QURTUBA UNIVERSITY OF SCIENCE & IT

DERA ISMAIL KHAN

SELF ASSESSMENT REPORT (SAR)

Bachelor of Science in Civil Engineering

Department of Civil Engineering & Technology

Submitted to

EAB / EA&QEC
Pakistan Engineering Council

October, 2025

Subject: <u>SAR for the Program of Bachelor of Science in Civil Engineering</u>

1. The requirements as per the Check List below to qualify for the process of accreditation under the PEC OBA Manual of Accreditation-2019 have been addressed / verified:

Check List:

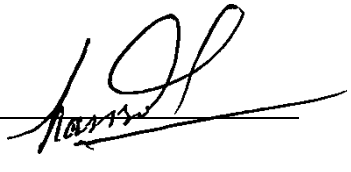
S. No.	Qualifying Requirement	HEI Check/ Remarks	PEC Check/ Remarks
i.	Applicant institution must satisfy the legal status/requirement of the relevant bodies, specifying the particular legal arrangements as a Charter/Degree Awarding Institution (DAI), Constituent or Affiliated institution, or any other type, etc.	Yes, Qurtuba University of Science & Information Technology established through a Charter of Government of Khyber Pakhtunkhwa in 2001 and is a KPK private sector DAI .	
ii.	A minimum of 128 credit hours of which minimum of 65% credit hours must be from core engineering courses offered over a period of four years (8 semesters).	Yes, the Program has a total of 137 Credit Hours for intake batch upto Fall-2023 and 136 Credit Hours for intake batch Fall-2024 onwards, with 70.07% from core Engineering courses respectively.	
iii.	Final Year Project (DP) (minimum 6 credit hours)	Yes Final Year Project has 6 Credit Hours.	
iv.	Full-time engineering faculty (minimum of 8), and matching student teacher ratio of 25:1.	Yes, full time Engineering faculty of 8 with a student teacher ratio of around 7:1	
v.	Progress on/Compliance Report on the last PEC visit observations decision.	The Latest PEC Accreditation Visit for 2020 onward Batches held on October 17-18, 2024. The rejoinder report for the visit is already submitted, addressing the observations of PEC visitation team. The Re-Accreditation Visit for 2021 to onward s Batches is expected to be held in the last week of October 2025.	
vi.	Summary of initiatives to adopt Outcome Based Assessment (Program learning objectives and outcomes)	In compliance with the recommendation of the PEC, Civil Engineering Department at Qurtuba University of Science & IT, D. I. Khan took a decision to adopt Outcome Based Education (OBE) system in Fall-18. For implementation of the OBE system, different steps were taken to	

		replace the existing system towards OBE. • Formal trainings carried out especially for faculty for adoption of OBE system. • The PEOs for Civil Engineering department were initially designed within the department based on the inputs from QEC and the faculty members. These were further approved by the board of studies. • Mapping of PEOs with PLOs. • Developed CLOs of Each Course and mapped with PLOs. • Curriculum revised keeping in view of OBE system and approved from BOS. • For the assessment of OBE system/ attainment of CLOs & PLOs, a software was purchased and training session on OBE software was carried out for the faculty members. •	
vii.	Duly completed and signed SAR as per prescribed format	Yes	

2. The Self-Assessment Report (SAR) is hereby submitted for consideration of PEC EAB/EA&QEC to process for accreditation of the program of Bachelor of Science in Civil Engineering (2021, 2022 & 2023 Session).

Signature 

Engr. Dr. Kamran Aziz
Chairman, Civil Engineering Department
Qurtuba University of Science & IT,
D.I. Khan.
Date: October 19, 2025

Signature 

Prof. Dr. Muhammad Mansoor Khan
Dean, Faculty of Engineering
Qurtuba University of Science & IT,
D.I. Khan.
Date: October 19, 2025

Signature _____

Name _____
Accreditation Department, PEC
Date: _____October 2025

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ACRONYMS

ACM	Academic Council Meeting
AY	Academic Year
B.Sc.	Bachelors of Science
CDC	Career Development Centre
CLO	Course Learning Outcome
CE	Civil Engineering
DBS	Departmental Board of Studies
DCET	Department of Civil Engineering & Technology
FBS	Faculty Board of Studies
FYDP	Final Year Design Project
HOD	Head of the Department
IAB	Industrial Advisory Board
LMS	Learning Management System
QEC	Quality Enhancement Cell
QUSIT	Qurtuba University of Science & Information Technology
OBA	Outcome Based Assessment
OBE	Outcome Based Education
PEC	Pakistan Engineering Council
PEO	Program Educational Objective
PG	Postgraduate
PLO	Program Learning Outcome
QA	Quality Assurance
QMS	Quality Management System
SAR	Self-Assessment Report

EXECUTIVE SUMMARY

This is the self-assessment report (SAR) of the Department of Civil Engineering and Technology (DCET), Qurtuba University of Science & Information Technology (QUSIT) for the fulfillment of requirements set forth by Pakistan Engineering Council (PEC) in its Accreditation Manual, Third Edition, 2019 for the B.Sc. CE program. The SAR consists of 10 chapters, addresses all nine criteria of the PEC and contains assessment based on these criteria's.

Chapter 1 provides a brief history of establishment of QUSIT and its academic pursuits, followed by the organizational structure. Afterwards, the conversion to OBE is explained. Moreover, the details regarding Program Delivery Mode and accreditation are also provided in this chapter.

Second chapter addresses the Criterion 1 of the PEC Accreditation Manual 2019. Mission and vision of the university along with Program Educational Objectives (PEOs) of the BSc. Civil Engineering Program are provided. Mapping of PEOs with mission of the Civil Engineering Department and vision and mission of the university is discussed. Processes to evaluate PEOs and KPIs for PEO attainment are also provided in this chapter.

The third chapter is based on the Criterion 2 of the PEC Accreditation Manual 2019 and details of the Program Learning Outcomes (PLOs) of the BSc. Civil Engineering Program. Mapping of PLOs to PEOs is provided along with process of establishing and reviewing PLOs. Mapping of courses to PLOs is also provided in this chapter. PLO assessment process and application of assessment results for improvement of program is discussed towards the end of the chapter.

Curriculum and learning process is discussed in the fourth chapter under Criterion 3 of the PEC Accreditation Manual 2019. Overall curriculum design and detailed semester wise course offering are part of this chapter. Consistency of program delivery and assessment methods is discussed. Details of internship program, final year project and complex engineering problems along with examples are provided.

Fifth chapter includes students' admission criteria, admission response and academic counseling among other aspects pertaining to students as per Criterion 4 of the PEC Accreditation Manual 2019. This chapter also provides details of student extra-curricular activities and various student bodies working in the Department of Civil Engineering & Technology.

Criterion 5 of the PEC Accreditation Manual 2019 is about faculty and support staff that is discussed in the sixth chapter of this document. In addition to providing overall faculty strength and student-teacher ratio, this chapter provides salient achievements of faculty and their research.

Chapter 7 discusses the facilities and infrastructure available in the university. These include lecture theaters, laboratories, computing facilities, library, workshops, sports and hostel facilities.

Chapter 8 gives details about the institutional support and financial resources, institutional financial commitment and support. Detail of sufficient support and financial resources to attract and retain high quality faculty and provide means to maintain competence has been provided. Income and expenditure details have also been given in this chapter.

Chapter 9 “Continuous Quality Improvement” deals with the Criterion 8 of the PEC Accreditation Manual 2019. It discusses mechanism of program planning and provides processes for establishment and review of Program Educational Objectives and Program Learning Outcomes. The observations of last PEC visit and their progress is also discussed.

The last chapter “Industrial Linkages” provides details of industrial linkages between the department and local / foreign industries and opportunities to our students for practical training and exposure through the internship program.

CHAPTER 1

Introduction

1.1 History

Qurtuba University of Science and Information Technology is one of the pioneer private sector Universities of Khyber PakhtunKhwa Pakistan. The University was established through a charter issued by the Governor (K.P) on 30th August 2001 and is recognized by the Higher Education commission (former UGC), Islamabad. The University has been working sincerely towards the attainment of character-building and cultivate in its students the quest for inquiry so that they may extend the frontiers of knowledge & be able to bring peace & prosperity to the country. Our goal is to revive the memories of the city of Cordova, known as "***Madinat-Ul-Ilm***". This city was known as the cradle of knowledge and research for centuries. European scholars & students also thronged to this seat of learning & acquired specializations in various fields of knowledge.

QUSIT was established with the sole purpose of imparting quality education in various fields of Science and IT. The target areas are educationally backward areas of the country and the people who, because of their financial problems, cannot continue higher education and join service in the public or private sector. By the grace of Almighty ALLAH, QUSIT has achieved its objectives, as many students are coming from admission from far flung areas of the country. The single most objective of this university has been the accomplishment of high academic standards with full emphasis on moral excellence.

QUSIT has unique honor of starting M. Phil. & Ph.D. Classes in the fields of Management Sciences, International Relations, Political Science, Teacher Education, Urdu, English, Islamiyat, Physics, Botany and Computer Sciences. The University has been publishing three Research Journals, ***"The Journal of Managerial Sciences"***, ***"The Dialogue"*** and ***"The Sciencetech".*** These Journals are approved by HEC under ***"Y category"***.

Since 2015, The University is successfully running Engineering and Technology programs in D.I. Khan Campus, in the disciplines of Civil Engineering / Technology and Electrical Technology.

1.2 Organizational Structure

The overall organizational structure is shown in Figure 1- 1.

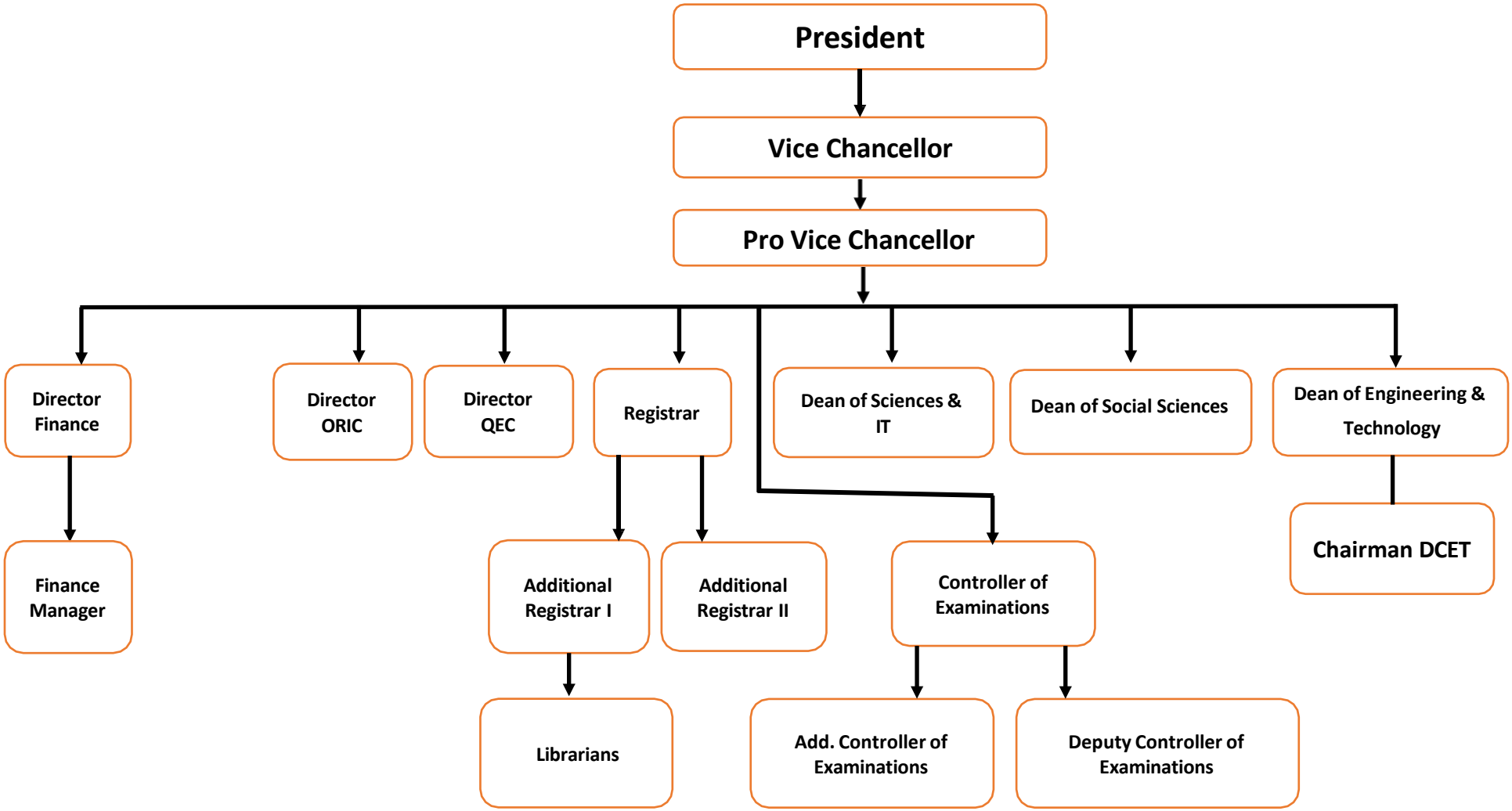

Figure 1- 1: Organizational Structure

The departmental organizational structure is shown in Figure 1- 2

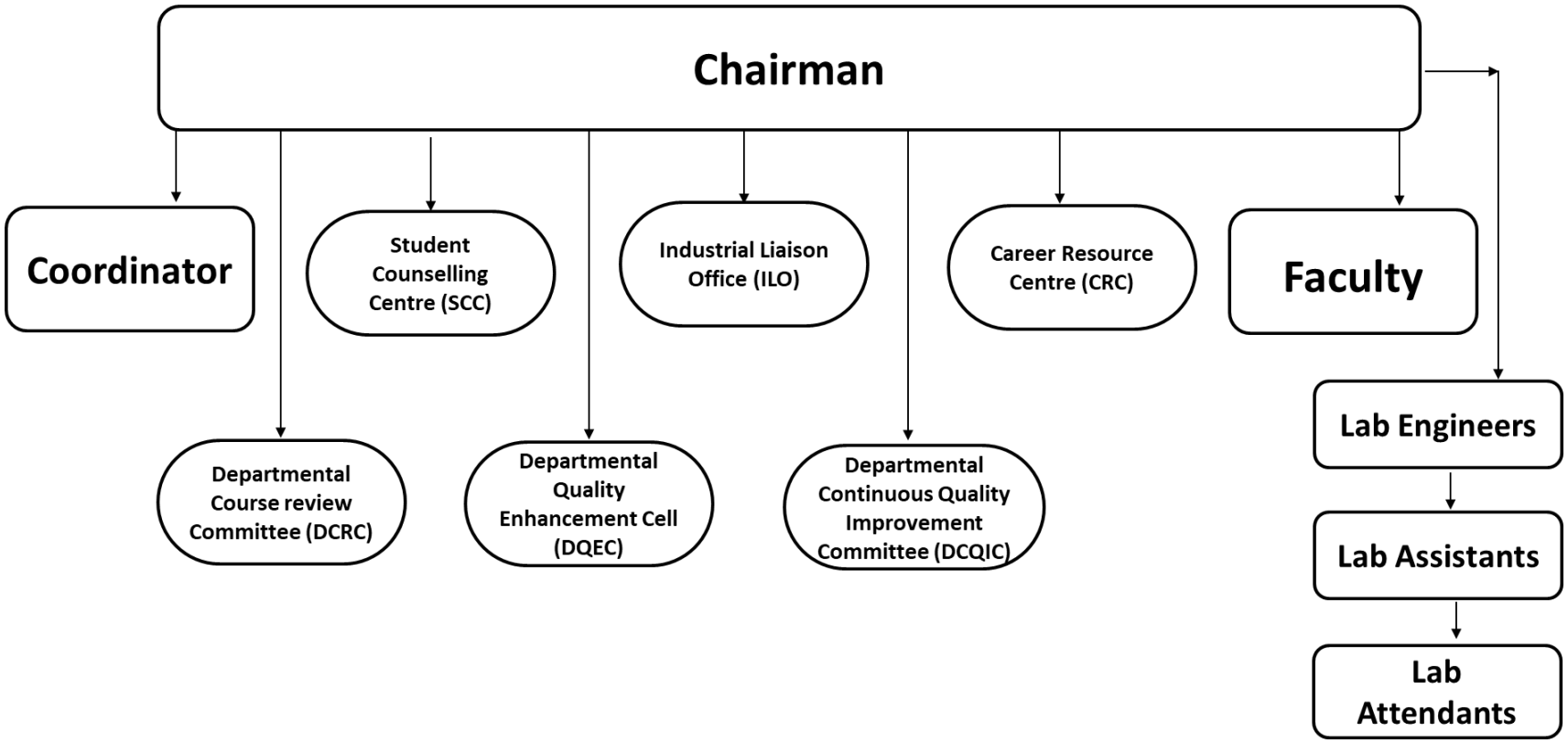

Figure 1- 2: Departmental Organizational Structure

1.3 Implementation of OBE

In compliance with the recommendation of PEC, Civil Engineering Department at Qurtuba University of Science & IT, D.I. Khan took a decision to completely adopt the Outcome Based Education (OBE) system from Fall-18 onwards. For implementation of the OBE system, different steps were taken to replace the existing system towards OBE.

- Formal trainings carried out especially for faculty for adoption of OBE system.
- The PEOs for Civil Engineering department were initially designed within the department based on the inputs from QEC and the faculty members. These were further approved by the board of studies.
- Mapping of PEOs with PLOs.
- Developed CLOs of Each Course and mapped with PLOs.
- Curriculum revised keeping in view of OBE system and approved from BoS and Academic Council.
- For the assessment of OBE system/ attainment of CLOs & PLOs, software was purchased from Alfoze Technologies and training session on OBE software was carried out for the faculty members.

1.4 Mode of delivery of program and location

The Department of Civil Engineering & Technology offers the B.Sc. Civil Engineering Program courses during the week days between the hours of 09:00 am to 04:00 pm at D.I. Khan Campus. Courses are generally offered in fall and spring semesters. Selected courses are offered during the summer semester (which is optional). Most of the courses are delivered in the lecture format and there is a laboratory component to some core courses as per curriculum. In addition to the lectures, open ended project work is also part of many courses, allowing students to solve complex engineering activities. A dedicated, six credit hour final year design project is carried out by students during the seventh and eight semesters. Students are also required to complete a mandatory industrial internship for the award of degree.

1.5 Accreditation

The Department of Civil Engineering was launched in 2015. Accreditation has been granted up to intake batch of 2020. Faculty of Engineering (FOE), QUSIT University offers Bachelor of Science in Civil engineering discipline, which is accredited by Pakistan Engineering Council (PEC).

CHAPTER 2

Program Educational Objectives (PEOs)

In this chapter, the visions and missions of the Qurtuba University of Science and Information Technology (QUSIT), B.Sc. Civil Engineering Degree Program and Department of Civil Engineering & Technology (DCET) are highlighted. The program educational objectives are mapped with the visions and missions of the QUSIT, Program and DCET. Additionally, the processes in place to evaluate achievement of PEOs are also described.

2.1 Mission and Vision

2.1.1 Vision of the University

To help establish a knowledge-based, tolerant and progressive society that may strive for the establishment of a just socio-economic, political and moral order in the Islamic Republic of Pakistan

2.1.2 Mission of the University

To help our succeeding generations in the acquisition of academic and moral excellence and to facilitate them in their quest for inquiry, so that they may know the truth, which, in turn, will emancipate them from ignorance & enable them for service to mankind and submission to Allah Almighty.

2.1.3 Program Mission (Civil Engineering)

To impart high quality education in Civil Engineering through excellence in teaching[PEO-1&2], research[PEO-3] and entrepreneurship[PEO-2].

2.2 Program Educational Objectives (PEOs)

2.2.1 Formulation, improvement and approval of PEOs

The PEOs for any department are key indicators of its performance in relation to other key stakeholders such as industry, businesses and society in general. Our PEOs describe our key expectations from our graduates within 3-4 years of graduation. The process of development of these PEOs involves faculty members which is one of the three major stakeholders i.e. industry,

alumni and faculty members. Industry and Alumni will be involved after graduation of 3 intakes. The PEOs for Civil Engineering department were initially designed within the department based on the inputs from QEC and the faculty members. These were further approved by the relevant statutory bodies.

These PEOs are presented in IAB meeting and are evaluated on the basis of feedback received from graduating student survey, Alumni survey and employer survey.

2.3 PEOs description and advertisement

Following are the program educational objectives that are expected to be exhibited by the Civil engineers after 3-4 years of their graduation.

- Effective contribution towards the engineering industry and related fields by demonstrating in technical knowledge and professional skills acquired through the program.
- Work, manage and illustrate effective teamwork, interpersonal skills and entrepreneurial ideas for professional growth.
- Undertake professional practice considering ethical, societal and environmental implications.

PEOs are published on institute website (www.qurtuba.edu.pk). Program's mission statement and the PEOs are also displayed in the department as well as placed on the notice boards to frequently remind students and faculty members of the long-term goals of the department as well as the program.

2.4 Consistency of PEOs with the visions and missions of the program and Institute

The PEOs are formulated in line with the institute and department's vision and mission. The aim is to be inclusive of ethical values and industrial skills. Using state of the art teaching methodologies, modern engineering tools, frequent assessments and continuous feedback with effective quality control, the process of learning for students will be enhanced. With the help of design projects, complex engineering problems, industrial liaison and counseling, our students will be prepared for their future roles as leaders, innovators and entrepreneurs.

Table 2.1 shows the mapping of PEOs with the mission and vision of QUSIT and also the mission of the Civil Engineering Program.

Table 2.1: Mapping of PEOs with the vision and mission of QUSIT and Mission of Civil Engineering Program, D. I. Khan

PEOs	QUSIT's Vision	QUSIT's Mission	Program Mission
Effective contribution towards the engineering industry and related fields by demonstrating in technical knowledge and professional skills acquired through the program.	To help establish a knowledge-based[PEO-1], tolerant and progressive society[PEO-2] that may strive for the establishment of a just socio-economic, political and moral order [PEO-3] in the Islamic Republic of Pakistan	To help our succeeding generations in the acquisition of academic[PEO-1] and moral excellence and to facilitate them in their quest for inquiry, so that they may know the truth, which, in turn, will emancipate them from ignorance[PEO-3] & enable them for service to mankind[PEO-2] and submission to Allah Almighty	To impart high quality education in Civil Engineering through excellence in teaching[PEO-1 &2], research[PEO-3] and entrepreneurship[PEO-2]
Work, manage and illustrate effective teamwork, interpersonal skills and entrepreneurial ideas for professional growth.			
Undertake professional practice considering ethical, societal and environmental implications.			

2.5 Processes Used to Evaluate the Achievement of PEOs

In the shift of the department towards OBE based system, an important step is the use of key performance indicators (KPIs) to gauge the level of attainment of the expected outcomes for the program. In case of PEOs, key performance indicators and their minimum threshold have been defined as given in Table 2.2 that will be evaluated based on our survey with industries (i.e. employers) and our alumni.

Table 2.2: **Assessment of Program Educational Objectives**

PEOs	Source	Key Performance Indicator	When measured
PEO-1	Employer Survey Form	Results of Q.1 & Q.2 should be greater than 50%	Annually
	Alumni Survey Form	Results of Result of Q.1 & Q.2 should be greater than 50%	
PEO-2	Employer Survey Form	Results of Q.3, Q.4 & Q.5 should be greater than 50%	Annually
	Alumni Survey Form	Results of Q.3 & Q.4 should be greater than 50%	

PEO-3	Employer Survey Form	Results of Q.6 & Q.7 should be greater than 50%	Annually
	Alumni Survey Form	Results of Q.5 & Q.6 should be greater than 50%	

The measurement tools i.e. Employer survey, and Alumni survey are designed in a way that they can accurately measure the defined KPIs. The templates of survey forms are given in the Appendix 1. The alumni survey is conducted using online forms and the link is sent to alumni who graduated two or more than three years before the survey date. Social media is also used to gain maximum reach to all the Alumni. Employer survey is carried out in a similar manner. Employer's feedback is of critical importance as it provides a deep insight about the strengths and weaknesses of graduates in terms of professional attributes aimed during the graduate program. Their input provides an opportunity to incorporate their concerns in the curriculum and teaching-learning process for continuous quality improvement purpose.

2.6 Evaluation Results used for continual improvement of the program

Results obtained from evaluation are based on surveys conducted by the Industrial Liaison Office (ILO) and Quality Enhancement Cell (QEC). The surveys also include sections for comments where the alumni and employers can highlight if they have any particular concerns. The data is compiled by QEC and final report is forwarded to the concern department.

After thorough departmental discussion, the report is forwarded to the dean faculty of engineering. On recommendation of the dean, the feedback through survey will also be discussed with the industrial advisory board (IAB) and their input will be considered. The concerns or suggestions from all involved stakeholders support the periodic review of PEOs and may result in their improvement over time with the changing global requirements.

Chapter 3

Program Learning Outcomes (PLOs)

The PLOs are desirable graduate attributes at the time of graduation of a student which must be ensured through the courses delivery and assessments process. This chapter describes the program learning outcomes (PLOs) and demonstrates mapping of these twelve PLOs with four PEOs. The mapping of Program Learning Outcomes to Course Learning Outcomes (CLOs) is also listed in this chapter. The assessment methodology and revision process is discussed at the end of this chapter.

3.1 PLOs as Defined by PEC Accreditation Manual-2019

The PEC Accreditation Manual-2019 lists the twelve attributes to be achieved by an Engineering undergraduate program. As per PEC guide lines, QUSIT, D. I. Khan campus has also as a first step adopted the same list of attributes and expects the students to acquire these twelve attributes by the end of the program. The list of the twelve attributes is given in the following:

PLO-1 (Engineering Knowledge)

Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems;

PLO-2 (Problem Analysis)

Identify, formulate, research literature and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences

PLO-3 (Design/Development of Solutions)

Design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations

PLO-4 (Investigation)

Conduct investigation into complex problems using research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.

PLO-5 (Modern Tool Usage)

Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling, to complex engineering activities, with an understanding of the limitations

PLO-6 (The Engineer and Society)

Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice.

PLO-7 (Environment and Sustainability)

Understand the impact of professional engineering solutions in societal and environmental contexts and demonstrate knowledge of and need for sustainable development.

PLO-8 (Ethics)

Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.

PLO-9 (Individual and Team Work)

Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.

PLO-10 (Communication)

Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PLO-11 (Project Management)

Demonstrate knowledge and understanding of engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PLO-12 (Life-long Learning)

Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

These PLOs are published both in faculty room and at the main notice boards of the department so that the students and faculty are frequently reminded of the expected outcomes from the said program.

3.2 Mapping of PLOs/Graduate Attributes with the PEOs

The PEOs are designed in a way that our PLOs support the achievement of PEOs over the years. The mapping of PLOs with PEOs is provided in **Annexure-B** of supplementary annexures.
It clearly shows that PEOs of DCET are well aligned with PLOs.

3.3 PEOs Encompassing the Graduate Attributes

Twelve graduate attributes that are defined as program learning outcomes (PLOs) for the Civil engineering program, fully encompass the desired attributes in Civil engineering graduates consistent with the guidelines of PEC Manual of Accreditation 2019. PEO-1 encompasses the graduate attributes namely engineering knowledge, problem analysis, design/development of solutions, investigation and modern tool usage. PEO-2 covers individual and team work, communication, project management and life-long learning. PEO-3 covers the PLOs such as the engineer and society, ethics, environment and sustainability.

3.4 Process for establishment and review of the PLOs

These twelve PLOs were critically discussed in the meeting of Board of Studies (BoS) and Industrial Advisory Board and suggested no changes in it. Hence, these PLOs were found to be suitable for adoption. These PLOs are frequently communicated to all the stakeholders and taken into account for development of courses.
PLO review process is briefly described in following flow chart:

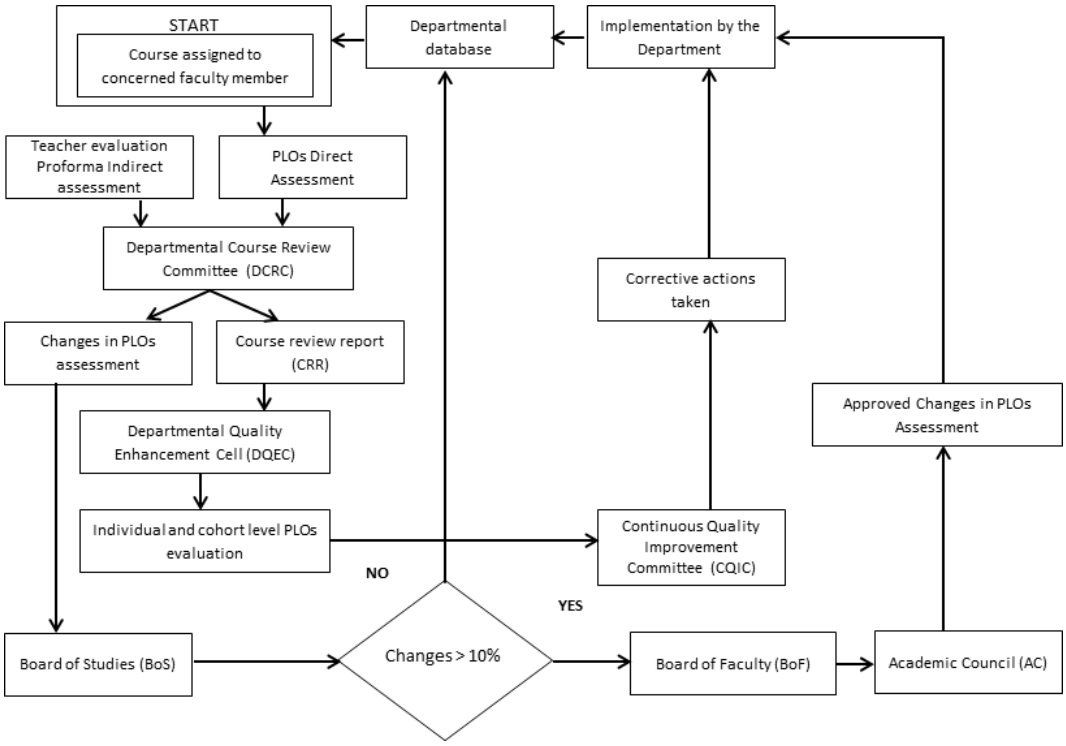

Figure 3- 1: PLO review process

3.5 Mapping of Courses with PLOs

The mapping of courses with PLOs is ensured through course learning outcomes (CLOs). These CLOs are defined as statements initially by the subject specialist (faculty members), keeping in view the coverage of the respective course. These CLOs are assessed through direct and indirect activities. The CLOs are also communicated to students at the beginning of each course (available in curriculum). The mapping of courses (based on their CLOs) with the PLOs is also given in **Annexure-D** of supplementary annexures.

3.6 Assessment Methodology of PLOs

The assessment of PLOs is carried out using two methods: direct assessment and indirect assessment, which are described below.

3.6.1 Direct Assessment

CLOs of each course are defined through Bloom's taxonomy. The achievement of CLOs and correspondingly PLOs is obtained through the following.

- Assignments / Quizzes
- Mid and End Term Exam
- Coursework (Problem solving, report writing, presentations)
- Complex Engineering Problems/ Problem Based Learning
- Open Ended Labs
- Final Year Project
- Laboratory Viva
- Laboratory Reports

The achievements of CLOs and PLOs for each course are observed at the earliest through the above-mentioned parameters. Corresponding improvement measures are then taken at an early stage and conveyed to low-performing students and academic warning letters are issued to the students and sent to parents as well.

3.6.2 Indirect Assessment

Indirect assessment of PLOs is based on the response of two survey forms:

- Student Surveys
- Course Review Forms

The review of PLOs is carried out based on the analysis of these surveys. These surveys are conducted every semester/year. Series of relevant questions are asked to assess the achievement of PLOs. Summary of tools for assessment of CLOs and PLOs (both direct and indirect) is given in Table 3- 1.

Table 3- 1: Summary of tools for assessment of CLOs and PLOs

Assessment Type	Items Assessed	Assessment Tool	Key Performance Indicators (KPIs)	Assessed by	When assessed
Direct	CLOs	Quizzes, Assignments, lab reports, CEPs, PBLs, OELs, FYDPs, Mid and Final exams	Student average ≥ 50 %	Course & Lab Instructor	Each semester
	PLOs				
Indirect	PLOs	Internship feedback	satisfaction ≥50 % in any category. Specific action in any category will be addressed.	Faculty/ ILO	Every Year
	PLOs	Graduate Survey		QEC	Every year

The results for each course are formulated on QOBE software so that the attainments of each CLO as well as each PLO for all students can be viewed individually as well as on the cohort level. The sample for the attainment of CLO & PLO for one Theory and one Lab course is provided (Refer to **Book A** & **Book B**). In general a PLO is attained through the attainment of the subsequent mapped CLOs. The process has been defined as follows:

- Identify assessment tools (questions in quizzes, mid exam, and final exam), which target the defined CLO of a particular course.
- Assign weightage to each assessment tool for the defined CLO
- If individual CLO obtained is above a threshold level (50 %), corresponding CLO is assumed to have been attained.
- An individual PLO is considered to be attained if average threshold level of all CLOs mapped to that particular PLO is greater than or equal to 50%, in a course.

The result grade sheet for Semesters Spring-2024 & Fall-2024 is attached in the **Annexure-C** of the supplementary annexures for details.

3.7 Assessment Results for the Improvement of Program

The result of each CLO and PLO assessment is used for CQI process. For detail discussion about CQI process, please refer to Chapter 9 (CQI).

Student surveys for each semester are conducted regularly. The template of survey forms is attached in the **Appendix-1**. The graduating student survey is conducted in 8th semester to get an overview of the students regarding the whole program, while all students fill a course review form at the end of every semester. The qualitative results of these surveys are used to assess the possible reasons for failure or success in PLO attainment and also this information will be used by Departmental Course Review Committee (DCRC) and DCQI committees to suggest revisions in curriculum or teaching strategies. Course review forms will be filled in by subject teachers at the end of semester.

After assessment and evaluation of the results and surveys, the DCRC and DCQI will prepare a comprehensive report suggesting the possible reasons of failure and the steps that can be taken to improve the situation.

3.8 Materials involved in the achievement of PLOs

3.8.1 Complex Engineering Problem

Complex engineering problems (CEP) are also designed and given in all relevant core engineering courses. Faculty has been trained on understanding and designing complex engineering problems for courses bearing different difficulty levels and Bloom's Taxonomy levels.

The Complex Engineering Problem attributes as per PEC OBE Manual 2019 has been distributed among all faculty members. Faculty members of relevant core engineering courses have been instructed to give at least one CEP during the span of a semester using attributes shown in Table-2 of Annexure-A.

3.8.2 Open Ended Labs

Teachers and Lab engineers conducting labs have been instructed and emphasized to give open ended labs. They are trained on open ended labs and instructed to discuss the problems being given with the course instructor prior to assigning the labs to the students.

All the above assessment methods are mainly designed to comply with the Bloom's taxonomy, which comprises three learning domains i.e. the cognitive, affective and psychomotor domains.

3.8.3 Problem Based Learning

Apart from the complex engineering problems, students are given different PBLs each semester in different courses. The intent of the PBLs is to develop analytical, logical reasoning and research skills of the students. These problem based learnings also provide a chance to exercise the learned concepts in a real-life environment where the scenarios may not be clearly defined.

3.8.4 Final Year Design Project (FYDP)

The Final Year Project (FYDP) is based on 6 credit hours. Although departmental supervision is available but students are encouraged to define problems, identify and limit boundaries, investigate various possible solutions and present them verbally in written formats. The FYDP is assigned to solve a complex engineering problem based on the knowledge and skills achieved while studying the Civil Engineering program. The progress of FYDP is monitored in various steps throughout the project duration. Roadmap for monitoring the FYDP Progress is given in **Book-C** for reference. The FYDP is offered in seventh semester and continues in eighth

semester. Each group is required to prepare a progress reports and deliver presentations to the FYDP examination committees. At the end of the project, students are required to submit four hardbound copies of the FYDP report. A standardized template has been prepared for the FYDP report and is given in **Book-C** for reference.

Assessment of the FYDP is carried out by the FYDP examination committee using rubrics (refer to **Book-C**). The details of formulation of examination committee are presented in **Book-C** for reference.

3.9 Tabulated information for the attainment of the CLOs & PLOs.

Brief summary of Fall-2024 results is shown in Table 3- 2. CQI process is initiated for every failing CLO as well as for the CLO which is attained at low level. (i.e. less than 50% achieved).

Table 3- 2: CLOs Result for 1st, 3rd, 5th & 7th Semester courses- Fall 2024

CLOs	CLO Statement	Bloom's Taxonomy	% Achieved ≥ 50	Comment
QCE-111 - Civil Engineering Materials				
CLO-1	Explain various properties of construction materials.	C2	80.00	
CLO-2	Choose/Apply appropriate constructional materials for various uses.	C3	80.00	
CLO-3	Analyze physical and mechanical properties of various materials.	C4	75.00	
QCE-111L - Civil Engineering Materials (Lab)				
CLO-1	Practice the modern engineering tools necessary for application of material in civil engineering practice.	P3	75.00	
CLO-2	Communicate and answer freely concepts of Engineering materials in conducted experiments.	A2	80.00	
CLO-3	Explain fundamental concepts of civil engineering materials	C2	80.00	
QNS-112: Applied Physics & Electro Mechanical Fundamentals				
CLO-1	Discuss concepts related to basic physics and electro-mechanical engineering.	C2	82.00	
CLO-2	Apply fundament concepts of physics and electro-mechanical engineering.	C3	82.00	
QNSL-112: Applied Physics & Electro Mechanical Fundamentals (Lab)				
CLO-1	Demonstrate the basic concepts of Electrical & Mechanical engineering and instruments used during lab work.	C3	85.00	
CLO-2	Imitate skills to apply basic knowledge of electro-mechanical engineering in civil engineering projects.	P3	85.00	
CLO-3	Participate willingly and to contribute towards the achievement of given experiment.	A2	85.00	
QCE-113 - Engineering Drawing				
CLO-1	Explain fundamental concepts of engineering drawing for simple objects/structures.	C2	80.00	
CLO-2	Demonstrate the concepts of architectural, structural, and plumbing drawings in their profession.	C3	80.00	
QCE-113L - Engineering Drawing (Lab)				
CLO-1	Produce engineering drawing sheets of simple objects/structures manually.	P4	80.00	
CLO-2	Demonstrate concepts of Engineering drawing in manual sketches/drawings.	C3	75.00	
CLO-3	To actively Contribute individually and as a team member	A2	75.00	
QBH-114 - Functional English				
CLO-1	Apply enhanced English communication skills through effective use of word choices, grammar and sentence structure	C3	70.00	
CLO-2	Express effectively information, ideas and opinions in written and spoken English	A3	60.00	
CLO-3	Apply inter-cultural variations in the use of English language and to effectively adapt their communication style and content based on diverse cultural and social contexts.	C3	60.00	
QNS-115: Quantitative Reasoning-I				
CLO-1	Discuss fundamentals of mathematics and basic statistical concepts;	C2	80.00	
CLO-2	Analyze data presented in various formats including but not limited to tables, graphs, charts, and equations etc.	C4	80.00	
QCS-116: Applications of ICT				
CLO-1	Explain the fundamental concepts, components, and scope of information and Communication Technologies (ICT).	C2	80.00	
CLO-2	Apply ICT platforms and tools for different purposes to address basic needs in different domains of daily, academic, and professional life.	C3	75.00	
CLO-3	Understand the ethical and legal considerations in use of ICT platforms and tools.	C4	70.00	
QCSL-116: Applications of ICT (Lab)				
CLO-1	Illustrate fundamental concepts of ICT tools to enhance productivity and collaboration	C3	80.00	
CLO-2	Practice computer skills for managing and organizing data	P3	80.00	
CLO-3	Contribute effectively as individual or team lead to utilize various ICT platforms for academic and professional tasks	A2	80.00	

CLOs	CLO Statement	Bloom's Taxonomy	% Achieved ≥ 50	Comment
QCE-231 - Engineering Surveying – I				
CLO-1	Explain basic surveying techniques used for surveying and levelling.	C2	90.48	Met
CLO-2	Prepare maps and plans, contour maps, Profiles, cross-sections, etc. using surveying techniques.	C3	76.19	Met
QCE-231L - Engineering Surveying – I (Lab)				
CLO-1	Operate under supervision various survey Equipment for measurements with required accuracy.	P3	95.24	Met
CLO-2	Demonstrate tools/equipment to conductsurveying.	C3	95.24	Met
CLO-3	Organize reports/sheets and presentsurvey observations on multimedia	A4	95.24	Met
QCE-232 - Civil Engineering Drawing & Graphics				
CLO-1	Demonstrate architectural, structural, plumbing,and electrical details of a simple two storied building.	C3	76.19	Met
CLO-2	Describe different perspective (functions) of latest version of AutoCAD and explain/ interpret thebasic coding and rules of drawing.	C2	80.95	Met
QCE-232L - Civil Engineering Drawing & Graphics (Lab)				
CLO-1	Describe the various version of AutoCAD and knowledge related to various commands.	C2	95.24	Met
CLO-2	Practice of preparing building and structural drawings using various Software (AutoCAD).	P3	95.24	Met
CLO-3	Communicate selected AutoCAD sheets on multimedia in the class room in groups and subsequent viva voce.	A2	95.24	Met
QNS-233 - Numerical Analysis				
CLO-1	Apply different numerical methods to perform polynomial, interpolation, curve fitting, differentiation, integration, and estimation of algebraic nonlinear equations.	C3	84.00	Met
CLO-2	Solve ordinary differential equations and compute optimum points in optimization problems using numericaltechniques.	C3	84.00	Met
QCE-234 - Mechanics of Solids-I				
CLO-1	Discuss or exemplify the behavior of members (bars, beams, etc.) under different sets of loadresisting supports and loading conditions	C2	76.19	Met
CLO-2	Solve problems related to uniaxial, biaxial, and tri-axial state of stresses, and illustrate their usage in daily life.	C3	80.95	Met
QCE-234L - Mechanics of Solids-I (Lab)				
CLO-1	To define the concepts of stresses, strains, and to apply concepts of stresses, strains in different sets of loadings	C1	66.67	Met
CLO-2	To operate and execute the stresses in structural members of different materials (e.g., steel, concrete etc.) subjected to different loadings.	P3	100.00	Met
CLO-3	Organize the lab data to emphasize experimental objectives, procedures, observations etc. and present on multimedia	A4	100.00	Met
QNS-235 - Engineering Geology & Seismology				
CLO-1	Discuss the basic concept of geology, properties of common rock-forming minerals and rock types.	C2	60.00	Met
CLO-2	Illustrate the formation of plate tectonics, weathering, erosion, land sliding, volcanic action, structural faults, and discontinuity and concepts of earthquake seismology	C3	80.00	Met
CLO-3	Apply acquired knowledge in civil engineering projects.	C3	35.00	Met
QCE-236 - Construction Engineering				
CLO-1	Discuss the Fundamentals of construction projects, equipment and machineries used	C2	84.00	Met
CLO-2	Discuss the basic concepts and methodologies used during construction process	C2	84.00	Met
QNS-351 - Probability & Statistics				
CLO-1	Define fundamental statistical and probabilistic concepts.	C1	100.00	Met
CLO-2	Apply statistical and probabilistic concepts to analyze problems.	C2	100.00	Met
CLO-3	Solve scientific and engineering problems using probability distributions and the concept of random variables.	C3	100.00	Met

CLOs	CLO Statement	Bloom's Taxonomy	% Achieved ≥ 50	Comment
QNS-351L - Probability & Statistics (Lab)				
CLO-1	Practice & Produce student's skills using MATLAB, SPSS, and Excel to solve engineering solutions	P4	100.00	Met
CLO-2	Define basic statistical concepts and their use in different problems.	C1	100.00	Met
CLO-3	Organize reports and present experimental procedures, observations, etc. on multimedia in groups and subsequent viva voce.	A4	100.00	Met
QCE-352 - Fluid Mechanics – II				
CLO-1	Explain the concept and fundamental principal of hydrodynamics and flow around immersed bodies	C2	91.67	Met
CLO-2	Analyze pipes flow, pumps and turbines	C4	91.67	Met
CLO-3	Carry out the basic principles of fluid mechanics for computations	C3	91.67	Met
QCE-352L - Fluid Mechanics – II (Lab)				
CLO-1	Imitate various experiments on the advanced equipment related to fluid mechanics.	P3	100.00	Met
CLO-2	Demonstrate basic parameters to recognize equipment used in fluid mechanics.	C3	100.00	Met
CLO-3	Organize lab data and present observation on multimedia in groups	A4	100.00	Met
QMS-353 - Hazards and Disaster Management				
CLO-1	Define natural hazards, its types, and human induced hazards.	C1	80.00	Met
CLO-2	Describe the techniques for pre and post disaster management.	C2	75.00	Met
CLO-3	Apply prediction and preparedness techniques for natural and human induced disasters	C3	75.00	Met
QCE-354 - Structural Analysis – II				
CLO-1	Discuss conventional and matrix-based force and displacement methods of analysis of indeterminate structures	C2	77.78	Met
CLO-2	Solve indeterminate structures using conventional force and displacement methods	C3	80.33	Met
CLO-3	Analyse indeterminate structures using matrix-based force and displacement methods	C4	70.25	Met
QBH-355 - Business Communication				
CLO-1	Comply basic fundamentals of business communications	A2	100.00	Met
CLO-2	Adopt an enhanced ability in the general verbal and non- verbal English language Communication Skills which can support real life Electronic Engineering settings requiring team work and leadership skills.	A3	90.57	Met
CLO-3	Seek proficiency in writing memos, proposals, covering letter, enquiry letter, job application letter, acceptanceletter, business letter, short report, long report etc.	A3	90.57	Met
CLO-4	Comply basic research and writing skills associated toresearch work, to help them in writing research papers for the contemporary Engineering courses.	A2	100.00	Met
QCE-356 - Geotechnical & Foundation Engineering				
CLO-1	Analyse earth pressure, bearing capacity and stability of slopes	C4	100.00	Met
CLO-2	Discuss Earth and Rock fill dam, Piles and negative skin friction	C2	75.00	Met
CLO-3	Explain Modern Techniques of soil mechanics	C2	100.00	Met
QCE-356L - Geotechnical & Foundation Engineering (Lab)				
CLO-1	Practice field and laboratory testing to characterize subsoils.	P3	100.00	Met
CLO-2	Describe basic components, accessories and function of lab equipment.	C2	100.00	Met
CLO-3	Organize reports and present experimental procedures, observations, etc. on multimedia in groups and subsequent viva voce.	A4	100.00	Met
QCE-471 - Reinforced Concrete Design-II				
CLO-1	Discuss RC structural elements like two-way slab, flat-slabs, flat plates, retaining walls, stairs, overhead water tanks and retaining wall.	C2	77.78	Met
CLO-2	Design two-way slabs, flat-slabs, flat plates, retaining walls, stairs, and overhead water tanks	C5	83.33	Met
CLO-3	Explain Earthquake engineering concept and pre-stressed concrete structures from design point of view with design examples.	C2	83.33	Met

CLOs	CLO Statement	Bloom's Taxonomy	% Achieved ≥ 50	Comment
QCE-471L - Reinforced Concrete Design-II (Lab)				
CLO-1	Design various types of structures & their Modelling using SAP Software	P7	100.00	Met
CLO-2	Apply basic parameters to ascertain design of structure	C3	100.00	Met
CLO-3	Organize the experimental data in the form of professional lab reports and present it on multimedia and subsequent viva voce	A4	100.00	Met
QCE-472 - Transportation Engineering-II				
CLO-1	Describe different system of road network with components of road and the basics of traffic engineering for effective traffic Management	C2	85.71	Met
CLO-2	Demonstrate Characterization of highway materials, various factors influencing geometric design of highways and Pavement failures and rehabilitation	C3	85.71	Met
CLO-3	Design rigid and flexible pavements	C5	80.95	Met
QCE-472L - Transportation Engineering-II (Lab)				
CLO-1	Conduct experiments to investigate properties and quality of asphalt mix	P4	100.00	Met
CLO-2	Demonstrate different testing on highway and pavement materials.	C3	100.00	Met
CLO-3	Organize reports and present experimental procedures, observations, etc. on multimedia in the class room in groups and subsequent viva voce.	A4	100.00	Met
QCE-473: Environmental Engineering-II				
CLO-1	Define the basic components of wastewater treatment systems, and solid waste management.	C1	100.00	Met
CLO-2	Describe sewer system, its components and different processes involved in sewage water treatment and disposal.	C3	100.00	Met
CLO-3	Explain solid waste management techniques, basic factors in hazardous waste management, Air pollution, Noise pollution and Environmental legislations.	C2	100.00	Met
QCE-473L - Environmental Engineering –II (Lab)				
CLO-1	Demonstrate basic parameters to ascertain waste water quality.	C3	81.25	Met
CLO-2	Conduct experiments related to various parameters for wastewater quality.	P4	81.25	Met
CLO-3	Organize the experimental data in the form of professional lab reports and present it on multimedia and subsequent viva voce.	A4	81.25	Met
QCE-474: Structural Dynamics & Earthquake Engineering				
CLO-1	Illustrate the fundamental parameter of structure dynamic and determine the SDOF system for free vibration and the SDOF system for force vibration under harmonic and non-harmonic excitation	C3	100.00	Met
CLO-2	Analyze the Linear and inelastic SDF system underground shaking caused by earthquake excitation.	C4	100.00	Met
CLO-3	Evaluate the motion of the MDOF system under the ground motion, frequency, and its Modes under free vibration and forced vibration of its MDOF system. Analyze and design the structure for lateral forces due to the earthquake and know how to improve the seismic resistance of R.C steel and masonry building.	C4	100.00	Met
QBH-475: Professional Ethics				
CLO-1	Define, explain and understand the engineering code of ethics and the basic moral and ethical concepts and problems, recognize their impact and assess their individual, professional and societal role.	C1	76.47	Met
CLO-2	Apply their engineering knowledge to sustainable development projects keeping in view the public and environmental safety.	C3	76.47	Met

3.9.1 Demonstration of PLO's Achievement

Materials including student work and other evidences that demonstrate achievement of the PLOs and CLOs are displayed in the Chairman office.

