering
24	Saud Alotaibi	Assis. Professor	Structural Engineering
25	Mohammad Alfawzan	Assis. Professor	Transportation and Traffic Engineering
26	Yazeed Alsharedah	Assis. Professor	Geotechnical and Foundation Engineering
27	Mansour Alturki	Assis. Professor	Structural Engineering
28	Ibrahim Alfallaj	Assis. Professor	Transportation and Traffic Engineering
29	Yasser Altwijri	Assis. Professor	Geotechnical and Foundation Engineering
30	Abdullah Alnasser	Assis. Professor	Environmental Engineering
31	Eyad Alsuhaibani	Assis. Professor	Structural Engineering
32	Ahmed Alateeq	Assis. Professor	Structural Engineering
33	Saleh Aloraini	Assis. Professor	Environmental Engineering
34	Abdulaziz Almarshad	Assis. Professor	Structural Engineering
35	Mohammed Alkharisi	Assis. Professor	Structural Engineering
36	Ahmed Almutairi	Assis. Professor	Structural Engineering
37	Anas Aldawwas	Assis. Professor	Geotechnical and Foundation Engineering
38	Majed Alreshoodi	Assis. Professor	Construction Engineering and Management
39	Ahmed Elragi	Assis. Professor	Structural Engineering
49	Naeem Ahmed	Assis. Professor	Engineering Mathematics
41	Rajab Elsayed	Assis. Professor	Water Resources Engineering
42	Mudthir Almakki	Assis. Professor	Geotechnical and Foundation Engineering
43	Arshad Jamal	Assis. Professor	Transportation and Traffic Engineering

11. COLLEGE ADMINISTRATION

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