As evidence, each instructor is required to maintain a course file of the taught course each semester. The course file shall contain the following information/data.

- List of students
- List of class activities
- Program Learning Outcomes (PLO)
- Course Learning Outcomes (CLO)
- Time Table
- Section Teaching Plan
- Course Outlines
- Mapping of CLOs with Assessment Method
- Corrective Action /CQI
- Class Activities Detail
- Assessment Summery
- OBE result sheet
- Course feedback form
- Attendance summary
- Detailed grade sheet listing marks for each activity
- Grade award list
- Assignments
- Attempted assignment samples
- Quizzes
- Attempted quiz samples
- Project (if any)
- Rubric based assessment of project (if any)
- Mid Exam Paper
- Any other item, the instructor feels like placing that in the file.

CHAPTER 4

Curriculum and Learning Processes

Curriculum of Civil Engineering is devised in a way to maximize the student's understanding of theoretical knowledge supplemented with practical realization of contemporary real-world problems. The courses offered for Civil Engineering program are aligned with vision, mission, PEOs and PLOs. This chapter emphasizes the overall structure of the course, course contents and their delivery method. This chapter also explains the various forms of assessment for all courses both for theory and laboratory.

4.1 Curriculum Design and PLOs Attainment

BSc Civil Engineering program at QUSIT, DI Khan is a 4-year, 8 semester's program. In each semester, 16 weeks are dedicated to teaching and 2 weeks are reserved for examination (mid-semester and end- semester). For the optional summer semester, minimum eight (8) weeks of teaching is requisite. To give the students a chance to compete at the global level, it is imperative that the courses should be in line with the international standards. For this purpose, the departmental course review committee on regular basis reviews the curriculum on the basis of the guidelines of the National Curriculum Review Committees (NCRC) of Higher Education Commission (HEC), PEC requirements and the feedback received from stakeholders. All key stakeholders are given due consideration in committee's preparation. The suggested changes are then forwarded and approved by the Board of Study (BoS) and Academic Council level for consideration.

Apart from regular classroom teaching, and laboratory demonstrations and experimentation, students are also facilitated through tutorial system, faculty interaction office hours, student counseling, semester projects, seminar / workshops and study trips to industry. All these steps ensure active participation of students in group activities, improved communication skills and a broader vision for their future roles. Students are assigned with complex engineering problems and course projects to enhance their personal and professional development. Final year design projects are also a key activity that requires the students to demonstrate their engineering knowledge, problem solving skills, team work, role of engineers in society and communication skills. A matrix linking courses to PLOs to identify and track the contribution of each course to the PLOs is given in **Annexure-D** of the supplementary annexures.

The curriculum is broadly divided in engineering and non-engineering courses. The engineering domain includes engineering foundation, breadth and depth, and inter-disciplinary engineering courses followed by a comprehensive final year design project, which allow the students to apply their knowledge and critical thinking to solve complex engineering problems and open-ended Labs. The non-engineering domain includes Humanities, Natural Sciences and Management courses, which develop skills of project management, communication skills, ethical and moral responsibilities. The combination of engineering and non-engineering courses for sessions Fall-2018 to onwards is in accordance with the national guidelines provided by the HEC/PEC.

The distribution of the engineering courses according to areas specific to each program and the distribution of the related non-engineering courses are presented in **Annexure-E** of supplementary annexures. Moreover, distribution of the courses offered according to semester is given in **Annexure-F** of supplementary annexures.

4.2 Program Delivery Methods

The BSc Civil Engineering Program at QUSIT, DI Khan undertakes comprehensive approach for teaching via effective use of the following:

- Class room based lectures (through multimedia and white board)
- Seminars/ Invited Lectures
- Laboratory Demonstrations
- Internships
- Industrial Visits

The classroom-based lectures, mainly, cover the cognitive domain of learning whereas the rest contribute to all three learning domains i.e. cognitive, psychomotor and affective.

4.2.1 Program Assessment Methods

The Civil engineering program is divided into eight semesters including one non-credit industrial internship as well. Curriculum is designed to encourage instructors to include problem based learning in their assessment of courses and labs. Various methods are used to assess the achievement of CLOs for each course and the overall attainment of PLOs. This gradually develops students' abilities to handle complex engineering problem in the later stages of the curriculum. Assessment of CE program constitutes the following attributes.

4.2.2 Courses

The mode of course delivery is in the shape of lectures in classrooms. Over the course of a single semester, the students are assessed weekly or biweekly in the form of quizzes and assignments. Apart from quizzes, a mid-term exam and a final exam are also conducted. During each assessment (quiz, assignment, CEPs, OELs, PBLs, mid-term exam & final exam), the instructor makes sure that the questions strongly map the CLOs and thus the PLOs.

4.2.2.1 Quizzes and Assignments

Formative assessment in the form of quizzes and assignments is an essential component for the assessment of theoretical part of each module. There are 4-6 quizzes and assignments held to assess the performance of students during the progression of the course. The quizzes and assignments are arranged so that 2-3 Quizzes and assignments are before the mid semester exam and 2-3 Quizzes are between mid and final exam.

4.2.2.2 Mid-term Examination

One mid-semester exam is scheduled to partially assess the students' learning of the course. It is a form of summative assessment. The mid-semester exam covers considerable part of the course (around half of the course content) and is aimed at measuring student understanding of the subject. These exams are designed for 25% of the overall marks as prescribed by the University.

4.2.2.3 Final term Examination

At the end of each semester, a final exam is carried out for each module as part of summative assessments. This will be to assess the level of attainment of CLOs by each student for that particular module. The exam covers contents taught post mid-semester exam. These exams are designed for 50% of the overall marks as prescribed by the University.

For all the above-mentioned forms of assessment, questions will be designed to meet the requirements of the already defined CLOs for a particular course. The subject teacher will provide exam solution and marking scheme for all examinations. **Annexure-C** of supplementary annexures presents existing departmental instruction and examination system with sample grading sheets.

4.2.2.4 CEPs and PBLs

A performance assessment is carried out through Complex Engineering Problems (CEPs) & Problem Based Learning (PBLs) as semester project and the students are expected to complete each of it in a prescribed time limit. The semester projects are spread evenly throughout the semester. These can be individual or group projects depending on the requirement of the course.

4.2.2.5 Labs

In each lab, mode of delivery includes initial lecture and demonstration by the lab instructor followed by the required task explanation. Students are required to perform the task which is evaluated by the lab instructor via demonstration, viva, lab report & open ended labs (if any).

4.2.2.6 Tutorials*/Seminars*

Tutorials are arranged for students by instructor when required. Time slot in each week is assigned for seminars or workshops from experts or industrial representatives.

4.2.3 Internship

It is a mandatory practice for students to receive industrial training after second year as per degree requirement.

4.2.4 Final Year Design Project (FYDP)

Final Year Design Project (FYDPs) play important role to obtain numerous professional skills like effective communication, project management, and teamwork, etc. The Standard Operating Procedure (SOP) for offering and evaluating FYDP is listed as follows.

4.2.4.1 FYDP Proposal Selection

In the first week of the 4th year (7th semester), all faculty members propose FYDP ideas through the FYDP coordinator to the final year students. These ideas (minimum one) covering the research areas or interests of the respective faculty members. Ideas can be in a one-line statement or a paragraph. The students discuss the ideas of their interest with individual faculty members and finalize their choice of FYDP.

4.2.4.2 *Presentations*

There are five presentations conducted in two semesters to evaluate the performance of students. Each group of students consists of three to four members in which one of them will be team leader of the project leader.

4.2.4.3 *Plagiarism*

All submitted reports of FYDP will be checked for plagiarism by the FYDP coordinator. Similarity index must be less than 20 % to qualify for the award of a grade.

4.2.4.4 *Evaluation*

FYDP report, presentations, external examiner evaluation and supervisor assessment are included in the rubrics. FYDP examination committee, rubrics and standardized FYDP template is presented in **Book-C.**

4.2.5 Laboratory Performance Evaluation on Lab rubrics

Outcome Based Education (OBE) is an education system that emphasis on outcomes measurement rather than inputs of curriculum covered. Outcomes may include a range of knowledge, skills and attitudes. To obtain the desired outcomes, teaching components and activities should be well organized, planned and continuously improved. OBE concept has been applied in many countries ranging from primary schools to universities. Civil Engineering Department of QUSIT, DI Khan had implemented OBE system from session beginning from Fall-2018.The assessments for laboratory sessions are carried out for all three learning domains i.e. cognitive, psychomotor and affective with the most focus on psychomotor domain. Each student is assessed for psychomotor skills through performance of a set of experiments and a rubric (generated separately for each experiment) is used for evaluation. The instructor evaluates affective domain on a set of criteria in each lab session. The lab reports are reviewed to assess the cognitive part of the laboratory work during the semester.

Table 4- 1: Marks Distribution for Laboratory Assessments

Assessment Criteria	Percentage of marks allotted
Lab Report/ Open Ended Labs (if any)	25%
Mid Term	25%
Final Term	50%

Traditional laboratory assessments method was merely based only on lab report submitted by each group of students. The lab engineer would then compile all the graded reports and transformed them into grades and the procedure is inconsistence as each module consists of different area of Civil engineering fields. Furthermore, there were no specific guidelines for grading the report, which would rely on their experiences, resulting large variance of judgments in giving the marks. To overcome such problem, an OBE assessment known as Laboratory Performance Evaluation on Lab rubrics is designed for evaluating laboratory modules. With rubrics table provided, it will successfully facilitate the faculty members and lab engineers to evaluate students fairly in terms of their Group Related Skills (GRS) besides than the laboratory report. Each of the assessment section in this process addressing the respective Course Learning outcome (CLO) and program learning outcome (PLO). The output plots produced by the tool would be used as indicators for Continual Quality Improvement (CQI) recommendations.

The example of Lab Conduct Assessment and Rubrics (Psychomotor skills) for Instrumentation & Measurements Lab is given below.

4.2.5.1 Laboratories Assessment Rubrics

This section is descriptive and Civil Engineering Department is committed to shift towards Outcome Based System with effect from session Fall-2018. Rubrics are developed to attain the attributes at end of each semester. Proposed Lab conduct Performa and rubrics is presented in Tables below for one Experiment of Fluid Mechanics.

Lab Report Evaluation Sheet

DATE: **QCE-245L: Engineering Surveying-II**

Reg. #	Name	Criteria						
		Psychomotor			Cognitive		Affective	
		Familiarity with equipment / Software (04)	Experimental Design Procedures (connection, formation of specimen, simulation, coding, planning & modeling) (04)	Troubleshooting (Apparatus/ software) (04)	Experimental Data Analysis & Results (04)	Conclusions and Recommendations (04)	Individual /Teamwork / Safety/ Workstation Maintenance (04)	Report Writing / Drawing Sheet (04)
2019-QUD-F-310	Tariq Javed							
2020-QUD-F-389	Muhammad Junaid							
2020-QUD-F-390	Fahad Najeeb							
2020-QUD-F-391	Muhammad Jawad							
2020-QUD-F-392	Muhammad Haris Khan							
2020-QUD-F-395	Aziz Ullah							
2020-QUD-F-396	Khalil Ur Rehman							
2020-QUD-F-397	Waseem Abbas							
2020-QUD-F-398	Fatima Noor							
2020-QUD-F-399	Obaid Ur Rehman							
2020-QUD-F-400	Muhammad Umar							
2020-QUD-F-401	Imad Ud Din							
2020-QUD-F-402	Aashir Hanif							
2020-QUD-F-403	Haider Ali							

LAB REPORT EVALUATION RUBRICS

Psychomotor Domains

Criteria	Poor	Developing	Average	Good
Marks	1	2	3	4
Familiarity with equipment / software	Student has no idea how to use the basic equipment/software.	Student has limited command of the basic equipment / software.	Student has acceptable command on the basic equipment / software.	Student has full command on the basic equipment / software.
Experimental Design Procedures (connection, formation of specimen, simulation, coding, planning & modeling)	Lack of Knowledge about Experimental design procedures. Not able to Perform.	Student has limited knowledge about Experimental design procedures.	Student has satisfactory knowledge about Experimental design procedures.	Student has ample knowledge about Experimental design procedures.
Troubleshooting (Apparatus/software)	Student was unable to detect the error.	Student can detect the error but unable to correct it.	Student can detect the error But to correct it reasonably.	Student has the ability to detect and correct the errors absolutely.

Cognitive Domains

Criteria	Poor	Developing	Average	Good
Marks	1	2	3	4
Experimental Data Analysis & Results	Inappropriate data collected, no understanding of analysis & results incorrectly interpreted	Inappropriate data collected but sufficient analysis & results inadequately interpreted.	Appropriate data collected but insufficient analysis & results adequately interpreted.	Appropriate data collected, correct analysis & results correctly interpreted.
Conclusions and Recommendations	Findings are poorly summarized. Poor conclusion. Poor suggestion for further research.	Significant findings are summarized. Acceptable conclusion. Acceptable suggestion for further research.	Significant findings are summarized. Good conclusion. Good suggestion for further research.	Significant findings are summarized. Precisely concluded. Excellent suggestion for further research.

Affective Domains

Criteria	Poor	Developing	Average	Good
	1	2	3	4
Individual /Teamwork/ Safety/ Workstation Maintenance	Student behaves poorly, avoids group work persistently and neglects safety measures, he/she lacks care for handling resources	Student behaves fairly, shows limited participation in group work and overlooks the safety measures he/she shows low responsibility in handling resources	Student behaves adequately, participates in group work with guidance and follow safety measures with reminders, he/she shows fair responsibility in handling resources	Student behaves excellently, actively participates in group work and follows safety measures, he/she shows care in handling resources
Report Writing / Drawing Sheet	The report / Sheet submitted but not according to requirements.	The requirements of report writing / Sheet making are not properly addressed.	Report / Sheet meets all prescribed requirements.	Report / Sheet meets all requirements and it is prepared in an original and creative way to engage readers.

Mid-Term Evaluation Sheet (Lab)

DATE: **QCE-245L: Engineering Surveying-II**

Reg. #	Name	Criteria							
		Psychomotor			Cognitive			Affective	
		Familiarity with equipment / Software (04)	Experimental Design Procedures (connection, formation of specimen, simulation, coding, planning & modeling) (04)	Troubleshooting (Apparatus/ software) (04)	Experimental Data Analysis & Results (04)	Conclusions and Recommendations (04)	Technical Knowledge / Viva (04)	Individual /Teamwork/ Safety/ Workstation Maintenance (04)	Communication Skills (04)
2019-QUD-F-310	Tariq Javed								
2020-QUD-F-389	Muhammad Junaid								
2020-QUD-F-390	Fahad Najeeb								
2020-QUD-F-391	Muhammad Jawad								
2020-QUD-F-392	Muhammad Haris Khan								
2020-QUD-F-395	Aziz Ullah								
2020-QUD-F-396	Khalil Ur Rehman								

MID-TERM LAB EVALUATION RUBRICS

Psychomotor Domains

Criteria	Poor	Developing	Average	Good
Marks	1	2	3	4
Familiarity with equipment / software	Student has no idea how to use the basic equipment/software.	Student has limited command of the basic equipment / software.	Student has acceptable command on the basic equipment / software.	Student has full command on the basic equipment / software.
Experimental Design Procedures (connection, formation of specimen, simulation, coding, planning & modeling)	Lack of Knowledge about Experimental design procedures. Not able to Perform.	Student has limited knowledge about Experimental design procedures.	Student has satisfactory knowledge about Experimental design procedures.	Student has ample knowledge about Experimental design procedures.
Troubleshooting (Apparatus/software)	Student was unable to detect the error.	Student can detect the error but unable to correct it.	Student can detect the error But to correct it reasonably.	Student has the ability to detect and correct the errors absolutely.

Cognitive Domains

Criteria	Poor	Developing	Average	Good
Marks	1	2	3	4
Experimental Data Analysis & Results	Inappropriate data collected, no understanding of analysis & results incorrectly interpreted	Inappropriate data collected but sufficient analysis & results inadequately interpreted.	Appropriate data collected but insufficient analysis & results adequately interpreted.	Appropriate data collected, correct analysis & results correctly interpreted.
Conclusions and Recommendations	Findings are poorly summarized. Poor conclusion. Poor suggestion for further research.	Significant findings are summarized. Acceptable conclusion. Acceptable suggestion for further research.	Significant findings are summarized. Good conclusion. Good suggestion for further research.	Significant findings are summarized. Precisely concluded. Excellent suggestion for further research.
Technical Knowledge / Viva	Very Less knowledge of topic; confused to answer basic questions.	Superficial knowledge of topic; only able to answer basic questions.	Adequate knowledge of most topics; answer the questions, but fails to elaborate.	Demonstrates deep knowledge; answer the questions with explanations and elaboration.

Affective Domains				
Criteria	Poor	Developing	Average	Good
	1	2	3	4
Individual /Teamwork/ Safety/ Workstation Maintenance	Student behaves poorly, avoids group work persistently and neglects safety measures, he/she lacks care for handling resources	Student behaves fairly, shows limited participation in group work and overlooks the safety measures he/she shows low responsibility in handling resources	Student behaves adequately, participates in group work with guidance and follow safety measures with reminders, he/she shows fair responsibility in handling resources	Student behaves excellently, actively participates in group work and follows safety measures, he/she shows care in handling resources
Communication Skills	Difficult to hear; occasional eye contact; some mumbling, little or no expression; nervous, some distracting mannerisms.	Difficult to hear but didn't answer properly; expression with nervous.	clear voice, but not as expressive; a little nervous, not as polished.	clear, expressive voice; poised, good posture, no distracting mannerisms.

Final-Term Evaluation Sheet (Lab)

DATE: **QCE-245L: Engineering Surveying-II**

Reg. #	Name	Criteria								
		Psychomotor			Cognitive			Affective		
		Familiarity with equipment / Software (04)	Experimental Design Procedures (connection, formation of specimen, simulation, coding, planning & modeling) (04)	Troubleshooting (Apparatus/ software) (04)	Experimental Data Analysis & Results (04)	Conclusions and Recommendations (04)	Technical Knowledge / Viva (04)	Presentation (04)	Comm. Skills (04)	Individual /Teamwork/ Safety/ Workstation Maintenance (04)
2019-QUD-F-301	M. Ahtesham									
2019-QUD-F-302	Umair Hassan									
2019-QUD-F-303	M. Razzaq Sana									
2019-QUD-F-304	Zahra Anfal									
2019-QUD-F-305	Rehmat Ilyas									
2019-QUD-F-306	M. Huzaifa Rashid									

FINAL-TERM LAB EVALUATION RUBRICS

Psychomotor Domains

Criteria	Poor	Developing	Average	Good
Marks	1	2	3	4
Familiarity with equipment / software	Student has no idea how to use the basic equipment/software.	Student has limited command of the basic equipment / software.	Student has acceptable command on the basic equipment / software.	Student has full command on the basic equipment / software.
Experimental Design Procedures (connection, formation of specimen, simulation, coding, planning & modeling)	Lack of Knowledge about Experimental design procedures. Not able to Perform.	Student has limited knowledge about Experimental design procedures.	Student has satisfactory knowledge about Experimental design procedures.	Student has ample knowledge about Experimental design procedures.
Troubleshooting (Apparatus/software)	Student was unable to detect the error.	Student can detect the error but unable to correct it.	Student can detect the error But to correct it reasonably.	Student has the ability to detect and correct the errors absolutely.

Cognitive Domains

Criteria	Poor	Developing	Average	Good
Marks	1	2	3	4
Experimental Data Analysis & Results	Inappropriate data collected, no understanding of analysis & results incorrectly interpreted	Inappropriate data collected but sufficient analysis & results inadequately interpreted.	Appropriate data collected but insufficient analysis & results adequately interpreted.	Appropriate data collected, correct analysis & results correctly interpreted.
Conclusions and Recommendations	Findings are poorly summarized. Poor conclusion. Poor suggestion for further research.	Significant findings are summarized. Acceptable conclusion. Acceptable suggestion for further research.	Significant findings are summarized. Good conclusion. Good suggestion for further research.	Significant findings are summarized. Precisely concluded. Excellent suggestion for further research.
Technical Knowledge / Viva	Very Less knowledge of topic; confused to answer basic questions.	Superficial knowledge of topic; only able to answer basic questions.	Adequate knowledge of most topics; answer the questions, but fails to elaborate.	Demonstrates deep knowledge; answer the questions with explanations and elaboration.

Affective Domains

Criteria	Poor	Developing	Average	Good
	1	2	3	4
Presentation	No information related to the experiment is provided.	Partial information is provided but presented fairly/poorly.	Most of the information is provided but presented fairly/poorly.	Information is provided in an excellent and organized manner with complete details.
Communication Skills	Difficult to hear; occasional eye contact; some mumbling, little or no expression; nervous, some distracting mannerisms.	Difficult to hear but didn't answer properly; expression with nervous.	clear voice, but not as expressive; a little nervous, not as polished.	clear, expressive voice; poised, good posture, no distracting mannerisms.
Individual /Teamwork/ Safety/ Workstation Maintenance	Student behaves poorly, avoids group work persistently and neglects safety measures, he/she lacks care for handling resources	Student behaves fairly, shows limited participation in group work and overlooks the safety measures he/she shows low responsibility in handling resources	Student behaves adequately, participates in group work with guidance and follow safety measures with reminders, he/she shows fair responsibility in handling resources	Student behaves excellently, actively participates in group work and follows safety measures, he/she shows care in handling resources

4.2.5.1 Shift towards Rubrics based Assessment

- In the traditional system, Instructor evaluated students at the end mid-term and final term of the semester by taking Viva, Final Lab quiz and Lab report. Mostly students showed irresponsible behavior in lab during all semester. Instructor used to evaluate through Viva with not more than twice during whole semester. However, in OBE System Instructor will evaluate students on Lab rubrics after completion of each lab sessions. The main challenge for the faculty is monitoring and assessing large number of students (Viva and lab report). Assessment rubrics are written to guarantee proper understanding of the expectations among the evaluators resulting in fair assessment. The assessment rubrics are written based on learning objectives written for the Respective Lab.
- A matrix linking courses to PLOs to identify and track the contribution of each course to the PLOs is presented in **Annexure D** of supplementary annexures as per template given in PEC Manual-19,

- Distribution of the engineering courses according to areas specific to each program is presented in **Annexure E** of supplementary annexures as per template given in Manual-19,
- Distribution of the related non-engineering (general education) courses.
- Distribution of the courses offered according to semester is presented in **Annexure- F** of supplementary annexures as per template given in Manual-19,
- Details of Laboratory equipment / workstations and experiments conducted are presented in **Annexure-G** of supplementary annexures.

4.2.5.2 Course Files/ Folders

Course file for each subjects are maintained by the concern faculty member. The assessment record of all the subjects and the corresponding labs is available in the Chairman office. The contents of the course file are:

- Table of Content
- List of Students / Attendance list
- Time Table
- Detailed Lecture Plan/Weekly Breakdown
- List of CLOs /Mapping with PLOs
- Assignments with samples (best & lowest)
- Quizzes with sample (best & Lowest)
- CEPS/ PBLs/ OELs (if any)
- Presentations (if any)
- Mid-term Examination with samples (Best & lowest)
- Final-term Examination with samples (Best & Lowest)
- Course Consolidated Report

This file is the key source for tracking the effective delivery and assessment of any course.

CHAPTER 5

Students

This chapter provides details regarding all issues relevant to students within the University. It discusses the requirement and process for admission of students to the program, response, and annual intake as well as the policies and processes for credit transfer/exemption. The mechanism for student tutorials and career counseling is also explained. Details of student strength, their class size and extracurricular activities are also included in this chapter. A list of KPIs for measuring student performance is also presented in the final section

5.1 Admission of Students, Response and Annual Intake

Admissions to the University are purely based on merit. There are no reserved seats. Foreign students are also eligible for admission only if their applications are routed through the concerned agencies designated by the Govt. of Pakistan and they meet the requirement for admission.

Admission Committees are constituted by the Dean, Faculty of Engineering for each program, consisting of the Dean, Head of the Department and two teachers of the Department.

Students convicted for moral turpitude by a court of law, and those rusticated/expelled during academic career are not admitted to any program. However, candidates having been rusticated in the past for indiscipline may be considered for admission by the President on conditions to be specified by the Admission Committee. Similarly, students who have been penalized for political activities during their academic career, either by their educational institution or by a court of law, are denied admission to the University.

5.1.1 Admission Criteria

5.1.1.1 General Instructions

- The University staff is available for personal consultation during the admission period.
- The candidates are advised to submit applications and the requisite documents as early as possible without waiting for the last date.
- The merit list is displayed at the University notice board, showing the percentage of admission marks of the applicants admitted in each discipline.
- The documents to be attached should be attested by a Class-I gazetted officer of the government or a Public Sector University.

5.1.1.2 Eligibility for Admission

- A candidate for admission to the B.Sc. in engineering course must fulfil the following requirements:
- He/she should have obtained at least 60% marks in the F.Sc. (Pre-Engineering), (Pre-Medical) /A-Levels /DAE/B.Sc./B.Tech. (Hons.) Examination or equivalent (with physics, Chemistry and Mathematics) and excluding Sports and Hafiz-e-Quran marks.
- Applicants with ICS (P, M & CS) will have to register Chemistry as a remedial course in the 1st semester after admission.
- He/she should have appeared in the Entrance Test conducted by the Education Testing Evaluation Agency (ETEA), Government of Khyber Pakhtunkhwa or equivalent.
- If the candidate is not appeared in the ETEA test, he/she should have to qualify the entry test to be conducted by PEC designated HEIs or NAT test conducted by NTS.

5.1.1.3 Determination of Merit

Merit of candidates will be determined according to the following criteria:

- 15% weightage to SSC Examination % marks in SSC x 0.15
- 50% weightage to Intermediate or % marks in Inter x 0.5 Equivalent Examination
- 35% weightage to Entrance Test Entrance Test x 0.35
- To determine the merit, the total marks obtained by a candidate in the intermediate or equivalent examination shall be adjusted as under:
- Hafiz Quran shall be given additional 20 marks if he/she qualifies the test conducted by the committee appointed by the University.
- In case of tie in a merit position, the marks obtained in the Intermediate examination over-ride. In case of a further tie, the candidate older in age is given preference.
- Final selection is determined after the interview of the candidates.

5.1.2 Procedure for Selected Candidates

5.1.2.1 Notification of Selection:

List of selected candidates is displayed on the University notice boards and on the website; www.qurtuba.edu.pk. No written offer letters are dispatched. It is the responsibility of the candidate to keep him/herself abreast with the status of admissions available on the University notice boards and on website.

5.1.2.2 Deposit of Dues and Documents

The selected candidates are required to pay the University dues and submit the following documents to the Admission Officer, Qurtuba University, D.I. Khan Campus by the due dates, positively:

- Medical certificate, duly signed and stamped by a medical officer of any Govt./Semi-Govt. Hospital.
- Four recent passport size photographs, duly attested by the Principal/ Head of the college last attended.
- Original copy of provisional certificate and DMC of F.Sc.
- Domicile certificate (original).
- Computerized National Identity Card (CNIC) or Children Registration Certificate (CRC) (attested photocopy).
- Migration Certificate from the board concerned (original).
- Bio data, duly completed in all respect.
- Undertaking on prescribed Form (Available from the admission office) on judicial stamp paper worth Rs. 50/- duly complete in all respect.
- For in-service candidates, permission letter and evidence of leave for the study period from the employer.
- ETEA appearing test certificate.
- ETEA equivalent test certificate (Applicable to candidates of engineering programs other than KPK Province).

5.1.2.3 Forfeiture of Right of Admission

A selected candidate, who fails to fulfil the requirements as laid down in the above clauses within the prescribed time limit, shall forfeit his/her right of admission.

5.1.2.4 Provisional Admission

On fulfilment of the obligations mentioned in the above clauses, a selected candidate will be admitted to the University provisionally, which shall be confirmed after due verification of his/her documents. In case a document proves to be false, fake, or fabricated, the student shall be liable to expulsion from the university rolls, while fees and charges deposited by him/her shall be forfeited to the University.

5.1.2.5 Admission Response and Annual Intake

Number of students enrolled in the program during the last seven years is 204 Students. The detail of admission response and annual intake is presented in Table 5- 1 and also presented in "**Annexure H"** of supplementary annexures.

Table 5- 1: Admission Response & Annual Intake

Sr. No.	Intake Batch	Allowed Intake	Total Student Admitted	Present Strength	No. of Sections	No. of DAE Students	No. of B. Tech Students	Total Student Applied	No. of Students having less than 60% in HSSC
01	2015	40	37	-	01	01	--	45	Nil
02	2016	40	40	40	01	01	--	110	Nil
03	2017	40	40	37	01	01	--	119	Nil
04	2018	40	36	31	01	01	--	82	Nil
05	2019	40	22	21	01	01	--	57	Nil
06	2020	40	18	18	01	01	01	20	Nil
07	2021	40	17	17	01	06	01	30	Nil
08	2022	40	11	10	01	04	01	25	Nil
09	2023	40	23	20	01	15	01	43	Nil
10	2024	40	11	09	01	03	01	20	Nil
11	2025	40	22	22	01	08	01	30	Nil

5.2 Policies and Processes for Credit Transfer/Exemption

The main criterion of credit transfer is to ensure that the previous courses taken by the student are meeting the academic quality standards both in theory and practical. It is expected that the student's experience at other institution is comparable with that of Civil Engineering Department, QUSIT in terms of credit hours, course contents, assignments, examination styles and projects.

In case of admission by migration, course outlines of the two institutions are compared, if 80% or more matches are found then the student is adjusted accordingly. The

university/college/institute where the student was previously studying should be well-known, recognized by HEC and PEC.

5.3 Guidance to students on academic, career and aspects pertaining to wellness, student discipline

Qurtuba University has a career counseling center named Office of Research, Innovation and Commercialization (ORIC) and Career Resource Center (CRC). They provide better services to students, alumni, and industry and are responsible for industry relations, alumni relations, career counseling, placement of students, fund raising, business development activities, and communication and marketing.

They also connect students, graduates, and alumni with regions are leading employers. ORIC plays an instrumental role of a supporting body that offers QUSIT research facilities, human resources, its expertise and skills to the industry for cooperative research and development projects.

At QUSIT we take immense care about well-being of our students. QUSIT is committed to building and nurturing lifelong relationship with its alumni and is looking forward to strengthen it further. The aim is to form a mutually beneficial relationship between the Institute and alumni, wherever they are located; also by providing alumni with opportunities to be a part of QUSIT for good.

At QUSIT, ORIC defines the outreach as services beyond routine lecture hall and laboratory activities. ORIC and CRC contribute to the students in the following ways:

- How to become engineering professionals.
- Ethical and professional responsibilities of an engineer.
- Understanding global and societal relevancy to enhance life-long learning.
- How to tap job options and future career.
- Connects businesses to students and graduate talent.
- Offer seminars, workshops, and other events on professional training of students.
- Organize events to connect employers, students, and graduates.

Department has office for Student Counseling Center (SCC) and Industrial Liaison Office (ILO) for career and wellness counseling of the students. The main objectives of these offices are as follows.

5.3.1 Student Counseling Center (SCC)

Mr. Ashraf Fareed, is in charge of SCC. Office of the SCC performs duties such as:

- To help students in course registration.
- Approval of leave.
- To provide an opportunity to discuss and explore solutions to issues that concern to individual student.
- To offer counseling to students during times of difficulty and support them to move along with other students and accomplish their educational goals. If student is not happy with aspects of life, while at university, SCC provides any possible support to student to solve his issues, and the counseling service is strictly confidential.
- To provide advice and information on a variety of issues particularly to their studies, health, accommodation, scholarships, skill development and employment.
- Extra-curricular activities etc.

5.3.2 Career Resource Center (CRC)

Engr. Asad Khan, Lecturer, DCET is in charge of CRC. Office of the CRC performs duties such as:

- The Career Resource Centre (CRC) maintains coordination among the students related to their career.
- The CRC provides information of job market in Civil engineering and motivate students towards research.
- The CRC motivates students for exhibition and commercialization of their Final Year Design Projects (FYDP) at national and international level.
- The CRC also encourages and guide students for post-graduation and scholarships after completion of their degree program.

5.3.3 Industrial Liaison Office (ILO)

Engr. Naveed Akhtar, Lecturer, DCET is in charge of Industrial liaison office (ILO).The main duties of ILO are:

- To arrange Internships during summer vacations for the growth of students.
- To arrange study tours.
- To contact the consultants and industries for creating job opportunities for students after finishing their degree.

- To focus on industrial / academic collaborations in final year projects.
- To initiates MOU with different industries & institutes.

The ILO is mainly concerned with the linkage of industries to their university. The ILO send application forms to different industries for engaging their students in their respective organization. ILO constantly engage in producing industrial linkage to the different Civil industries. ILO also arrange few study tours for the students.

5.4 Semester Academic Load and Class Size

The class size for theory is 40 students at maximum in one section. There is currently one section in Civil Engineering. The group size for practical is 1 to 5 students per workstation in the laboratory. The minimum credit hours required for the award of degree is 137 for the degree program. In laboratory, one session is conducted with up to a maximum of 05 students per workstation. From session Fall-2018, the concept of psychomotor is implemented in laboratories (explained in previous chapter) in which students have to perform experiments by themselves. Rubrics are defined for each experiment and students are evaluated by their performance in the experiment. The laboratories are well equipped with the relevant equipment for all modules. The details of academic load on students in each semester in terms of credit hours are provided in **Annexure-F** of the supplementary annexures.

5.5 Student Organizations and Involvement in Activities

Student organizations are very important for personal and professional development of students in any institution. At Civil Engineering Department, QUSIT, D. I. Khan, a lot of emphasis is given on student participation in such organizations and students are encouraged to lead such activities. The students can take part in any of the societies and some of which are listed below.

5.5.1 Blood Donors' Society (BDS)

Blood Donors' Society is a self-governing body working voluntarily for the welfare of humanity. It is student operated society, but it also works in association with Pakistan Red Crescent. The members of the society do their job with complete responsibility ensuring the security of donor. Several events are held both inside and outside of the university working on their own and sometimes in collaborations.

5.5.2 Literary Society

Literary Society plays an important role in bringing students close to the reading habit. Literary Society has held the honor and prestige of this historic institute at all levels of competition and has added to the aura of QUSIT's. Literary society has always been actively involved in engaging in the promotion for the art of writing in the university.

5.5.3 Debating Society

Debating Society is a shimmering star on the horizon of debating excellence. It is a group of the best intellectuals, speakers, achievers, and leaders of this institute. QUSIT debaters are the sources of promotion for the art of speaking and leadership in the university.

5.5.4 Dramatic Society

Dramatic Society of Faculty of Engineering has been active in kingdom of art and culture since its start. Engineering itself is a creative profession; hence a good aesthetic sense from an engineer is not unexpected. The distinctive factors of the society are its adherence to passion, focus and working it in the purest and true spirit. Dramatic Society played a vital role in Fun Gala Night.

5.5.5 Social, Environmental and Horticulture Society

Social, Environmental and Horticulture Society works toward making the world a better place to live in. EHS has organized many events such as local level exhibitions, competitions, walks and seminars with a mission to develop an understanding of critical environmental issues on a wider scale and to bring about the change in our attitude towards the environment. Our environment, the world in which we live and work is a mirror of our attitudes and expectations, EHS believes that together we can make our environment green and human-friendly. Following events were organized:

- Walk on National Disaster Management.
- Walk on "Say No to Corruption".
- Seminar on "Environmental Awareness & Plantation".

5.6 Key Performance Indicators (KPIs) to Demonstrate Student Performance in relation to PLOs

- The performance of students in relation to the PLOs is evaluated on the bases of assignments, quizzes, course project, mid-term, and final-term exam etc. These assignments are created in such a manner that they fulfill one or more CLOs which in turn fulfill the PLOs. Similarly, weekly or biweekly quizzes are conducted where

strict care is taken to correlate between the problems in the quizzes with PLOs. The same criterion is followed in course projects as well. Each project is graded based on the number of CLOs and thus respective mapped PLOs. Students are required to take a mid-term exam, (eight weeks after the start of the semester) and final-term exam, (eighteenth weeks after the start of semester). In these exams, questions/problems/scenarios are posed which strongly map to PLOs while challenging the learning ability of the students.

- Final year design project is where students use the knowledge gained throughout the course of their study to develop a specific system using a research-oriented approach. After choosing a specific area of interest, the students must adhere to the PLOs in their research work. From experimentation to using modern tools, the students are asked to work as a team, document every result and meet every deadline. This entire exercise helps to stimulate professionalism within the students while enhancing their communication skills. The students are advised against the plagiarism during their final year project report writing and research. This helps to emphasize the importance of professional ethics while meeting the PLOs.

CHAPTER 6

Faculty and Support Staff

This chapter delineates details about the strength and competencies of the academic staff in the Department of Civil Engineering and Technology at QUSIT, D. I. Khan. This chapter also describes the workload of the faculty, their development, training and retaining opportunities as well as their competencies. Information on student teacher ratio for the ongoing sessions is also provided. The details about sufficiency and competency of technical and administrative staff in providing adequate support to the educational program are also given in the final section.

6.1 Academic Staff

One of the key ingredients to a successful educational program is its well-educated, competent, hardworking and committed teaching faculty. A list of the full time and shared faculty along with their education, teaching load and overall workload for existing sessions is given in **Annexures I, J, and K** of the supplementary annexures. The faculty is actively involved in developing, updating, and delivering the teaching modules. There is also an emphasis on enhancing the research profile of the department and the university and all the members are working towards that goal. A list of research publications by the faculty members is mentioned below. Apart from teaching and research, each faculty member is also assigned with administrative duties. Frequent teacher training sessions are arranged both at the university level and at the department level to ensure all teachers develop understanding of the several areas of OBE implementation and faculty development. Subsequently they can take active part in development, delivery, and assessment of the courses accordingly.

List of Journal Publications

1. **Kamran Aziz**, Feng Chen, Inam Ullah Khan, Shabir Hussain Khahro, Mohammad Abdul Malik, Zubair Ahmed Memon and Afaq Khattak. “Road Traffic Crash Severity Analysis: A Bayesian-Optimized Dynamic Ensemble Selection Guided by Instance Hardness and Region of Competence Strategy” IEEE Access (Sept. 2024). DOI:10.1109/ACCESS.2024.3465489
2. **Kamran Aziz**, Feng Chen, and Afaq Khattak. “A Novel Bayesian Optimized - Combined Kernel & Tree Boost Approach for Road Traffic Crash Severity Analysis” International Journal of Civil Engineering (Apr. 2025). DOI: 10.1007/s40999-025-01108-x

3. **Kamran Aziz**, Feng Chen and Afaq Khattak "Improvements Aiming at a Safer Living Environment by Analyzing Crash Severity through the Use of Boosting-Based Ensemble Learning Techniques" International Journal of Crashworthiness (Apr. 2025). DOI: 10.1080/13588265.2025.2492984
4. **Kamran Aziz**, Feng Chen, M. Ahmad, K M. Salman, M. M. Sabri and H Almujibah. "An Interpretable Dynamic Ensemble Selection Multiclass Imbalance Approach with Ensemble Imbalance Learning for Predicting Road Crash Severity" Scientific Reports (July 2025). DOI:10.1038/s41598-025-08935-x
5. **Kamran Aziz**, Feng Chen, Inam Ullah, Zahid Ullah, Mona Jamjoom, and M Imran "Diversity-Oriented Dynamic Ensemble Selection Approach for Multi-Class Road Traffic Injury Severity with Interpretable Insights" Transportmetrica A: Transport Science (Aug 2025). DOI:10.1080/23249935.2025.2542283
6. **Kamran Aziz,** Feng Chen and Irfan Ullah "Improving Transparency and Predictability of intersection crash severity analysis through explainable boosting machines" Advances in Transportation Studies (2025) accepted.
7. **Kamran Aziz**, Feng Chen, Asad Khan, Irfan Ullah, Ali Qabur, and Khaled Aati "Enhancing Road Safety and Reliability through Innovative Dynamic Ensemble Learning Approaches for Multi-Class Traffic Injury Severity Predictions" IEEE Access (2025). [2nd Round of Revision]
8. **Kamran Aziz**, Feng Chen, Irfan Ullah, Ali Qabur, Khaled Aati, and Rabeea W. Bazuhair, "Probabilistic Models of Classifier Competence for DES in Multi-class Injury Severity Predictions with Cost-Sensitive Learning" Alexandria Engineering Journal (2025). [Under Review]
9. **Kamran Aziz**, Feng Chen, Inam Ullah, Mujahid Ali, Pablo Fernando Parra, Siva Avudaiappan, Nelson Maureira-Carsalade. "Enhancing Intersection Safety through Explainable Boosting Machines: A Glass-Box Approach to Predicting and Interpreting Crash Severity" Humanities and Social Sciences Communications (2025). [2nd round of Revision]
10. **Muhammad Salman Khan**, Tianbo Peng*, Hanzlah Akhlaq and Muhammad Adeel Khan (2025). Comparative Analysis of Automated Machine Learning for Hyperparameter Optimization and Explainable Artificial Intelligence Models. IEEE Access. Volume 13. pp. 84966-84991. doi: 10.1109/ACCESS.2025.3566427
11. **Muhammad Salman Khan**, Tianbo Peng, Muhammad Adeel Khan, Asad Khan, Mahmood Ahmad, Kamran Aziz, Mohanad Muayad Sabri Sabri, N. S. Abd ELGawaad (2025). Explainable AutoML models for predicting the strength of high-

performance concrete using Optuna, SHAP and ensemble learning. Frontiers in Materials. Volume 12. https://doi.org/10.3389/fmats.2025.1542655

12. **Muhammad Salman Khan**, Tianbo Peng, Thierno Seydou Ka, Hanzlah Akhlaq (2025). Enhancing Seismic Performance of Bridges with a Novel Friction Tension Only Brace (FTOB). In: Zhou, K. (eds) Computational and Experimental Simulations in Engineering. ICCES 2024. Mechanisms and Machine Science, Volume 173. Springer, Cham. https://doi.org/10.1007/978-3-031-77489-8_1
13. **Muhammad Salman Khan**, Tianbo Peng, Syed Muhammad Ali, Faisal Ur Rehman, Yicheng Wu* (2023). Cost Optimization of Prestressed U-Shaped Simply Supported Girder Using Box Complex Method. Sustainability. Volume 15(14). https://doi.org/10.3390/su151411457
14. Asad Khan, Muhammad Noman, Mohammad Ashraf, **Muhammad Salman Khan***, Muhammad Adeel Khan, Danhui Dan, Mohammad Adil (2025). Seismic Performance Evaluation of Structural Mud Insulated Panels Building. Journal of Building Engineering. Volume 107. https://doi.org/10.1016/j.jobe.2025.112786
15. Muhammad Adeel Khan, Boshan Zhang, Mahmood Ahmad, Mariusz Niekurzak, **Muhammad Salman Khan***, Mohanad Muayad Sabri Sabri & Weizhen Chen (2025). Optimizing concrete sustainability with bagasse ash and stone dust and its impact on mechanical properties and durability. Scientific reports. https://doi.org/10.1038/s41598-025-85363-x
16. Nauman Izhar, Muhammad Adeel Khan, **Muhammad Salman Khan***, Asad Khan, Mahmood Ahmad, Mohanad Muayad Sabri Sabri, Muriuzs Necurzac, Abdullah Alzlfawi (2025). Numerical and Experimental Evaluation of Shear Strength and Consolidation Properties of Cohesive Soils in High Water Table Areas. Frontiers in Earth Science. Volume 13. https://doi.org/10.3389/feart.2025.1522488
17. Muhammad Adeel Khan, **Muhammad Salman Khan***, Bilal Nasir, Asad Khan, Mohanad Muayad Sabri Sabri, Mahmood Ahmad, Wajeeha Qamar, Roberto Alonso Gonzalez-Lezcano (2024). Performance optimization of asphalt pavements using binder film thickness as a criterion in innovative mix design compared to Marshall and Superpave methods. Frontiers in Materials. Volume 11. https://doi.org/10.3389/fmats.2024.1488310
18. Asad Khan, Mohammad Adil, Danhui Dan, Muhammad Adeel Khan, Mahmood Ahmad, **Muhammad Salman Khan***, Mohanad Muayad Sabri Sabri (2024). Assessment of mechanical performance of sustainable structural mud insulated

panels. Frontiers in Materials. Volume 11. https://doi.org/10.3389/fmats.2024.1495750

19. Manzoor Elahi, Rawid Khan, Tufail Mabood, **Muhammad Salman Khan***, Awais Ahmed, Mahmood Ahmad, Zsolt Tóth* (2025). An Integrated Physics-Guided Machine Learning Approach for Predicting Asphalt Concrete Fracture Parameters. Scientific reports.
20. Hanzlah Akhlaq, Tianbo Peng, Boyang Yan, **Muhammad Salman Khan** (2025). Development and verification of a new OpenSees element model for a two-stage friction pendulum bearing. Scientific reports. Volume 15. https://doi.org/10.1038/s41598-025-02928-6
21. Hanzlah Akhlaq; Tianbo Peng; Kawsu Jitteh; **Muhammad Salman Khan** (2025). Machine Learning Models for Predicting Seismic Response of a Novel Two-Stage Friction Pendulum Isolated Bridge Structure. IEEE Access. volume. 13, pp. 105165-105182. doi: 10.1109/ACCESS.2025.3580065
22. Hanzlah Akhlaq, Tianbo Peng, Mubashir Ajmal, **Muhammad Salman Khan**, Mamoon Riaz (2025). Impact of GGBS on the Rheology and Mechanical Behavior of Pumpable Concrete. Frontiers in Materials. Volume 12. https://doi.org/10.3389/fmats.2025.1614951
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List of Conference Papers

1. **Jehanzaib, M.,** Shah, S. A., Park, D. H., and Kim, T. W. (2018): Characterizing the effect of Urbanization on streamflow by integration of Remote Sensing and GIS in Han River Basin. Korea Wetlands Congress annual conference 2018, international session, 08, 22-23.
2. **Jehanzaib, M.,** Kim, J. E., Park, J. Y., and Kim, T. W. (2019): Probabilistic Analysis of Drought Characteristics in Pakistan Using a Bivariate Copula Model. KWRA 2019 annual conference, international session, 05, 30-31.

3. **Jehanzaib, M.,** Sattar, M. N., and Kim, T. W. (2019): Effect of natural and human activities on Drought Propagation using Bayesian network model. SWGIC 2019 annual conference, international session, 10, 01-02.
4. **Jehanzaib, M.,** Shah, S. A., Kim, J. E., and Kim, T. W. (2020): A Non-Stationary Framework for Investigating the Influence of Climate Change and Human Activities on Drought Propagation. KSCE 2020 annual conference, 10, 21-23.
5. Shah, S. A., **Jehanzaib, M.,** Kim, D., and Kim, T. W. (2020): Innovative Trend Analyses of Annual, Seasonal, and Extreme Precipitation over Nakdong River Basin, South Korea. KSCE 2020 annual conference, 10, 21-23.
6. Kim, D., Ko, M. S., **Jehanzaib, M.,** and Kim, T. W. (2020): Change Point Analysis of Rainfall Data Considering Meteorological and Anthropogenic Factors. KSCE 2020 annual conference, 10, 21-23.
7. **Jehanzaib, M.,** Sattar, M. N., Ryu, J. H., and Kim, T. W. (2021): Dynamic Naive Bayes Classifier for Hydrological Drought Risk Assessment. AOGS 2021 Virtual 18th annual meeting, 08, 01-06.
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9. Shah, S. A., **Jehanzaib, M.,** Shin, J. Y., and Kim, T. W. (2021): Assessment of climate change and anthropogenic stress on streamflow. KSCE 2021 annual conference, 10, 20-22.
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11. Shah, S. A., **Jehanzaib, M.,** Kim, D., and Kim, T. W. (2021): Estimating the impacts of climate change and human activity on streamflow variability in Han River basin, South Korea. XVII International Water Resources Association (IWRA 2021) Congress, Daegu, 29/11-03/12.
12. Shah, S. A., **Jehanzaib, M.,** Kim, D., and Kim, T. W. (2021): Estimating the impacts of climate change and human activity on streamflow variability in Han River basin, South Korea. XVII International Water Resources Association (IWRA 2021) Congress, Daegu, 29/11-03/12.
13. Sattar, M. N., **Jehanzaib, M.,** Shah, S. A., Kim, J. E., and Kim, T. W. (2021): Assessment of Hydrological Drought Severity Using a Hidden Markov Bayesian

Classifier. XVII International Water Resources Association (IWRA 2021) Congress, Daegu, 29/11-03/12.

14. **Jehanzaib, M.,** Shah, S. A., Son, H. J., and Kim, T. W. (2022): Improving SARIMA model for reliable meteorological drought forecasting. KWRA 2022 annual conference, international session, 05, 19-20.
15. Shah, S. A., **Jehanzaib, M.,** Kim, M. J., and Kim, T. W. (2022): Exploring the factors responsible for variation in streamflow using different Budyko-base functions. KWRA 2022 annual conference, international session, 05, 19-20.

6.2 Faculty Workload, Student Teacher Ratio & Other Requisites

All faculty members are involved in teaching, research, administrative assignments, and student counseling along with centralized task assigned to them. Most common workload consists of the following:

- Teaching
- Research
- Student guidance /Tutorials

All the activities help teachers to remain involve and update with the current academic trends enabling to translate it in the teaching practices for effective teaching.

6.2.1 Student Teacher Ratio

The student faculty ratio is 7:1 approximately.

6.3 Faculty Development, Training, and Retention

6.3.1 Faculty Training

Training of faculty members ensures their effective role in the teaching process. Such trainings within the department are conducted by Ph.D. faculty members in general and the chairman of the department in particular. The trainings cover many aspects such as,

- Implementation of OBE
- Development of rubrics
- Effective teaching methodologies
- Research methodologies
- Effective use of modern tools
- CPD courses

Besides that, additional faculty training workshops are held in QUSIT Peshawar & D. I. Khan Quality Enhancement Cell (QEC) at regular intervals where distinguished experts from the

relevant fields, humanities and education departments share their knowledge and experience with the young faculty members. Up till now, the young faculty of the Civil Engineering Department has undergone following training workshops/ courses/seminars **(**Table 6- 1 and Table 6- 2**)**.

Table 6- 1: List of Training Workshops/ Courses/Seminars

Sr.#	Description	Resource Person
1.	Seminar on CEPs/PBLs/OELs	Dr. Muhammad Umar Khan, Associate Professor/ DHA Suffah University
2.	Technical Seminar on "Application of Data Science & Machine Learning in Science and Engineering"	Dr. Muhammad Jehanzaib, Assistant Professor, DCET, QUSIT DI Khan
3.	Effective Report Writing	Dr. Muhammad Umar Khan, Chairman, DCET, QUSIT DI Khan
4.	Compressive Strength of Cement Mortar blended with Coconut Fibers and Human Hair	Engr. Ibrar Ahmad
5.	Quality Assurance	Dr. Kashif Amin
6.	Enhancing Water Resistance of Cement by Using Silica Fume	Engr. Abdul Masroor
7.	Quran & Science	Dr. Abdul Rashid Sial
8.	Research Journey	Dr. M. Tariq Bashir, HOD, CED, QUSIT DI Khan
9.	Standard Criteria for Disaster Risk Reduction	Engr. Faizan Farid
10.	Ph.D. Supervision Training by HEC	Dr. M. Tariq Bashir
11.	Teachers Training Workshop	Dr. Muhammad Shah
12.	How to Prepare a Course Folder	Dr. M. Tariq Bashir & Engr. Usman Ali
13.	Seminar on "Research Methodologies"	Dr. M. Tariq Bashir, HOD, CED, QUSIT DI Khan
14.	Writing a Research Paper or Report or Project	Dr. M. Tariq Bashir, HOD, CED, QUSIT DI Khan
15.	Seminar on "Say No to Corruption"	Dr. M. Tariq Bashir, HOD, CED, QUSIT DI Khan
16.	Climate Change and Sustainable Development for Storm water Management using Green Infrastructure	Dr. Imtiaz Shah, University of Western Ontario, Canada
17.	Workshop on SPSS	Dr. Yasir Hayat
18.	Precautions on General Laboratory Safety	Dr. M. Tariq Bashir & Engr. Jamal But
19.	ISI Indexing and Writing & Publishing a Research Paper	Dr. Yasir Hayat
20.	Training Workshop on "UTM Operation"	Engr. Muhammad Nabeel, EES Lahore
21.	Training Workshop on "Triaxial Testing Machine Installation & Operation"	Engr. Muhammad Nabeel, EES Lahore
22.	How to Operate and Use Environmental Engineering Lab Equipment	Engr. Zahid Rasul, Senior Expert Hach Company
23.	Training on Effective Operation of Surveying Tools	UET Bannu
24.	Workshop on "First Aid Training"	Pakistan Red Crescent
25.	Seminar on "Outcome Based Education (OBE)"	Dr. M. Tariq Bashir, HOD, CED, QUSIT DI Khan

26.	Development & Implementation of Rubrics	Dr. M. Tariq Bashir, HOD, CED, QUSIT DI Khan
27.	Training on Fire Fighting organized by QUSIT in collaboration with Rescue-1122	Rescue-1122 team D.I.Khan
28.	Training on QOBE Software organized by QUSIT in collaboration with Al-Foze Technologies	Al-Foze Technologies Islamabad
29.	Seminar on Outcome Based Education System (OBE)	Engr. Nasar Jamal, UET Peshawar
30.	Training Seminar on Teaching/ Communication/ Pedagogy	Prof. Dr. Muhammad Shah QUSIT D.I.Khan
31.	Seminar on Research methodology workshop	Dr. Nadeem Javed QUSIT, D I Khan

Table 6- 2: Conferences, CPD Course, and Workshops Attended by Faculty Members

Sr. #	Title	Participants	Organizer
1.	1st PEC Deans Conference of Engineering Institutions	Professor Dr. M. Mansoor Khan and Dr. M. Tariq Bashir	PEC, Islamabad
2.	Design of Foundations and Soil Investigation	Engr. Farhan Malik	UET, Lahore
3.	Design of Foundations and Soil Investigation	Engr. Muhammad Jamal Butt	UET, Lahore
4.	Seismic Design & Detailing in Building	Engr. Jamal But	Peshawar
5.	Workshop on outcome-based education system and implementation organized by QUSIT in collaboration with PEC	All Faculty Members	Qurtuba University D.I. Khan& PEC
6.	Seminar on Self-Management and Proactive life approach	Engr. Muhammad Umar, Engr. Jamal Butt, Engr. Furqan Ali	Pakistan Engineering Council, Islamabad
7.	Training on Q-OBE software	All Faculty Members	Qurtuba University, D.I. Khan

6.3.2 Faculty Retention, Development and Career Planning

Faculty retention and development is somewhat centrally controlled by QUSIT. University provides its faculty member's different benefits not limited to monetary to retain and develop its faculty members. Below are the measures that QUSIT undertakes for retaining & career development of its faculty members.

- QUSIT provides attractive Salary Packages.
- One day leave per week with pay to faculty for higher education.
- Study leave for pursuing higher education.
- QUSIT gives research/ publication fund.

6.4 Sufficiency and Competency of Technical and Administrative Staff

The technical and administrative staff at the department is well qualified, competent, and hardworking. The staff has educational qualifications according to PEC requirements. The laboratory staff is familiar with the use of equipment, its basic maintenance and the relevant practical work that is carried out in their respective module. The laboratory staff is also responsible for reporting faulty equipment, carrying out routine checks and cleaning of equipment. The technical and administrative staff also provides the necessary support to faculty members and students in practical matters whenever requested.

CHAPTER 7

Facilities and Infrastructure

This chapter provides details about the available teaching and learning facilities at the department. It includes information on the available computing systems, laboratories and further support facilities.

7.1 Teaching and Learning Facilities

Department of Civil Engineering is located in a purpose-built building at QUSIT, DI Khan. The total number of dedicated classrooms currently in use is four. Additionally, there are other rooms reserved for specific activities, such as girls' common room for female students to relax and study. There are state of the art laboratories for various subjects that are taught in the BSc Civil Engineering course.

7.1.1 Libraries

There are two libraries on campus, one being the main library of the campus and the other is department's own library. The departmental library has a healthy collection of books. In addition to the existing wealth of books, a large number has recently been procured. At present there are around 1600 books available in department's own library and more than 12,000 books available in the main library of the QUSIT D. I. Khan. The library is also equipped with modern facilities such as photocopiers, computers, internet, scanners, printers, video and audio equipment and computerized-catalogue.

7.1.2 Computing and IT systems

The department has a dedicated classroom and computer room, which are equipped with latest machines and internet facilities. The details of the equipment are shown in Table 7- 1.

Table 7- 1: Details of IT facilities

Sr. #	**Name of Equipment**	Qty.
1	PCs	40
2	Multimedia Projectors (Fixed)	04
3	Multimedia Projector Portable	01
4	Printers	05

7.1.3 Laboratories

The department currently has well equipped laboratories with latest available techniques and instruments for undergraduate courses. There are nine dedicated and two shared laboratories

with modern equipment in the relevant area of Civil Engineering. The details of experiments and equipment in each laboratory are attached in the **Annexure-G** of supplementary annexures**.**

7.2 Support Facilities

7.2.1 Hostels

The number of non-resident students is very low. Hence, university has developed linkage with some private hostels to facilitate the student's accommodation without any inconvenience.

7.2.2 Sports

The sports facilities offered on campus are as follows:

- Volley Ball
- Table Tennis
- Indoor games
- E-Gaming

7.2.3 Cafeteria

There is also a cafeteria for students and faculty members which offer quality food.

7.2.4 Recent and planned improvements

Despite state of art existing planned & purpose building of the department, there is provision of an extra floor to meet need of future extension.

CHAPTER 8

Institutional Support and Financial Resources

This chapter deals with the financial resources of the university and its commitment to support an engineering program. It discusses the faculty salary and allowances, research funding and the general financial commitments of the University. Despite provision of funds for smooth functioning, there is always a need for improvement and increased financial resources are envisaged for improvement of laboratories, computing facilities and furnishing library with books and all types of professional magazines.

8.1 Financial Commitment and Support

8.1.1 Faculty Salary and Allowances

At Civil Engineering Department, QUSIT, the faculty salary is at par with other universities in the private sector. Details of the pay scales are in tabulated in Table 8- 1 **.**

Table 8- 1: Starting salaries for teaching hierarchy

Appointment/ Post	Starting Salary (Rs)
Professor	500,000/- (Negotiable)
Associate Professor	450,000/- (Negotiable)
Assistant Professor	200000/-
Lecturer	70000/-
Lab Engineer	25000/-

8.1.2 Faculty Support

Civil Engineering Department QUSIT recruits Ph.D. and M.S qualified faculty with preference to Ph.D. qualifications as per HEC policy. University also sponsors research for faculty members. Faculty members are sent abroad for research sharing and oral presentation at conferences and other forums. Faculty members can also apply for post-doctoral and Ph.D. program with full support through HEC or other organizations.

8.1.3 Financial Resources

Adequate resources are available for maintenance of well-equipped laboratories, latest equipment, computer facilities with support staff and day to day support of the institute as shown in **"Annexure L"** of supplementary annexures. Faculty is directed to suggest new books, research journals and articles for the library.

CHAPTER 9

Continuous Quality Improvement

This chapter is dedicated to Continuous Quality Improvement (CQI) and presents information, practices and planning for the review and curriculum development of the program.

9.1 Quality Enhancement Cell (QEC) & Continuous Quality Improvement (CQI)

9.1.1 Quality Enhancement Cell (QEC)

A Quality Enhancement Cell (QEC) is established in the University since 2012. The cell works under the supervision of the Pro-Vice Chancellor and implements policies for quality assurance at the University. The cell assures that the teaching and learning assessment must be in line with the HEC's quality assurance guidelines.

9.1.2 QEC Objectives

The objectives of QEC are stated below:

- Continuous improvement in the systems, through reviews and streamlining of its functions, policies.
- Develop quality culture in the university where each stakeholder feels responsible to bring betterment.
- Enable the University to identify areas of strengths and excellence as well as areas in need of focused concentration for progress.
- To produce manpower this could serve the society in a proficient, successful and honest way.
- To improve the quality of Higher Education according to international standards.
- To meet the challenges of global compatibility in higher education.
- Facilitate and coordinate internal and external reviews as well as institutional and program accreditation activities on behalf of the university.

9.1.3 QEC Assessment

QEC is divided into different parts, Continuous Quality Improvement Committee (CQIC), stake-holders and Departmental QEC Committee (DQEC) and Departmental Curriculum Review Committee (DCRC). Faculty and coordinators of the department serving as members

and one of the most senior faculty member of the department is convener of the DCRC committee. Continuous Quality Improvement Committee constituted as follows

1. Chairman, DCET, QUSIT, DI Khan — Convener
2. Convener DCRC, DCET, QUSIT, DI Khan — Member
3. Dy. Director, QEC, QUSIT, DI Khan — Member
4. Program Coordinator, DCET, QUSIT, DI Khan — Member

9.1.4 Continuous Quality Improvement (CQI)

To be able to continually improve the quality of education at the Department of Civil Engineering & Technology, the process of Continuous Quality Improvement (CQI) has been implemented for the session 2018 and onward. CQI is a part of the overall objective evaluation process. This process consists of various cycles. These cycles are related to PEOs, PLOs, CLOs, and Curriculum review. Each cycle has CQI as its integral part. The evaluation process of three types of outcomes (PEOs, PLOs and CLOs) includes their measurement, analysis, and evaluation. Through this process the results of the existing practices within the department is regularly evaluated and an action plan for improvement is generated and acted upon. The implementation of CQI is a requirement of Pakistan Engineering Council (PEC) and it is critical to the successful shift towards OBE system. The CQI process is executed to improve the achievements of PEOs, PLOs and CLOs. It regularly assesses the academic standards and outcomes of the academic program.

At the end of each semester, DCRC meeting held on regular base and prepare a comprehensive Course Review Report (CRR) regarding the course contents, level of achievement of CLOs and consequently PLOs for any course at the cohort level. DQEC committee (which includes a QEC representative) analyzes CLOs and PLOs attainment through direct assessments, considering the faculty suggestions for the course and student's feedback about faculty and courses and the makes recommendation for CQIC committee. According to the results, the CQIC suggests the corrective actions which are implemented and the record is kept in the departmental database.

Further, if any change in CLO statement or PLO/CLO mapping is compiled by DCRC, these changes are then forwarded to BoS. If the proposed changes are less than 10%, then the departmental database is updated with the prescribed changes. Consequently, if the proposed changes are more than 10%, then they are forwarded to the relevant statutory bodies for further approval as mentioned in the process of CLO & PLO review cycle.

9.1.5 Evaluation Methods

Following are the evaluation methods currently used by the Department of Civil Engineering which used to measure and evaluate the program with effect from session Fall-2018. Most, if not all of the information gained from these sources will be used in a comprehensive manner to measure the level of achievement of the defined KPIs; highlight key issues; consult all feedback sources to find out the possible solutions and then suggest improvements. These improvements and their impact are then measured in the next cycle and this way a continuous cycle of assessment, feedback and implementation will be carried on. Proposed list of all instruments used and their explanation is provided in **Appendix-1** in form of surveys.

9.1.5.1 Semester Results

Starting from 2018 session onwards, the result of each semester is entered in an OBE based learning management system (LMS). The teachers are required to enter the details of their subject, lecture plan, lecture schedule, course learning outcomes (CLOs), and mapping of CLOs to PLOs, assessment methods, and results of each assessment. The LMS in return generates a comprehensive results sheet like attached in **Annexure-C** of supplementary annexures for session **Fall-2018 and Fall-2019** as reference, which shows the level of achievement CLOs and PLOs by each student, and for the cohort for one particular subject.

9.1.5.2 Review of Semester Results

After a formal DCRC meeting and receiving the LMS generated results for each subject in each semester, a comprehensive review report for each semester based on the subjects of individual results is forwarded to the departmental QEC for the evaluation of results both qualitatively and quantitatively.

9.1.5.3 Course Review Forms

Course review forms are generated for each course offered by the Civil Engineering department in each semester. There are two variants of this form, one for the students and the other for the instructor. The students are required to fill one of these forms at the end of each semester for each subject. These forms are electronically generated and filled online. The data gets transferred to DCRC committee for generation of review report.

9.1.5.4 Graduating Survey

A survey is conducted with the graduating students annually. These surveys inquire about the usefulness of the course and ask the students for their comments on positive and negative

aspects of the course. The results of these surveys will be used to evaluate the results of student's KPI achievement from a qualitative perspective.

9.1.5.5 Faculty Satisfaction Survey

Faculty survey questionnaire is filled annually by the faculty members of every department to assess their satisfaction level and their concerns about workload, admin support, quality of life, promotion and pay related issues. The purpose is to help them progress and excel in their profession.

9.1.5.6 Alumni Survey

The alumni surveys are conducted to measure the effectiveness of the departmental PEOs and the level of their attainment from the perspective of alumni.

9.1.5.7 Employer Survey

Similar to the alumni survey the employer surveys is also conducted to measure the quality and effectiveness of the graduates of Civil Engineering program. The questions of the survey form are mapped to the PEOs, which will help us in review or update of highlighted weak areas based on the response obtained from these survey forms.

All these surveys are generated on online platform of Google Forms and the results are stored within QEC.

Continuous Quality Improvement (CQI) process for the PLOs and CLOs are provided in Figure 9- 1 and Figure 9- 2 respectively. This process is approved from the relevant statutory bodies.

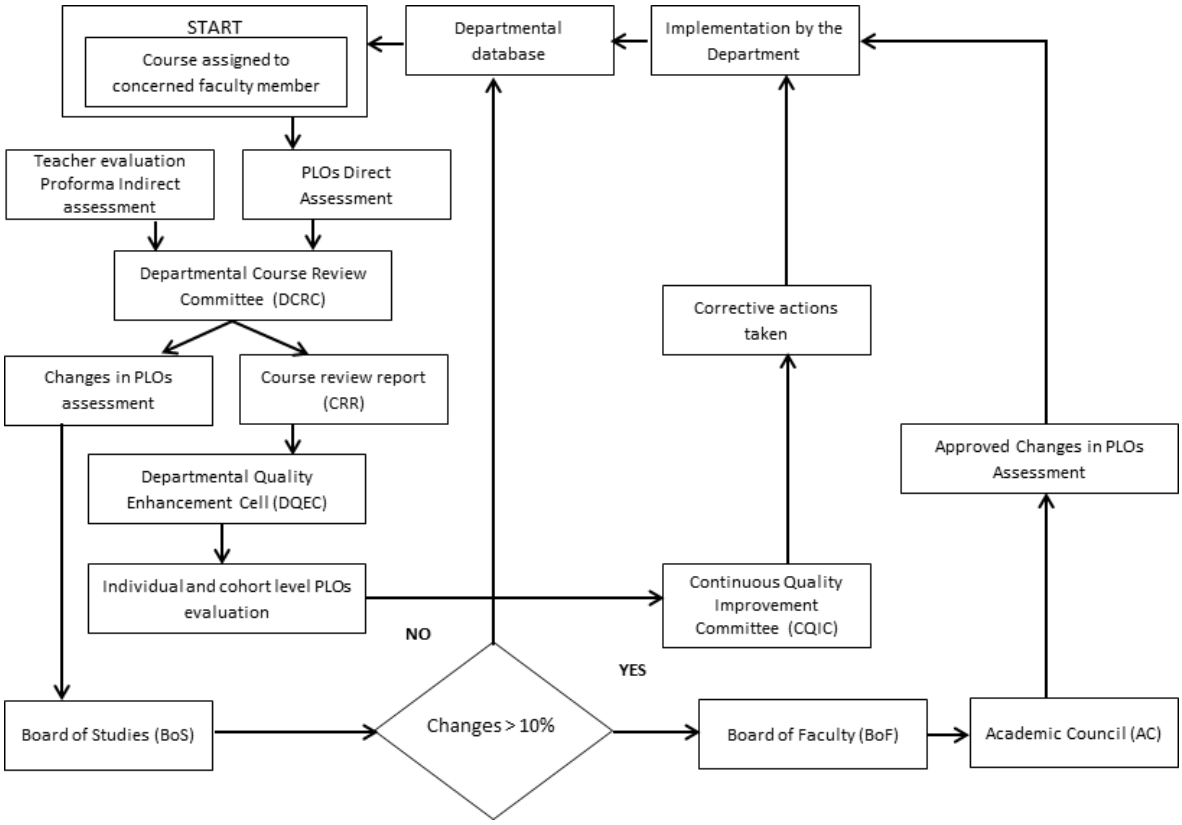


Figure 9- 1: Process of PLO review cycle

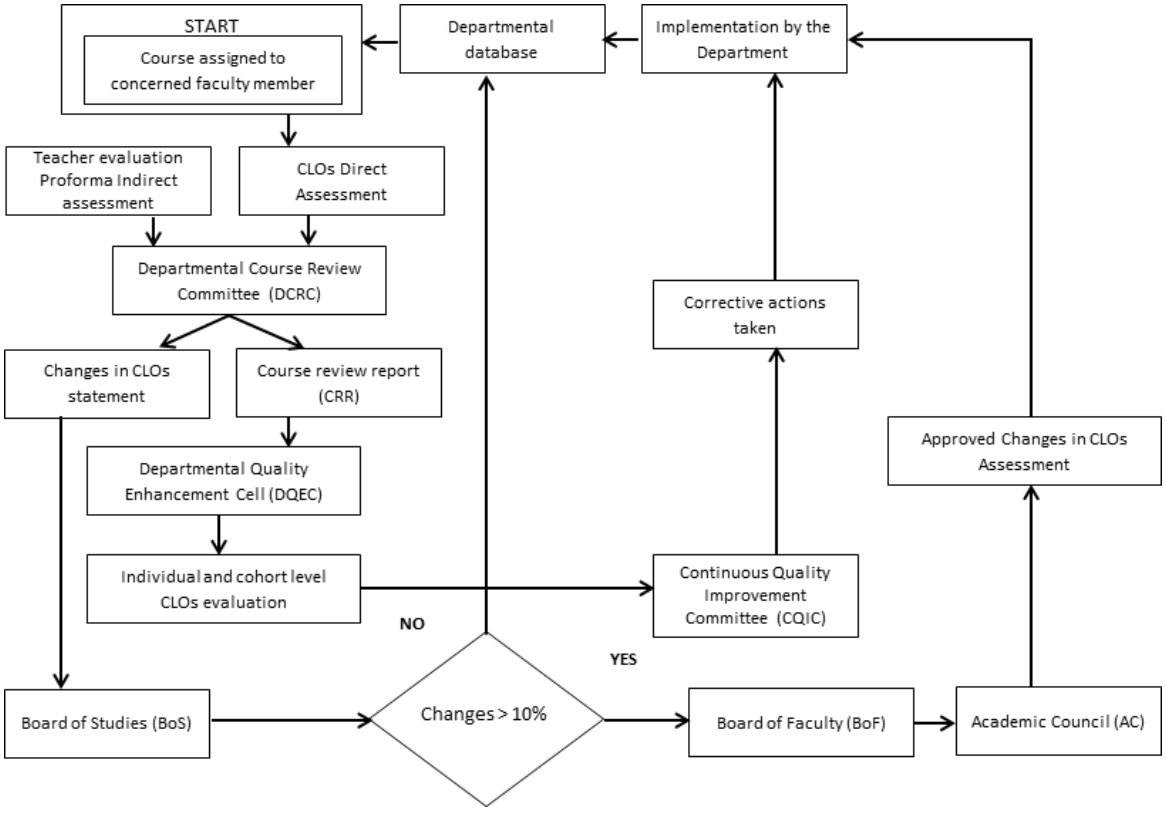


Figure 9- 2: Process of CLO review cycle

9.1.6 Annual CQI Report

The annual CQI report (ACR) is an extensive document that will be prepared by CQIC when 1st Batch will pass out on OBE system and has spent 3-5 years in field job. It will analyze in detail the achievement of CLO's, PLOs (direct and indirect assessment), and PEO's (indirect assessment) and furnish its recommendations after approval by relevant statutory bodies for subsequent action by the department. This will play an important role in CQI of OBE procedures and teaching/learning methodologies. The mechanism of generating annual CQI report is shown in Figure 9- 3**.**

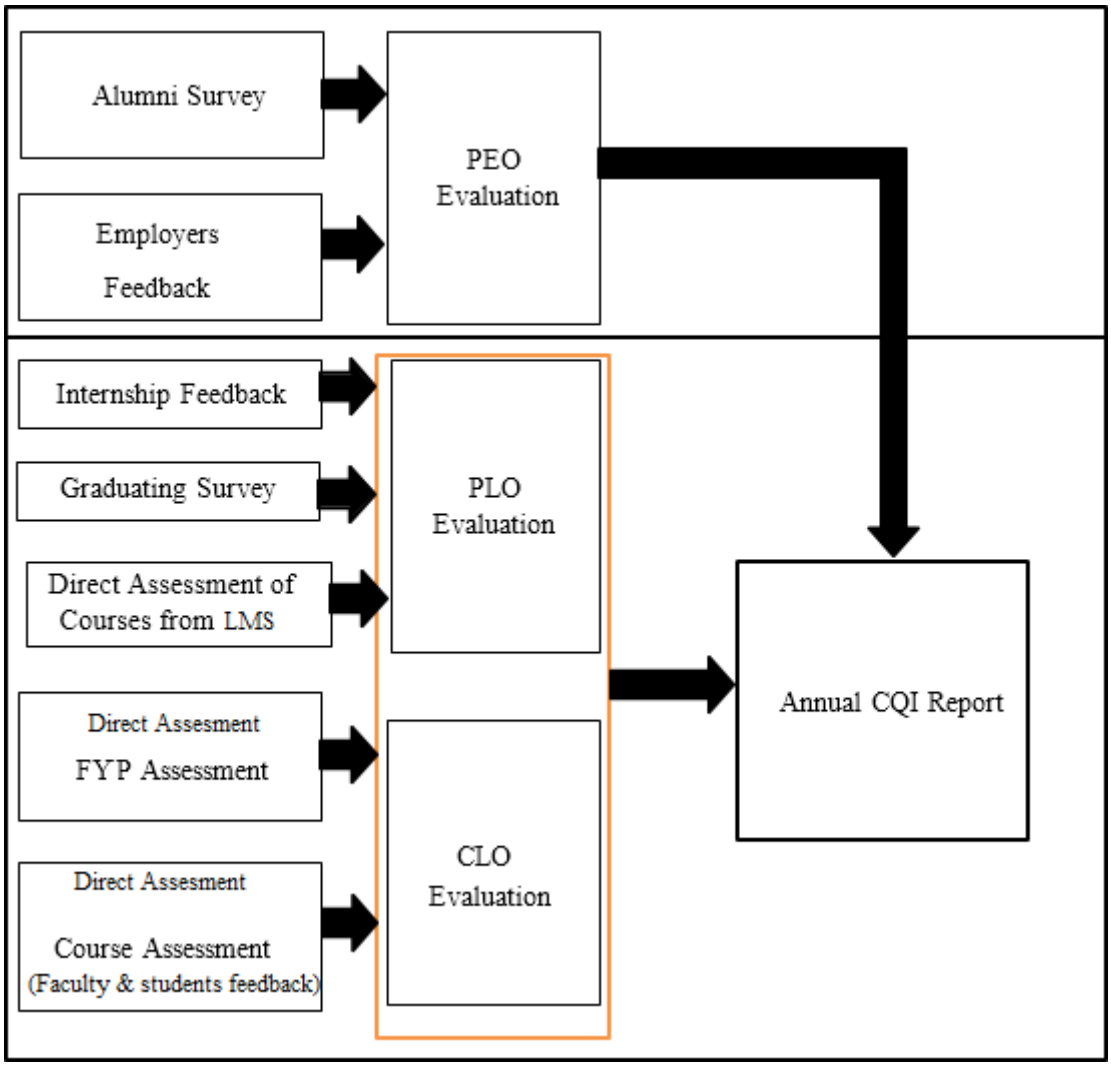


Figure 9- 3: Annual CQI Report

9.2 Implementation Plan Based on Accreditation Visit

The Civil Engineering Department is expecting its re-accreditation visit in 2025. The department is fully committed to implement remedial measures for any observation indicated by visiting team.

CHAPTER 10

Industrial Linkages

This chapter highlights the involvement of industry in development and improvement of the program.

10.1 Industrial Involvement

Since universities are more involved in promoting economic development, there is a push from government for more relevant research and training. One way to address this call is by encouraging more linkages between higher education institutions and the business sector. Such linkages are particularly needed for countries like Pakistan as the majority of universities were created with a mission to contribute to nation building.

QUSIT is making dedicated efforts for strong industrial linkages setup with the mission not only to contribute to national economy but also to address the industrial problems, promote research activities and involvement of students in the research projects for their confidence building. Civil engineering department in particular has established Industrial Liaison Office with the perception that our courses and research activities should be at standard with what the industry needs. Further at university level various statutory bodies such as, Board of Faculty, Academic Council, and Board of Governors has appreciable nominations from outside so that higher education should be focused as per market demand and problems. As a result of input from different quarters, Civil Engineering Department, QUSIT, D. I. Khan has established Industrial Advisory Board (IAB) and Career Resource Centre (CRC). IAB plays its key role in developing external linkages with the industry, other institutions, and organizations at national level with the mission to promote research activities and economic welfare for the faculty and students.

Industrial Liaison office arranges internships during summer vacations for the growth of students.

10.2 Collaborative Projects and Supervised Internships

The Industrial liaison officer (a faculty member) contacts the consultants and industries to explore the internships for the Civil Engineering students and also make an effort for jobs after finishing the degree. The details of internships offered to students are in Table 10- 1 and

Table 10- 2.

.

Table 10- 1: Internship Details

Sr. #	Name of Student	Registration #	Company Name
1	Waseem Abbas	397	Daulat Khan Construction Company, D.I. Khan
2	Imad Ud Din	401	Local Government Body, Mardan
3	Azmat Ullah	436	Project Implementation Consultants, Jalalpur Irrigation Canal Department
4	Muhammad Syfiyan	436	Yasoob Builders & Services
5	Muhammad Zain	438	National Engineering Services Pakistan
6	Sheikh Humza	439	Yasoob Builders & Services
7	Atif Mehmood	440	M/S Haji Aurangzeb Khan Gandapur & Sons Constructions
8	Faisal Shafqat	441	M/S Haji Aurangzeb Khan Gandapur & Sons Constructions
9	Muhammad Ibrahim	455	Urban Area Development Authority, D.I. Khan
10	Muhammad Hanzla Tahir	459	Urban Area Development Authority, D.I. Khan
11	Muhammad Humza Khan	460	M/S Haji Aurangzeb Khan Gandapur & Sons Constructions
12	Muhammad Rizwan Jatoi	461	Gomal Zam Irrigation Division, D.I. Khan
13	Abrar Zain	462	M/S Haji Aurangzeb Khan Gandapur & Sons Constructions
14	Aman Ullah Khan	463	Punjab Irrigation Department
15	Muhammad Nadim Iqbal	464	Punjab Irrigation Department
16	Muhammad Irfan	465	NESPAK (PVT) LIMITED
17	Muhammad Noman	489	Military Lands & Cantonment Department

Table 10- 2: Summery of Internship

Sr. #	Company Name	No. of Internees
1	M/S Haji Aurangzeb Khan Gandapur & Sons Constructions	4
2	Punjab Irrigation Department	2
3	Daulat Khan Construction Company, D.I. Khan	1
4	Local Government Body, Mardan	1
5	Yasoob Builders & Services	2
6	Project Implementation Consultants, Jalalpur Irrigation Canal Department	1
7	Urban Area Development Authority, D.I. Khan	2
8	Gomal Zam Irrigation Division, D.I. Khan	1
9	NESPAK (PVT) LIMITED	2
10	Military Lands & Cantonment Department	1

Appendix 1

Alumni Survey Form (Proforma-I)

The purpose of this survey is to obtain alumni input on the quality of education they received. We seek your help in completing this survey. Remember, this will be your contribution towards facilitating the management for ongoing continuous development at QUSIT for you, the community and the graduates following you.

a. Name (Optional)..... b. Session.....

c. Designation..... d. Organization.....

			Very Satisfied	Satisfied	Uncertain	Dissatisfied (25)	Very Dissatisfied (0)
S. No	**PEOs**	**Question**	**A (100 %)**	**B (75 %)**	**C (50 %)**	**D (25 %)**	**E (0 %)**
1.	PEO-1	Employment opportunities in engineering industry or relevant field that were received after graduation.					
2.		Is your technical knowledge obtained at QUSIT helpful for your career path?					
3.	PEO-2	**To what extent did your education at QUSIT prepare you to work effectively as part of a team in your professional environment?**					
4.		**To what extent did your education at QUSIT contribute to the development of strong interpersonal communication skills and an entrepreneurial mindset that supported your professional growth?**					
5.	PEO-3	How effective was the curriculum at QUSIT in helping you understand and apply professional and ethical standards in the workplace?					
6.		**How aware are you of your responsibilities toward society and the environment in your professional career?**					

Employer's Survey Form (Proforma-II)

The purpose of this survey is to obtain employer's input on the quality of the academic program, at QUSIT, DI Khan. We seek your help in completing this survey.

Please rate the following questions based on your experience with alumni from QUSIT Civil Engineering Program by choosing any one of the following options:

			Very Satisfied	Satisfied	Uncertain	Dissatisfied	Very Dissatisfied
S. No	**PEOs**	**Question**	**A (100 %)**	**B (75 %)**	**C (50 %)**	**D (25 %)**	**E (0 %)**
1.	PEO-1	How well does the graduate demonstrate core engineering knowledge and the ability to solve technical problems?					
2.		How effectively has the graduate adapted to your organization's tools, technologies, and engineering practices?					
3.	PEO-2	How effectively does the graduate work in a team and contribute to group objectives in your organization?					
4.		How would you rate the graduate's communication and interpersonal skills in a professional career?					
5.		To what extent has the graduate demonstrated creativity or entrepreneurial ideas in your organization?					
6.	PEO-3	Does the graduate follow ethical and professional rules at work?					
7.		How well does the graduate take responsibility for their actions and consider the broader impact of their work on society and the environment?					

Table: Assessment of Program Educational Objectives

PEOs	Source	Key Performance Indicator	When Measured
PEO-1	Employer Survey Form	Results of Q.1 and Q.2 should be greater than 50%	Annually
	Alumni Survey Form	Results of Result of Q.1 and Q.2 should be greater than 50%	
PEO-2	Employer Survey Form	Results of Q.3, Q.4 and Q.5 should be greater than 50%	Annually
	Alumni Survey Form	Results of Q.3 and Q.4 should be greater than 50%	
PEO-3	Employer Survey Form	Results of Q.6 and Q.7 should be greater than 50%	Annually
	Alumni Survey Form	Results of Q.5 and Q.6 should be greater than 50%	

Students Course Evaluation (Proforma-III)

(To be filled by each student at the time of course completion)

Department _____ Course No _____

Course Title _____ Teacher Name: _____

Year of Study _____ Semester / Term _____

Please give us your views so that Course quality can be improved. You are encouraged to be frank and constructive in your comments

CORE QUESTIONS

Course Content and Organization	**Strongly Agree**	**Agree**	**Uncertain**	**Disagree**	**Strongly Disagree**
1. The course objectives were clear	☐	☐	☐	☐	☐
2. The Course workload was manageable	☐	☐	☐	☐	☐
3. The Course was well organized (e.g. timely access to materials, notification of changes, etc.)	☐	☐	☐	☐	☐
4. Comments					

Student Contribution					
5. Approximate level of your own attendance during the whole Course	☐ <20%	☐ 21-40%	☐ 41-60%	☐ 61-80%	☐ >81%
	Strongly Agree	**Agree**	**uncertain**	**Disagree**	**Strongly Disagree**
6. I participated actively in the Course	☐	☐	☐	☐	☐
7. I think I have made progress in this Course	☐	☐	☐	☐	☐
8. Comments					

Learning Environment and Teaching Methods	**Strongly Agree**	**Agree**	**Uncertain**	**Disagree**	**Strongly Disagree**
9. I think the Course was well structured to achieve the learning outcomes (there was a good balance of lectures, tutorials, practical etc.)	☐	☐	☐	☐	☐
10. The learning and teaching methods encouraged participation.	☐	☐	☐	☐	☐
11. The overall environment in the class was conducive to learning.	☐	☐	☐	☐	☐
12. Classrooms were satisfactory	☐	☐	☐	☐	☐
13. Comments					

Quality of Delivery	**Strongly Agree**	**Agree**	**Uncertain**	**Disagree**	**Strongly Disagree**
14. The Course stimulated my interest and thought on the subject area	☐	☐	☐	☐	☐
15. The pace of the Course was appropriate	☐	☐	☐	☐	☐
16. Ideas and concepts were presented clearly	☐	☐	☐	☐	☐
17.Comments					

Assessment	**Strongly Agree**	**Agree**	**Uncertain**	**Disagree**	**Strongly Disagree**
18. The method of assessment were reasonable	☐	☐	☐	☐	☐
19. Feedback on assessment was timely	☐	☐	☐	☐	☐
20. Feedback on assessment was helpful	☐	☐	☐	☐	☐
21. Comments					

Additional Core Questions

Instructor / Teaching Assistant Evaluation	**Strongly Agree**	**Agree**	**Uncertain**	**Disagree**	**Strongly Disagree**
22. I understood the lectures	☐	☐	☐	☐	☐
23. The material was well organized and presented	☐	☐	☐	☐	☐
24. The instructor was responsive to student needs and problems	☐	☐	☐	☐	☐
25. Had the instructor been regular throughout the course?	☐	☐	☐	☐	☐

Tutorial	**Strongly Agree**	**Agree**	**Uncertain**	**Disagree**	**Strongly Disagree**
26. The material in the tutorials was useful	☐	☐	☐	☐	☐
27. I was happy with the amount of work needed for tutorials	☐	☐	☐	☐	☐
28. The tutor dealt effectively with my problems	☐	☐	☐	☐	☐

Practical	**Strongly Agree**	**Agree**	**Uncertain**	**Disagree**	**Strongly Disagree**
29. The material in the practicals was useful	☐	☐	☐	☐	☐
30. The demonstrators dealt effectively with my problems.	☐	☐	☐	☐	☐

Overall Evaluation

31. The best features of the Course were:

32. The Course could have been improved by:

THANK YOU

Teacher Evaluation (Proforma-IV)

(To be filled by each student)

Course Title and Number: _____

Name of Instructor: _____Semester_____

Department: _____Degree_____

Use the scale to answer the following questions below and make comments

A: Strongly Agree B: Agree C: Uncertain D: Disagree E: Strongly Disagree

Instructor:					
1. The Instructor was prepared for each class	A	B	C	D	E
2. The Instructor demonstrated knowledge of the subject	A	B	C	D	E
3. The Instructor completed the whole course	A	B	C	D	E
4. The Instructor provided additional material apart from the textbook	A	B	C	D	E
5. The Instructor provided citations regarding current situations with reference to Pakistani context.	A	B	C	D	E
6. The Instructor communicated the subject matter effectively	A	B	C	D	E
7. The Instructor showed respect towards students and encouraged class participation	A	B	C	D	E
8. The Instructor maintained an environment that is conducive to learning	A	B	C	D	E
9. The Instructor arrived on time	A	B	C	D	E
10. The Instructor leaved on time	A	B	C	D	E
11. The Instructor was fair in examination	A	B	C	D	E
12. The Instructor returned the graded scripts etc. in a reasonable amount of time	A	B	C	D	E
13. The Instructor was available during the specified office hours and for after class consultations	A	B	C	D	E
Course:					
14. The Subject matter presented in the course has increased your knowledge of the subject	A	B	C	D	E
15. The syllabus clearly stated course objectives requirements, procedures and grading criteria	A	B	C	D	E
16. The course integrated theoretical course concepts with real-world applications	A	B	C	D	E
17. The assignments and exams covered the materials presented in the course	A	B	C	D	E
18. The course material was modern and updated	A	B	C	D	E

Comments:

Instructor:_____

_____

Course:_____

_____

Graduating Students Survey Form (Proforma-V)

(To be filled out by graduating students in last semester before the award of degree)

The survey seeks graduating students' input on the quality of education they received. The purpose of this survey is to assess the quality of the academic programs. We seek your help in completing this survey.

A: Strongly Agree B: Agree C: Partially Agree D: Disagree E: Strongly Disagree

The program:		**A**	**B**	**C**	**D**	**E**
1	Provides adequate engineering knowledge **(PLO-1)**					
2	Develops effective analytical and problem-solving skills **(PLO-2)**					
3	Develops capability of designing technical systems and developing solutions of complex engineering problems **(PLO-3)**					
4	Is effective in developing independent thinking **(PLO-4)**					
5	Was effective in developing ability to use modern tools **(PLO-5)**					
6	Develops a sense of care towards societal health, safety and cultural issues relevant to professional engineering practice **(PLO-6)**					
7	Develops understanding of the impact of professional engineering solution in societal and environmental context. **(PLO-7)**					
8	Focuses on developing professional ethics **(PLO-8)**					
9	Is effective in enhancing a sense of responsibility and team-working abilities **(PLO-9)**					
10	Is effective in developing communication skills **(PLO-10)**					
11	Is effective in developing planning abilities **(PLO-11)**					
12	Encourages innovation and focuses on technological developments **(PLO12)**					

Which aspects of your program could be further improved?

_____

_____

Course Review (Proforma-VI)

(To be filled by the faculty members)

Course Title: _____ Course Code: _____

Semester: _____ Course Teacher: _____

Credit Hours: _____

<table>
<tr><td>S. No</td><td colspan="6"></td></tr>
<tr><td rowspan="2">1</td><td rowspan="2">CLO Attainment</td><td>CLOs</td><td>CLO1</td><td>CLO2</td><td>CLO3</td><td>CLO4</td></tr>
<tr><td>%age of Students achieving CLO</td><td></td><td></td><td></td><td></td></tr>
<tr><td rowspan="2">2</td><td rowspan="2">Course PLO Attainment</td><td>PLOs</td><td>PLO1</td><td>PLO2</td><td>PLO3</td><td>PLO4</td></tr>
<tr><td>%age of Students achieving PLO</td><td></td><td></td><td></td><td></td></tr>
<tr><td rowspan="2">3</td><td colspan="6">Instructor’s comments on the performance of students in this course:</td></tr>
<tr><td colspan="6"></td></tr>
<tr><td rowspan="2">4</td><td colspan="6">Instructor’s comment on attainment of CLOs / Possible reasons of failing designed CLOs:</td></tr>
<tr><td colspan="6"></td></tr>
<tr><td rowspan="2">5</td><td colspan="6">Instructor’s comments on attainment of PLOs / Possible reasons of failing targeted PLOs:</td></tr>
<tr><td colspan="6"></td></tr>
<tr><td rowspan="2">6</td><td colspan="6">Recommendations / Suggestions for future instructions for improved course coverage and CLOs/PLOs attainment:</td></tr>
<tr><td colspan="6"></td></tr>
<tr><td rowspan="2">7</td><td colspan="6">The course contents are up to date as per HEC/PEC requirement?</td></tr>
<tr><td colspan="6"></td></tr>
<tr><td rowspan="2">8</td><td colspan="6">Comments of Faculty Member on Textbooks/course material/etc:</td></tr>
<tr><td colspan="6"></td></tr>
<tr><td rowspan="2">9</td><td colspan="6">General Recommendation and Suggestion Related to the Course:</td></tr>
<tr><td colspan="6"></td></tr>
</table>

Name: _____

Designation: _____

Signature: _____

Internship Evaluation Form (Proforma-VII)

(To be filled by the Industries after the completion of internships)

The purpose of this assessment is to obtain employers' feedback on the performance of our students during their internship at industry. This evaluation form should be completed by the internship site supervisor or the individual who is directly responsible for supervising the internee's work assignments.

Student Name & Registration Number				
Internship period	From		To	
Student's job descriptions during internship				

Feedback on student's level of performance

Please provide feedback about internee's performance in various given domains. To fillout the below sections, use the following key:

1 - Strongly agree, 2 – Agree, 3 – Neutral, 4 – Disagree, 5 - Strongly disagree

Sr. No	PLO	Questions	1	2	3	4	5
1	1	Have the knowledge of mathematics, engineering fundamentals & basic sciences.					
2	2	Utilizes engineering knowledge to identify problems in any given engineering task.					
3	3	Devises/suggests solutions of any given engineering problem in a logical manner.					
4	4	Collects appropriate data and analyses them logically.					
5	5	Ability to use modern software / hardware tools necessary for engineering practices.					
6	6	Takes care of the health, safety and environmental norms and standards, implemented in the said industry.					
7	7	Have an ability to realize the impact of engineering development on the sustainability of an environment					
8	8	Maintains attendance, punctuality and discipline.					

Sr. No	PLO	Questions	1	2	3	4	5
9	9	Possesses an ability to work individually & in team to perform assigned tasks.					
10	10	Have effective communication in Verbal, Written & Presentation Skills.					
11	11	Have an ability to complete given task according to planned timeline.					
12	12	Shows motivation and goes at length to get the knowledge.					
13	Any other feedback not covered in the assessment given above, please write below:						

Name of Organization			
Designation			
Contact		Email	
Signature & Stamp			

Thank you very much for taking your valuable time to complete this evaluation. Your appraisal of our student's performance and your associated comments will provide valuable feedback in our efforts at continuous improvement of our academic activities andprofessional development of our students

Book A: Theory Folder

Book B: Lab Folder

Qurtuba University of Science and Information Technology, D.I. Khan

Civil Engineering

Course Folder Contents

Course : QCE-366- Quantity & Estimation

Semester : Spring-2022

Course Teacher : Engr. Asfandyar Khan

Credit Hours: 2 + 0

Number of Students : 23

Number of Class Activities : 12

Table Of Contents

List of Students

Sr. No.	Registration No.	Roll No.	Name	Attendance	Percentage
1.	2018-QUD-F-254		Muhammad Sohaib Khan	28 / 32	87.5 %
2.	2018-QUD-F-257		Muhammad Mohsin Tariq Baloch	30 / 32	93.75 %
3.	2019-QUD-F-309		Muhammad Daniyal Qureshi	28 / 32	87.5 %
4.	2019-QUD-F-311		Mohamin Hussain	26 / 32	81.25 %
5.	2019-QUD-F-313		Shehryar Zamir	28 / 32	87.5 %
6.	2019-QUD-F-314		Nasir Ullah	27 / 32	84.38 %
7.	2019-QUD-F-315		Malik Daniyal Ahmad	28 / 32	87.5 %
8.	2019-QUD-F-316		Touqeer Ali	28 / 32	87.5 %
9.	2019-QUD-F-317		Muhammad Khan	28 / 32	87.5 %
10.	2019-QUD-F-318		Muhammad Ghaznfar Ali	28 / 32	87.5 %
11.	2019-QUD-F-319		Naveed Khan	28 / 32	87.5 %
12.	2019-QUD-F-320		Bilal Shah	26 / 32	81.25 %
13.	2019-QUD-F-322		Huzaifa Raheel	28 / 32	87.5 %
14.	2019-QUD-F-323		Adeel Shah Mehdi	27 / 32	84.38 %
15.	2019-QUD-F-324		Muhammad Yasir	25 / 32	78.13 %
16.	2019-QUD-F-326		Muhammad Sajid	25 / 32	78.13 %
17.	2019-QUD-F-327		Muhammad Shaheryar Khan	27 / 32	84.38 %
18.	2019-QUD-F-328		Muhammad Arslan	25 / 32	78.13 %
19.	2019-QUD-F-338		Inam Ullah	25 / 32	78.13 %
20.	2019-QUD-F-346		Yasir Jamshid	25 / 32	78.13 %
21.	2019-QUD-F-348		Amin Ullah	27 / 32	84.38 %
22.	2019-QUD-F-354		Azhar Nawaz	28 / 32	87.5 %
23.	2019-QUD-F-413		Qazi Farooq	30 / 32	93.75 %

Class Activities

Sr. No.	Assessment Method	Name	Dated	Total Marks	Number of Questions
1.	Assignment	Assignment 1	09-05-2022	10.00	1
2.	Assignment	Assignment 2	16-05-2022	10.00	1
3.	Assignment	Assignment 3	28-06-2022	10.00	1
4.	Assignment	Assignment 4	13-07-2022	10.00	1
5.	Quiz	Quiz 1	16-05-2022	10.00	1
6.	Quiz	Quiz 2	16-05-2022	10.00	1
7.	Quiz	Quiz 3	04-07-2022	10.00	1
8.	Quiz	Quiz 4	20-07-2022	10.00	1
9.	Mid Term / Sessional Exam	Mid Term / Sessional Exam 1	23-05-2022	25.00	4
10.	Final Exam	Final Exam 1	25-07-2022	50.00	5
11.	Assignment	Assignment 5	19-08-2022	10.00	1
12.	Assignment	Assignment 6	19-08-2022	10.00	1

Program Learning Outcomes

Sr. No.	Code	Name	Description
1.	PLO 1	Engineering Knowledge	Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialisation to the solution of complex engineering problems
2.	PLO 2	Problem Analysis	Identify, formulate, research literature and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences
3.	PLO 3	Design/Development of Solutions	Design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations
4.	PLO 4	Investigation	Conduct investigation into complex problems using research based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions
5.	PLO 5	Modern Tool Usage	Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering activities, with an understanding of the limitations
6.	PLO 6	The Engineer and Society	Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice
7.	PLO 7	Environment and Sustainability	Understand the impact of professional engineering solutions in societal and environmental contexts and demonstrate knowledge of and need for sustainable development
8.	PLO 8	Ethics	Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice
9.	PLO 9	Individual and Team Work	Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings
10.	PLO10	Communication	Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11.	PLO11	Project Management	Demonstrate knowledge and understanding of engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12.	PLO12	Life-long Learning	Recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change

Course Learning Outcomes

Sr. No.	Code	Name	PLOs	Level	Emphasis Level

PLO Attainment

Program Batch : BSCE18-19

PLO		PLO 1		PLO 2		PLO 6	
Activity		Weighted Total	PLO Acheived	Weighted Total	PLO Acheived	Weighted Total	PLO Acheived
Assigned CLO							
% Weight							
		KPI 50%		KPI 50%		KPI 50%	
Registration No.	Name						
2018-QUD-F-254	Muhammad Sohaib Khan	30.00	N	6.15	N	22.22	N
2018-QUD-F-257	Muhammad Mohsin Tariq Baloch	51.48	Y	11.54	N	33.15	N
2019-QUD-F-413	Qazi Farooq	56.30	Y	66.34	Y	74.08	Y

* any blue color means activity is CQI based actvity
** any red color means some KPI is not acheived

Program Batch : BSCE 19-20

PLO		PLO 1		PLO 2		PLO 6	
Activity		Weighted Total	PLO Acheived	Weighted Total	PLO Acheived	Weighted Total	PLO Acheived
Assigned CLO							
% Weight							
		KPI 50%		KPI 50%		KPI 50%	
Registration No.	Name						
2019-QUD-F-309	Muhammad Daniyal Qureshi	80.37	Y	75.00	Y	72.96	Y
2019-QUD-F-311	Mohamin Hussain	80.74	Y	83.08	Y	88.15	Y
2019-QUD-F-313	Shehryar Zamir	94.26	Y	91.73	Y	94.63	Y
2019-QUD-F-314	Nasir Ullah	83.89	Y	85.77	Y	87.22	Y
2019-QUD-F-315	Malik Daniyal Ahmad	61.11	Y	72.31	Y	60.09	Y
2019-QUD-F-316	Touqeer Ali	74.07	Y	50.38	Y	61.48	Y
2019-QUD-F-317	Muhammad Khan	41.85	N	40.00	N	37.04	N
2019-QUD-F-318	Muhammad Ghaznfar Ali	85.37	Y	53.08	Y	79.07	Y
2019-QUD-F-319	Naveed Khan	92.41	Y	94.04	Y	95.19	Y
2019-QUD-F-320	Bilal Shah	63.33	Y	56.54	Y	59.91	Y
2019-QUD-F-322	Huzaifa Raheel	55.18	Y	21.54	N	35.55	N
2019-QUD-F-323	Adeel Shah Mehdi	77.40	Y	74.62	Y	87.41	Y
2019-QUD-F-324	Muhammad Yasir	59.07	Y	53.46	Y	76.30	Y
2019-QUD-F-326	Muhammad Sajid	79.26	Y	71.54	Y	51.48	Y
2019-QUD-F-327	Muhammad Shaheryar Khan	73.71	Y	50.96	Y	62.41	Y
2019-QUD-F-328	Muhammad Arslan	79.81	Y	92.31	Y	67.78	Y
2019-QUD-F-338	Inam Ullah	60.19	Y	71.54	Y	60.93	Y
2019-QUD-F-346	Yasir Jamshid	72.23	Y	57.50	Y	55.19	Y

PLO		PLO 1		PLO 2		PLO 6	
Activity		Weighted Total	PLO Acheived	Weighted Total	PLO Acheived	Weighted Total	PLO Acheived
Assigned CLO							
% Weight							
		KPI 50%		KPI 50%		KPI 50%	
Registration No.	Name						
2019-QUD-F-348	Amin Ullah	94.07	Y	94.62	Y	96.67	Y
2019-QUD-F-354	Azhar Nawaz	90.74	Y	88.85	Y	93.33	Y

* any blue color means activity is CQI based actvity
** any red color means some KPI is not acheived

PLO Attainment criteria in graph, 50% of Students , 50% of Marks for this Course Section.

PLOs	Total Students	Number of Student Attained PLO above 50%	Percentage	Average
PLO 1	3	2	66.67	45.93
PLO 2	3	1	33.33	28.01
PLO 6	3	1	33.33	43.15

PLO Attainment criteria in graph, 50% of Students , 50% of Marks for this Course Section.

PLOs	Total Students	Number of Student Attained PLO above 50%	Percentage	Average
PLO 1	20	19	95	74.95
PLO 2	20	18	90	68.94
PLO 6	20	18	90	71.14

CLO Attainment

CLO		CLO-1		CLO-2		CLO-3	
Activity		Weighted Total	CLO Acheived	Weighted Total	CLO Acheived	Weighted Total	CLO Acheived
% Weight							
		KPI 50%		KPI 50%		KPI 50%	
Registration No.	Name						
2018-QUD-F-254	Muhammad Sohaib Khan	30.00	N	6.15	N	22.22	N
2018-QUD-F-257	Muhammad Mohsin Tariq Baloch	51.48	Y	11.54	N	33.15	N
2019-QUD-F-309	Muhammad Daniyal Qureshi	80.37	Y	75.00	Y	72.96	Y
2019-QUD-F-311	Mohamin Hussain	80.74	Y	83.08	Y	88.15	Y
2019-QUD-F-313	Shehryar Zamir	94.26	Y	91.73	Y	94.63	Y
2019-QUD-F-314	Nasir Ullah	83.89	Y	85.77	Y	87.22	Y
2019-QUD-F-315	Malik Daniyal Ahmad	61.11	Y	72.31	Y	60.09	Y
2019-QUD-F-316	Touqeer Ali	74.07	Y	50.38	Y	61.48	Y
2019-QUD-F-317	Muhammad Khan	41.85	N	40.00	N	37.04	N
2019-QUD-F-318	Muhammad Ghaznfar Ali	85.37	Y	53.08	Y	79.07	Y
2019-QUD-F-319	Naveed Khan	92.41	Y	94.04	Y	95.19	Y
2019-QUD-F-320	Bilal Shah	63.33	Y	56.54	Y	59.91	Y
2019-QUD-F-322	Huzaifa Raheel	55.18	Y	21.54	N	35.55	N
2019-QUD-F-323	Adeel Shah Mehdi	77.40	Y	74.62	Y	87.41	Y
2019-QUD-F-324	Muhammad Yasir	59.07	Y	53.46	Y	76.30	Y
2019-QUD-F-326	Muhammad Sajid	79.26	Y	71.54	Y	51.48	Y
2019-QUD-F-327	Muhammad Shaheryar Khan	73.71	Y	50.96	Y	62.41	Y
2019-QUD-F-328	Muhammad Arslan	79.81	Y	92.31	Y	67.78	Y
2019-QUD-F-338	Inam Ullah	60.19	Y	71.54	Y	60.93	Y
2019-QUD-F-346	Yasir Jamshid	72.23	Y	57.50	Y	55.19	Y
2019-QUD-F-348	Amin Ullah	94.07	Y	94.62	Y	96.67	Y
2019-QUD-F-354	Azhar Nawaz	90.74	Y	88.85	Y	93.33	Y
2019-QUD-F-413	Qazi Farooq	56.30	Y	66.34	Y	74.08	Y

* any blue color means activity is CQI based actvity
** any red color means some KPI is not acheived

CLO Attainment criteria in graph, 50% of Students , 50% of Marks for this Course Section

CLOs	Total Students	Number of Student Attained CLO above 50%	Percentage	Average
CLO-1	23	21	91.3	71.17
CLO-2	23	19	82.61	63.6
CLO-3	23	19	82.61	67.49

Time Table

Date	From Time	To Time	Room No.	Topic	Teacher
Monday, 21st Mar 2022	09:00 AM	11:00 AM	A7	Introduction to topic, Materials used in construction and its estimation, Quality of good estimator, What is expected from estimator, things to know before starting an estimation process	
Monday, 4th Apr 2022	09:00 AM	11:00 AM	A7	Review of basic take-off mathematics and units, Main items of estimation in construction and their units, important deductions to be made where applicable, reading of drawings	
Monday, 11th Apr 2022	09:00 AM	11:00 AM	A7	Take off rules and measurements accuracy, pricing of labor, Problems on estimation of Earthwork, concreting, brick work, DPC and superstructure	
Monday, 18th Apr 2022	09:00 AM	11:00 AM	A7	Different types of methods in estimation, long and short wall method in detail, Numarical estimation of two roomed buildings using long and short wall method, plus some more practice drawings on short and wall method	
Monday, 25th Apr 2022	09:00 AM	11:00 AM	A7	Center line method of estimation, its main specifications and considerations, special consideration at junctions, deductions in center line method and over all concept	
Monday, 9th May 2022	09:00 AM	11:00 AM	A7	Numarical Examples on Center line method, two roomed building estimation using center line method, earthwork, concrete, bricks, DPC and super structures estimation of a building using center line method	
Monday, 16th May 2022	09:00 AM	11:00 AM	A7	Specifications, types of specifications, over head costs and types, contingencies etc	
Friday, 20th May 2022	09:00 AM	11:00 AM	A7	Practice problems of estimation using center line method and separate wall method, better understanding of both	
Monday, 30th May 2022	09:00 AM	11:00 AM	A7	Introduction to arches, different types of arches, Estimation of quantities of arches, formulation derivation of different arches, mean length, numerical estimation of different arches using drawings	
Monday, 6th Jun 2022	09:00 AM	11:00 AM	A7	Introduction to stairs, different types of stairs, Estimation problems on stairs	
Monday, 13th Jun 2022	09:00 AM	11:00 AM	A7	Introduction to RCC estimation, Concepts related to reinforcement calculations, code consideration in reinforcement calculations, Diameter, weight. area of reinforcement, bent up bars estimation and addition of hooks etc	
Monday, 20th Jun 2022	09:00 AM	11:00 AM	A7	Estimation problems on RCC, calculations of concrete, shuttering, and reinforcement and bar bending schedule in Slabs and beams, Different problems for practice on RCC estimation	
Monday, 27th Jun 2022	09:00 AM	11:00 AM	A7	Contracts and Tendering, different types of tendering, Basic elements of contracts, tendering and contract documents, Eligibility criteria for different local departments for contracts, process of contract and flow process, All about tendering and contracts, mutual agreement between client and contractor, terms used in contracts etc	
Monday, 4th Jul 2022	09:00 AM	11:00 AM	A7	Introduction to contacts and specifications, contract bidding and process, types of contracts, advantages and disadvantages	
Monday, 18th Jul 2022	09:00 AM	11:00 AM	A7	Road profiling, What is FIDIC, Detail explanation of contracts of FIDIC	
Friday, 22nd Jul 2022	12:00 PM	02:00 PM	A7	Introduction of analysis of rates, CSR and MRS, different local department process of CSR making, Transport charges calculations for different items, Factor applied for difficulty and ease of work in different regions of Pakistan, Whole process of Rate analysis, different types of analysis and important steps in analysis of rates	

Section Teaching Plan

Asfand Yar Khan	From : 21-03-2022	To : 25-03-2022
Subject:	Quantity & Estimation	
Topics:	Introduction to Quantity estimation, importance and scope of Quantity Estimation, Responsibilities of Estimator	
CLOs:		
Class Activities:		
Comments:		

Asfand Yar Khan	From : 04-04-2022	To : 08-04-2022
Subject:	Quantity & Estimation	
Topics:	Main items of work, Units and takeoffs	
CLOs:		
Class Activities:		
Comments:		

Asfand Yar Khan	From : 11-04-2022	To : 15-04-2022
Subject:	Quantity & Estimation	
Topics:	Take off rules and measurements accuracy, pricing of labor, Problems on estimation of Earthwork, concreting, brick work, DPC and superstructure	
CLOs:		
Class Activities:		
Comments:		

Asfand Yar Khan	From : 18-04-2022	To : 22-04-2022
Subject:	Quantity & Estimation	
Topics:	Different types of methods in estimation, long and short wall method in detail, Numerical estimation of two roomed buildings using long and short wall method, plus some more practice drawings on short and wall method	
CLOs:		
Class Activities:		
Comments:		

Asfand Yar Khan	From : 25-04-2022	To : 29-04-2022
Subject:	Quantity & Estimation	
Topics:	Center line method of estimation, its main specifications and considerations, special consideration at junctions, deductions in center line method and over all concept	
CLOs:		
Class Activities:		
Comments:		

Asfand Yar Khan	From : 09-05-2022	To : 13-05-2022
Subject:	Quantity & Estimation	

Topics:	Numerical Examples on Center line method, two roomed building estimation using center line method, earthwork, concrete, bricks, DPC and super structures estimation of a building using center line method
CLOs:	
Class Activities:	
Comments:	

Asfand Yar Khan	From : 16-05-2022	To : 20-05-2022
Subject:	Quantity & Estimation	
Topics:	Specifications, types of specifications, over head costs and types, contingencies etc	
CLOs:		
Class Activities:		
Comments:		

Asfand Yar Khan	From : 17-05-2022	To : 22-05-2022
Subject:	Quantity & Estimation	
Topics:	Practice problems of estimation using center line method and separate wall method, better understanding of both	
CLOs:		
Class Activities:		
Comments:		

Asfand Yar Khan	From : 30-05-2022	To : 03-06-2022
Subject:	Quantity & Estimation	
Topics:	Introduction to arches, different types of arches, Estimation of quantities of arches, formulation derivation of different arches, mean length, numerical estimation of different arches using drawings	
CLOs:		
Class Activities:		
Comments:		

Asfand Yar Khan	From : 06-06-2022	To : 10-06-2022
Subject:	Quantity & Estimation	
Topics:	Introduction to stairs, different types of stairs, Estimation problems on stairs	
CLOs:		
Class Activities:		
Comments:		

Asfand Yar Khan	From : 13-06-2022	To : 17-06-2022
Subject:	Quantity & Estimation	
Topics:	Introduction to RCC estimation, Concepts related to reinforcement calculations, code consideration in reinforcement calculations, Diameter, weight. area of reinforcement, bent up bars estimation and addition of hooks etc	
CLOs:		
Class Activities:		

Comments:	

Asfand Yar Khan	From : 20-06-2022	To : 24-06-2022
Subject:	Quantity & Estimation	
Topics:	Estimation problems on RCC, calculations of concrete, shuttering, and reinforcement and bar bending schedule in Slabs and beams, Different problems for practice on RCC estimation	
CLOs:		
Class Activities:		
Comments:		

Asfand Yar Khan	From : 27-06-2022	To : 01-07-2022
Subject:	Quantity & Estimation	
Topics:	Contracts and Tendering, different types of tendering, Basic elements of contracts, tendering and contract documents, Eligibility criteria for different local departments for contracts, process of contract and flow process, All about tendering and contracts, mutual agreement between client and contractor, terms used in contracts etc	
CLOs:		
Class Activities:		
Comments:		

Asfand Yar Khan	From : 04-07-2022	To : 08-07-2022
Subject:	Quantity & Estimation	
Topics:	Introduction to contacts and specifications, contract bidding and process, types of contracts, advantages and disadvantages	
CLOs:		
Class Activities:		
Comments:		

Asfand Yar Khan	From : 18-07-2022	To : 19-07-2022
Subject:	Quantity & Estimation	
Topics:	Road profiling, What is FIDIC, Detail explanation of contracts of FIDIC	
CLOs:		
Class Activities:		
Comments:		

Asfand Yar Khan	From : 21-07-2022	To : 23-07-2022
Subject:	Quantity & Estimation	
Topics:	Introduction of analysis of rates, CSR and MRS, different local department process of CSR making, Transport charges calculations for different items, Factor applied for difficulty and ease of work in different regions of Pakistan, Whole process of Rate analysis, different types of analysis and important steps in analysis of rates	
CLOs:		
Class Activities:		
Comments:		

Mapping of CLOs with Assessment Method

Assessment Method	CLO-1	CLO-2	CLO-3
Quiz	□	□	□
Assignment	□	□	□
Mid Term / Sessional Exam	□	□	□
Final Exam	□	□	□

Corrective Actions / CQI

CAR Ref : CAR/Spring-2022/CE/0012	**CAR Date :** 26-08-2022	**Status :** Closed
Nature of problem	CLO failed due to poor performance overall The following students of BSCE 19-20 have shown serious deficiency in Course Learning Outcome attainment in the courses they have taken in the Spring-2022 semester.	
Corrective Action	Assign additional take home assignment	
Remarks		
Agreement/ Decision on Solution	Additional Assignment to be assigned to clear CLO	

Course Learning Outcomes

Code / Description
CLO-2 - Apply concept and skills for quantity take-off, rate analysis, productivity and pricing etc.

Students

Registration / Name	Remarks
2019-QUD-F-320 - Bilal Shah	
2019-QUD-F-324 - Muhammad Yasir	

Class Activities Performed

Sr. No.	Assessment Method	Name	Dated	Total Marks	Number of Questions
1.	Assignment	Assignment 5	19-08-2022	10.00	1

CAR Ref : CAR/Spring-2022/CE/0013	**CAR Date :** 26-08-2022	**Status :** Closed
Nature of problem	CLO failed due to poor performance overall The following students of BSCE 19-20 have shown serious deficiency in Course Learning Outcome attainment in the courses they have taken in the Spring-2022 semester.	
Corrective Action	Assign additional take home assignment	
Remarks		
Agreement/ Decision on Solution	Additional Assignment to be assigned to clear CLO	

Course Learning Outcomes

Code / Description
CLO-3 - Discuss concepts related to legal and contractual aspects in Quantity & Estimation process of a project

Students

Registration / Name	Remarks
2019-QUD-F-315 - Malik Daniyal Ahmad	
2019-QUD-F-320 - Bilal Shah	

Class Activities Performed

Sr. No.	Assessment Method	Name	Dated	Total Marks	Number of Questions

1.	Assignment	Assignment 6	19-08-2022	10.00	1

QCE-366- Quantity & Estimation

QCE-366-Spring-2022

Engr. Asfandyar Khan

Quize #1 (Total Marks :3.00)

Quiz1-A		(10.00)	**CLO01**
Quiz1-B		(10.00)	**CLO01**

Assessment Summary

Course Assessment Summary

Course : QCE-366 - Quantity & Estimation
Course Section : QCE-366-Spring-2022
Teacher : Engr. Asfandyar Khan
Semester : Spring-2022

Total Students: 23, Attainment Criteria (50% Students acheived 50% CLO)

CLO	CLO Attainment(%)	Assessment Methods	Recommendations/Comments
CLO-1 - State the basic concepts in Quantity & Estimation	91.30	Assignment 1, Assignment 2, Assignment 3, Final Exam 1, Mid Term / Sessional Exam 1, Quiz 1	
CLO-2 - Apply concept and skills for quantity take-off, rate analysis, productivity and pricing etc.	73.91	Assignment 5, Final Exam 1, Mid Term / Sessional Exam 1, Quiz 2, Quiz 4	
CLO-3 - Discuss concepts related to legal and contractual aspects in Quantity & Estimation process of a project	73.91	Assignment 4, Assignment 6, Final Exam 1, Mid Term / Sessional Exam 1, Quiz 3	

Course Assessment Summary

Course : QCE-366 - Quantity & Estimation
Course Section : QCE-366-Spring-2022
Teacher : Engr. Asfandyar Khan
Semester : Spring-2022

Program Batch : BSCE18-19, Total Students: 3, Attainment Criteria (50% Students acheived 50% PLO)

PLO	PLO Attainment(%)	Assessment Methods	Recommendations/Comments
PLO 1 - Engineering Knowledge	66.67	Assignment 1, Assignment 2, Assignment 3, Final Exam 1, Mid Term / Sessional Exam 1, Quiz 1	
PLO 2 - Problem Analysis	33.33	Assignment 5, Final Exam 1, Mid Term / Sessional Exam 1, Quiz 2, Quiz 4	
PLO 6 - The Engineer and Society	33.33	Assignment 4, Assignment 6, Final Exam 1, Mid Term / Sessional Exam 1, Quiz 3	

Program Batch : BSCE 19-20, Total Students: 20, Attainment Criteria (50% Students acheived 50% PLO)

PLO	PLO Attainment(%)	Assessment Methods	Recommendations/Comments
PLO 1 - Engineering Knowledge	95.00	Assignment 1, Assignment 2, Assignment 3, Final Exam 1, Mid Term / Sessional Exam 1, Quiz 1	
PLO 2 - Problem Analysis	80.00	Assignment 5, Final Exam 1, Mid Term / Sessional Exam 1, Quiz 2, Quiz 4	

PLO	PLO Attainment(%)	Assessment Methods	Recommendations/Comments
PLO 6 - The Engineer and Society	80.00	Assignment 4, Assignment 6, Final Exam 1, Mid Term / Sessional Exam 1, Quiz 3	

Report Date: 17-10-2022

Assignment 1

QCE-366- Quantity & Estimation

QCE-366-Spring-2022

Engr. Asfandyar Khan

Assignment 1 (Total Marks :10.00)

Q1	Make a brief assignment on the given topics ï*f*˜ Define the different take-off rules and methods used in quantity and estimation of construction project ï*f*˜ List the main items taken off in construction estimation and write their unit in which they are calculated in tabulated form ï*f*˜ Explain the pricing of work force labour done in construction projects.	(10.00) **CLO-1 (C1)**

CLOs

CLO-1	State the basic concepts in Quantity & Estimation	C1
CLO-2	Apply concept and skills for quantity take-off, rate analysis, productivity and pricing etc.	C2
CLO-3	Discuss concepts related to legal and contractual aspects in Quantity & Estimation process of a project	C2

Report Date: 17-10-2022

Assignment 2

QCE-366- Quantity & Estimation

QCE-366-Spring-2022

Engr. Asfandyar Khan

Assignment 2 (Total Marks :10.00)

Q1	Make a brief assignment on the given topics ï*ƒ˜* Whatâ€™s the procedure for taking quantities off in carpentry and plumbing work in construction? ï*ƒ˜* Discuss sources of estimating errors in estimation ï*ƒ˜* Discuss concept of cost code in estimation	(10.00) **CLO-1 (C1)**

CLOs

CLO-1	State the basic concepts in Quantity & Estimation	C1
CLO-2	Apply concept and skills for quantity take-off, rate analysis, productivity and pricing etc.	C2
CLO-3	Discuss concepts related to legal and contractual aspects in Quantity & Estimation process of a project	C2

Report Date: 17-10-2022

Assignment 3

QCE-366- Quantity & Estimation

QCE-366-Spring-2022

Engr. Asfandyar Khan

Assignment 3 (Total Marks :10.00)

Q1	Make a brief assignment on the given topics ï*f*˜ Define and state the rate analysis concept in construction project? ï*f*˜ Explain rate analysis of labours and construction materials during construction? ï*f*˜ State rate analysis specially for overhead costs, Escalation, contingencies, Life-cycle costing.	(10.00) **CLO-1 (C1)**

CLOs

CLO-1	State the basic concepts in Quantity & Estimation	C1
CLO-2	Apply concept and skills for quantity take-off, rate analysis, productivity and pricing etc.	C2
CLO-3	Discuss concepts related to legal and contractual aspects in Quantity & Estimation process of a project	C2

Report Date: 17-10-2022

Assignment 4

QCE-366- Quantity & Estimation

QCE-366-Spring-2022

Engr. Asfandyar Khan

Assignment 4 (Total Marks :10.00)

Q1	Explain the general practice being followed in government departments for schedule of rates, specifications and contracting/bidding.	(10.00) **CLO-3 (C2)**

CLOs

CLO-1	State the basic concepts in Quantity & Estimation	C1
CLO-2	Apply concept and skills for quantity take-off, rate analysis, productivity and pricing etc.	C2
CLO-3	Discuss concepts related to legal and contractual aspects in Quantity & Estimation process of a project	C2

Report Date: 17-10-2022

Assignment 5

QCE-366- Quantity & Estimation

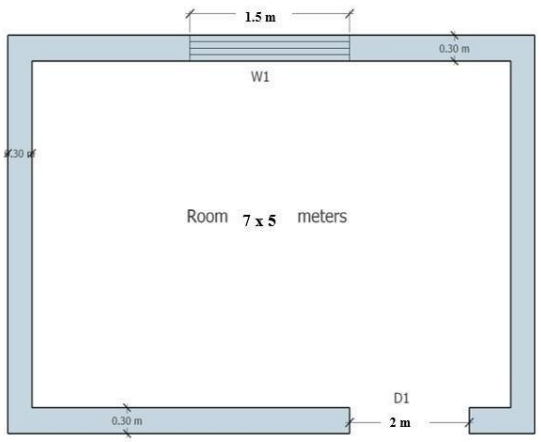
QCE-366-Spring-2022

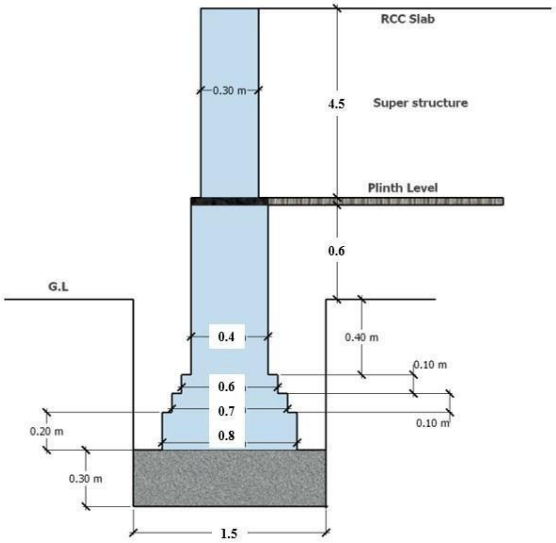
Engr. Asfandyar Khan

Assignment 5 (Total Marks :10.00)

Q1 Carry out Quantity take-off/estimation of the following one roomed structured using Long and Short Wall method, Plan and Elevation details given below (next page). After Submission, a general viva voce will also be taken from your assignment to assess your knowledge of this CLO. 1. Earthwork in excavation and foundation 2. Lime concrete in foundation 3. 2.5 cm Damp Proof Course 4. 1st class brick work in cement mortar (1 :6) in foundation & plinth 5. 1st class brick work in superstructure 6. Lintel concrete calculation above doors and windows 7. Plaster finishing in lime mortar 12 mm thick on the outside portion 8. Paint finishing of 2 coats on the outside portion All walls are of the same dimension (30 cm) Door D1 = (2 x 2.5) meters Window W1= (1.5 x 2.5) meters All dimensions are in meter. Assume any missing data

(10.00) **CLO-2 (C2)**





CLOs

CLO-1	State the basic concepts in Quantity & Estimation	C1
CLO-2	Apply concept and skills for quantity take-off, rate analysis, productivity and pricing etc.	C2
CLO-3	Discuss concepts related to legal and contractual aspects in Quantity & Estimation process of a project	C2

Report Date: 17-10-2022

Assignment 6

QCE-366- Quantity & Estimation

QCE-366-Spring-2022

Engr. Asfandyar Khan

Assignment 6 (Total Marks :10.00)

Q1	Explain the following 1. Explain specifications and their types for various items of construction 2. Process of Civil engineering preparation of bids/tenders proposal documents 3. General practice in government departments for schedule of rates and specifications 4. Brief note on The Engineer and Society	(10.00)	**CLO-3 (C2)**

CLOs

CLO-1	State the basic concepts in Quantity & Estimation	C1
CLO-2	Apply concept and skills for quantity take-off, rate analysis, productivity and pricing etc.	C2
CLO-3	Discuss concepts related to legal and contractual aspects in Quantity & Estimation process of a project	C2

Report Date: 17-10-2022

Quiz 1

QCE-366- Quantity & Estimation

QCE-366-Spring-2022

Engr. Asfandyar Khan

Quiz 1 (Total Marks :10.00)

Q1	Identify the following main items of work: 1) Earthwork 2) Soling 3) DPC 4) Cornice	(10.00) **CLO-1 (C1)**

CLOs

CLO-1	State the basic concepts in Quantity & Estimation	C1
CLO-2	Apply concept and skills for quantity take-off, rate analysis, productivity and pricing etc.	C2
CLO-3	Discuss concepts related to legal and contractual aspects in Quantity & Estimation process of a project	C2

Report Date: 17-10-2022

Quiz 2

QCE-366- Quantity & Estimation

QCE-366-Spring-2022

Engr. Asfandyar Khan

Quiz 2 (Total Marks :10.00)

Q1	Carry out Quantity Estimation of the following given wall drawn on white board (different widths of wall for different group of students) Find 1) Earth work 2) Concreting 3) Brickwork Length of wall is 8 meters.	(10.00) **CLO-2 (C2)**

CLOs

CLO-1	State the basic concepts in Quantity & Estimation	C1
CLO-2	Apply concept and skills for quantity take-off, rate analysis, productivity and pricing etc.	C2
CLO-3	Discuss concepts related to legal and contractual aspects in Quantity & Estimation process of a project	C2

Report Date: 17-10-2022

Quiz 3

QCE-366- Quantity & Estimation

QCE-366-Spring-2022

Engr. Asfandyar Khan

Quiz 3 (Total Marks :10.00)

Q1	State the scope of estimation with respect to construction industry and projects.	(10.00)	**CLO-3 (C2)**

CLOs

CLO-1	State the basic concepts in Quantity & Estimation	C1
CLO-2	Apply concept and skills for quantity take-off, rate analysis, productivity and pricing etc.	C2
CLO-3	Discuss concepts related to legal and contractual aspects in Quantity & Estimation process of a project	C2

Report Date: 17-10-2022

Quiz 4

QCE-366- Quantity & Estimation

QCE-366-Spring-2022

Engr. Asfandyar Khan

Quiz 4 (Total Marks :10.00)

Q1	calculate the brick masonry to be used in a semi circular arch of breadth 40 cm, thickness 30 cm and span 2 meters.	(10.00) **CLO-2 (C2)**

CLOs

CLO-1	State the basic concepts in Quantity & Estimation	C1
CLO-2	Apply concept and skills for quantity take-off, rate analysis, productivity and pricing etc.	C2
CLO-3	Discuss concepts related to legal and contractual aspects in Quantity & Estimation process of a project	C2

Report Date: 17-10-2022

Mid Term / Sessional Exam 1

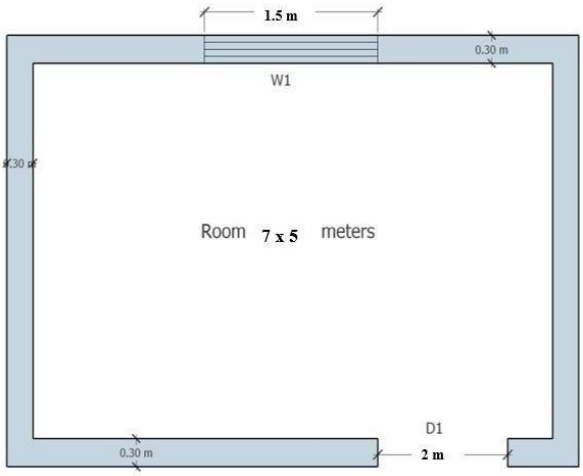
QCE-366- Quantity & Estimation

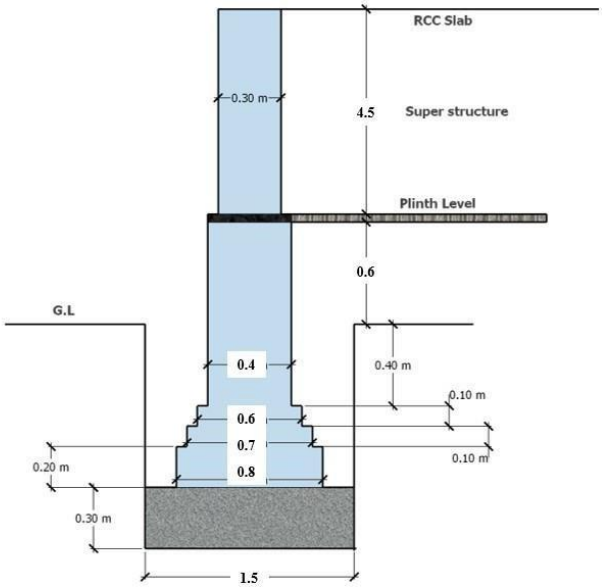
QCE-366-Spring-2022

Engr. Asfandyar Khan

Mid Term / Sessional Exam 1 (Total Marks :25.00)

Q1	Define and briefly explain contingencies and over-head cost in project estimation.	(5.00)	**CLO-1 (C1)**
Q2	Identify any 7 important items of work in quantity and estimation.	(5.00)	**CLO-1 (C1)**
Q3	From the point of contractual aspect, explain specifications and its types. Also, differentiate the types of specification using any 4 items of work in a project.	(7.50)	**CLO-3 (C2)**
Q4	Carry out Quantity take-off/estimation of the following one roomed structured using centre line method, Plan and Elevation details given below (next page). 1. Earthwork in excavation and foundation 2. Lime concrete in foundation 3. 2.5 cm Damp Proof Course 4. 1st class brick work in cement mortar (1 :6) in foundation & plinth 5. 1st class brick work in superstructure All walls are of the same dimension (30 cm) Door D1 = (2 x 2.5) meters Window W1= (1.5 x 2.5) meters All dimensions are in meter	(7.50)	**CLO-2 (C2)**





CLOs

CLO-1	State the basic concepts in Quantity & Estimation	C1
CLO-2	Apply concept and skills for quantity take-off, rate analysis, productivity and pricing etc.	C2
CLO-3	Discuss concepts related to legal and contractual aspects in Quantity & Estimation process of a project	C2

Report Date: 17-10-2022

Final Exam 1

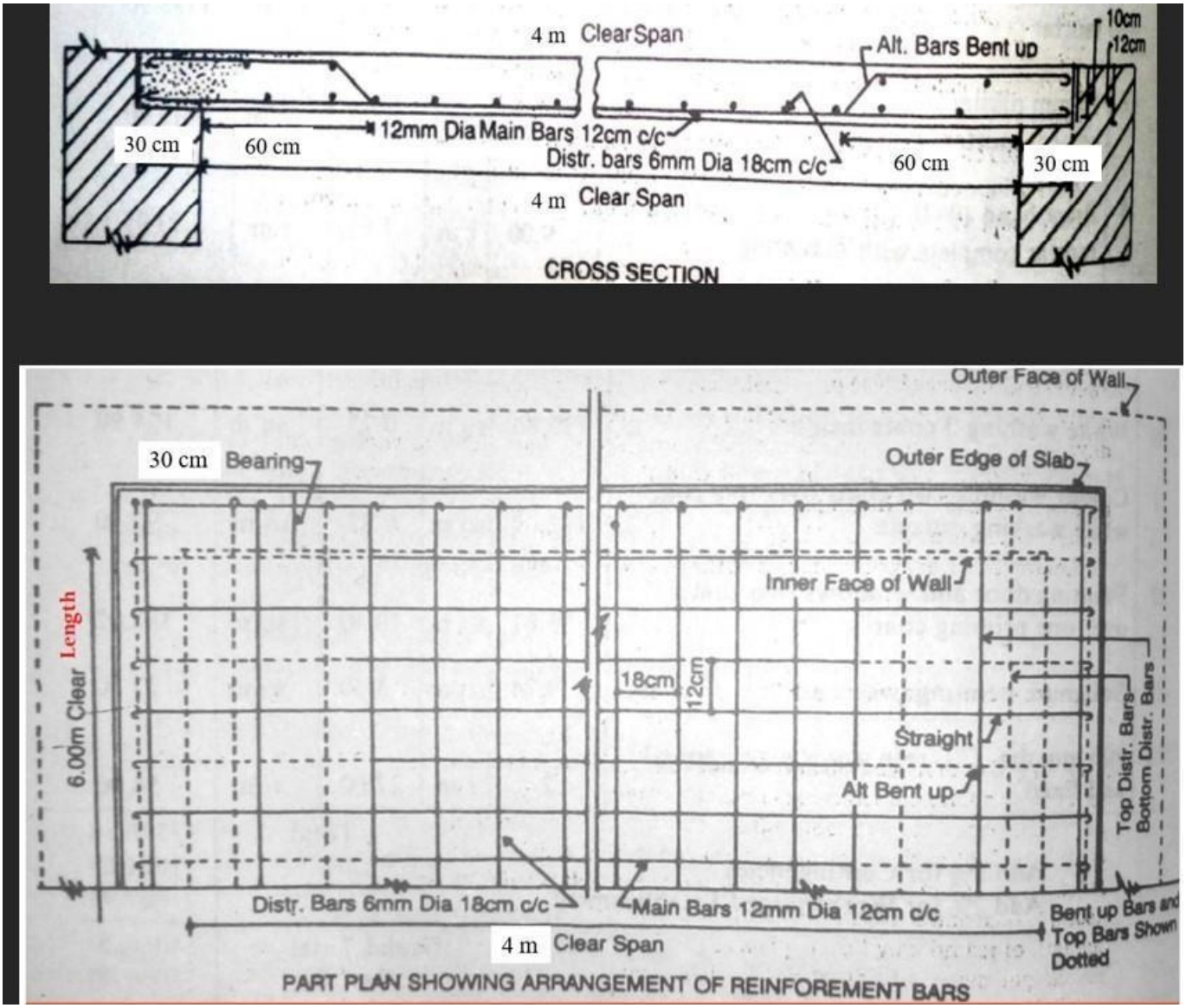
QCE-366- Quantity & Estimation

QCE-366-Spring-2022

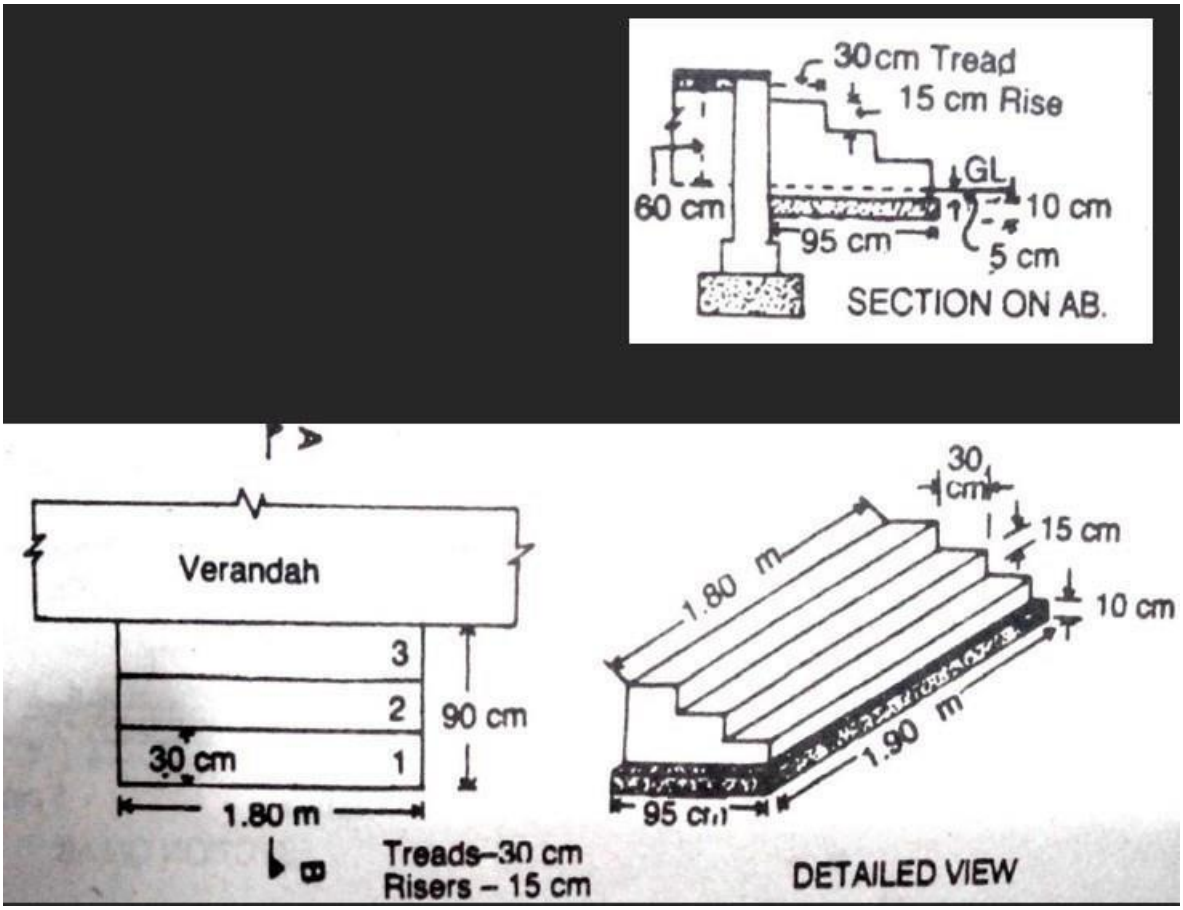
Engr. Asfandyar Khan

Final Exam 1 (Total Marks :50.00)

Q1	Define estimation in construction industry. Explain any 8 types of estimation.	(10.00)	**CLO-1 (C1)**
Q2	Explain the following terms used in construction contracts. i. Tenders ii. Earnest money iii. Security of money iv. Liquidated damages v. Prime cost	(10.00)	**CLO-3 (C2)**
Q3	What is FIDIC? Explain FIDIC forms of contracts.	(10.00)	**CLO-3 (C2)**
Q4	Prepare a detailed estimate of RCC roof slab of 4 m clear span and 6 m long from the given drawings. RCC work including shuttering and centring and steel reinforcement in detail shall be taken separately. Clear cover on all sides is 4 cm. Also make bar bending schedule of the given estimation. Take weight of bars as: (12mm bar = 0.89 kg/m : 6mm bar = 0.22 kg/m)	(10.00)	**CLO-2 (C2)**



Q5 Estimate the quantities of earthwork, concrete , brickwork and plaster finishing for the steps given in below drawing. (10.00) **CLO-2 (C2)**



CLOs

CLO-1	State the basic concepts in Quantity & Estimation	C1
CLO-2	Apply concept and skills for quantity take-off, rate analysis, productivity and pricing etc.	C2
CLO-3	Discuss concepts related to legal and contractual aspects in Quantity & Estimation process of a project	C2

Course Section Consolidated Report

Course: QCE-366- Quantity & Estimation
Course Section : QCE-366-Spring-2022
Teacher : Engr. Asfandyar Khan
Semester: Spring-2022

PLO Attainment

Program Batch : BSCE18-19

PLO		PLO 1		PLO 2		PLO 6	
Activity		Weighted Total	PLO Acheived	Weighted Total	PLO Acheived	Weighted Total	PLO Acheived
Assigned CLO							
% Weight							
		KPI 50%		KPI 50%		KPI 50%	
Registration No.	Name						
2018-QUD-F-254	Muhammad Sohaib Khan	30.00	N	6.15	N	22.22	N
2018-QUD-F-257	Muhammad Mohsin Tariq Baloch	51.48	Y	11.54	N	33.15	N
2019-QUD-F-413	Qazi Farooq	56.30	Y	66.34	Y	74.08	Y

* any blue color means activity is CQI based actvity
** any red color means some KPI is not acheived

Program Batch : BSCE 19-20

PLO		PLO 1		PLO 2		PLO 6	
Activity		Weighted Total	PLO Acheived	Weighted Total	PLO Acheived	Weighted Total	PLO Acheived
Assigned CLO							
% Weight							
		KPI 50%		KPI 50%		KPI 50%	
Registration No.	Name						
2019-QUD-F-309	Muhammad Daniyal Qureshi	80.37	Y	75.00	Y	72.96	Y
2019-QUD-F-311	Mohamin Hussain	80.74	Y	83.08	Y	88.15	Y
2019-QUD-F-313	Shehryar Zamir	94.26	Y	91.73	Y	94.63	Y
2019-QUD-F-314	Nasir Ullah	83.89	Y	85.77	Y	87.22	Y
2019-QUD-F-315	Malik Daniyal Ahmad	61.11	Y	72.31	Y	60.09	Y
2019-QUD-F-316	Touqeer Ali	74.07	Y	50.38	Y	61.48	Y
2019-QUD-F-317	Muhammad Khan	41.85	N	40.00	N	37.04	N
2019-QUD-F-318	Muhammad Ghaznfar Ali	85.37	Y	53.08	Y	79.07	Y
2019-QUD-F-319	Naveed Khan	92.41	Y	94.04	Y	95.19	Y
2019-QUD-F-320	Bilal Shah	63.33	Y	56.54	Y	59.91	Y
2019-QUD-F-322	Huzaifa Raheel	55.18	Y	21.54	N	35.55	N

PLO		PLO 1		PLO 2		PLO 6	
Activity		Weighted Total	PLO Acheived	Weighted Total	PLO Acheived	Weighted Total	PLO Acheived
Assigned CLO							
% Weight							
		KPI 50%		KPI 50%		KPI 50%	
Registration No.	Name						
2019-QUD-F-323	Adeel Shah Mehdi	77.40	Y	74.62	Y	87.41	Y
2019-QUD-F-324	Muhammad Yasir	59.07	Y	53.46	Y	76.30	Y
2019-QUD-F-326	Muhammad Sajid	79.26	Y	71.54	Y	51.48	Y
2019-QUD-F-327	Muhammad Shaheryar Khan	73.71	Y	50.96	Y	62.41	Y
2019-QUD-F-328	Muhammad Arslan	79.81	Y	92.31	Y	67.78	Y
2019-QUD-F-338	Inam Ullah	60.19	Y	71.54	Y	60.93	Y
2019-QUD-F-346	Yasir Jamshid	72.23	Y	57.50	Y	55.19	Y
2019-QUD-F-348	Amin Ullah	94.07	Y	94.62	Y	96.67	Y
2019-QUD-F-354	Azhar Nawaz	90.74	Y	88.85	Y	93.33	Y

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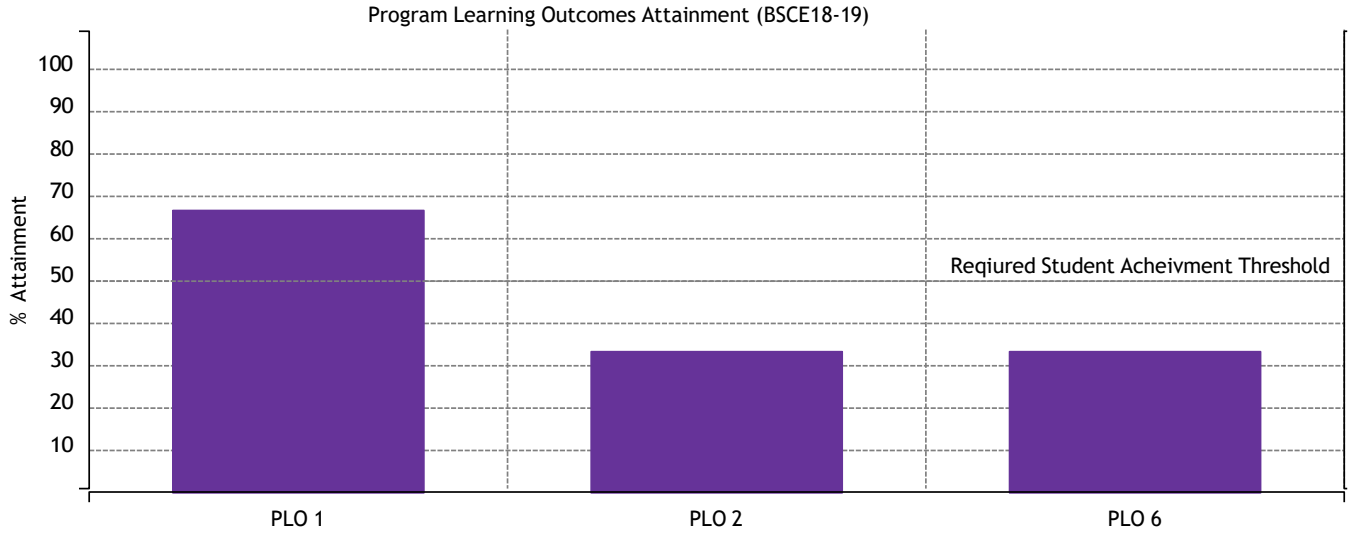
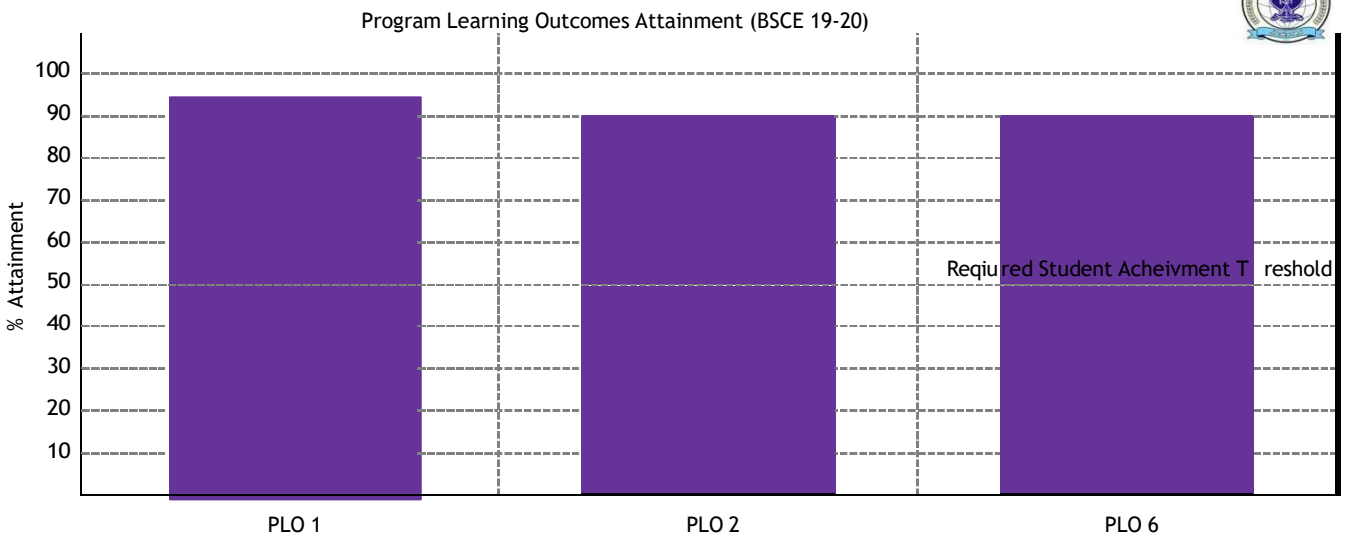


PLO Attainment criteria in graph, 50% of Students , 50% of Marks for this Course Section.

PLOs	Total Students	Number of Student Attained PLO above 50%	Percentage	Average
PLO 1	3	2	66.67	45.93
PLO 2	3	1	33.33	28.01
PLO 6	3	1	33.33	43.15



PLO Attainment criteria in graph, 50% of Students , 50% of Marks for this Course Section.

PLOs	Total Students	Number of Student Attained PLO above 50%	Percentage	Average
PLO 1	20	19	95	74.95
PLO 2	20	18	90	68.94
PLO 6	20	18	90	71.14

CLO Attainment

CLO		CLO-1		CLO-2		CLO-3	
Activity		Weighted Total	CLO Acheived	Weighted Total	CLO Acheived	Weighted Total	CLO Acheived
% Weight							
		KPI 50%		KPI 50%		KPI 50%	
Registration No.	Name						
2018-QUD-F-254	Muhammad Sohaib Khan	30.00	N	6.15	N	22.22	N
2018-QUD-F-257	Muhammad Mohsin Tariq Baloch	51.48	Y	11.54	N	33.15	N
2019-QUD-F-309	Muhammad Daniyal Qureshi	80.37	Y	75.00	Y	72.96	Y
2019-QUD-F-311	Mohamin Hussain	80.74	Y	83.08	Y	88.15	Y
2019-QUD-F-313	Shehryar Zamir	94.26	Y	91.73	Y	94.63	Y
2019-QUD-F-314	Nasir Ullah	83.89	Y	85.77	Y	87.22	Y
2019-QUD-F-315	Malik Daniyal Ahmad	61.11	Y	72.31	Y	60.09	Y
2019-QUD-F-316	Touqeer Ali	74.07	Y	50.38	Y	61.48	Y
2019-QUD-F-317	Muhammad Khan	41.85	N	40.00	N	37.04	N
2019-QUD-F-318	Muhammad Ghaznfar Ali	85.37	Y	53.08	Y	79.07	Y
2019-QUD-F-319	Naveed Khan	92.41	Y	94.04	Y	95.19	Y
2019-QUD-F-320	Bilal Shah	63.33	Y	56.54	Y	59.91	Y
2019-QUD-F-322	Huzaifa Raheel	55.18	Y	21.54	N	35.55	N

CLO		CLO-1		CLO-2		CLO-3	
Activity		Weighted Total	CLO Acheived	Weighted Total	CLO Acheived	Weighted Total	CLO Acheived
% Weight							
		KPI 50%		KPI 50%		KPI 50%	
Registration No.	Name						
2019-QUD-F-323	Adeel Shah Mehdi	77.40	Y	74.62	Y	87.41	Y
2019-QUD-F-324	Muhammad Yasir	59.07	Y	53.46	Y	76.30	Y
2019-QUD-F-326	Muhammad Sajid	79.26	Y	71.54	Y	51.48	Y
2019-QUD-F-327	Muhammad Shaheryar Khan	73.71	Y	50.96	Y	62.41	Y
2019-QUD-F-328	Muhammad Arslan	79.81	Y	92.31	Y	67.78	Y
2019-QUD-F-338	Inam Ullah	60.19	Y	71.54	Y	60.93	Y
2019-QUD-F-346	Yasir Jamshid	72.23	Y	57.50	Y	55.19	Y
2019-QUD-F-348	Amin Ullah	94.07	Y	94.62	Y	96.67	Y
2019-QUD-F-354	Azhar Nawaz	90.74	Y	88.85	Y	93.33	Y
2019-QUD-F-413	Qazi Farooq	56.30	Y	66.34	Y	74.08	Y

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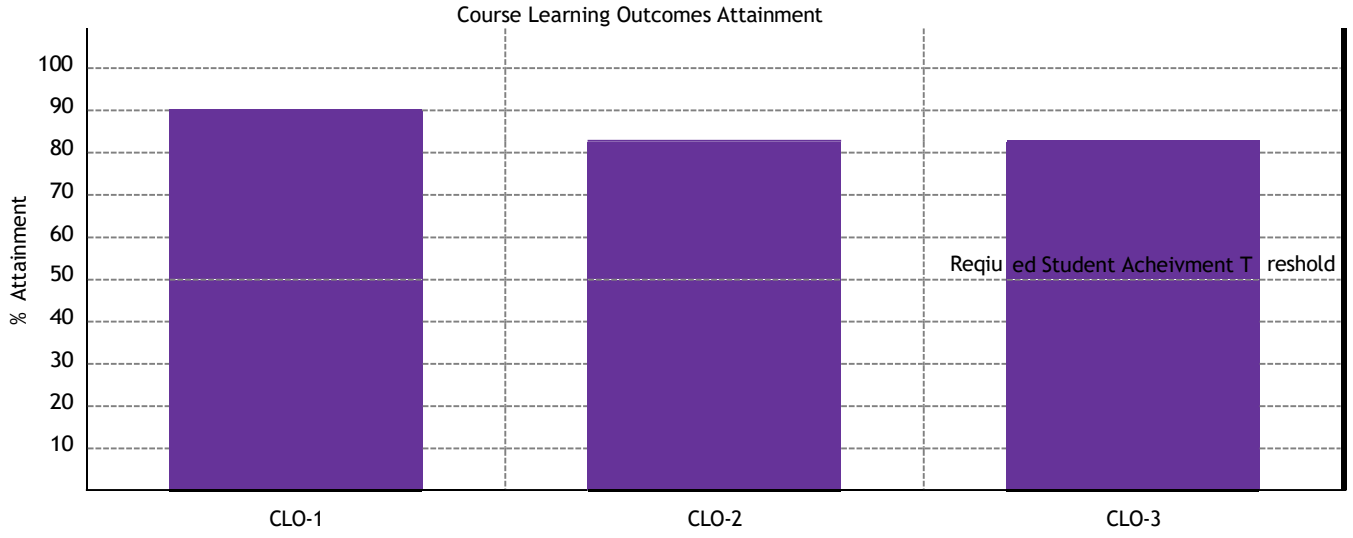

CLO Attainment criteria in graph, 50% of Students , 50% of Marks for this Course Section

CLOs	Total Students	Number of Student Attained CLO above 50%	Percentage	Average
CLO-1	23	21	91.3	71.17
CLO-2	23	19	82.61	63.6
CLO-3	23	19	82.61	67.49

Qurtuba University of Science and Information Technology, D.I. Khan

Civil Engineering

Course Folder Contents

Course : QCE-244L- Soil Mechanics
Semester : Spring-2022
Course Teacher : Engr. Muhammad Umar
Credit Hours: 0 + 1
Number of Students : 17
Number of Class Activities : 11

Table Of Contents

List of Students

Sr. No.	Registration No.	Roll No.	Name	Attendance	Percentage
1.	2019-QUD-F-310		Tariq Javed	10 / 15	66.67 %
2.	2020-QUD-F-389		Muhammad Junaid	14 / 15	93.33 %
3.	2020-QUD-F-390		Fahad Najeeb	15 / 15	100 %
4.	2020-QUD-F-391		Muhammad Jawad	13 / 15	86.67 %
5.	2020-QUD-F-392		Muhammad Haris Khan	15 / 15	100 %
6.	2020-QUD-F-395		Aziz Ullah	15 / 15	100 %
7.	2020-QUD-F-396		Khalil Ur Rehman	11 / 15	73.33 %
8.	2020-QUD-F-397		Waseem Abbas	11 / 15	73.33 %
9.	2020-QUD-F-398		Fatima Noor	15 / 15	100 %
10.	2020-QUD-F-399		Obaid Ur Rehman	13 / 15	86.67 %
11.	2020-QUD-F-400		Muhammad Umar	15 / 15	100 %
12.	2020-QUD-F-401		Imad Ud Din	10 / 15	66.67 %
13.	2020-QUD-F-402		Aashir Hanif	12 / 15	80 %
14.	2020-QUD-F-403		Haider Ali	15 / 15	100 %
15.	2020-QUD-F-404		Zia Ur Rehman	12 / 15	80 %
16.	2020-QUD-F-405		Haibat Khan	12 / 15	80 %
17.	2021-QUD-F-443		Muhammad Majid	10 / 15	66.67 %

Class Activities

Sr. No.	Assessment Method	Name	Dated	Total Marks	Number of Questions
1.	Rubric	Final-Term Lab Exam	10-08-2022	36.00	9
2.	Rubric	Mid-Term Lab Exam	10-08-2022	32.00	8
3.	Rubric	Lab Activity 1	10-08-2022	28.00	7
4.	Rubric	Lab Activity 2	10-08-2022	28.00	7
5.	Rubric	Lab Activity 3	10-08-2022	28.00	7
6.	Rubric	Lab Activity 4	10-08-2022	28.00	7
7.	Rubric	Lab Activity 5	10-08-2022	28.00	7
8.	Rubric	Lab Activity 6	10-08-2022	28.00	7
9.	Rubric	Lab Activity 7	10-08-2022	28.00	7
10.	Rubric	Lab Activity 8	10-08-2022	28.00	7
11.	Rubric	Lab Activity 9	10-08-2022	28.00	7

Program Learning Outcomes

Sr. No.	Code	Name	Description
1.	PLO 1	Engineering Knowledge	Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialisation to the solution of complex engineering problems
2.	PLO 2	Problem Analysis	Identify, formulate, research literature and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences
3.	PLO 3	Design/Development of Solutions	Design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations
4.	PLO 4	Investigation	Conduct investigation into complex problems using research based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions
5.	PLO 5	Modern Tool Usage	Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering activities, with an understanding of the limitations
6.	PLO 6	The Engineer and Society	Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice
7.	PLO 7	Environment and Sustainability	Understand the impact of professional engineering solutions in societal and environmental contexts and demonstrate knowledge of and need for sustainable development
8.	PLO 8	Ethics	Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice
9.	PLO 9	Individual and Team Work	Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings
10.	PLO10	Communication	Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11.	PLO11	Project Management	Demonstrate knowledge and understanding of engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12.	PLO12	Life-long Learning	Recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change

Course Learning Outcomes

Sr. No.	Code	Name	PLOs	Level	Emphasis Level

PLO Attainment

Program Batch : BSCE 19-20

PLO		PLO 1		PLO 4		PLO10	
Activity		Weighted Total	PLO Acheived	Weighted Total	PLO Acheived	Weighted Total	PLO Acheived
Assigned CLO							
% Weight							
		KPI 50%		KPI 50%		KPI 50%	
Registration No.	Name						
2019-QUD-F-310	Tariq Javed	5.68	N	5.68	N	8.00	N

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Program Batch : BSCE 20-21

PLO		PLO 1		PLO 4		PLO10	
Activity		Weighted Total	PLO Acheived	Weighted Total	PLO Acheived	Weighted Total	PLO Acheived
Assigned CLO							
% Weight							
		KPI 50%		KPI 50%		KPI 50%	
Registration No.	Name						
2020-QUD-F-389	Muhammad Junaid	90.11	Y	98.48	Y	94.00	Y
2020-QUD-F-390	Fahad Najeeb	92.05	Y	98.48	Y	99.00	Y
2020-QUD-F-391	Muhammad Jawad	92.05	Y	83.33	Y	96.20	Y
2020-QUD-F-392	Muhammad Haris Khan	92.61	Y	75.76	Y	94.00	Y
2020-QUD-F-395	Aziz Ullah	100.00	Y	97.35	Y	99.00	Y
2020-QUD-F-396	Khalil Ur Rehman	68.18	Y	68.18	Y	66.00	Y
2020-QUD-F-397	Waseem Abbas	72.73	Y	74.24	Y	73.00	Y
2020-QUD-F-398	Fatima Noor	97.73	Y	97.35	Y	97.00	Y
2020-QUD-F-399	Obaid Ur Rehman	74.43	Y	75.00	Y	74.00	Y
2020-QUD-F-400	Muhammad Umar	96.59	Y	78.41	Y	84.00	Y
2020-QUD-F-401	Imad Ud Din	0	N	0	N	0	N
2020-QUD-F-402	Aashir Hanif	86.36	Y	89.02	Y	75.00	Y
2020-QUD-F-403	Haider Ali	98.86	Y	97.35	Y	90.00	Y
2020-QUD-F-404	Zia Ur Rehman	86.36	Y	82.20	Y	74.00	Y
2020-QUD-F-405	Haibat Khan	74.43	Y	73.11	Y	75.00	Y

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Program Batch : BSCE 21-22

PLO	
Activity	
Assigned CLO	
% Weight	
Registration No.	**Name**
2021-QUD-F-443	Muhammad Majid

* any blue color means activity is CQI based actvity
** any red color means some KPI is not acheived

PLO Attainment criteria in graph, 50% of Students , 50% of Marks for this Course Section.

PLOs	Total Students	Number of Student Attained PLO above 50%	Percentage	Average
PLO 1	1	0	0	5.68
PLO 4	1	0	0	5.68
PLO10	1	0	0	8

PLO Attainment criteria in graph, 50% of Students , 50% of Marks for this Course Section.

PLOs	Total Students	Number of Student Attained PLO above 50%	Percentage	Average
PLO 1	15	14	93.33	81.5
PLO 4	15	14	93.33	79.22
PLO10	15	14	93.33	79.35

PLO Attainment criteria in graph, 50% of Students , 50% of Marks for this Course Section.

PLOs	Total Students	Number of Student Attained PLO above 50%	Percentage	Average

CLO Attainment

CLO		CLO-1		CLO-2		CLO-3	
Activity		Weighted Total	CLO Acheived	Weighted Total	CLO Acheived	Weighted Total	CLO Acheived
% Weight							
		KPI 50%		KPI 50%		KPI 50%	
Registration No.	Name						
2019-QUD-F-310	Tariq Javed	5.68	N	5.68	N	8.00	N
2020-QUD-F-389	Muhammad Junaid	98.48	Y	90.11	Y	94.00	Y
2020-QUD-F-390	Fahad Najeeb	98.48	Y	92.05	Y	99.00	Y
2020-QUD-F-391	Muhammad Jawad	83.33	Y	92.05	Y	96.20	Y
2020-QUD-F-392	Muhammad Haris Khan	75.76	Y	92.61	Y	94.00	Y
2020-QUD-F-395	Aziz Ullah	97.35	Y	100.00	Y	99.00	Y
2020-QUD-F-396	Khalil Ur Rehman	68.18	Y	68.18	Y	66.00	Y
2020-QUD-F-397	Waseem Abbas	74.24	Y	72.73	Y	73.00	Y
2020-QUD-F-398	Fatima Noor	97.35	Y	97.73	Y	97.00	Y
2020-QUD-F-399	Obaid Ur Rehman	75.00	Y	74.43	Y	74.00	Y
2020-QUD-F-400	Muhammad Umar	78.41	Y	96.59	Y	84.00	Y
2020-QUD-F-401	Imad Ud Din	0	N	0	N	0	N
2020-QUD-F-402	Aashir Hanif	89.02	Y	86.36	Y	75.00	Y
2020-QUD-F-403	Haider Ali	97.35	Y	98.86	Y	90.00	Y
2020-QUD-F-404	Zia Ur Rehman	82.20	Y	86.36	Y	74.00	Y
2020-QUD-F-405	Haibat Khan	73.11	Y	74.43	Y	75.00	Y
2021-QUD-F-443	Muhammad Majid	79.92	Y	85.23	Y	76.50	Y

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CLO Attainment criteria in graph, 50% of Students , 50% of Marks for this Course Section

CLOs	Total Students	Number of Student Attained CLO above 50%	Percentage	Average
CLO-1	17	15	88.24	74.93
CLO-2	17	15	88.24	77.26
CLO-3	17	15	88.24	74.98

Time Table

Date	From Time	To Time	Room No.	Topic	Teacher

Section Teaching Plan

Muhammad Umar	From : 23-03-2022	To : 23-03-2022
Subject:	soil Mechanics	
Topics:	Introduction to soil Mechanics, safety briefing & apparatus set up.	
CLOs:	16195,16196,16197	
Class Activities:		
Comments:		

Muhammad Umar	From : 30-03-2022	To : 30-03-2022
Subject:	soil Mechanics	
Topics:	Identification of Soil (Visual Manual Procedure)	
CLOs:	16195,16196,16197	
Class Activities:		
Comments:		

Muhammad Umar	From : 06-04-2022	To : 06-04-2022
Subject:	soil Mechanics	
Topics:	Determination of Moisture content of soil (Oven dried and speedy moisture content)	
CLOs:	16195,16196,16197	
Class Activities:		
Comments:		

Muhammad Umar	From : 13-04-2022	To : 13-04-2022
Subject:	soil Mechanics	
Topics:	Determination of specific gravity of soil,	
CLOs:	16195,16196,16197	
Class Activities:		
Comments:		

Muhammad Umar	From : 20-04-2022	To : 20-04-2022
Subject:	soil Mechanics	
Topics:	Determination of liquid limit of soil,	
CLOs:	16195,16196,16197	
Class Activities:		
Comments:		

Muhammad Umar	From : 27-04-2022	To : 27-04-2022
Subject:	soil Mechanics	
Topics:	Grain-size analysis of soil (including both mechanical and hydrometer analysis),	
CLOs:	16195,16196,16197	
Class Activities:		

Comments:	

Muhammad Umar	From : 11-05-2022	To : 11-05-2022
Subject:	soil Mechanics	
Topics:	Determination of Plastic limit and Plasticity Index of soil,	
CLOs:	16195,16196,16197	
Class Activities:		
Comments:		

Muhammad Umar	From : 18-05-2022	To : 18-05-2022
Subject:	soil Mechanics	
Topics:	REVISION	
CLOs:	16195,16196,16197	
Class Activities:		
Comments:		

Muhammad Umar	From : 08-06-2022	To : 08-06-2022
Subject:	soil Mechanics	
Topics:	Determination of shrinkage limit of soil,	
CLOs:	16195,16196,16197	
Class Activities:		
Comments:		

Muhammad Umar	From : 15-06-2022	To : 15-06-2022
Subject:	soil Mechanics	
Topics:	Classification of soil according to AASHTO and USCS,	
CLOs:	16195,16196,16197	
Class Activities:		
Comments:		

Muhammad Umar	From : 22-06-2022	To : 22-06-2022
Subject:	soil Mechanics	
Topics:	Modified/Proctor Compaction Test,	
CLOs:	16195,16196,16197	
Class Activities:		
Comments:		

Muhammad Umar	From : 29-06-2022	To : 29-06-2022
Subject:	soil Mechanics	
Topics:	Determination of parameters of consolidation test/coefficient of consolidation by odometer test,	
CLOs:	16195,16196,16197	
Class Activities:		

Comments:	

Muhammad Umar	From : 06-07-2022	To : 06-07-2022
Subject:	soil Mechanics	
Topics:	Constant Head Permeability test (Granular Soil),	
CLOs:	16195,16196,16197	
Class Activities:		
Comments:		

Muhammad Umar	From : 13-07-2022	To : 13-07-2022
Subject:	soil Mechanics	
Topics:	Falling Head Permeability (Granular and Fine grained soils).	
CLOs:	16195,16196,16197	
Class Activities:		
Comments:		

Muhammad Umar	From : 20-07-2022	To : 20-07-2022
Subject:	soil Mechanics	
Topics:	REVISION	
CLOs:	16195,16196,16197	
Class Activities:		
Comments:		

Mapping of CLOs with Assessment Method

Assessment Method	CLO-1	CLO-2	CLO-3
Rubric	□	□	□

QCE-244L- Soil Mechanics

QCE-244L-Spring-2022

Engr. Muhammad Umar

Quize #1 (Total Marks :3.00)

Quiz1-A		(10.00)	**CLO01**
Quiz1-B		(10.00)	**CLO01**

Assessment Summary

Course Assessment Summary

Course : QCE-244L - Soil Mechanics
Course Section : QCE-244L-Spring-2022
Teacher : Engr. Muhammad Umar
Semester : Spring-2022

Total Students: 17, Attainment Criteria (50% Students acheived 50% CLO)

CLO	CLO Attainment(%)	Assessment Methods	Recommendations/Comments
CLO-1 - Practice laboratory and field tests to characterize various soil parameters.	88.24	Final-Term Lab Exam, Lab Activity 1, Lab Activity 2, Lab Activity 3, Lab Activity 4, Lab Activity 5, Lab Activity 6, Lab Activity 7, Lab Activity 8, Lab Activity 9, Mid-Term Lab Exam	
CLO-2 - Demonstrate different parameters of soil properties	88.24	Final-Term Lab Exam, Lab Activity 1, Lab Activity 2, Lab Activity 3, Lab Activity 4, Lab Activity 5, Lab Activity 6, Lab Activity 7, Lab Activity 8, Lab Activity 9, Mid-Term Lab Exam	
CLO-3 - Organize reports and present experimental procedures, observations, etc on multimedia in the class room in groups and subsequent viva voce.	88.24	Final-Term Lab Exam, Lab Activity 1, Lab Activity 2, Lab Activity 3, Lab Activity 4, Lab Activity 5, Lab Activity 6, Lab Activity 7, Lab Activity 8, Lab Activity 9, Mid-Term Lab Exam	

Course Assessment Summary

Course : QCE-244L - Soil Mechanics
Course Section : QCE-244L-Spring-2022
Teacher : Engr. Muhammad Umar
Semester : Spring-2022

Program Batch : BSCE 19-20, Total Students: 1, Attainment Criteria (50% Students acheived 50% PLO)

PLO	PLO Attainment(%)	Assessment Methods	Recommendations/Comments
PLO 1 - Engineering Knowledge	0	Final-Term Lab Exam, Lab Activity 1, Lab Activity 2, Lab Activity 3, Lab Activity 4, Lab Activity 5, Lab Activity 6, Lab Activity 7, Lab Activity 8, Lab Activity 9, Mid-Term Lab Exam	
PLO 4 - Investigation	0	Final-Term Lab Exam, Lab Activity 1, Lab Activity 2, Lab Activity 3, Lab Activity 4, Lab Activity 5, Lab Activity 6, Lab Activity 7, Lab Activity 8, Lab Activity 9, Mid-Term Lab Exam	

PLO	PLO Attainment(%)	Assessment Methods	Recommendations/Comments
PLO10 - Communication	0	Final-Term Lab Exam, Lab Activity 1, Lab Activity 2, Lab Activity 3, Lab Activity 4, Lab Activity 5, Lab Activity 6, Lab Activity 7, Lab Activity 8, Lab Activity 9, Mid-Term Lab Exam	

Program Batch : BSCE 20-21, Total Students: 15, Attainment Criteria (50% Students acheived 50% PLO)

PLO	PLO Attainment(%)	Assessment Methods	Recommendations/Comments
PLO 1 - Engineering Knowledge	93.33	Final-Term Lab Exam, Lab Activity 1, Lab Activity 2, Lab Activity 3, Lab Activity 4, Lab Activity 5, Lab Activity 6, Lab Activity 7, Lab Activity 8, Lab Activity 9, Mid-Term Lab Exam	
PLO 4 - Investigation	93.33	Final-Term Lab Exam, Lab Activity 1, Lab Activity 2, Lab Activity 3, Lab Activity 4, Lab Activity 5, Lab Activity 6, Lab Activity 7, Lab Activity 8, Lab Activity 9, Mid-Term Lab Exam	
PLO10 - Communication	93.33	Final-Term Lab Exam, Lab Activity 1, Lab Activity 2, Lab Activity 3, Lab Activity 4, Lab Activity 5, Lab Activity 6, Lab Activity 7, Lab Activity 8, Lab Activity 9, Mid-Term Lab Exam	

Program Batch : BSCE 21-22, Total Students: 1, Attainment Criteria (50% Students acheived 50% PLO)

PLO	PLO Attainment(%)	Assessment Methods	Recommendations/Comments

No Data found.

Report Date: 17-10-2022

Lab Activity 1

QCE-244L- Soil Mechanics

QCE-244L-Spring-2022
Engr. Muhammad Umar
Lab Activity 1 (Total Marks :28.00)

Familiarity with equipment / software	(4.00) **CLO-1 (P3)**
Experimental Design Procedures	(4.00) **CLO-1 (P3)**
Troubleshooting (Apparatus/software)	(4.00) **CLO-1 (P3)**
Experimental Data Analysis & Results	(4.00) **CLO-2 (C3)**
Conclusions and Recommendations	(4.00) **CLO-2 (C3)**
Individual and Team Work	(4.00) **CLO-3 (A4)**
Report Writing / Drawing Sheet	(4.00) **CLO-3 (A4)**

CLOs

CLO-1	Practice laboratory and field tests to characterize various soil parameters.	P3
CLO-2	Demonstrate different parameters of soil properties	C3
CLO-3	Organize reports and present experimental procedures, observations, etc on multimedia in the class room in groups and subsequent viva voce.	A4

Report Date: 17-10-2022

Lab Activity 2

QCE-244L- Soil Mechanics

QCE-244L-Spring-2022
Engr. Muhammad Umar
Lab Activity 2 (Total Marks :28.00)

Familiarity with equipment / software	(4.00) **CLO-1 (P3)**
Experimental Design Procedures	(4.00) **CLO-1 (P3)**
Troubleshooting (Apparatus/software)	(4.00) **CLO-1 (P3)**
Experimental Data Analysis & Results	(4.00) **CLO-2 (C3)**
Conclusions and Recommendations	(4.00) **CLO-2 (C3)**
Individual and Team Work	(4.00) **CLO-3 (A4)**
Report Writing / Drawing Sheet	(4.00) **CLO-3 (A4)**

CLOs

CLO-1	Practice laboratory and field tests to characterize various soil parameters.	P3
CLO-2	Demonstrate different parameters of soil properties	C3
CLO-3	Organize reports and present experimental procedures, observations, etc on multimedia in the class room in groups and subsequent viva voce.	A4

Report Date: 17-10-2022

Lab Activity 3

QCE-244L- Soil Mechanics

QCE-244L-Spring-2022
Engr. Muhammad Umar
Lab Activity 3 (Total Marks :28.00)

Familiarity with equipment / software	(4.00) **CLO-1 (P3)**
Experimental Design Procedures	(4.00) **CLO-1 (P3)**
Troubleshooting (Apparatus/software)	(4.00) **CLO-1 (P3)**
Experimental Data Analysis & Results	(4.00) **CLO-2 (C3)**
Conclusions and Recommendations	(4.00) **CLO-2 (C3)**
Individual and Team Work	(4.00) **CLO-3 (A4)**
Report Writing / Drawing Sheet	(4.00) **CLO-3 (A4)**

CLOs

CLO-1	Practice laboratory and field tests to characterize various soil parameters.	P3
CLO-2	Demonstrate different parameters of soil properties	C3
CLO-3	Organize reports and present experimental procedures, observations, etc on multimedia in the class room in groups and subsequent viva voce.	A4

Report Date: 17-10-2022

Lab Activity 4

QCE-244L- Soil Mechanics

QCE-244L-Spring-2022
Engr. Muhammad Umar
Lab Activity 4 (Total Marks :28.00)

Familiarity with equipment / software	(4.00) **CLO-1 (P3)**
Experimental Design Procedures	(4.00) **CLO-1 (P3)**
Troubleshooting (Apparatus/software)	(4.00) **CLO-1 (P3)**
Experimental Data Analysis & Results	(4.00) **CLO-2 (C3)**
Conclusions and Recommendations	(4.00) **CLO-2 (C3)**
Individual and Team Work	(4.00) **CLO-3 (A4)**
Report Writing / Drawing Sheet	(4.00) **CLO-3 (A4)**

CLOs

CLO-1	Practice laboratory and field tests to characterize various soil parameters.	P3
CLO-2	Demonstrate different parameters of soil properties	C3
CLO-3	Organize reports and present experimental procedures, observations, etc on multimedia in the class room in groups and subsequent viva voce.	A4

Report Date: 17-10-2022

Lab Activity 5

QCE-244L- Soil Mechanics

QCE-244L-Spring-2022
Engr. Muhammad Umar
Lab Activity 5 (Total Marks :28.00)

Familiarity with equipment / software	(4.00) **CLO-1 (P3)**
Experimental Design Procedures	(4.00) **CLO-1 (P3)**
Troubleshooting (Apparatus/software)	(4.00) **CLO-1 (P3)**
Experimental Data Analysis & Results	(4.00) **CLO-2 (C3)**
Conclusions and Recommendations	(4.00) **CLO-2 (C3)**
Individual and Team Work	(4.00) **CLO-3 (A4)**
Report Writing / Drawing Sheet	(4.00) **CLO-3 (A4)**

CLOs

CLO-1	Practice laboratory and field tests to characterize various soil parameters.	P3
CLO-2	Demonstrate different parameters of soil properties	C3
CLO-3	Organize reports and present experimental procedures, observations, etc on multimedia in the class room in groups and subsequent viva voce.	A4

Report Date: 17-10-2022

Lab Activity 6

QCE-244L- Soil Mechanics

QCE-244L-Spring-2022
Engr. Muhammad Umar
Lab Activity 6 (Total Marks :28.00)

Familiarity with equipment / software	(4.00) **CLO-1 (P3)**
Experimental Design Procedures	(4.00) **CLO-1 (P3)**
Troubleshooting (Apparatus/software)	(4.00) **CLO-1 (P3)**
Experimental Data Analysis & Results	(4.00) **CLO-2 (C3)**
Conclusions and Recommendations	(4.00) **CLO-2 (C3)**
Individual and Team Work	(4.00) **CLO-3 (A4)**
Report Writing / Drawing Sheet	(4.00) **CLO-3 (A4)**

CLOs

CLO-1	Practice laboratory and field tests to characterize various soil parameters.	P3
CLO-2	Demonstrate different parameters of soil properties	C3
CLO-3	Organize reports and present experimental procedures, observations, etc on multimedia in the class room in groups and subsequent viva voce.	A4

Report Date: 17-10-2022

Lab Activity 7

QCE-244L- Soil Mechanics

QCE-244L-Spring-2022
Engr. Muhammad Umar
Lab Activity 7 (Total Marks :28.00)

Familiarity with equipment / software	(4.00) **CLO-1 (P3)**
Experimental Design Procedures	(4.00) **CLO-1 (P3)**
Troubleshooting (Apparatus/software)	(4.00) **CLO-1 (P3)**
Experimental Data Analysis & Results	(4.00) **CLO-2 (C3)**
Conclusions and Recommendations	(4.00) **CLO-2 (C3)**
Individual and Team Work	(4.00) **CLO-3 (A4)**
Report Writing / Drawing Sheet	(4.00) **CLO-3 (A4)**

CLOs

CLO-1	Practice laboratory and field tests to characterize various soil parameters.	P3
CLO-2	Demonstrate different parameters of soil properties	C3
CLO-3	Organize reports and present experimental procedures, observations, etc on multimedia in the class room in groups and subsequent viva voce.	A4

Report Date: 17-10-2022

Lab Activity 8

QCE-244L- Soil Mechanics

QCE-244L-Spring-2022
Engr. Muhammad Umar
Lab Activity 8 (Total Marks :28.00)

Familiarity with equipment / software	(4.00) **CLO-1 (P3)**
Experimental Design Procedures	(4.00) **CLO-1 (P3)**
Troubleshooting (Apparatus/software)	(4.00) **CLO-1 (P3)**
Experimental Data Analysis & Results	(4.00) **CLO-2 (C3)**
Conclusions and Recommendations	(4.00) **CLO-2 (C3)**
Individual and Team Work	(4.00) **CLO-3 (A4)**
Report Writing / Drawing Sheet	(4.00) **CLO-3 (A4)**

CLOs

CLO-1	Practice laboratory and field tests to characterize various soil parameters.	P3
CLO-2	Demonstrate different parameters of soil properties	C3
CLO-3	Organize reports and present experimental procedures, observations, etc on multimedia in the class room in groups and subsequent viva voce.	A4

Report Date: 17-10-2022

Lab Activity 9

QCE-244L- Soil Mechanics

QCE-244L-Spring-2022
Engr. Muhammad Umar
Lab Activity 9 (Total Marks :28.00)

Familiarity with equipment / software	(4.00) **CLO-1 (P3)**
Experimental Design Procedures	(4.00) **CLO-1 (P3)**
Troubleshooting (Apparatus/software)	(4.00) **CLO-1 (P3)**
Experimental Data Analysis & Results	(4.00) **CLO-2 (C3)**
Conclusions and Recommendations	(4.00) **CLO-2 (C3)**
Individual and Team Work	(4.00) **CLO-3 (A4)**
Report Writing / Drawing Sheet	(4.00) **CLO-3 (A4)**

CLOs

CLO-1	Practice laboratory and field tests to characterize various soil parameters.	P3
CLO-2	Demonstrate different parameters of soil properties	C3
CLO-3	Organize reports and present experimental procedures, observations, etc on multimedia in the class room in groups and subsequent viva voce.	A4

Report Date: 17-10-2022

Mid-Term Lab Exam

QCE-244L- Soil Mechanics

QCE-244L-Spring-2022

Engr. Muhammad Umar

Mid-Term Lab Exam (Total Marks :32.00)

Familiarity with equipment / software	(4.00) **CLO-1 (P3)**
Experimental Design Procedures	(4.00) **CLO-1 (P3)**
Troubleshooting (Apparatus/software)	(4.00) **CLO-1 (P3)**
Experimental Data Analysis & Results	(4.00) **CLO-2 (C3)**
Conclusions and Recommendations	(4.00) **CLO-2 (C3)**
Technical Knowledge	(4.00) **CLO-3 (A4)**
Communication Skills	(4.00) **CLO-3 (A4)**
Dress Code	(4.00) **CLO-3 (A4)**

CLOs

CLO-1	Practice laboratory and field tests to characterize various soil parameters.	P3
CLO-2	Demonstrate different parameters of soil properties	C3
CLO-3	Organize reports and present experimental procedures, observations, etc on multimedia in the class room in groups and subsequent viva voce.	A4

Report Date: 17-10-2022

Final-Term Lab Exam

QCE-244L- Soil Mechanics

QCE-244L-Spring-2022

Engr. Muhammad Umar

Final-Term Lab Exam (Total Marks :36.00)

Familiarity with equipment / software	(4.00) **CLO-1 (P3)**
Experimental Design Procedures	(4.00) **CLO-1 (P3)**
Troubleshooting (Apparatus/software)	(4.00) **CLO-1 (P3)**
Experimental Data Analysis & Results	(4.00) **CLO-2 (C3)**
Conclusions and Recommendations	(4.00) **CLO-2 (C3)**
Presentation	(4.00) **CLO-3 (A4)**
Technical Knowledge	(4.00) **CLO-3 (A4)**
Communication Skills	(4.00) **CLO-3 (A4)**
Dress Code	(4.00) **CLO-3 (A4)**

CLOs

CLO-1	Practice laboratory and field tests to characterize various soil parameters.	P3
CLO-2	Demonstrate different parameters of soil properties	C3
CLO-3	Organize reports and present experimental procedures, observations, etc on multimedia in the class room in groups and subsequent viva voce.	A4

Course Section Consolidated Report

Course: QCE-244L- Soil Mechanics
Course Section : QCE-244L-Spring-2022
Teacher : Engr. Muhammad Umar
Semester: Spring-2022

PLO Attainment

Program Batch : BSCE 19-20

PLO		PLO 1		PLO 4		PLO10	
Activity		Weighted Total	PLO Acheived	Weighted Total	PLO Acheived	Weighted Total	PLO Acheived
Assigned CLO							
% Weight							
		KPI 50%		KPI 50%		KPI 50%	
Registration No.	Name						
2019-QUD-F-310	Tariq Javed	5.68	N	5.68	N	8.00	N

* any blue color means activity is CQI based actvity
** any red color means some KPI is not acheived

Program Batch : BSCE 20-21

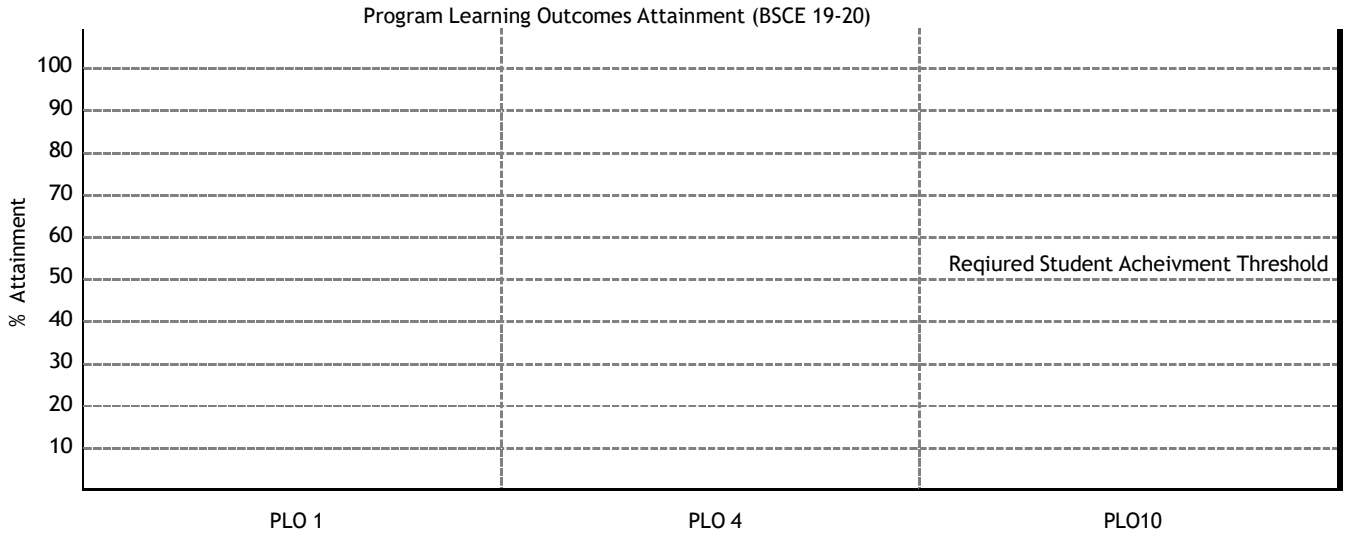
PLO		PLO 1		PLO 4		PLO10	
Activity		Weighted Total	PLO Acheived	Weighted Total	PLO Acheived	Weighted Total	PLO Acheived
Assigned CLO							
% Weight							
		KPI 50%		KPI 50%		KPI 50%	
Registration No.	Name						
2020-QUD-F-389	Muhammad Junaid	90.11	Y	98.48	Y	94.00	Y
2020-QUD-F-390	Fahad Najeeb	92.05	Y	98.48	Y	99.00	Y
2020-QUD-F-391	Muhammad Jawad	92.05	Y	83.33	Y	96.20	Y
2020-QUD-F-392	Muhammad Haris Khan	92.61	Y	75.76	Y	94.00	Y
2020-QUD-F-395	Aziz Ullah	100.00	Y	97.35	Y	99.00	Y
2020-QUD-F-396	Khalil Ur Rehman	68.18	Y	68.18	Y	66.00	Y
2020-QUD-F-397	Waseem Abbas	72.73	Y	74.24	Y	73.00	Y
2020-QUD-F-398	Fatima Noor	97.73	Y	97.35	Y	97.00	Y
2020-QUD-F-399	Obaid Ur Rehman	74.43	Y	75.00	Y	74.00	Y
2020-QUD-F-400	Muhammad Umar	96.59	Y	78.41	Y	84.00	Y
2020-QUD-F-401	Imad Ud Din	0	N	0	N	0	N
2020-QUD-F-402	Aashir Hanif	86.36	Y	89.02	Y	75.00	Y
2020-QUD-F-403	Haider Ali	98.86	Y	97.35	Y	90.00	Y
2020-QUD-F-404	Zia Ur Rehman	86.36	Y	82.20	Y	74.00	Y
2020-QUD-F-405	Haibat Khan	74.43	Y	73.11	Y	75.00	Y

* any blue color means activity is CQI based actvity
** any red color means some KPI is not acheived

Program Batch : BSCE 21-22

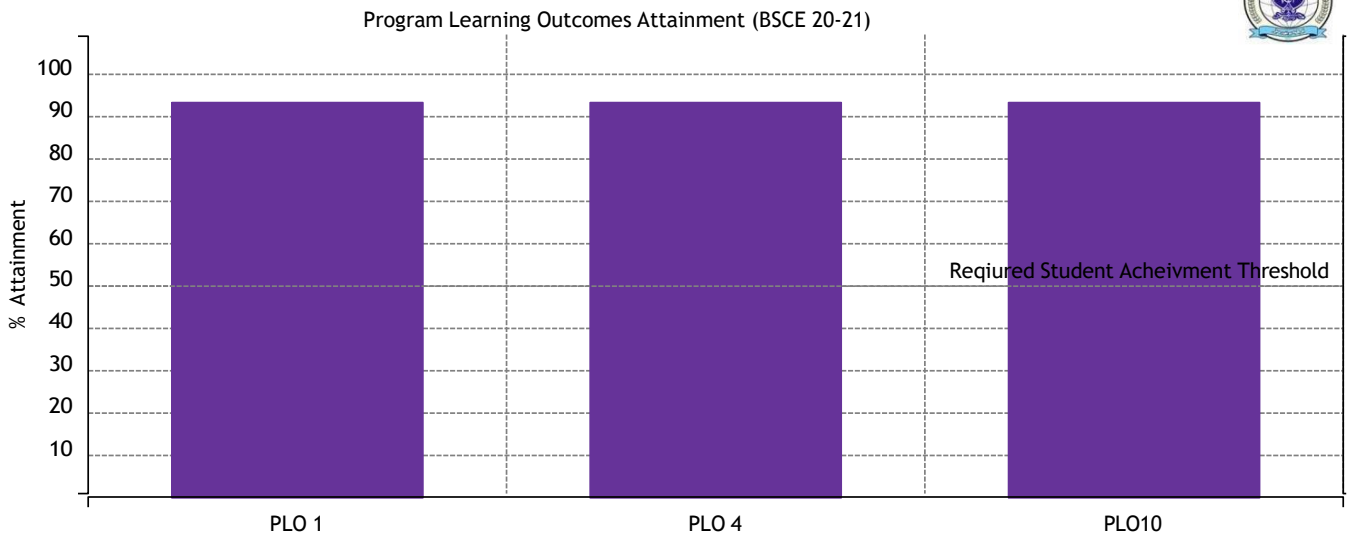
PLO		PLO 1		PLO 4		PLO10	
Activity		Weighted Total	PLO Acheived	Weighted Total	PLO Acheived	Weighted Total	PLO Acheived
Assigned CLO							
% Weight							
		KPI 50%		KPI 50%		KPI 50%	
Registration No.	Name						
2021-QUD-F-443	Muhammad Majid	85.23	Y	79.92	Y	76.50	Y

* any blue color means activity is CQI based actvity
** any red color means some KPI is not acheived



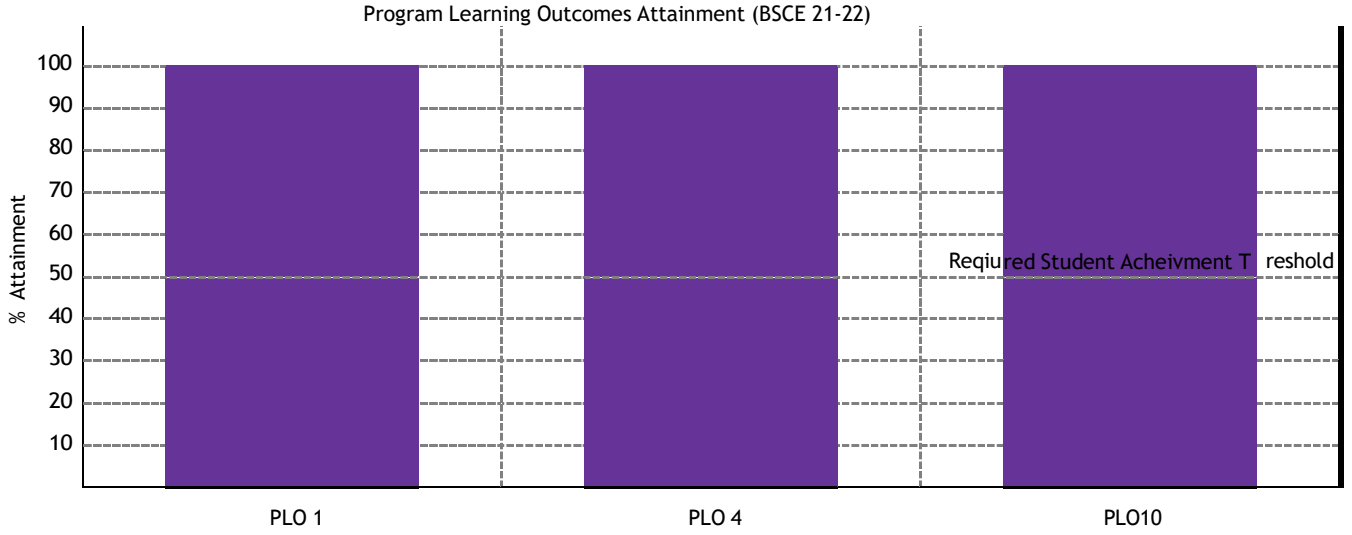
PLO Attainment criteria in graph, 50% of Students , 50% of Marks for this Course Section.

PLOs	Total Students	Number of Student Attained PLO above 50%	Percentage	Average
PLO 1	1	0	0	5.68
PLO 4	1	0	0	5.68
PLO10	1	0	0	8



PLO Attainment criteria in graph, 50% of Students , 50% of Marks for this Course Section.

PLOs	Total Students	Number of Student Attained PLO above 50%	Percentage	Average
PLO 1	15	14	93.33	81.5
PLO 4	15	14	93.33	79.22
PLO10	15	14	93.33	79.35



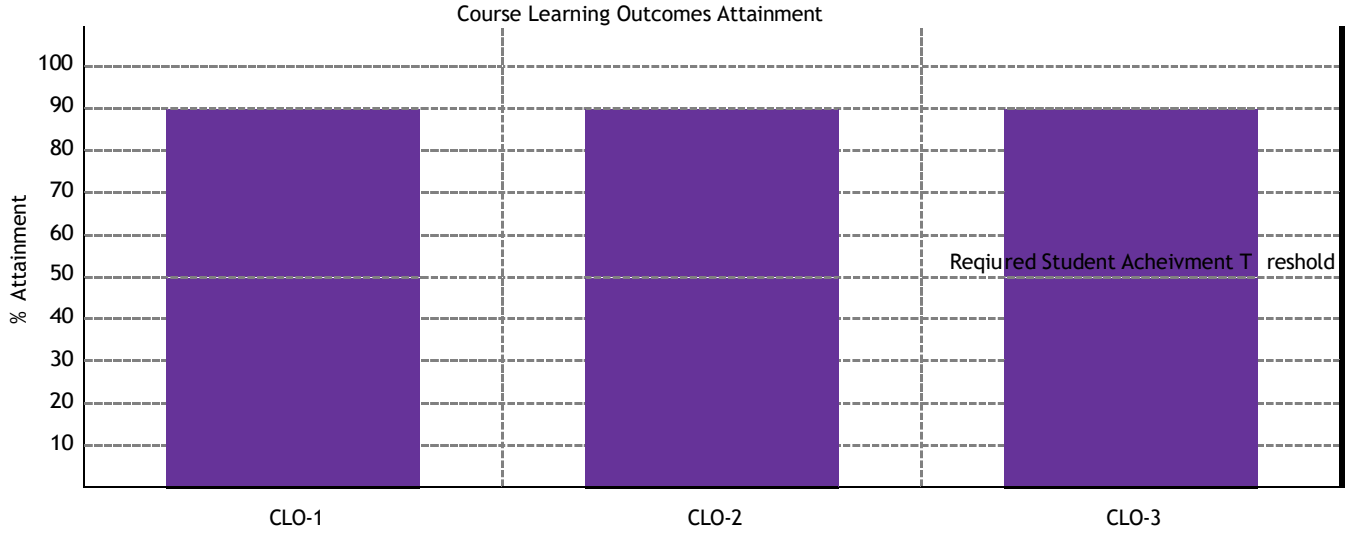
PLO Attainment criteria in graph, 50% of Students , 50% of Marks for this Course Section.

PLOs	Total Students	Number of Student Attained PLO above 50%	Percentage	Average
PLO 1	1	1	100	85.23
PLO 4	1	1	100	79.92
PLO10	1	1	100	76.5

CLO Attainment

CLO		CLO-1		CLO-2		CLO-3	
Activity		Weighted Total	CLO Acheived	Weighted Total	CLO Acheived	Weighted Total	CLO Acheived
% Weight							
		KPI 50%		KPI 50%		KPI 50%	
Registration No.	Name						
2019-QUD-F-310	Tariq Javed	5.68	N	5.68	N	8.00	N
2020-QUD-F-389	Muhammad Junaid	98.48	Y	90.11	Y	94.00	Y
2020-QUD-F-390	Fahad Najeeb	98.48	Y	92.05	Y	99.00	Y
2020-QUD-F-391	Muhammad Jawad	83.33	Y	92.05	Y	96.20	Y
2020-QUD-F-392	Muhammad Haris Khan	75.76	Y	92.61	Y	94.00	Y
2020-QUD-F-395	Aziz Ullah	97.35	Y	100.00	Y	99.00	Y
2020-QUD-F-396	Khalil Ur Rehman	68.18	Y	68.18	Y	66.00	Y
2020-QUD-F-397	Waseem Abbas	74.24	Y	72.73	Y	73.00	Y
2020-QUD-F-398	Fatima Noor	97.35	Y	97.73	Y	97.00	Y
2020-QUD-F-399	Obaid Ur Rehman	75.00	Y	74.43	Y	74.00	Y
2020-QUD-F-400	Muhammad Umar	78.41	Y	96.59	Y	84.00	Y
2020-QUD-F-401	Imad Ud Din	0	N	0	N	0	N
2020-QUD-F-402	Aashir Hanif	89.02	Y	86.36	Y	75.00	Y
2020-QUD-F-403	Haider Ali	97.35	Y	98.86	Y	90.00	Y
2020-QUD-F-404	Zia Ur Rehman	82.20	Y	86.36	Y	74.00	Y
2020-QUD-F-405	Haibat Khan	73.11	Y	74.43	Y	75.00	Y
2021-QUD-F-443	Muhammad Majid	79.92	Y	85.23	Y	76.50	Y

* any blue color means activity is CQI based actvity
** any red color means some KPI is not acheived



CLO Attainment criteria in graph, 50% of Students , 50% of Marks for this Course Section

CLOs	Total Students	Number of Student Attained CLO above 50%	Percentage	Average
CLO-1	17	15	88.24	74.93
CLO-2	17	15	88.24	77.26
CLO-3	17	15	88.24	74.98

Book C: Design Projects Evaluation Guidelines

1. Eligibility Criteria
2. Organization of Projects
3. Evaluation Process
4. Thesis Requirements and Format Sample

1. Road Map For Final Year Project

Process	Required Time	Tentative Date
Project Proposal	**Weeks**	**17/10/2024 -28/10/2024**
Literature review	**Weeks**	**07/11/2024- 18/11/2024**
Mid Term Examinations Fall 2024 (Dec 16,2024 – Dec 21, 2024)		
Methodology of Project	**Weeks**	**23-12-2024-24/12/2022**
Formation of Questionnaire/Procurement of Material	**Weeks**	**27/12/2024-07/01/2025**
Evaluation of Final Year Project (at the end of 7th Semester)	**Weeks**	**10/01/2025-14/01/2025**
Final Term Examination Fall-2024 (Feb 24,2025 – March 01, 2025)		
Data Collection/Sampling	**Weeks**	**14/03/2025-20/03/2025**
Developing Data Analysis strategy/Testing of Samples	**Weeks**	**21/03/2025-25/03/2025**
Analysis of Data	**Weeks**	**28/03/2023-08/04/2025**
Mid Term Examination Spring 2025 (May 05, 2025 – May 10, 2025)		
Result Evaluation	**Weeks**	**12/05/2025-28/05/2025**
Thesis Write up	**Weeks**	**29/05/2025-20/06/2025**
Final Evaluation of Final Year Project (at the end of Project)	**Week**	**21/06/2025-01/07/2025**
Final Term Examination Spring 2025 (July 14 – July 19, 2025)		
	Total=36	**17/10/2024**
	Weeks	**To**
		14/07/2025

General Instructions and Evaluation Methodology for Undergraduate Final Project, According to OBE

Generally, A project is assigned to the final year students of BSc (Civil Engineering) degree program. The students are made to undergo a process to make them good engineers who would be able to apply their theoretical knowledge to the practical problems when they leave Department of Civil Engineering, Qurtuba University of Science and Information Technology.

1. Organization of Projects

Organization of Project

Students carry out their project activities during the last two semesters of the course beginning in the first week of 7th semester and ending with a written report submitted in the 14th week of the 8th semester. Grading/evaluation is done in the 7th and 8th semesters (3+3). Students are expected to work in their own time, under the guidance of an advisor for a total of approximately 288 hours. One day per week during 7th and 8th semester is kept free to facilitate project work.

Project Description, Aims and Contribution to Civil Engineering Program

The final project gives students the opportunity to put into personal practice the knowledge and skills acquired throughout the Civil Engineering program offered at Department of Civil Engineering. Students gain experience of independent inquiry and investigation of a practical Civil Engineering problem, application or topic. Each project is separate, and involves team work, where 2-4 students form one group. Project can be either design based or research oriented. The project aims at infusing confidence in the students to approach any civil engineering works problem methodically and rationally. Personal skills are developed in relation to project management, technical writing and presentation.

Program Learning Outcomes (PLOs)

The final year project will cover the following PLOs.

1. **Problem Analysis**

An ability to identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.

2. **Individual and Team Work**

An ability to work effectively, as an individual or in a team, on multifaceted and /or multidisciplinary settings.

3. **Communication**

An ability to communicate effectively, orally as well as in writing, on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

4. **Project Management**

An ability to demonstrate management skills and apply engineering principles to one's own work, as a member and/or leader in a team, to manage projects in a multidisciplinary environment.

5. **Lifelong Learning**

An ability to recognize importance of, and pursue lifelong learning in the broader context of innovation and technological developments.

Teaching Strategies

Teaching Strategies are given below:

1. **Initial Briefing (7th Semester)**

Prior to selection and commencement of the project, students are given lectures in 6th semester on how to choose a project suitable for their needs, and how to organize and manage their work.

2. **Formation of Group/Selection of Advisor (7th Semester):**

Usually project topics are selected by faculty members based on the requirement and availability of resources. However, students may suggest topic of their own choice, which will require approval of the Chairman. Students are encouraged to meet with various faculty members to select project of their choice and form a project group.

3. **Finalization of Topic (7th Semester):**

Upon finalization, students are required to submit Form FYP-BSCE-01 duly completed for approval of project group and FYP topic, by 2nd week of the 7th semester.

4. **Supervision (7th - 8th Semester):**

Each group thus has a project advisor (faculty member) who provides technical and management advice for the student. Each group is expected to meet their project advisor on a regular (e.g., fortnightly) basis to meet all the deadlines. Some projects may also have a co-advisor. Some groups may be conducting their project work in the framework of a departmental research group and therefore may also have the support of research staff and postgraduate students. Students will receive continuous progress feedback from their advisor.

5. **Allocation of Credit Hours**

Six credit hours are allocated to the project. For gradual development/completion of the project, these six credit hours are distributed in last two semesters as follows: -

- Seventh Semester - 3 Credit Hours
- Eighth Semester - 3 Credit Hours

6. **Schedule of Project Activities:**

All project related activities (except presentations) should complete no later than two weeks prior to the commencement of semester final examinations. Activities/milestones desired in each semester are as follows:

<table>
<tr><th>Semester</th><th>Description of Project Activities</th><th>Duration /Credit Hours</th><th>Deadline</th></tr>
<tr><td rowspan="2">Seven (7th)</td><td><u>FYP Topic Selection</u>
-Formation of FYP Group
-Selection of Advisor
-Finalization of Topic
-Submit Form FYP-BSCE-1</td><td rowspan="2">16 Weeks (3 Credit Hours)</td><td>No Later than 2nd Week of 7th Semester</td></tr>
<tr><td><u>Proposal/Title Defense (5%)</u>
-Writing & Finalization of Project Synopsis for Approval %
-Initial Literature Review/ Library Search $
-Identifying the Project Recourses. (Availability of Data or Laboratory/</td><td>5th Week of 7th Semester</td></tr>
</table>

Semester	Description of Project Activities	Duration /Credit Hours	Deadline
	Fieldwork) -		
	1st FYP Progress* (5%) -Detailed Literature Search -Block diagrams -Fieldwork/Data Collection -Progress and future plan		10th Week of 7th Semester
	2nd FYP Progress* (5%) -Detailed Literature Search -Detailed Methodology -Preliminary Results -Progress and future plan		15th of Week, 7th Semester
	Semester Progress (15%) -Individual progress -Group progress -To be assessed by the adviser		At time of submission of results after the Final Examination of 7th Semester
Eight (8th)	**Open House/Poster Presentation/FYP Internal Defense (05%)** -A poster highlighting brief description of topic, applicability & Significance -FYP description to Board of Internal Examiners	16 Weeks (3 Credit Hours)	Between 8th and 12th Week of 8th Semester
	Semester Progress (20%) -Individual progress -Group progress -To be assessed by the adviser		At time of submission of results after the Final Examination of 8th Semester
	FYP External Defense (45%) -FYP demonstration -FYP report submission -FYP Final Presentation -Viva voice		15th Week of 8th Semester

% *suggested format of Project Proposal is given in "Formatting Guide UG FYP BSCE 2016".*

$ *Literature review is a simultaneous activity which should continue with other/ subsequent project activities on need basis.*

∗ *Draft write-up and editing is simultaneous activity and should start as early as possible or with initial fieldwork / data analysis.*

\# *Rubric / Guidelines for assessing Final project report are attached*

7. Evaluation Process

Assessment will be performed collectively by Board of Internal Examiners of Department of Civil Engineering faculty chaired by the chairman. The Board of Internal Examiners will be composed as under: -

- Concerned chairman.
- Project Advisor and Co-advisor (if any)
- FYP Coordinator.
- One faculty member to be nominated by Department of Civil Engineering.

Assessment of the final year project

Assessment of the final year project takes place in two distinct phases i.e. in the 7th and 8th semester: -

1. **Grading for 7th Semester (3 CR) – 30 %**

Proposal/Title Defense - 05%:

Each Group is required to present their project proposal to the panel. It shall be conducted at the start of 7th semester, preferably on FYP day of 5th week. Student will make a presentation and submit hard copy of project proposal indicating deliverables according to timeline. Form FYP-BSCE-2 and Rubric FYP-BSCE-2A are used for reporting of grades by panel.

1st FYP Progress Presentation - 05%:

Each Group is required to present their progress in the FYP to the panel. This presentation must contain detailed literature review, block diagrams, flow charts field work (if any) and further plan. This will take place on the next week right after the Mid-Term Examination of 7th semester (9 am to 5 pm). A 30 minutes' time slot will be given for the presentation to each group. In addition, 15 minutes are also kept for Question/Answers session. Form FYP-BSCE-3 and Rubric FYP-BSCE-3A are used for reporting of grades by panel.

2nd FYP Progress Presentation - 05%:

Each Group is required to present their further progress in FYP to the panel. The students are required to present detailed methodology, circuit diagrams, data collected, preliminary results

and progress and future plan. This will take place on the week right before the Final-Term Examinations of 7th semester (9 am to 5 pm). A 30 minutes' time slot will be given for the presentation to each group. In addition, 15 minutes are also kept for Question/Answers session. Form FYP-BSCE-4 and Rubric FYP-BSCE-4A are used for reporting of grades by panel.

Semester Progress – 15%:

Students will receive ongoing feedback from their advisor during the whole semester as to their success or otherwise. Form FYP-BSCE-5 and Rubric FYP-BSCE-5A are used for reporting of semester progress by the project adviser.

2. **Grading for 8th Semester (3 CR) – 70 %**

Internal Defense/Poster Presentation / Open House- 05%

Each group is required to present the final presentation of their FYP to the Board of Internal Examiners. Each student / group will also be required to prepare a poster highlighting brief description of topic, applicability and significance etc. between (8th-12th week) period of 8th semester. Form FYP-BSCE-6 and Rubric FYP-BSCE-6A are used for reporting of grades by panel.

Semester Progress – 20%:

Students will receive ongoing feedback from their advisor during the whole semester as to their success or otherwise. Form FYP-BSCE-5 and Rubric FYP-BSCE-5A are used for reporting of semester progress by the project adviser.

Project Final Report and Executive Summary -:

A final written report of no more than 80 pages is required to be submitted to the relevant panel by Monday of 14th Week, 8th Semester.

FYP External Defense and Viva Voice (45%):

Each group will be required to present their project to the committee which will be comprised of the following members:

- External Evaluator; well renowned in that field
- Chairman

- Supervisor

The committee members carry equal marks i.e. 15% per member. Further distribution of marks is given in the table below:

Sr. No.	Committee Members	Presentation/Viva Voice	FYP Report	Total Marks in Hand.
1.	External Evaluator	05%	10%	**15%**
2.	Chairman	05%	10%	**15%**
3.	Supervisor	05%	10%	**15%**
Total		**15%**	**30%**	**45%**

Each Group is required to present their project outcome to the committee. This will take place on the last Project day of 8th semester (9am to 5pm). A 45 minutes' time slot will be given for the presentation. In addition, 15 minutes are also kept for

Question/Answers session:

Form FYP-BSCE-7 and Rubric FYP-BSCE-7A are used for reporting of grades by panel.

3. Consolidated Grading for 8th Semester (3+3 CR):

After FYP External Defense and Viva Voice/presentation, each advisor will compile and report the consolidated grades to the exam branch as per routine in vogue for the other examination during 8th semester. Advisors should keep the copy of record of evaluations carried out during 7th semester otherwise copy of same may be obtained from examination branch Department of Civil Engineering. Form FYP-BSCE-8 are used for reporting of consolidated grades by advisor.

4. Thesis Requirements and Format Sample

Format of Project Proposal/Synopsis (7th Semester – 3 Credit Hour):

Format guidelines for Project Proposal/Synopsis are given in "Formatting Guide UG FYP BSCE 2016". Recommended Chapters to be covered in a project proposal are as follows: -

Abstract:

Write at least half a page about the background for your choice of project topic. What are the sources of your data? What is the scope of the project? What do you intend to do with data (in a broad way)? What are the hypotheses or limitations (if any) in the project? What results do you anticipate to achieve?

Introduction:

The detailed history background and origin of the project should be discussed in this chapter. This chapter must possess the following headings of:

- **Objectives** (What are your objectives in doing this project? What do you expect to achieve?
- **Reasons/justification for selection of** Topic (Problem statement/your reason for choosing this specific topic)
- **Advantages** (Anticipated benefits and accrued advantages of your project work)
- **Outcomes** (State your outcomes of the project in term of helping/collaboration in the welfare of society, Environment and Education)
- **Applications** (How the achieved results could be transformed into practical application? What are the various areas of application of your project work?).

Literature Review:

Include initial literature review of the publications related to the topic. Attach a bibliographic listing of pertinent research projects and publications on your topic. The list should be representative, not exhaustive.

Methodology:

Include the detailed designing and making of the project. This chapter include the block diagrams circuit diagram and the methods or procedure used in the project.

Results and Analysis:

This Chapter include the outcomes of the project in detail. This chapter possess the Final results of the project as well as the discussion and analysis of the results.

Conclusion:

The brief summary of the project in this chapter. The results applications and future recommendation of this project will be discussed in detail.

5. Final Project Report (8th Semester– 3 Credit Hour)

Format Requirements:

Format guideline for Project Proposal/Synopsis are given in "Formatting Guide UG FYP BSCE 2016". The following sections are required and must be included in all final project reports:

- Title page (no page number)
- Dedication (if any)
- Acknowledgements (if any)
- Abstract (page iv.)
- Table of contents
- List of Figures
- List of Tables
- List of acronyms
- Main text (separated into chapters)
- Bibliography or references (APA Format)

6. Submission:

Each project group will prepare four copies of their final project report. Three copies are required to be submitted to three members of concerned panel and fourth copy will be submitted to examination branch Department of Civil Engineering on or before Monday of 14th Week, 8th Semester. The final project report copy is read and marked independently by panel members. Unless otherwise agreed with the project advisor, the final report should not be less than 40 pages as well as should not exceed 80 pages plus appendices. Upon receipt of all project reports, examination branch Department of Civil Engineering will forward these to library Department of Civil Engineering for record. Grading will be done as per the form FYP-BSCE-3B in conjunction with the Rubric.

7. Late Submission:

All groups must submit their projects Final report by 4 pm on Monday of 14th week of 8th semesters. Late submission is not allowed under any circumstances and will be penalized by a reduced mark in project grade.

8. Best Industrial Project:

Selection for Best Industrial Project will be done during Open House/Poster presentation planned between 8th and 12th week of 8th semester by a penal of industrial experts which will be selected by Chairman, Department of Civil Engineering.

9. Plagiarism:

The university policy on plagiarism is outlined in Office of Research, Innovation and Commercialization (ORIC) which is an integral part of QUSIT. There is no substitute to reading the regulations but here are a few of the key points. Plagiarism arises from;

- Copying another student's work;
- Enlisting another person or persons to complete an assignment on the student's behalf;
- Quoting directly, without acknowledgement, from books, articles or other sources, either in printed, recorded or electronic format;
- Paraphrasing, without acknowledgement, the writings of other authors.

It is the responsibility of the student to ensure that he/she does not commit plagiarism

Plagiarism is serious whether the plagiarism is deliberate or has arisen through carelessness. Remember, the final project report must be your own piece of work and written in your own words. Where material is being repeated verbatim from published, web or other sources, you should use inverted commas, italics and/or present the material in a separate paragraph, to make it clear to the reader that you are quoting directly (and you must reference the source). Cheating and plagiarism will not be tolerated and will be referred to the Chairman for appropriate actions.

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D.I.KHAN
DEPARTMENT OF CIVIL ENGINEERING

FORM FYP-BSCE-01

Formulation of Project Group and Advisor

Date: _____

Project Title: _____

_____

Project Advisor:

Name: _____

Designation: _____

Department: _____

Project Members

1. Name (Group Leader): _____ CGPA: _____
   - --- Reg. No: _____ Signature: _____
2. Name: _____ CGPA: _____
   - --- Reg. No: _____ Signature: _____
3. Name: _____ CGPA: _____
   - --- Reg. No: _____ Signature: _____
4. Name: _____ CGPA: _____
   --- Reg. No: _____ Signature: _____

Note: Group cannot be more than 4 students. NO amendments will be accepted in Project members if this form is submitted.

_____

Signature of Advisor

APPROVAL

_____ _____

Signature of FYP Coordinator **Signature of Chairman**

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DEPARTMENT OF CIVIL ENGINEERING

FORM: FYP-BSCE-02

GRADING

Proposal/Title Defense 7th SEMESTER (Weightage - 05%)

Project Title:

S. No	Student Name	Reg. No.	Problem Identification Objectives (4)	Objectives (4)	Work Plan (4)	Presentation (4)	Total (16)	Weightage (05%)
1								
2								
3								
4								

Use Rubric FYP-BSCE-02A for the evaluation

Signature of Advisor **Member-1 FYP Committee** **Member-2 FYP Committee**

APPROVAL

Signature of Chairman

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FORM: FYP-BSCE-02A

RUBRICS FOR PROPOSAL DEFENSE / 7th SEMESTER (Weightage - 05%)

	Levels of Achievement				
	Unacceptable (0)	**Just acceptable (1)**	**Basic (2)**	**Good (3)**	**Excellent (4)**
I Problem Identification/	The problem statement is not given	The problem statement is not suitably described.	The problem statement is suitably described.	The problem statement is clearly described.	The problem statement is Well-structured and excellently described.
II Objectives	Not stated at all	The objectives are not suitably described.	The objectives are suitably described.	The objectives are clearly described.	The objectives are Well-structured and excellently described.
III Work Plan	Does not have a timeline for different parts of the work	Has developed a timeline but cannot clearly describe the different activities of the work and corresponding timelines.	Has developed a timeline and can describe the different activities of the work and corresponding timelines with minimal prompting from peers.	Has developed a timeline describing when most parts of the work will be done. Student can describe the different activities of the work and corresponding timelines	Developed a reasonable, complete timeline describing when different parts of the work will be done. Student can clearly and confidently describe the high points of the timeline.
IV Presentation	Below standard content and delivery.	Marginal organization and delivery.	Reasonable organization and delivery.	Good organization and delivery.	Exceptional organization and delivery.

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FORM: FYP-BSCE-03

1st FYP Progress Presentation / 7th SEMESTER (Weightage - 05%)

Project Title: _____

Ser. No	Student Name	Reg. No.	Content (4)	Adherence to Work Plan (4)	Presentation (4)	Viva (4)	Total (16)	Weighted (05%)
1								
2								
3								
4								

* Use Rubric 3A for the evaluation

Signature of Advisor **Member-1 FYP Committee** **Member-2 FYP Committee**

APPROVAL

Signature of Chairman

QURTUBA UNIVERSITY OF SCIENCE & INFORMATION TECHNOLOGY
D.I.KHAN
DEPARTMENT OF CIVIL ENGINEERING

FORM: FYP-BSCE-03A

RUBRICS FOR 1ST FYP PROGRESS PRESENTATION / 7TH SEMESTER (WEIGHTAGE - 05%)

	Levels of Achievement				
	Unacceptable (0)	**Just acceptable (1)**	**Basic (2)**	**Good (3)**	**Excellent (4)**
I Content	Inappropriate and irrelevant	Barely appropriate/ relevant and contains major inaccuracies.	Partially appropriate/ relevant and contains minor inaccuracies.	Relevant and communicated clearly with no major omissions	Completely relevant and communicated clearly and strongly
II Adherence to Work Plan	Failure to manage project work as per plan	Inadequate management of time and project work	Partially appropriate management of time and project work	Good and appropriate management of time and project work.	Exceptional management of time and project work
III Presentation	Below standard content and delivery.	Marginal organization and delivery.	Reasonable organization and delivery.	Good organization and delivery.	Exceptional organization and delivery.
VI Viva	Neither understands the question, nor could reply.	Adequate understanding of the question and reply	Seemed to understand the main points of the question and replied to those with ease.	Clearly understood the question and replied with ease.	Understood the question in-depth and replied confidently.

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FORM: FYP-BSCE-04

2nd FYP Progress Presentation / 7th SEMESTER (Weightage - 05%)

Project Title: _____

Ser. No	Student Name	Reg. No.	Content (4)	Adherence to Work Plan (4)	Presentation (4)	Viva (4)	Total (16)	Weighted (05%)
1								
2								
3								
4								

* Use Rubric 4A for the evaluation

Signature of Advisor **Member-1 FYP Committee** **Member-2 FYP Committee**

APPROVAL

Signature of Chairman

QURTUBA UNIVERSITY OF SCIENCE & INFORMATION TECHNOLOGY
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DEPARTMENT OF CIVIL ENGINEERING

FORM: FYP-BSCE-04A

RUBRICS FOR 2nd FYP PROGRESS PRESENTATION / 7TH SEMESTER (WEIGHTAGE - 05%)

	Levels of Achievement				
	Unacceptable (0)	**Just acceptable (1)**	**Basic (2)**	**Good (3)**	**Excellent (4)**
I Content	Inappropriate and irrelevant	Barely appropriate/ relevant and contains major inaccuracies.	Partially appropriate/ relevant and contains minor inaccuracies.	Relevant and communicated clearly with no major omissions	Completely relevant and communicated clearly and strongly
II Adherence to Work Plan	Failure to manage project work as per plan	Inadequate management of time and project work	Partially appropriate management of time and project work	Good and appropriate management of time and project work.	Exceptional management of time and project work
III Presentation	Below standard content and delivery.	Marginal organization and delivery.	Reasonable organization and delivery.	Good organization and delivery.	Exceptional organization and delivery.
VI Viva	Neither understand the question, nor could reply.	Adequate understanding of the question and reply	Seemed to understand the main points of the question and replied to those with ease.	Clearly understood the question and replied with ease.	Understood the question in-depth and replied confidently.

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DEPARTMENT OF CIVIL ENGINEERING

FORM: FYP-BSCE-05

Semester Progress 7th (15%)/ 8th SEMESTER (15%)

Project Title:

_____

Ser. No	Student Names	Reg. No.	Content	Adherence to Work Plan	Coherence with group	Viva	Total (16)	Weighted (for 7th semester) (15%)	Weighted (for 8th semester) (20%)
1									
2									
3									
4									

_____

Signature of Advisor

_____

Signature of FYP Coordinator

_____

Signature of Chairman

QURTUBA UNIVERSITY OF SCIENCE & INFORMATION TECHNOLOGY
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DEPARTMENT OF CIVIL ENGINEERING

FORM FYP-BSCE-05A

RUBRICS FOR SEMESTER PROGRESS 7th (15%)/ 8th SEMESTER (15%)

	Levels of Achievement				
	Unacceptable (0)	**Just acceptable (1)**	**Basic (2)**	**Good (3)**	**Excellent (4)**
I Content	Inappropriate and irrelevant	Barely appropriate/ relevant and contains major inaccuracies.	Partially appropriate/ relevant and contains minor inaccuracies.	Relevant and communicated clearly with no major omissions	Completely relevant and communicated clearly and strongly
II Adherence to Work Plan	Failure to manage project work as per plan	Inadequate management of time and project work	Partially appropriate management of time and project work	Good and appropriate management of time and project work.	Exceptional management of time and project work
III Coherence with group	Non-cooperative.	Rarely contributes in group discussions and not a good team member.	Sometimes contributes useful ideas in group discussions and a satisfactory group member.	Usually provides useful ideas in group discussions and a good group member who tries hard.	Routinely provides useful ideas in group discussions and a definite leader who contributes a lot of effort.
VI Viva	Neither understand the question, nor could reply.	Adequate understanding of the question and reply	Seemed to understand the main points of the question and replied to those with ease.	Clearly understood the question and replied with ease.	Understood the question in-depth and replied confidently.

QURTUBA UNIVERSITY OF SCIENCE & INFORMATION TECHNOLOGY
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DEPARTMENT OF CIVIL ENGINEERING

FORM: FYP-BSCE-06

Internal Defense/Open House / 8th SEMESTER (Weightage - 05%)

Project Title:

_____

Ser. No	Student Name	Reg. No.	Grading of fields as per Rubric* (marks range from 0-4)			Total (12)	Weighted (05%)
			I Appearance	II Content	III Presentation		
1							
2							
3							
4							

Use Rubric 6A

_____ _____ _____

Signature of Advisor **Member-1 FYP Committee** **Member-2 FYP Committee**

APPROVAL

_____

Signature of Chairman

QURTUBA UNIVERSITY OF SCIENCE & INFORMATION TECHNOLOGY
D.I.KHAN
DEPARTMENT OF CIVIL ENGINEERING

FORM: FYP-BSCE -06A

RUBRICS FOR INTERNAL DEFENSE/OPEN HOUSE / 8TH SEMESTER (WEIGHTAGE - 05%)

Levels of Achievement					
	Unacceptable (0)	**Just Acceptable (1)**	**Basic (2)**	**Good (3)**	**Excellent (4)**
I **Appearance**	Inappropriate illustrations and non-pleasing layout.	Poor illustrations and non-aesthetic layout	Most illustrations are appropriate but layout is cluttered.	Illustrations are appropriate and good space management.	Very well-presented illustrations. Layout is pleasing to the eye.
II **Content**	Inappropriate and irrelevant	Barely appropriate/ relevant and contains major inaccuracies.	Partially appropriate/ relevant and contains minor inaccuracies.	Relevant and communicated clearly with no major omissions	Completely relevant and communicated clearly and strongly
III **Presentation**	Below standard content and delivery.	Marginal organization and delivery.	Reasonable organization and delivery.	Good organization and delivery.	Exceptional organization and delivery.

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DEPARTMENT OF CIVIL ENGINEERING

FORM: FYP-BSCE-07

FYP EXTERNAL DEFENSE & FINAL VIVA VOICE / 8th SEMESTER (Weightage - 45%)

Project Title:

_____

					Grading of fields as per Rubric* (marks range from 0-4)							Total (36)	Weighted (45%)
Ser. No	**Student Name**	**Reg. No.**	**I**	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**	**IX**		
1													
2													
3													
4													

I	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII)**	**IX)**
Formatting /Organization	**Technical Writing**	**Organization, preparation and effectiveness of delivery**	**Appearance**	**Time management**	**Analysis & Conclusions**	**Originality / Innovation**	**Practical Application**	**Questions/ Answers**

Use Rubric 7A

_____ _____ _____

Signature of Advisor **Member-1 FYP Committee** **Member-2 FYP Committee**

APPROVAL

_____

Signature of Head of Department

QURTUBA UNIVERSITY OF SCIENCE & INFORMATION TECHNOLOGY
D.I.KHAN
DEPARTMENT OF CIVIL ENGINEERING

FORM: FYP-BSCE-07A

RUBRICS FOR FYP EXTERNAL DEFENSE & FINAL VIVA VOICE / 8th SEMESTER (Weightage - 45%)

	Levels of Achievement				
	Unacceptable (0)	**Just acceptable (1)**	**Basic (2)**	**Good (3)**	**Excellent (4)**
I) Formatting / Organization	Non-adherence to formatting guidelines and disorganized.	Formatting guidelines barely followed and poorly organized.	Formatting guidelines adequately followed and organized to some extent.	Appropriately formatted and organized.	Written work is very well formatted and organized.
II) Technical Writing	Poor technical writing.	Minimal use of technical language.	Reasonable use of technical language.	Appropriate use of technical language.	Commendable use of technical language.
III) Organization, preparation and effectiveness of delivery	No participation	Lacks confidence with weak preparation, organization, and delivery	Partially confident with moderate preparation, organization, and delivery	Comfortable presentation with adequate preparation, organization, and delivery	Confident and comfortable presentation with exceptional preparation, organization, and delivery
IV) Appearance	Inappropriate illustrations and non-pleasing layout.	Poor illustrations and non-aesthetic layout	Most illustrations are appropriate but layout is cluttered.	Illustrations are appropriate and good space management.	Very well-presented illustrations. Layout is pleasing to the eye.
V) Time management	Noticeably exceed or fall short of the time allotted.	Speakers either rush or ramble excessively to meet the time allotted.	Speakers showed some difficulty in meeting the time limits.	Speakers showed no difficulty in meeting the time limits.	Comfortably use time allotted, without evidence of compensation.

VI) **Analysis & Conclusions**	Inappropriate analysis and conclusions.	Insufficient analysis and weak conclusions.	Sufficient analysis and reasonable conclusions.	Appropriate analysis and conclusions.	Exceptional analysis and well thought conclusions.
VII) **Originality / Innovation**	Project is plagiarized	Project is not unique, but modified and improved from the existing sources with minimal changes	Project is not unique, but modified and improved from the existing sources with adequate changes	Project is distinctive and based on original ideas	Project is unique, creative and innovative
VIII) **Practical Application**	No practical value	Minimal practical application.	Limited practical application.	Appropriate potentials for field application.	Highly applicable to real world practical issues
IX) **Questions/** **Answers**	Neither understand the question, nor could reply.	Adequate understanding of the question and reply	Seemed to understand the main points of the question and replied to those with ease.	Clearly understood the question and replied with ease.	Understood the question in-depth and replied confidently.

QURTUBA UNIVERSITY OF SCIENCE & INFORMATION TECHNOLOGY
D.I.KHAN
DEPARTMENT OF CIVIL ENGINEERING

FORM: FYP-BSCE-8

FINAL GRADING / 8th SEMESTER (3+3)

Project Title: _____

Qurtuba University of Science & Information Technology
Dera Ismail Khan, KPK, Pakistan.
Department of Electrical Engineering

Sl No	Name	Regn No.	Semester-7				Semester-8					Total
			Sessionals	Presentation Marks			Sessionals	Internal Defense Presentation	Viva Examination			
			Part-1				Part-2		Supervisor	External	Chairman	
			15%	P1	P2	P3	20%	P4	15%	15%	15%	100%
				5%	5%	5%		5%				
1												
2												
3												
4												

_____

Signature of Advisor

_____

Signature of FYP Coordinator

_____

Signature of Chairman

QURTUBA UNIVERSITY OF SCIENCE & INFORMATION TECHNOLOGY
D.I.KHAN
DEPARTMENT OF CIVIL ENGINEERING

FORMATTING GUIDE

For Submission of

FYP

Here and elsewhere in the formatting guide you have a formatting choice. Whatever choice you make, it **MUST** be reflected throughout the **ENTIRE** document. **CONSISTENCY** is a requirement.

This Formatting Guide sets forth the thesis and dissertation requirements established by Department of Civil Engineering, Qurtuba University of Science and Information Technology, D. I. Khan. Individual departments or instructors may have additional requirements or may specify requirements in greater detail. Consistency must be ensured and approved from advisors for these additional requirements. The graduate student has a responsibility to learn what, if any, special departmental/instructor requirements may apply. The thesis/dissertation should be prepared in accordance with the instructions of this guide.

FORMAT REQUIREMENTS AND GUIDELINES

Fonts

All text in all components of the document must be equivalent to a Microsoft Word size 12-point font. The only exceptions are superscripts and subscripts, which must be **equivalent** to a Microsoft Word size 10-point font. Following guidelines be followed:

a. Write chapter number in all capitals in size 16 font bold face right aligned with double line spacing for each chapter as **CHAPTER 1**.

b. Write chapter name in all capitals in size 14 font bold face center aligned with double line spacing for each chapter. e.g. **INTRODUCTION**.

c. Write main headings with numerals first letter capital in size 14 font left aligned with double line spacing e.g. **1.1 General**.

d. All other headings (sub headings and sub-sub heading) should be size 12 font bold face left aligned with double line spacing e.g. **1.2.1 Stability**, **1.2.2.1 Impulse Response**.

e. All the text should be Times New Roman, size 12, justified aligned with 1.5-line spacing and 6 points spacing before and after the paragraph.

Examples of text using different 12-point fonts which are acceptable

This is a Microsoft Word size 12-point font Times New Roman.

Examples:

This is a Microsoft Word size 12-point font

Symbols

Symbols commonly used in mathematical equations, logic/scientific notations, etc. may be used, but must be fully legible and amenable without loss of information

FYP Cover Page and Advisor Signature Page

A specimen of FYP Cover Page and Advisor Signature Page is given at Annexure 1 and Annexure 2 respectively. The guided formatting should be strictly followed.

Spacing and Margins

a. The abstract and the general text of the manuscript must be 1.5 line-spaced. Specimen is given at Annexure 3.
b. Table of Contents: Single space within chapters, double-space between chapters. Specimen is given at Annexure 4.

c. List of Tables and List of Figures: single-space within entry, 1.5 line-spaces between entries. A specimen of List of Tables and List of Figures is given at Annexure 5 and Annexure 6 respectively.
d. Single-space within each bibliographical entry and 1.5 line-space between entries.
e. Single-space is acceptable for long tables, long quotations, footnotes, appendices and multi-line captions.
f. Left page margin be set at 1.5 inches, all other page MARGINS must be 1″ (Top, Bottom, and Right). In other way, ALL page MARGINS must be 1″ (Top, Bottom, Right and Left) with a gutter of 0.5 inches to left of page for binding purpose.

Divisions and Subdivisions

If the text is to be divided into chapters or subdivided into sections, any of the methods recommended in professional style manuals may be used, provided **CONSISTENCY** is maintained throughout the whole document.

Footnotes

There is a wide diversity of practice in footnoting among publications of the sciences, however in engineering it is usually not the norm. Footnotes therefore should be avoided in the thesis and dissertation.

Use of Reprints

Students using reprints of previously published copyrighted material must obtain permission from the appropriate publisher/author.

PAGE NUMBERING AND PLACEMENT (also see Table 1)

Every thesis/dissertation is composed of three parts: preliminary pages, text, and reference materials (i.e., appendices and bibliography)

Placement and Size

a. Portrait pages: The page numbers are placed at the center of the page 0.5″ from the bottom on the 8.5″ side of the page
b. Landscape pages: The page numbers are placed at the center of the page 0.5″ from the bottom on the 11″ side of the paper. If using landscape pages, be sure to change the page orientation to landscape view

Document Components

Every thesis/dissertation is composed of three parts: preliminary pages, text, and reference materials (i.e., appendices and bibliography)

Preliminary Pages

a. Preliminary pages are all the pages that precede the text of the thesis/dissertation.
b. Count, but do not number, the title page.

c. All other preliminary pages (for example, abstract, copyright, dedication and acknowledgement pages) are counted and numbered using lower case roman numerals (iii, iv, v, etc.).
d. Page number placement begins at the dedication or acknowledgments.
e. Numbers are placed at the center of the page 0.5" from the bottom of the paper.

Text, Appendices and Bibliography

a. Count and number all pages using Arabic numbers.
b. Page number 1 is the first page of the Introduction or Chapter 1 if an Introduction is not used.
c. Numbers (1, 2, 3, etc.) are placed on all pages consecutively throughout the text, appendices, and bibliography.
d. Numbers are placed at the center of the page 0.5" from the bottom on the 8.5” side of paper.
e. No blank pages.
f. Use “References” as alternatives to “Bibliography” for all the cited material in your thesis/dissertation.

Table 1 - Pagination and Sequencing

SEQUENCE	PAGINATION	PAGE NUMBER PLACEMENT
Preliminary Pages	Lower Case Roman Numerals	
Title Page	Count/Do Not Number	None
Abstract	Count/Number	Bottom/Center
Copyright Notice	Count/Number	Bottom/Center
Dedication	Count/Number	Bottom/Center
Acknowledgments	Count/Number	Bottom/Center
Preface	Count/Number	Bottom/Center
Table of Contents	Count/Number	Bottom/Center
List of Tables	Count/Number	Bottom/Center
List of Figures	Count/Number	Bottom/Center
Key to Symbols or Abbreviations	Count/Number	Bottom/Center
Text	Arabic Numbers Starting at 1	
Introduction	Count/Number	Bottom/Center
Body of Thesis/Dissertation	Count/Number	Bottom/Center
Reference Pages	Continue with Arabic Numbers	
Cover Sheet for Appendices	Count/Number	Bottom/Center
Appendices	Count/Number	Bottom/Center
Cover Sheet for Bibliography	Count/Number	Bottom/Center
Bibliography	Count/Number	Bottom/Center

FORMATTING INSTRUCTIONS

Preliminary Pages

Title Page

1. Sample **Dissertation Title Page** or Sample **Thesis Title Page** are placed at the end of this document
2. Type the title in CAPITAL LETTERS centered 2" from the top of the page.
3. Double-space and type "By".
4. Double-space and type the student's name, as the author, in full as it is officially recognized by Qurtuba University of Sciences and Information Technology. The student name must be identical on all paperwork.
5. Type "A DISSERTATION" approximately 2.5" below the name.
6. Double-space and then type (single spaced):

Submitted to
Qurtuba University of Sciences and Information Technology, D. I. Khan, Pakistan
in partial fulfillment of the requirements
for the degree, of

7. Double-space and type the name of the DEGREE GRANTING UNIT/PROGRAM the degree is completed
8. Double-space and type the name of the degree awarded in CAPITAL LETTERS. Make sure you have the correct degree title.
9. Double-space and type the year in which the thesis/dissertation is submitted

Example: **BS Civil Engineering**

Abstract

a. Sample Abstract Page
b. Type "ABSTRACT" centered 1" from the top of the page.
c. Double-space and type the title in CAPITAL LETTERS.
d. Double-space and type the word "By".
e. Double-space and type the author's name in full as it is officially recognized by Qurtuba University of Sciences and Information Technology.
f. Double-space and type the text of the abstract.
g. The abstract of a FYP thesis must not exceed one page.
h. The abstract must not include any figures.
i. The text of the abstract must be double-spaced and meet margin requirements.

Dedication (Optional)

a. If used, it should be brief and centered top to bottom on the page, single-spaced and must comply with the margin requirements.
b. When a dedication is included, pagination sequence begins at this page with lower case roman numerals.

Acknowledgments (Optional)

a. Most theses/dissertations include a brief statement of appreciation for, or recognition of, any special assistance.
b. Type "ACKNOWLEDGMENTS" centered 1" from the top of the page.
c. Double-space twice. Begin typing the text. The text must be double-spaced and must comply with the margin requirements.

Table of Contents

No preceding material is listed. (Title page, abstract, dedication, acknowledgments, preface)

a. Sample Table of Contents Page
b. Type "TABLE OF CONTENTS" centered 1" from the top of the page.
c. Double-space twice. Type the listings in the following order:
d. LIST OF TABLES
e. LIST OF FIGURES
f. LIST OF SYMBOLS or ABBREVIATIONS
g. CHAPTERS
h. APPENDICES
i. REFERENCES or BIBLIOGRAPHY
j. The titles of the chapters or sections, must be listed. They must be worded exactly as they appear in the body of the thesis/dissertation.
k. Single-space within each chapter and double-space between chapters.
l. Leader dots to the page number may be used, but are not required.

List of Tables, follows Table of Contents

a. Type "LIST OF TABLES" centered 1" from the top of the page.
b. Double-space twice and type the listings which begin at the left margin.
c. The List of Tables uses the captions as they appear above the tables in the text.
d. Single space within entries, double-space between each entry.
e. All material must indicate corresponding page numbers.
f. Leader dots to the page number may be used, but are not required.

List of Figures, follows List of Tables

a. Type "LIST OF FIGURES" centered 1" from the top of the page.
b. Double-space twice and type the listings which begin at the left margin.
c. The List of Figures uses the captions as they appear below the figures in the text.
d. Single space within entries, double-space between each entry.
e. All material must indicate corresponding page numbers.
f. Leader dots to the page number may be used, but are not required.
g. When using color, students must include the following sentence in the legend of the first color image in the document. "For interpretation of the references to color in this and all other figures, the reader is referred to the electronic version of this thesis (or dissertation)."

Key to Symbols or Abbreviations follows List of Figures

a. Any form acceptable to the department, college, or style manual may be used.
b. Must comply with margin and font requirements and double-spaced.

Table 2 – Summary of Table of Contents

Preliminary Pages	Listed in Table of Contents
Title Page	No
Abstract	Yes
Dedication	Yes
Acknowledgments	Yes
Table of Contents	Yes
List of Tables	Yes
List of Figures	Yes
Key to Symbols or Abbreviations	Yes
Text	
Introduction	Yes
Body of Thesis/Dissertation	Yes
Reference Pages	
Cover Sheet for Appendices	No
Appendices	Yes
Cover Sheet for Bibliography	No
Bibliography	Yes

For several formatting options you have choices. But for whatever choice you make, it MUST be reflected throughout the entire document. CONSISTENCY is a requirement.

Formatting Text

f. The text of the thesis/dissertation must conform to all requirements concerning margins, font sizes and spacing.
g. Each major section or chapter must start on a new page 1″ from the top of the page.
h. A **sample Text Page** is given at Annexure 7 with this document.

Formatting Reference Materials

a. All reference materials must meet margin requirements.
b. Reference materials (Appendix and Bibliography) may be placed at the end of each chapter or at the end of the document. BUT you must be consistent. If you place these at the end of one chapter, you must do the same for ALL chapters.
c. All the references must be written in APA style.
d. Appendices always precede Bibliographies, whether within a chapter or at the end of the document.

Appendix or Appendices (Optional)

a. The appendix (or appendices) are usually added to contain supplementary illustrative materials, original data, and quotations too lengthy for inclusion in the text or not immediately essential to an understanding of the text

b. A cover page separates the Appendix (or Appendices) from the text material
c. Type "APPENDIX" (or "APPENDICES"), centered, top to bottom, on the cover page
d. Sample Appendix Cover Page is given at Annexure 8.
e. The appendices may be divided into APPENDIX A, APPENDIX B, etc. depending on the type and amount of material used.
f. Each individual appendix may have its own cover sheet (optional). For secondary cover sheets, type APPENDIX A (etc.) centered 1 inch from the top of the page. Double-space twice and type the title. Include the corresponding page number for the cover sheet in the Table of Contents.

Appendices Entries

a. The text of each appendix follows the cover page for that appendix.
b. Tables and figures in the appendices must be numbered, captioned, and included in the List of Tables or List of Figures.
c. An Appendix, pertinent to a particular chapter can be at the end of that chapter rather than at the end of the document as long as the selected format is adopted for the whole document.
d. If you have a single Appendix, the Appendix cover page with corresponding page number is what is to appear in the table of contents. Do not include the title of an individual appendix unless you have multiple appendices in a chapter or at the end of the body of the document.
e. If you have multiple Appendices, the Appendices cover page with corresponding page number is to appear in the table of contents as in the case of a single appendix. But when multiple appendices are used each individual Appendix (i.e.: Appendix A with title, Appendix B with title, etc.) with corresponding page number is to appear as a subheading under the heading APPENDICES in the table of contents.

Bibliography

a. Any thesis/dissertation that makes use of other works, either in direct quotation or by reference, must contain a bibliography listing these sources.
b. A cover page separates the bibliography from the preceding section, which may be the main text or the appendix.
c. Type "BIBLIOGRAPHY", (or alternative) centered, top to bottom, on the cover page.
d. Sample Bibliography Cover Page.
e. Use of referencing software like Endnote is encouraged.
f. References should be in APA style.

Bibliography Entries

a. Sample Bibliography Page
b. Type the heading "BIBLIOGRAPHY" (or alternative) centered 1inch from the top of the page.
c. Double-space twice. Type the list of sources.
d. The list of sources is single-spaced within entries, and double-spaced between entries.
e. Standards for the presentation of bibliographies are set forth in the style manuals, or will be prescribed by the student's major professor, but it must be consistent across entries.
f. A Bibliography can be at the end of each chapter or at the end of the document, as long as the selected format is adopted for the whole document.

Formatting Tables and Figures

Definitions

a. The word "Table" designates tabulated numerical data used in the body of the thesis/dissertation and in the appendices. Tables consist of an arrangement of facts, numbers, and values in an orderly sequence usually in rows and columns.
b. The word "Figure" designates all other nonverbal material used in the body of the thesis/dissertation and in the appendices, such as charts, graphs, maps, photographs, plates, drawings, diagrams, etc.
c. Preparation of Tables and Figures. Tables can be formatted at will but with consistent appearance, a detailed guide create good plots/figures is given at Annexure 9.
d. Computer printouts to be used as tables or figures must be given numbers and captions.
e. Tables and Figures can be single spaced.
f. All tables and figures, including the caption, must meet margin requirements.
g. BE CONSISTENT, if your single space one table (figure) single space all tables (figures).

Placement of Tables and Figures

a. Tables and figures are inserted as near as possible to the text they illustrate or may be placed in the appendices.
b. Tables and figures may appear on the same page with text and two or more small tables or figures may be placed together on a single page, providing that margin requirements are met.

Numbering of Tables and Figures

a. Tables/figures are numbered in separate series and are to be numbered consecutively. For example: Figure 16, Figure 17, Figure 18 OR Table 14, Table 15, Table 16.
b. Each table and each figure must have its own distinct number. There cannot be any duplication of numbering throughout chapters.
c. If any table or figure continues onto subsequent pages, the figure or table name and caption must be placed on the first page the figure or table appears on (with the figure or table). The top line of the next page is to read (as an example) Table 16 (cont'd) or Figure 16 (cont'd).
d. The name, caption or legend for each table/figure can be above or below the table or figure, but you must be consistent throughout the entire document with caption placement.
e. The first page that a table/figure appears on is the page number that is used in the List of Tables or List of Figures.

Supplementary Annexures

Department of Civil Engineering & Technology

Supplementary Annexures for Accreditation of B.Sc. Civil Engineering

1 Annexure-A: Knowledge Profile / Range of Complex Solving / Range of Complex Engineering Activities

Table 1: Knowledge Profiles

Knowledge Profile	Attribute
WK1	A systematic, theory-based understanding of the natural sciences applicable to the discipline and awareness of relevant social sciences.
WK2	Conceptually-based mathematics, numerical analysis, data analysis, statistics and formal aspects of computer and information science to support detailed analysis and modelling applicable to the discipline.
WK3	A systematic, theory-based formulation of engineering fundamentals required in the relevant engineering discipline.
WK4	Engineering specialist knowledge that provides theoretical frameworks and bodies of knowledge for the accepted practice areas in the engineering discipline; much is at the forefront of the discipline.
WK5	Knowledge, including efficient resource use, environmental impacts, whole-life cost, re-use of resources, net zero carbon, and similar concepts, that supports engineering design and operations in a practice area.
WK6	Knowledge of engineering practice (technology) in the practice areas in the engineering discipline.
WK7	Knowledge of the role of engineering in society and identified issues in engineering practice in the discipline, such as the professional responsibility of an engineer to public safety and sustainable development (Represented by the 17 UN Sustainable Development Goals (UN-SDG).
WK8	Engagement with selected knowledge in the current research literature of the discipline, awareness of the power of critical thinking and creative approaches to evaluate emerging issues.
WK9	Ethics, inclusive behavior and conduct; Knowledge of professional ethics, responsibilities, and norms of engineering practice. Awareness of the need for diversity by reason of ethnicity, gender, age, physical ability, etc. with mutual understanding and respect, and of inclusive attitudes.

Table 2: Range of Complex Problem Solving

Sr. No.	Attribute	Complex Problems
1	Preamble	Engineering problems which cannot be resolved without in-depth engineering knowledge, and have some or all of the characteristics listed below:
2	Range of conflicting requirements	Involve wide-ranging or conflicting technical, engineering and other issues.
3	Depth of analysis required	Have no obvious solution and require abstract thinking, originality in analysis to formulate suitable models.
4	Depth of knowledge required	Requires research-based knowledge much of which is at, or informed by, the forefront of the professional discipline and which allows a fundamentals-based, first principles analytical approach.
5	Familiarity of issues	Involve infrequently encountered issues
6	Extent of applicable codes	Are outside problems encompassed by standards and codes of practice for professional engineering.
7	Extent of stakeholder involvement and level of conflicting requirements	Involve diverse groups of stakeholders with widely varying needs.
8	Consequences	Have significant consequences in a range of contexts.
9	Interdependence	Are high level problems including many component parts or sub-problems.

Table 3: Range of Complex Engineering Activities

Sr. No.	Attribute	Complex Activities
1	Preamble	Complex activities means (engineering) activities or projects that have some or all of the following characteristics listed below:
2	Range of resources	Involve the use of diverse resources (and for this purpose, resources include people, money, equipment, materials, information and technologies).
3	Level of interaction	Require resolution of significant problems arising from interactions between wide- ranging or conflicting technical, engineering or other issues.
4	Innovation	Involve creative use of engineering principles and research-based knowledge in novel ways.
5	Consequences to society and the environment	Have significant consequences in a range of contexts, characterized by difficulty of prediction and mitigation.
6	Familiarity	Can extend beyond previous experiences by applying principles-based approaches.

Table 4: Mapping of Courses to Knowledge Profiles (WK1 – WK8) (Batch 2020 to Batch 2023)

CLOs	CLO Statement At the end of this course, students will be able to:	Bloom's Taxonomy	PLOs	Knowledge Profile
QCE-111 - Civil Engineering Materials				
CLO-1	Explain various properties of construction Materials.	C2	1	
CLO-2	State appropriate constructional materials for various uses	C1	1	
CLO-3	Demonstrate and characterized some of the Variability and uncertainty associated with engineering materials and their use in building construction	C3	2	WK3
QCE-111L - Civil Engineering Materials (Lab)				
CLO-1	Practice experiments on different materials for suitable use.	P3	4	
CLO-2	Demonstrate different tools/equipment used in evaluation of materials.	C3	1	
CLO-3	Organize the lab data to emphasize experimental objectives, procedures, observations etc. and present on multimedia	A4	10	
QIE-112 - Basic Electro Mechanical Engineering				
CLO-1	Discuss the basic knowledge of electrical engineering related to civil engineering.	C1	1	
CLO-2	Discuss the basic knowledge of mechanical engineering related to civil engineering	C1	1	
CLO-3	Explain the modes of heat transfer, laws of thermodynamics and analyze the IC engine through the application of second law	C2	2	
QIE-112L - Basic Electro Mechanical Engineering (Lab)				WK3
CLO-1	Demonstrate the basic concepts of Electrical & Mechanical engineering and instruments used during lab work.	C3	1	
CLO-2	Practice various experiments related to fundamental of electricity and electronics.	P3	5	
CLO-3	Organize the lab data to emphasize experimental objectives, procedures, observations etc. and present on multimedia	A4	10	
QCE-113 - Engineering Drawing				
CLO-1	Define fundamental concepts of engineering drawing for simple objects/structures and understand characteristics, Instruments, and Drawing sheets Selection, projection system, isometric drawing, and use of scales.	C1	1	
CLO-2	Describe the fundamentals of architectural, structural, plumbing, and electrical drawings.	C2	1	WK3
CLO-3	Have skills to prepare architectural, structural, Electrical & plumbing drawings	C3	3	
QCE-113L - Engineering Drawing (Lab)				
CLO-1	Produce engineering drawing sheets of simple objects/structures manually.	P4	3	
CLO-2	Describe the basic drawings and relevant tools.	C2	1	
CLO-3	Communicate selected sheets on multimedia in groups and subsequent viva voce.	A2	10	
QBH-114 - Functional English				
CLO-1	Apply English vocabulary correctly in speaking and writing.	C3	10	WK7
CLO-2	Comprehend and interpret complex English language texts.	C2	10	
QNS-115 - Applied Calculus				
CLO-1	Apply the concept of functions and limits techniques of derivatives and Integration, Illustrate the learning of vector calculus and analytical geometry	C3	1	
CLO-2	Analyze the derivatives, integration, in graphing and different problems arising in engineering sciences	C4	2	WK2
CLO-3	Apply derivatives and integrals for solving different Problems arising in engineering sciences.	C3	1	
QBH-116 - Pakistan Studies				
CLO-1	Describe the key events and factors that ledto the creation of Pakistan by discussing various perspectives to develop their own historical understanding.	C2	6	
CLO-2	Outline political and constitutional phasesand developments in shaping the Pakistan's political and economic systems.	C2	6	WK7
CLO-3	Analyze various perspectives on current,persistent and controversial issues in Pakistan; compare their own position with the sense of patriotism, tolerance, active citizenship, and respect for cultural diversity and religious harmony.	C2	6	
QCE-121 - Computer Programming				
CLO-1	Explain the components of a computer system, basic proficiency in computer and commonly used computer applications and recognize data representation in number systems.	C2	1	WK2
CLO-2	Explain the fundamentals of operating systems, databases, computer networks, basic programming and internet.	C3	2	

CLOs	CLO Statement At the end of this course, students will be able to:	Bloom's Taxonomy	PLOs	
QCE-121L - Computer Programming (Lab)				
CLO-1	Execute skills required for fundamental concepts of computer programming and produce simple programs.	P4	5	
CLO-2	Demonstrate the basic hardware components & software of a computer system	C3	1	
CLO-3	Adopt the professional behavior during programming	A3	8	
QIE-122 - Architecture & Town Planning				
CLO-1	Describe historical development of human settlement and distinguish different features and elements of Islamic, Greek and Roman architecture.	C2	1	
CLO-2	Demonstrate an understanding of townplanning concepts and techniques, societal changes, urbanism and role of professionals in mitigating the negative effects of development on society andphysical environment.	C3	6	WK7
CLO-3	Describe planning process, its different stages, planning surveys and analysis techniques required to solve existing planning issues such as urban sprawl, slums etc. or to develop new cities/facilities.	C2	2	
CLO-4	Illustrate urban growth and sustainabledevelopment through interpreting zoning,models of land use patterns, and transport-environment-sustainability nexus.	C3	7	
QBH-123 - Islamic Studies				
CLO-1	Discuss the fundamentals of Islam, Quran, A'hadees and their values in everyday life in the light of guidance provided by Quran-e-Pak and Prophet Muhammad (P.B.U.H).	C2	8	WK7
CLO-2	Describe the basic concepts of Islamic Culture & Civilization, Islam & Science, Economic, Political and Social system of Islam.	C2	8	
QNS-124- Engineering Mechanics				
CLO-1	Describe basic concepts of engineering mechanics	C2	1	
CLO-2	Carry out analysis for the two-dimensional force system and equilibrium system in rigid bodies. Friction and Kinetics of system.	C3	2	
CLO-3	Analyze important geometrical properties of the plane areas like the first moment of area, centroid, second moment of area, the radius of gyration, etc.	C4	4	
QNS-124L - Engineering Mechanics (Lab)				WK1
CLO-1	To define and learned principles of engineering mechanics related to civil engineering domain	C1	1	
CLO-2	Organize the lab data to emphasize experimental objectives, procedures, observations etc. and present on multimedia	A4	10	
CLO-3	Conduct various experiments on force system, equilibrium and to study the material response under different sets of loadings.	P4	4	
QNS-125 - Applied Differential Equations				
CLO-1	Define basic terminologies used in ordinarydifferential equations as well as will identify the type of ordinary differential equation.	C1	2	WK2
CLO-2	Carry out methods to solve various types of ordinary differential equations.	C3	2	
CLO-3	Solve real world models of physical problems from science and engineering.	C3	1	
QBH-126 - Sociology & Development				
CLO-1	Explain the basic concepts and theoretical models of sociology. Distinguish between the major fields of contemporary sociology.	C2	6	
CLO-2	Explain the basic social issues caused by unethical behavior of engineers and determine the impact of unethical engineer's work on the society as a whole.	C2	8	WK7
CLO-3	Analyze the social dilemmas involving engineers, formulate possible actions that can be taken in response to a social issue, and evaluate the probable consequences of those actions.	C4	7	
QCE-231 - Engineering Surveying – I				
CLO-1	Explain basic surveying techniques used for surveying and levelling.	C2	1	
CLO-2	Prepare maps and plans, contour maps, Profiles, cross-sections, etc. usingsurveying techniques.	C3	2	
QCE-231L - Engineering Surveying – I (Lab)				WK3
CLO-1	Operate under supervision various survey Equipment for measurements with required accuracy.	P3	5	
CLO-2	Demonstrate tools/equipment to conductsurveying.	C3	1	
CLO-3	Organize reports/sheets and presentsurvey observations on multimedia	A4	10	

CLOs	CLO Statement At the end of this course, students will be able to:	Bloom's Taxonomy	PLOs	Knowledge Profile
QCE-232 - Civil Engineering Drawing & Graphics				
CLO-1	Demonstrate architectural, structural, plumbing,and electrical details of a simple two storied building.	C3	1	
CLO-2	Describe different perspective (functions) of latest version of AutoCAD and explain/ interpret thebasic coding and rules of drawing.	C2	5	
QCE-232L - Civil Engineering Drawing & Graphics (Lab)				WK6
CLO-1	Describe the various version of AutoCAD and knowledge related to various commands.	C2	5	
CLO-2	Practice of preparing building and structural drawings using various Software (AutoCAD).	P3	5	
CLO-3	Communicate selected AutoCAD sheets on multimedia in the class room in groups and subsequent viva voce.	A2	10	
QNS-233 - Numerical Analysis				
CLO-1	Apply different numerical methods to perform polynomial, interpolation, curve fitting, differentiation, integration, and estimation of algebraic nonlinear equations.	C3	1	WK2
CLO-2	Solve ordinary differential equations and compute optimum points in optimization problems using numericaltechniques.	C3	1	
QCE-234 - Mechanics of Solids-I				
CLO-1	Discuss or exemplify the behavior of members (bars, beams, etc.) under different sets of loadresisting supports and loading conditions	C2	1	
CLO-2	Solve problems related to uniaxial, biaxial, and tri-axial state of stresses, and illustrate their usage in daily life.	C3	2	
QCE-234L - Mechanics of Solids-I (Lab)				WK3
CLO-1	To define the concepts of stresses, strains, and to apply concepts of stresses, strains in different sets of loadings	C1	1	
CLO-2	To operate and execute the stresses in structural members of different materials (e.g., steel, concrete etc.) subjected to different loadings.	P3	4	
CLO-3	Organize the lab data to emphasize experimental objectives, procedures, observations etc. and present on multimedia	A4	10	
QNS-235 - Engineering Geology & Seismology				
CLO-1	Discuss the basic concept of geology, properties of common rock-forming minerals and rock types.	C2	1	WK1
CLO-2	Illustrate the formation of plate tectonics, weathering, erosion, land sliding, volcanic action, structural faults, and discontinuity and concepts of earthquake seismology	C3	1	
CLO-3	Apply acquired knowledge in civil engineering projects.	C3	4	
QCE-236 - Construction Engineering				
CLO-1	Discuss the Fundamentals of construction projects, equipment and machineries used	C2	1	WK3
CLO-2	Discuss the basic concepts and methodologies used during construction process	C2	1	
QCE-241 - Mechanics of Solids-II				
CLO-1	Explain the fundamentals of unsymmetrical bending, curved beams, columns stability, failure theories, and pressure vessels.	C2	1	
CLO-2	Analyze columns, curved beams, unsymmetrical beam bending, and pressure vessels.	C4	4	WK8
CLO-3	Solve the stress components on an inclined plane using analytical and graphical stress transformation methods.	C3	2	
QCE-242 - Fluid Mechanics – I				
CLO-1	Describe various basic terms related to fluid mechanics	C2	1	
CLO-2	Demonstrate and analyze various basic parameters related to fluid mechanics	C3	2	
CLO-3	Demonstrate discharge through flow measuring devices	C4	2	
QCE-242L - Fluid Mechanics – I (Lab)				WK3
CLO-1	Conduct various experiments on basic fluid mechanics equipment.	P4	4	
CLO-2	Demonstrate basic parameters to recognize equipment used in fluid mechanics.	C3	1	
CLO-3	Organize reports and present observations on multimedia in groups	A4	10	

CLOs	CLO Statement At the end of this course, students will be able to:	Bloom's Taxonomy	PLOs	Knowledge Profile
	QCE-243 - Concrete Technology			
CLO-1	Explain knowledge of the concrete ingredients, itsfresh as well as hardened properties.	C2	1	
CLO-2	Apply knowledge of the admixtures inconcrete mixes.	C3	1	
CLO-3	Analyze and design concrete mix according to ACI method.	C4	2	WK5
	QCE-243L - Concrete Technology (Lab)			
CLO-1	Practice experiments on concrete for suitable use.	P3	4	
CLO-2	Demonstrate basic fundamentals conceptsinvolved in concrete.	C3	1	
CLO-3	Organize reports and present observations related to concrete on multimedia in the class room ingroups and subsequent viva voce	A4	10	
	QCE-244 - Soil Mechanics			
CLO-1	Discuss the formation and classification of soils	C2	1	
CLO-2	Illustrate seepage, permeability, shear strength parameters and settlement	C3	2	
CLO-3	Compare Compaction and Consolidation on the basis of soil properties".	C4	2	
	QCE-244L - Soil Mechanics (Lab)			WK3
CLO-1	Practice laboratory and field tests to characterizevarious soil parameters.	P3	4	
CLO-2	Demonstrate different parameters of soil properties	C3	1	
CLO-3	Organize reports and present experimental procedures, observations, etc on multimedia in the class room in groups and subsequent viva voce.	A4	10	
	QCE-245 - Engineering Surveying – II			
CLO-1	Analyze and differentiate various types of curves	C4	2	
CLO-2	Demonstrate hydrographic surveys, field astronomy, and photogrammetry.	C3	2	
CLO-3	Apply modern surveying methods	C3	5	
	QCE-245L - Engineering Surveying – II (Lab)			WK6
CLO-1	Operate various survey equipment for measurements with required accuracy.	P3	5	
CLO-2	Demonstrate tools/equipment to conduct surveying.	C3	1	
CLO-3	Organize reports/sheets and present survey observations on multimedia	A4	10	
	QCE-246 - Structural Analysis – I			
CLO-1	Discuss structures and their types, determinacy and stability of structures, and various methods of analysis of determinate structures.	C2	1	
CLO-2	Apply methods of analysis of determinate structures for solving beams, frames, trusses, arches, and cables.	C3	2	WK3
CLO-3	Analyze beams and girders under the applications of moving loads.	C4	4	
	QNS-351 - Probability & Statistics			
CLO-1	Define fundamental statistical and probabilistic concepts.	C1	1	
CLO-2	Apply statistical and probabilistic concepts to analyze problems.	C2	2	
CLO-3	Solve scientific and engineering problems using probability distributions and the concept of random variables.	C3	3	
	QNS-351L - Probability & Statistics (Lab)			WK2
CLO-1	Practice & Produce student's skills using MATLAB, SPSS, and Excel to solve engineering solutions	P4	5	
CLO-2	Define basic statistical concepts and their use in different problems.	C1	1	
CLO-3	Organize reports and present experimental procedures, observations, etc. on multimedia in groups and subsequent viva voce.	A4	10	

CLOs	CLO Statement At the end of this course, students will be able to:	Bloom's Taxonomy	PLOs	Knowledge Profile
	QCE-352 - Fluid Mechanics – II			
CLO-1	Explain the concept and fundamental principal of hydrodynamics and flow around immersed bodies	C2	1	
CLO-2	Analyze pipes flow, pumps and turbines	C4	2	
CLO-3	Carry out the basic principles of fluid mechanics for computations	C3	4	WK4
	QCE-352L - Fluid Mechanics – II (Lab)			
CLO-1	Imitate various experiments on the advanced equipment related to fluid mechanics.	P3	4	
CLO-2	Demonstrate basic parameters to recognize equipment used in fluid mechanics.	C3	1	
CLO-3	Organize lab data and present observation on multimedia in groups	A4	10	
	QMS-353 - Hazards and Disaster Management			
CLO-1	Define natural hazards, its types, and human induced hazards.	C1	7	
CLO-2	Describe the techniques for pre and post disaster management.	C2	11	WK7
CLO-3	Apply prediction and preparedness techniques for natural and human induced disasters	C3	10	
	QCE-354 - Structural Analysis – II			
CLO-1	Discuss conventional and matrix-based force and displacement methods of analysis of indeterminate structures	C2	1	
CLO-2	Solve indeterminate structures using conventional force and displacement methods	C3	2	WK4
CLO-3	Analyse indeterminate structures using matrix-based force and displacement methods	C4	4	
	Business Communication			
CLO-1	Comply basic fundamentals of business communications	A2	11	
CLO-2	Adopt an enhanced ability in the general verbal and non-verbal English language Communication Skills which can support real life Electronic Engineering settings requiring team work and leadership skills.	A3	10	
CLO-3	Seek proficiency in writing memos, proposals, covering letter, enquiry letter, job application letter, acceptanceletter, business letter, short report, long report etc.	A3	12	WK7
CLO-4	Comply basic research and writing skills associated toresearch work, to help them in writing research papers for the contemporary Engineering courses.	A2	10	
	QCE-356 - Geotechnical & Foundation Engineering			
CLO-1	Analyse earth pressure, bearing capacity and stability of slopes	C4	2	
CLO-2	Discuss Earth and Rock fill dam, Piles and negative skin friction	C2	1	
CLO-3	Explain Modern Techniques of soil mechanics	C2	2	
	QCE-356L - Geotechnical & Foundation Engineering (Lab)			WK4
CLO-1	Practice field and laboratory testing to characterize subsoils.	P3	4	
CLO-2	Describe basic components, accessories and function of lab equipment.	C2	1	
CLO-3	Organize reports and present experimental procedures, observations, etc. on multimedia in groups and subsequent viva voce.	A4	10	
	QMS-361 - Engineering Economics & Construction Management			
CLO-1	Discuss the basic knowledge of engineering economics with appropriate tools for applying theory into practice.	C2	1	
CLO-2	Explain the basics of construction management and project planning, scheduling and controlling techniques.	C2	9	
CLO-3	Apply the project management tools to various construction projects.	C3	11	WK7
	QMS-361L - Engineering Economics & Construction Management (Lab)			
CLO-1	Demonstrate basic tools to identify software package used in laboratory.	C3	1	
CLO-2	Make a project schedule; analyze project network diagrams and present in teams**.**	P4	5	
CLO-3	Adapt construction projects and planning and presenttheir observation and findings on multimedia in groups.	A4	10	
	QCE-362 - Hydraulics Engineering			
CLO-1	Analyze the 'State of Flow' in open channels and pressure conduit under various flow conditions	C4	2	
CLO-2	Discuss the concepts of Dimensional Analysis and Similitude	C2	2	WK4
CLO-3	Design and assess various parameters of hydel structures	C5	3	

CLOs	CLO Statement At the end of this course, students will be able to:	Bloom's Taxonomy	PLOs	Knowledge Profile
QCE-363 - Reinforced Concrete Design-I				
CLO-1	Describe the basic knowledge on design ofconcrete structures.	C2	1	WK5
CLO-2	Analysis of RC elements including beams, shortcolumns, isolated footing etc.	C4	2	
CLO-3	Design structural reinforced concrete elements including beams, short columns, isolated footingetc.	C5	3	
QCE-364 - Transportation Engineering-I				
CLO-1	Describe concepts of transportation systems and its planning	C2	1	Wk4, WK5
CLO-2	Explain concepts related to Railway, Airport and Harbour Engineering	C2	1	
QCE-365 - Environmental Engineering- I				
CLO-1	Define Environment, its challenges, Sanitation, Pollution, and its types.	C1	7	WK4
CLO-2	Describe the demand and services for water supply.	C3	2	
CLO-3	Carry out population forecasting, design water treatment system components and understanding water distribution network.	C3	4	
QCE-365L - Environmental Engineering- I (Lab)				
CLO-1	Demonstrate basic parameters to ascertain water quality.	C3	1	
CLO-2	Conduct experiments related to various parameters for water quality.	P4	7	
CLO-3	Organize the experimental data in the form of professional lab reports and present it on multimedia with subsequent viva voce.	A4	10	
QCE-366 - Quantity & Estimation				
CLO-1	State the basic concepts in Quantity & Estimation	C1	1	WK2, WK6
CLO-2	Apply concept and skills for quantity take-off, rate analysis, productivity and pricing etc.	C3	2	
CLO-3	Discuss concepts related to legal and contractual aspects in Quantity & Estimation process of a project	C2	6	
QCE-366L – Quantity &Estimation (Lab)				
CLO-1	Apply concept and skills for quantity take-off for different civil engineering works.	C3	2	
CLO-2	Operate software under supervision of instructor, to estimate different quantitates from drawing sheets.	P3	5	
CLO-3	Organize the lab data to emphasize experimental objectives, procedures, observations etc. and present on multimedia	A4	10	
QCE-471 - Reinforced Concrete Design-II				
CLO-1	Discuss RC structural elements like two-way slab, flat-slabs, flat plates, retaining walls, stairs, overhead water tanks and retaining wall.	C2	1	WK5
CLO-2	Design two-way slabs, flat-slabs, flat plates, retaining walls, stairs, and overhead water tanks	C5	3	
CLO-3	Explain Earthquake engineering concept and pre-stressed concrete structures from design point of view with design examples.	C2	3	
QCE-471L - Reinforced Concrete Design-II (Lab)				
CLO-1	Design various types of structures & their Modelling using SAP Software	P7	5	
CLO-2	Apply basic parameters to ascertain design of structure	C3	1	
CLO-3	Organize the experimental data in the form of professional lab reports and present it on multimedia and subsequent viva voce	A4	10	
QCE-472 - Transportation Engineering-II				
CLO-1	Describe different system of road network with components of road and the basics of traffic engineering for effective traffic Management	C2	1	WK4, WK5
CLO-2	Demonstrate Characterization of highway materials, various factors influencing geometric design of highways and Pavement failures and rehabilitation	C3	2	
CLO-3	Design rigid and flexible pavements	C5	3	
QCE-472L - Transportation Engineering-II (Lab)				
CLO-1	Conduct experiments to investigate properties and quality of asphalt mix	P4	2	
CLO-2	Demonstrate different testing on highway and pavement materials.	C3	1	
CLO-3	Organize reports and present experimental procedures, observations, etc. on multimedia in the class room in groups and subsequent viva voce.	A4	10	

CLOs	CLO Statement At the end of this course, students will be able to:	Bloom's Taxonomy	PLOs	Knowledge Profile
QCE-473: Environmental Engineering-II				
CLO-1	Define the basic components of wastewater treatment systems, and solid waste management.	C1	1	WK4, WK5, WK7
CLO-2	Describe sewer system, its components and different processes involved in sewage water treatment and disposal.	C3	2	
CLO-3	Explain solid waste management techniques, basic factors in hazardous waste management, Air pollution, Noise pollution and Environmental legislations.	C2	7	
QCE-473L - Environmental Engineering –II (Lab)				
CLO-1	Demonstrate basic parameters to ascertain waste water quality.	C3	1	
CLO-2	Conduct experiments related to various parameters for wastewater quality.	P4	7	
CLO-3	Organize the experimental data in the form of professional lab reports and present it on multimedia and subsequent viva voce.	A4	10	
QCE-474: Structural Dynamics & Earthquake Engineering				
CLO-1	Illustrate the fundamental parameter of structure dynamic and determine the SDOF system for free vibration and the SDOF system for force vibration under harmonic and non-harmonic excitation	C3	2	WK5
CLO-2	Analyze the Linear and inelastic SDF system underground shaking caused by earthquake excitation.	C4	2	
CLO-3	Evaluate the motion of the MDOF system under the ground motion, frequency, and its Modes under free vibration and forced vibration of its MDOF system. Analyze and design the structure for lateral forces due to the earthquake and know how to improve the seismic resistance of R.C steel and masonry building.	C4	3	
QBH-475: Professional Ethics				
CLO-1	Define, explain and understand the engineering code of ethics and the basic moral and ethical concepts and problems, recognize their impact and assess their individual, professional and societal role.	C1	8	WK7
CLO-2	Apply their engineering knowledge to sustainable development projects keeping in view the public and environmental safety.	C3	12	
QCE-476: Civil Engineering Project				
CLO-1	Solve a complex engineering problem.	C3	3	WK5, WK8
CLO-2	Carry out literature review.	C3	12	
CLO-3	Plan to manage engineering project.	C5	11	
CLO-4	Adapt and apply appropriate tool / computer models to solve a problem.	P6	5	
CLO-5	Organize a comprehensive technical report for a complex engineering problem.	A4	10	
CLO-6	Apply the concept of collaboration with team members to achieve a common goal.	C3	9	
QNS-481: Geo Informatics				
CLO-1	Explain basic knowledge related to Geo informatics.	C2	1	WK1
CLO-2	Illustrate the coordinate system and referencing positioning system using GIS and Remote Sensing, respectively.	C3	5	
QNS-481L: Geo Informatics (Lab)				
CLO-1	Operate under supervision GIS software.	P3	5	
CLO-2	Apply GIS software for the ma making.	C3	5	
CLO-3	Organize reports and present experimental procedures, observations, etc. on multimedia in groups and subsequent viva voce.	A4	10	
QCE-482: Steel Structures				
CLO-1	The fundamental concept, Parameters, and design philosophy of structural steel members.	C2	1	WK5
CLO-2	Analysis of structural steel members under axial compression, flexure, and shear loading conditions.	C4	2	
CLO-3	The design procedures for structural steel members and structural steel connections.	C5	3	
QCE-483: Irrigation Engineering				
CLO-1	Define the concept of irrigation, drainage, different types of irrigation, types of drainage and different terminologies involved in hydraulic structures.	C1	1	WK4
CLO-2	Describe water-logging and salinity. Discuss impact of water logging and salinity on agricultural productivity in Pakistan.	C2	4	
CLO-3	Design Irrigation Channels using Kennedy's and Lacey's Theories	C5	3	

CLOs	CLO Statement At the end of this course, students will be able to:	Bloom's Taxonomy	PLOs	Knowledge Profile
QCE-484: Engineering Hydrology				
CLO-1	Illustrate the measurements of variousmeteorological & Hydrological parameters.	C3	1	WK3
CLO-2	Describe various methods of flood estimation and Flood routing.	C2	2	
QMS-485: Entrepreneurship				
CLO-1	Describe concepts and tools associated with identifying and creating new venture opportunities	C2	6	WK7
CLO-2	Apply knowledge of a business model in sourcing necessary resources for venture start-up	C3	6	
CLO-3	Demonstrate your presentation and oral skills in a variety of business and professional contexts while assessing your potential for a career in entrepreneurship	C3	10	
CLO-4	Apply the principles of effective teamwork skills in diverse professional contexts to develop viablebusiness opportunities	C3	9	
QCE-486: Civil Engineering Project (Lab)				
CLO-1	Solve a complex engineering problem.	C-3	3	WK5, WK8
CLO-2	Carry out literature review.	C-3	12	
CLO-3	Plan to manage engineering project.	C-5	11	
CLO-4	Adapt and apply appropriate tool / computer models to solve a problem.	P-5	5	
CLO-5	Organize a comprehensive technical report for a complex engineering problem.	A-4	10	
CLO-6	Apply the concept of collaboration with team members to achieve a common goal.	C-3	9	

Table 5: Mapping of Courses to Knowledge Profiles (WK1 – WK9) (Batch 2024 to Onwards)

CLOs	CLO Statement At the end of this course, students will be able to:	Bloom's Taxonomy	PLOs	Knowledge Profiles
QCE-111 - Civil Engineering Materials				WK3
CLO-1	Explain various properties of construction materials.	C2	1	
CLO-2	Choose/Apply appropriate constructional materials for various uses.	C3	1	
CLO-3	Analyze physical and mechanical properties of various materials.	C4	2	
QCEL-111 - Civil Engineering Materials (Lab)				
CLO-1	Practice the modern engineering tools necessary for application of material in civil engineering practice.	P3	5	
CLO-2	Communicate and answer freely concepts of Engineering materials in conducted experiments.	A2	10	
CLO-3	Explain fundamental concepts of civil engineering materials	C2	1	
QNS-112: Applied Physics & Electro Mechanical Fundamentals				WK1
CLO-1	Discuss concepts related to basic physics and electro-mechanical engineering.	C2	1	
CLO-2	Apply fundament concepts of physics and electro-mechanical engineering.	C3	1	
QNSL-112: Applied Physics & Electro Mechanical Fundamentals (Lab)				
CLO-1	Demonstrate the basic concepts of Electrical & Mechanical engineering and instruments used during lab work.	C3	1	
CLO-2	Imitate skills to apply basic knowledge of electro-mechanical engineering in civil engineering projects.	P3	5	
CLO-3	Participate willingly and to contribute towards the achievement of given experiment.	A2	9	
QCE-113 - Engineering Drawing				WK3
CLO-1	Explain fundamental concepts of engineering drawing for simple objects/structures.	C2	1	
CLO-2	Demonstrate the concepts of architectural, structural, and plumbing drawings in their profession.	C3	10	
QCEL-113 - Engineering Drawing (Lab)				
CLO-1	Produce engineering drawing sheets of simple objects/structures manually.	P4	5	
CLO-2	Demonstrate concepts of Engineering drawing in manual sketches/drawings.	C3	1	
CLO-3	To actively Contribute individually and as a team member	A2	9	
QBH-114 - Functional English				WK7
CLO-1	Apply enhanced English communication skills through effective use of word choices, grammar and sentence structure	C3	10	
CLO-2	Express effectively information, ideas and opinions in written and spoken English	A3	6	
CLO-3	Apply inter-cultural variations in the use of English language and to effectively adapt their communication style and content based on diverse cultural and social contexts.	C3	10	
QNS-115: Quantitative Reasoning-I				WK2
CLO-1	Discuss fundamentals of mathematics and basic statistical concepts;	C2	1	
CLO-2	Analyze data presented in various formats including but not limited to tables, graphs, charts, and equations etc.	C4	2	

CLOs	CLO Statement At the end of this course, students will be able to:	Bloom's Taxonomy	PLOs	Knowledge Profiles
QCS-116: Applications of ICT				WK2
CLO-1	Explain the fundamental concepts, components, and scope of information and Communication Technologies (ICT).	C2	1	
CLO-2	Apply ICT platforms and tools for different purposes to address basic needs in different domains of daily, academic, and professional life.	C3	5	
CLO-3	Understand the ethical and legal considerations in use of ICT platforms and tools.	C4	8	
QCSL-116: Applications of ICT (Lab)				
CLO-1	Illustrate fundamental concepts of ICT tools to enhance productivity and collaboration	C3	1	
CLO-2	Practice computer skills for managing and organizing data	P3	5	
CLO-3	Contribute effectively as individual or team lead to utilize various ICT platforms for academic and professional tasks	A2	9	
QCE-121: Engineering Surveying				WK3
CLO-1	Explain basic surveying techniques used for surveying and leveling.	C2	1	
CLO-2	Prepare maps and plans, contour maps, profiles, cross- sections, etc. using surveying techniques.	C3	2	
QCEL-121: Engineering Surveying (Lab)				
CLO-1	Operate under supervision various survey equipment for measurements with required accuracy.	P3	5	
CLO-2	Demonstrate tools/equipment to conduct surveying.	C3	1	
CLO-3	Organize and present survey observations in the form of lab reports/sheets.	A4	10	
QNS-122: Geology for Engineers				WK1, WK3
CLO-1	Describe different branches of geology, constituents of earth, formation of rocks, and structural features of strata.	C2	1	
CLO-2	Explain natural geological phenomena such as weathering, erosion, volcanic eruption, land sliding, and earthquakes.	C2	1	
CLO-3	Discuss different concepts of general geology and hydrogeology and their application to the construction of underground tunnels other infrastructure projects.	C2	7	
QBH-123: Islamic Studies/Ethics				WK7, WK9
CLO-1	Demonstrate enhanced knowledge of Islamic foundational beliefs, practices, historical development, spiritual values and ethical principles.	C3	8	
CLO-2	Describe basic sources of Islamic law and their application in daily life.	C2	1	
CLO-3	Identify and discuss contemporary issues within the Muslim world including social challenges, gender roles and interfaith interactions.	C1	6	
QCE-124: Engineering Mechanics				WK3
CLO-1	Illustrate basic concepts of engineering mechanics	C3	1	
CLO-2	Apply engineering mechanics to civil engineering problems	C3	2	
QCEL-124: Engineering Mechanics (Lab)				
CLO-1	Describe principles of engineering mechanics related to civil engineering domain	C2	1	
CLO-2	Organize the lab data to emphasize experimental objectives, procedures, observations etc. and present.	A4	9	
CLO-3	Operate under supervision to perform various experiments on force system, equilibrium and to study the material response under different sets of loadings.	P3	5	

CLOs	CLO Statement At the end of this course, students will be able to:	Bloom's Taxonomy	PLOs	Knowledge Profiles
QBH-125: Ideology and Constitution of Pakistan				
CLO-1	Demonstrate enhanced knowledge of the basis of the ideology of Pakistan with special reference to the contributions of the founding fathers of Pakistan.	C3	1	WK7
CLO-2	Adopt fundamental knowledge about the Constitution of Pakistan 1973 and its evolution with special reference to state structure.	A3	6	
CLO-3	Explain about the guiding principles on rights and responsibilities of Pakistani citizens as enshrined in the Constitution of Pakistan 1973.	C2	8	
QCS-126: Computer Programming				
CLO-1	Describe basic concepts of computer programming.	C2	1	WK2
CLO-2	Solve computing problems related to civil engineering and choose the best possible solution	C3	2	
QCSL-126: Computer Programming (Lab)				
CLO-1	Execute computer programs involving arithmetic operations, input/output statements, decision-making statements, loops and functions.	P3	5	
CLO-2	Demonstrate the basic hardware components & software of a computer system	C3	1	
CLO-3	Adopt the professional behavior during programming in real world problems	A3	7	
QNS-127: Quantitative Reasoning-II				
CLO-1	Understand basic quantitative modeling and analyses	C2	1	WK2
CLO-2	Apply logical reasoning skills to solve quantitative modeling problems	C3	2	
CLO-3	Prepare quantitative information to make evidence-based decisions through appropriate computational tools.	C3	2	
QCE-231: Advanced Engineering Surveying				
CLO-1	Describe various types of survey curves	C2	1	WK4, WK6
CLO-2	Carry Out construction, control hydrographic surveys, field astronomy, photogrammetry and GPS surveys	C3	2	
CLO-3	Apply the modern engineering survey concepts in technological development	C3	12	
QCEL-231: Advanced Engineering Surveying (Lab)				
CLO-1	Operate under supervision various survey equipment for measurements with required accuracy.	P3	5	
CLO-2	Demonstrate tools/equipment to conduct surveying.	C3	1	
CLO-3	Commit to individual or group survey task as a leader or member expressing team spirit.	A3	9	
QCE-232: Civil Engineering Drawing & Graphics				
CLO-1	Describe different perspective (functions) of CAD.	C2	1	WK2, WK5
CLO-2	Use drawing concepts related tools in different civil engineering projects.	C3	6	
CLO-3	Prepare civil engineering drawings using CAD software and REVIT tools.	C5	5	
QCE-232: Civil Engineering Drawing & Graphics (Lab)				
CLO-1	Describe the various version of AutoCAD and knowledge related to various commands.	C2	1	
CLO-2	Practice of preparing building and structural drawings using various Software (AutoCAD).	P3	5	
CLO-3	Communicate selected AutoCAD sheets on multimedia in the class room in groups and subsequent viva voce.	A2	9	

CLOs	CLO Statement At the end of this course, students will be able to:	Bloom's Taxonomy	PLOs	Knowledge Profiles
QCE-233: Fluid Mechanics				
CLO-1	Describe the physical properties of fluids.	C2	1	
CLO-2	Compute pressure and center of pressure on submerged surfaces and discharge in open channels having uniform flow.	C3	2	
CLO-3	Analyze pipe flow problems using continuity and energy equations.	C4	2	WK3
QCEL-233: Fluid Mechanics (Lab)				
CLO-1	Conduct various experiments on basic fluid mechanics equipment.	P4	5	
CLO-2	Describe theory and results of experiments related to Fluid Mechanics.	C2	1	
CLO-3	Organize reports and present observations as individual or in groups.	A4	9	
QCE-234: Mechanics of Solids-I				
CLO-1	Discuss the behavior of members (bars, beams) subjected to different sets of loading and states of stresses.	C2	1	
CLO-2	Solve problems related to biaxial state of stresses	C3	2	
QCEL-234: Mechanics of Solids-I (Lab)				WK3
CLO-1	To define the concepts of stresses, strains, and to apply concepts of stresses, strains in different sets of loadings	C1	1	
CLO-2	Practice experiments to study the material response under different sets of loadings	P3	5	
CLO-3	Organize and present the lab data to emphasize experimental objectives, procedures, observations etc.	A4	9	
QCE-235: Structural Analysis-I				
CLO-1	Describe various methods of analysis for determinate structures.	C2	1	WK3
CLO-2	Apply fundamental principles of structural analysis to analyze determinate structures by using different methods	C3	2	
QNS-236: Advanced Calculus				
CLO-1	Analyze vectors, scalars, and vector products for spatial geometry.	C4	2	WK2
CLO-2	Apply the mathematical concepts for real-life problems solving.	C3	3	
QCE-241: Mechanics of Solid-II				
CLO-1	Apply theory of elasticity under generalized loading.	C3	1	
CLO-2	Discuss theory of plasticity and plastic analysis of beams and frames.	C2	1	
CLO-3	Analyze beams subjected to unsymmetrical bending, curved beams and beams on elastic foundations.	C4	2	
QCEL-241: Mechanics of Solid-II (Lab)				WK4, WK5
CLO-1	Practice experiments to study the material and structural element response under complex loadings	P3	5	
CLO-2	Apply the experimental procedures for interpretation of stresses under different loading conditions.	C3	4	
CLO-3	Express the procedures, results, and conclusions in the form of a written report for each experiment.	A3	9	

CLOs	CLO Statement At the end of this course, students will be able to:	Bloom's Taxonomy	PLOs	Knowledge Profiles
QCE-242: Construction Engineering				
CLO-1	Explain the basics of construction engineering, equipment, projects and aspects of engineering construction.	C3	1	WK3, WK7
CLO-2	Demonstrate the knowledge of engineering principles (codes, standards and Ethics etc.) of construction engineering	C4	8	
QNS-243: Applied Mathematics				
CLO-1	Comprehend the basic mathematical concepts.	C2	1	WK2
CLO-2	Apply the mathematical concepts for problem solving.	C3	2	
QCE-244: Soil Mechanics				
CLO-1	Operate various survey equipment for measurements with required accuracy.	C2	1	WK3
CLO-2	Demonstrate tools/equipment to conduct surveying.	C4	2	
CLO-3	Organize reports/sheets and present survey observations on multimedia	C3	3	
QCEL-244: Soil Mechanics (Lab)				
CLO-1	Practice laboratory testing to determine index properties of soil, flow of water through soil, and compaction and consolidation parameters of soil	P3	5	
CLO-2	Demonstrate different parameters of soil properties	C3	1	
CLO-3	Organize and present experimental procedures, observations, etc in the form of lab report.	A4	10	
QCE-245: Quantity and Cost Estimation				
CLO-1	Explain basic concepts, terminologies/processes for quantity estimation of construction projects.	C2	1	WK2, WK6
CLO-2	Prepare cost estimates by studying and scrutinizing quantities of various construction activities.	C3	2	
CLO-3	Prepare and manage various contractual aspects related to bidding and tendering process for construction projects using PEC guidelines.	C3	11	
QBH-246: Communication & Presentation Skills				
CLO-1	Adopt the basic communication & Presentation skills for effective communication.	A3	8	WK7
CLO-2	Apply Basic rules of communication to develop sound presentation skills	C3	10	
QBH-247: Sociology for Engineers				
CLO-1	Explain the basic concepts and theoretical models of sociology.	C2	6	WK1, WK7
CLO-2	Participate willingly to play a pro-active role in critical discussions of social issues specifically.	A2	8	
QNS-351: Numerical Analysis				
CLO-1	Apply numerical methods for the solutions of linear/nonlinear equations	C3	2	WK2
CLO-2	analyze eigenvalues and investigate into numerical optimization techniques, with practical applications.	C4	2	
QCE-352: Advanced Fluid Mechanics				
CLO-1	Analyze the flow problems to formulate solutions based on laminar and turbulent flow regimes.	C4	2	WK4, WK5
CLO-2	Analyze the working of hydraulic machines for an effective design of water supply and hydropower schemes.	C4	3	
CLO-3	Examine the performance of turbines and pumps	C4	4	

CLOs	CLO Statement At the end of this course, students will be able to:	Bloom's Taxonomy	PLOs	
QCEL-352: Advanced Fluid Mechanics (Lab)				
CLO-1	Conduct various experiments on the advanced equipment related to fluid mechanics.	P4	5	
CLO-2	Demonstrate basic principles of fluid mechanics by carrying out experiments.	C3	1	
CLO-3	Organize and present the laboratory observation in the form of effective report	A4	10	
QBH-353: Expository Writing				
CLO-1	Describe the essentials of the writing process integrating pre-writing, drafting, editing and proof reading to produce well-structured essays.	C2	1	WK7, WK9
CLO-2	Demonstrate mastery of diverse expository types to address different purposes and audiences.	C3	10	
CLO-3	Show concerns to ethical practices to maintain originality in expository writing.	A3	8	
QCE-354: Geotechnical Engineering				
CLO-1	Discuss the engineering properties of soil, stress distribution, concepts of slope failure and dynamic loading	C2	1	
CLO-2	Analyze settlement of soil, stability of slopes and excavations	C4	2	
CLO-3	Evaluate design of various geotechnical structures	C5	3	
QCEL-354: Geotechnical Engineering (Lab)				WK4, WK5
CLO-1	Practice laboratory and field testing for strength parameters of soil	P3	4	
CLO-2	Describe basic components, accessories and function of lab equipment.	C2	1	
CLO-3	Organize reports and present experimental procedures, observations, etc. in groups and subsequent viva voce.	A4	9	
QCE-355: Reinforced Concrete Design-1				
CLO-1	Illustrate various properties of concrete and the concepts of various reinforced concrete members	C3	1	
CLO-2	Analyze reinforced concrete structural elements using codes and standards	C4	2	
CLO-3	Design various structural reinforced concrete elements.	C5	3	WK4, WK5
QCEL-355: Reinforced Concrete Design-1 (Lab)				
CLO-1	Practice laboratory experiments for quality evaluation of fresh and harden concrete	P3	5	
CLO-2	Carry out the procedures, results, and conclusions in the written report	C3	10	
CLO-3	Participate willingly as individual or in groups to perform experimental tasks in lab work.	A2	9	
QCE-361: Reinforced Concrete Design-II				
CLO-1	Demonstrate the concepts of strength evaluation, retrofitting and pre-stressing of RC structures for simple cases.	C3	1	
CLO-2	Design various reinforced concrete structural elements using standard design codes.	C5	3	
QCEL-361: Reinforced Concrete Design-II (Lab)				**WK5**
CLO-1	Produce various types of structures & their Modelling using Software	P4	3	
CLO-2	Illustrate use of modern tools such as ETABS, SAFE and SAP in structural design.	C3	5	
CLO-3	Organize and present the experimental data in the form of professional lab reports.	A4	10	

CLOs	CLO Statement At the end of this course, students will be able to:	Bloom's Taxonomy	PLOs	
QCE-362: Environmental Engineering				
CLO-1	Explain various concepts of water treatment and wastewater treatment	C2	1	
CLO-2	Apply knowledge of environmental engineering to solve basic and complex issues.	C3	2	
CLO-3	Analyze the key environmental problems and identify the effects of pollutants on environment.	C4	7	WK4
QCEL-362: Environmental Engineering (Lab)				
CLO-1	Demonstrate the physical & chemical parameters related to water quality.	C3	1	
CLO-2	Conduct experiments related to various parameters for water quality.	P4	4	
CLO-3	Organize and present the experimental data in the form of professional lab reports	A4	10	
QCE-363: Structural Analysis-II				
CLO-1	Explain indeterminate structures considering the stability and determinacy parameters.	C3	1	WK4
CLO-2	Analyze Indeterminate structures using different methods	C4	2	
QCE-364: Engineering Hydrology				
CLO-1	Explain the basic principles of hydrology, flood routing and groundwater hydrology.	C2	1	
CLO-2	Analyze various hydrological parameters for surface and groundwater flow.	C4	2	
QCEL-364: Engineering Hydrology (Lab)				WK3
CLO-1	Observe hydrometeorological variables (evaporation, temperature, wind, humidity, rainfall) using standard field instruments.	P1	4	
CLO-2	Discuss rainfall–runoff relationships, reservoir effects, and urban catchment hydrology using observed and recorded data.	C2	1	
CLO-3	Organize and present the experimental data in the form of professional lab reports	A4	10	
QCE-365: Highway & Traffic Engineering				
CLO-1	Explain the fundamentals of highway and traffic engineering.	C2	1	
CLO-2	Choose/Apply Appropriate Principles of Transportation Engineering in Geometric Design Using Various Parameters.	C3	3	WK4
CLO-3	Demonstrate characteristics of road users and modes of transportation system relevant to development of society.	C3	6	
QCE-366: Civics & Community Engagement				
CLO-1	Demonstrate fundamental understanding of civics, government, citizenship and civil society.	C3	1	
CLO-2	Understand the concept of community and recognize the significance of community engagement for individuals and groups.	C2	9	WK1, WK7
CLO-3	Recognize the importance of diversity and inclusively for societal harmony and peaceful co-existence.	C2	6	
QCE-471: Foundation Engineering				
CLO-1	Discuss site characterization for geotechnical investigations	C2	1	
CLO-2	Design an appropriate type of shallow foundation for various loadings and ground conditions.	C5	3	WK5, WK6
CLO-3	Investigate load bearing capacity of deep foundations for different ground conditions	C5	4	
QCE-472: Pavement Analysis & Design				
CLO-1	Explain the fundamentals of pavement engineering and rehabilitation.	C2	1	WK5
CLO-2	Apply principles of pavement engineering to analyze and design pavements.	C3	3	

CLOs	CLO Statement At the end of this course, students will be able to:	Bloom's Taxonomy	PLOs	
QCEL-472: Pavement Analysis & Design (Lab)				
CLO-1	Perform experiments to find out the properties of road materials for asphaltic mix design.	P3	9	
CLO-2	Demonstrate the engineering knowledge to judge the behavior of road materials using standard guidelines.	C3	1	
CLO-3	Justify experiments related to material properties and design by written and oral.	A3	10	
QCE-473: Modeling & Simulation				WK2
CLO-1	Understand the fundamental principles and concepts of mathematical modelling and simulation.	C1	1	
CLO-2	Apply modelling and simulation tools to solve complex engineering problems across diverse domains.	C3	5	
QCEL-473: Modeling & Simulation (Lab)				
CLO-1	Practice MATLAB and Simulink to develop and analyze mathematical and simulation models.	P3	5	
CLO-2	Demonstrate various advanced tools for modelling and simulation	C3	1	
CLO-3	Organize and present experimental/simulation data into professional lab reports.	A4	10	
QCE-474: Hydraulics Engineering				WK4
CLO-1	Discuss dimensional analysis, similitude and basic principles of hydraulic structures.	C2	1	
CLO-2	Analyze various hydraulic structures in open channel flow.	C4	2	
QCEL-474: Hydraulics Engineering (Lab)				
CLO-1	Observe flow variables (water level, velocity, discharge) and characterize open channel flow regimes using field and lab equipment.	P1	5	
CLO-2	Analyze hydraulic phenomena (hydraulic jump, water hammer, sediment transport, backwater effects) through experiments and data interpretation.	C4	4	
CLO-3	Organize and present experimental/simulation data into professional lab reports.	A4	10	
QMS-475: Project Management				WK7, WK9
CLO-1	Demonstrate the basics concepts of project planning, budgeting, execution, closure and earned value management for proposals and contracts	C3	11	
CLO-2	Communicate effectively to comprehend the Project in multidisciplinary environments.	A2	10	
CLO-3	Explain and understand the use of computers in Project Management, especially a tool like MS Project & Primavera etc.	C2	5	
QCE-476: FYDP Part-I				WK5, WK8
CLO-1	Solve a complex engineering problem.	C3	3	
CLO-2	Carry out literature review.	C3	12	
CLO-3	Plan to manage engineering project.	C5	11	
CLO-4	Adapt and apply appropriate tool / computer models to solve a problem.	P5	5	
CLO-5	Organize a comprehensive technical report for a complex engineering problem.	A4	10	
CLO-6	Apply the concept of collaboration with team members to achieve a common goal.	C3	9	
QNS-481: Irrigation Engineering				WK4
CLO-1	Explain the various irrigation concepts and soil-water-crop relationships.	C2	1	
CLO-2	Analyze problems related to irrigation canals and other irrigation systems	C4	2	

CLOs	CLO Statement At the end of this course, students will be able to:	Bloom's Taxonomy	PLOs	
QNSL-481: Irrigation Engineering (Lab)				
CLO-1	Conduct field and laboratory experiments to measure evapotranspiration, infiltration, runoff, and irrigation efficiencies.	P4	4	
CLO-2	Describe design and analysis techniques for irrigation channels, furrows, and water conveyance systems using field data.	C2	1	
CLO-3	Formulate and present effectively professional laboratory reports as an individual	A4	9	
QNS-482: Geo Informatics				
CLO-1	Describe the fundamental knowledge and principles of Geo-Informatics.	C2	1	
CLO-2	Apply the working principles of remote sensing, GIS and their respective data acquisition technique(s).	C3	2	
CLO-3	Apply GIS solutions for a variety of engineering projects and data acquisition using modern GIS and Remote sensing software.	C3	5	
QNS-482L: Geo Informatics (Lab)				WK1
CLO-1	Operate GIS and Remote Sensing software under supervision for handling spatial data.	P3	5	
CLO-2	Apply the engineering knowledge to categorize the spatial data analysis using Remote Sensing (RS).	C3	1	
CLO-3	Organize and present lab work in the form of professional reports individually or as a team member.	A4	9	
QCE-483: Steel Structure				
CLO-1	Describe the theories and models suitable for the analysis and design of structural steel members.	C2	1	
CLO-2	Analyze structural steel members under axial loads, flexure, and shear.	C4	2	WK5
CLO-3	Design tension, compression and flexural members in steel structures.	C5	3	
QIE-484: Architecture & Town Planning				
CLO-1	Demonstrate the different steps of architecture and town planning in land use patterns.	C3	1	
CLO-2	Demonstrate the importance of building infrastructure and apply the scientific & cultural effects of architecture developments to urban society.	C3	6	WK7, WK9
CLO-3	Categorize the current and future developments in urban planning & spot the relationships between people and the urban infrastructure such as town growth, technical measures, and public interest.	C4	7	
QIE-485: Occupational health and safety				
CLO-1	Explain the basic concepts of hazards that pose a danger or threat to their safety or health of the inhabitants.	C1	6	WK7
CLO-2	Analyze and communicate coherent analysis of a potential safety or health hazard both verbally and in writing citing the Occupational Health and Safety regulations and other supported legislation for sustainable development	C3	7	
QMS-486: Entrepreneurship				
CLO-1	Explain fundamental entrepreneurial concepts, skills, and processes.	C1	1	
CLO-2	Discuss personal, social, and financial aspects associated with entrepreneurial activities.	C2	6	
CLO-3	Describe regulatory requirements to establish an enterprise in Pakistan, with emphasis on export-oriented firms.	C2	8	WK7, WK9
CLO-4	Develop a feasible business plan by applying entrepreneurial knowledge, skills, and abilities acquired in the course.	C5	11	
QCE-487: FYDP Part-II				
CLO-1	Solve a complex engineering problem.	C3	3	
CLO-2	Carry out literature review.	C3	12	
CLO-3	Plan to manage engineering project.	C5	11	WK5, WK8
CLO-4	Adapt and apply appropriate tool / computer models to solve a problem.	P5	5	
CLO-5	Organize a comprehensive technical report for a complex engineering problem.	A4	10	
CLO-6	Apply the concept of collaboration with team members to achieve a common goal.	C3	9	

2 Annexure-B: Mapping of PEOs to PLOs / Graduate Attributes

Sr. No	Program Learning Outcomes (PLOs)	Program Educational Objectives (PEOs)		
		PEO-1	PEO-2	PEO-3
1	Engineering Knowledge	✓	-	-
2	Problem Analysis	✓	-	-
3	Design/Development of Solutions	✓	-	-
4	Investigation	✓	-	-
5	Modern Tool Usage	✓	-	-
6	The Engineer and Society	-	-	✓
7	Environment and Sustainability	-	-	✓
8	Ethics	-	-	✓
9	Individual and Team Work	-	✓	-
10	Communication	-	✓	-
11	Project Management	-	✓	-
12	Life-long Learning	-	✓	-

Legend:

√ **Denotes relationship between the objective and outcome.**
- **Denotes no relationship between the objective and outcome.**

3 Annexure-C System of Instructions and Examination

1	**Nature of Academic Sessions(Semester /Term/Annual):**	Semester
2	**No. of sessions in the Program**	8
3	**Duration of a session (in weeks)**	Total: (18) & Teaching: (16)
4	**Total No. of courses in the Program(Theory+ Lab):**	71
5	**No. of courses in a session(Theory+ Lab):**	07 (Min) & 10 (Max)
6	**Total contact-hours for a Theory course per session:**	16-48
7	**Total contact-hours for a Practical course per session:**	48
8	**Weekly contact-hours for a Theory class:**	1-3 hrs.
9	**Weekly contact-hours for a Practical class:**	3 hrs.
10	**Attach Academic Calendars (for Current & the Previous years):**	Attached
11	**Attach Grade-Sheets for LAST ONE-year (All Batches):**	Attached

Academic Calendars (2024-25)

Academic Calendar: Fall-2024 Semester		
Week No.	**Activity**	**Dates**
1	Classes / Course Registration Week	14th Oct - 18th Oct
2	Classes	21rd Oct - 25th Oct
3	Classes	28th Oct - 01rd Nov
4	Classes / Last date for Add, Drop of Courses	04th Nov - 8th Nov
5	Classes	11th Nov - 15th Nov
6	Classes *	18th Nov - 22th Nov
7	Classes	25th Nov - 29th Nov
8	Classes / Last date for Withdrawal of courses	02th Dec - 06th Dec
9	Mid-Term Exam	9th Dec - 13th Dec
10	Classes	16th Dec - 20th Dec
11	Classes	23th Dec - 27th Dec
12	Classes	30th Dec - 03th Jan
13	Classes	06th Jan - 10th Jan
14	Classes	13th Jan - 17th Jan
15	Classes	20th Jan - 24th Jan
16	Classes	27th Jan - 31st Jan
17	Classes	03th Feb - 07th Feb
18	Final Term Exam	10th Feb - 15th Feb

Public Holidays	
5-Feb	**Kashmir Day**
23-Mar	**Pakistan Day**
1-May	**Labour Day**
25-Dec	**Quaid-E-Azam Day**

Spring-2025 Semester		
Week No.	**Activity**	**Dates**
1	Classes	24th Feb - 28th Feb
2	Classes/Sports Week	3rd Mar - 07th, Mar
3	Classes / Last date for Add, Drop of Courses	10th Mar - 14th Mar
4	Classes	17th Mar - 21th Mar
5	Classes	24th Mar - 28th Mar
6	Classes	31th Mar - 4th Apr
7	Classes	07th Apr - 11th Apr
8	Classes / Last date for Withdrawl of courses	14th Apr - 18th Apr
9	Mid Term Exam	21th Apr - 25th Apr
10	Classes	28th Apr -2th May
11	Classes	5th May - 09th May
12	Classes	12th May - 16th May
13	Classes	19th May - 23th May
14	Classes	26th May - 30th May
15	Classes	2nd June -6th Jun
16	Classes	09th Jun - 13th Jun
17	Classes	16th Jun - 20th Jun
18	Final Term Exam	23th Jun - 28th Jun
Prepared By: **Engr. M. Daniyal** **Program Coordinator, Dept. of Civil Engineering and Technology**		**Approved By:** **Prof. Dr. Muhammad Mansoor Khan, Dean, Faculty of Engineering**

QURTUBA UNIVERSITY OF SCIENCE AND INFORMATION TECHNOLOGY,
D.I.KHAN, KHYBER PAKHTUNKHWA, PAKISTAN

Grade-Sheet

Intake Batch: Fall-2024

Semester: Fall-2024 (1st Semester)

Course Code	Course Name	No. of Students Securing Grades											
		Total	A	A-	B+	B	B-	C+	C	C-	D+	D	F
QCE-111	Civil Engineering Materials	10	02	-	01	01	02	-	01	-	-	01	02
QCE-111L	Civil Engineering Materials (Lab)	10	03	02	-	01	-	-	-	02	-	-	02
QNS-112	Applied Physics & Electro Mechanical	10	02	-	01	02	03	-	-	-	-	-	02
QNS-112L	Applied Physics & Electro Mechanical (Lab)	10	05	01	-	-	01	01	-	-	-	-	02
QCE-113	Engineering Drawing	10	01	03	02	-	-	01	-	-	-	01	02
QCE-113L	Engineering Drawing (Lab)	10	05	-	01	-	01	-	-	-	01	-	02
QBH-114	Functional English	10	03	01	-	02	-	-	01	01	-	-	03
QNS-115	Quantitative Reasoning – I	10	01	01	-	01	-	02	03	-	-	-	02
QCS-116	Applications of ICT	10	03	04	01	-	-	-	-	-	-	-	02
QCS-116L	Applications of ICT (Lab)	10	06	01	-	-	-	-	01	-	-	-	02

Intake Batch: Fall-2023

Semester: Spring-2024 (2nd Semester)

Course Code	Course Name	No. of Students Securing Grades											
		Total	A	A-	B+	B	B-	C+	C	C-	D+	D	F
QCE-121	Computer Programming	20	04	02	01	01	03	02	02	02	-	-	03
QCE-121L	Computer Programming (Lab)	20	03	02	01	02	04	03	01	-	01	01	02
QIE-122	Architecture & Town Planning	20	04	01	-	02	05	-	04	-	01	01	02
QBH-123	Islamic Studies	20	05	01	02	06	01	-	-	02	01	-	02
QNS-124	Engineering Mechanics	20	02	-	01	03	03	02	02	03	01	-	02
QNS-124L	Engineering Mechanics (Lab)	20	03	02	03	02	06	-	01	-	-	01	02
QNS-125	Applied Differential Equations	20	02	-	-	-	03	01	-	03	04	02	05
QBH-126	Sociology & Development	20	11	03	-	02	01	-	-	01	-	-	02

Intake Batch: Fall-2023

Semester: Fall-2024 (3rd Semester)

Course Code	Course Name	No. of Students Securing Grades											
		Total	A	A-	B+	B	B-	C+	C	C-	D+	D	F
QCE-231	Engineering Surveying – I	21	01	-	-	01	-	02	02	02	03	08	02
QCE-231L	Engineering Surveying – I (Lab)	21	04	01	06	05	02	-	02	-	-	-	01
QCE-232	Civil Engineering Drawing & Graphics	21	02	03	02	01	03	-	-	02	-	-	08
QCE-232L	Civil Engineering Drawing & Graphics (Lab)	21	04	01	05	07	01	-	02	-	-	-	01
QNS-233	Numerical Analysis	21	03	11	04	01	01	-	-	-	-	-	01
QCE-234	Mechanics of Solids-I	20	01	01	02	05	03	02	02	01	-	02	01
QCE-234L	Mechanics of Solids-I (Lab)	20	04	01	03	02	03	-	03	01	01	-	02
QNS-235	Engineering Geology & Seismology	21	01	01	01	01	-	01	02	03	-	10	01
QCE-236	Construction Engineering	21	01	03	09	03	01	01	01	-	-	-	02

Intake Batch: Fall-2022

Semester: Spring-2024 (4th Semester)

Course Code	Course Name	No. of Students Securing Grades											
		Total	A	A-	B+	B	B-	C+	C	C-	D+	D	F
QCE-241	Mechanics of Solid - II	13	01	-	-	-	01	01	01	-	03	03	03
QCE-242	Fluid Mechanics – I	13	02	01	03	02	-	-	01	01	01	01	01
QCE-242L	Fluid Mechanics – I (Lab)	13	03	-	01	01	03	01	01	-	02	-	01
QCE-243	Concrete Technology	13	02	02	02	-	02	01	-	02	01	01	-
QCE-243L	Concrete Technology (Lab)	13	05	04	01	02	-	01	-	-	-	-	-
QCE-244	Soil Mechanics	13	02	-	01	01	01	02	02	-	01	02	01
QCE-244L	Soil Mechanics (Lab)	13	04	03	02	01	02	-	01	-	-	-	-
QCE-245	Engineering Surveying – II	13	01	01	01	03	02	02	-	02	-	01	-
QCE-245L	Engineering Surveying – II (Lab)	13	01	04	03	02	02	-	-	01	-	-	-
QCE-246	Structural Analysis - I	13	01	01	01	-	05	01	-	01	02	-	01

Intake Batch: Fall-2022

Semester: Fall-2024 (5th Semester)

Course Code	Course Name	No. of Students Securing Grades											
		Total	A	A-	B+	B	B-	C+	C	C-	D+	D	F
QNS-351	Probability & Statistics	12	02	01	02	01	01	01	02	-	01	01	-
QNS-351	Probability & Statistics (Lab)	12	02	-	04	02	02	01	-	-	-	01	-
QCE-352	Fluid Mechanics-II	12	01	01	02	01	02	02	-	02	-	-	01
QCE-352L	Fluid Mechanics-II (Lab)	12	04	-	-	03	03	-	02	-	-	-	-
QMS-353	Hazards & Disaster Management	12	05	01	-	01	04	-	-	-	01	-	-
QCE-354	Structural Analysis-II	12	01	-	-	-	-	-	-	-	01	09	01
QBH-355	Business Communication	12	05	01	-	-	01	01	-	-	-	-	04
QCE-356	Geotechnical & Foundation Engineering	12	01	-	02	01	02	-	02	02	01	01	-
QCE-356	Geotechnical & Foundation Engineering(Lab)	12	01	03	04	03	-	-	01	-	-	-	-

Intake Batch: Fall-2021

Semester: Spring-2024 (6th Semester)

Course Code	Course Name	No. of Students Securing Grades											
		Total	A	A-	B+	B	B-	C+	C	C-	D+	D	F
QMS-361	Engineering Economics & Construction Management	17	01	-	-	-	-	01	-	02	03	05	05
QMS-361L	Engineering Economics & Construction Management (Lab)	17	05	04	02	05	-	-	-	01	-	-	-
QCE-362	Hydraulics Engineering	17	02	02	02	02	03	01	03	-	-	02	-
QCE-362L	Hydraulics Engineering (Lab)	17	02	04	01	04	03	03	-	-	-	-	-
QCE-363	Reinforced Concrete Design-I	17	04	03	02	02	01	04	01	-	-	-	-
QCE-364	Transportation Engineering-I	17	03	02	01	03	02	03	01	01	01	-	-
QCE -365	Environmental Engineering-I	17	06	02	01	01	-	01	03	02	01	-	-
QCE -365L	Environmental Engineering-I (Lab)	17	04	01	02	03	-	02	02	02	-	-	01
QCE-366	Quantity & Estimation	17	06	02	02	-	02	02	02	01	-	-	-
QCE-366L	Quantity & Estimation (Lab)	17	04	03	07	01	01	-	-	-	-	-	01

Intake Batch: Fall-2021

Semester: Fall-2024 (7th Semester)

Course Code	Course Name	No. of Students Securing Grades											
		Total	A	A-	B+	B	B-	C+	C	C-	D+	D	F
QCE -471	Reinforced Concrete Design - II	17	03	-	04	-	01	02	01	-	01	03	02
QCE-471L	Reinforced Concrete Design – II (Lab)	17	01	02	05	01	01	05	02	-	-	-	-
QCE-472	Transportation Engineering-II	17	04	-	03	01	01	05	-	02	-	01	-
QCE-472L	Transportation Engineering-II(Lab)	17	04	02	07	01	02	01	-	-	-	-	-
QCE-473	Environmental Engineering - II	17	07	01	-	03	01	01	01	-	02	01	-
QCE-473L	Environmental Engineering - II (Lab)	17	04	03	04	-	01	-	-	03	01	-	-
QCE-474	Structural Dynamics & Earthquake Engineering	17	04	04	-	01	05	01	02	-	-	-	-
QBH-475	Professional Ethics	17	06	06	01	-	-	-	-	-	-	-	04

4 Annexure-D: Mapping of Courses to PLOs (For Intake Batch 2020 to 2023

Semester	Course Code	Subject	PLO-1	PLO-2	PLO-3	PLO-4	PLO-5	PLO-6	PLO-7	PLO-8	PLO-9	PLO-10	PLO-11	PLO-12
SEMESTER 1	QCE-111	Civil Engineering Materials	C2/C1	C3										
	QCE-111L	Civil Engineering Materials (Lab)	C3			P3						A4		
	QIE-112	Basic Electro-Mechanical Fundamentals	C1/C1	C2										
	QIE-112L	Basic Electro-Mechanical Fundamentals (Lab)	C3				P3					A4		
	QCE-113	Engineering Drawing	C1/C2		C3									
	QCE-113L	Engineering Drawing (Lab)	C2		P4							A2		
	QBH-114	Functional English										C3/C2		
	QNS-115	Applied Calculus	C3/C3	C4										
	QBH-116	Pakistan Studies						C2/C2 /C2						
SEMESTER 2	QCE-121	Computer Programming	C2	C3										
	QCE-121L	Computer Programming (Lab)	C3				P4			A3				
	QIE-122	Architecture & Town Planning	C2	C2				C3	C3					
	QBH-123	Islamic Studies								C2/C2				
	QNS-124	Engineering Mechanics	C2	C3		C3								
	QNS-124L	Engineering Mechanics (Lab)	C1			P4						A4		
	QNS-125	Differential Equations	C3/C3	C1										
	QBH-126	Sociology & Development						C2	C4	C2				

Semester	Course Code	Subject	PLO-1	PLO-2	PLO-3	PLO-4	PLO-5	PLO-6	PLO-7	PLO-8	PLO-9	PLO-10	PLO-11	PLO-12
SEMESTER 3	QCE-231	Engineering Surveying-I	C2	C3										
	QCE-231L	Engineering Surveying- I (Lab)	C3				P3					A4		
	QCE-232	Civil Engineering Drawing & Graphics	C3				C2							
	QCE-232 L	Civil Engineering Drawing & Graphics (Lab)					C2/P3					A2		
	QNS-233	Numerical Analysis	C3/C3											
	QCE-234	Mechanics of Solids-I	C2	C3										
	QCE-234 L	Mechanics of Solids-I (Lab)	C1			P3						A4		
	QNS235	Engineering Geology & Seismology	C2/C3			C3								
	QCE-236	Construction Engineering	C2/C2											
SEMESTER 4	QCE-241	Mechanics of Solids-II	C2	C3		C4								
	QCE-242	Fluid Mechanics – I	C2	C3/C4										
	QCE-242L	Fluid Mechanics – I (Lab)	C3			P4						A4		
	QCE-243	Concrete Technology	C2/C3	C4										
	QCE-243	Concrete Technology (Lab)	C3			P3						A4		
	QCE-244	Soil Mechanics	C2	C3/C4										
	QCE-244L	Soil Mechanics (Lab)	C3			P3						A4		
	QCE-245	Engineering Surveying – II		C3/C4			C3							
	QCE-245L	Engineering Surveying – II (Lab)	C3				P3					A4		
	QCE-246	Structural Analysis – I	C2	C3		C4								

Semester	Course Code	Subject	PLO-1	PLO-2	PLO-3	PLO-4	PLO-5	PLO-6	PLO-7	PLO-8	PLO-9	PLO-10	PLO-11	PLO-12
SEMESTER 5	QNS-351	Probability & Statistics	C1	C2	C3									
	QNS-351L	Probability & Statistics (Lab)	C1				P4					A4		
	QCE-352	Fluid Mechanics-II	C2	C4		C3								
	QCE-352L	Fluid Mechanics (Lab)	C3			P3						A4		
	QMS-353	Hazards & Disaster Management							C1			C3	C2	
	QCE-354	Structural Analysis - II	C2	C3		C4								
	QBH-355	Business Communication										A3/A2	A2	A3
	QCE-356	Geotechnical & Foundation Engineering	C2	C4/C2										
	QCE-356L	Geotechnical & Foundation Engineering (Lab)	C2			P3						A4		
SEMESTER 6	QMS-361	Engineering Economics & Construction Management	C2								C2		C3	
	QCE-361L	Engineering Economics & Construction Management (Lab)	C3				P4					A4		
	QCE-362	Hydraulics Engineering		C4/C2	C5									
	QCE-362L	Hydraulics Engineering (Lab)	C3			P3						A4		
	QCE-363	Reinforced Concrete Design – I	C2	C4	C5									
	QCE-364	Transportation Engineering – I	C2/C2											
	QCE-365	Environmental Engineering – I		C3		C3			C1					
	QCE-365L	Environmental Engineering – I (Lab)	C3						P4			A4		
	QCE-366	Quantity & Estimation	C1	C3				C2						
	QCE-366L	Quantity & Estimation (Lab)		C3			P3					A4		

Semester	Course Code	Subject	PLO-1	PLO-2	PLO-3	PLO-4	PLO-5	PLO-6	PLO-7	PLO-8	PLO-9	PLO-10	PLO-11	PLO-12
SEMESTER 7	QCE-471	Reinforced Concrete Design – II	C2		C2/C5									
	QCE-471L	Reinforced Concrete Design – II (Lab)	C3				P7					A4		
	QCE-472	Transportation Engineering – II	C2	C3	C5									
	QCE-472L	Transportation Engineering – II (Lab)	C3	P4								A4		
	QCE-473	Environmental Engineering – II	C1	C3					C2					
	QCE-473 L	Environmental Engineering – II (Lab)	C3						P4			A4		
	QCE-474	Structural Dynamics & Earthquake Engineering		C3/C4	C4									
	QBH-475	Professional Ethics								C1				C3
	QCE-476	Civil Engineering Project			C3		P6				C3	A4	C5	C3
SEMESTER 8	QCE-481	Geo Informatics	C2				C3							
	QCE-481L	Geo Informatics (Lab)					C3/P3					A4		
	QNS-482	Steel Structures	C2	C4	C5									
	QCE-483	Irrigation Engineering	C1		C5	C2								
	QCE-484	Engineering Hydrology	C3	C2										
	QCE-484L	Engineering Hydrology	C3			P3						A4		
	QMS-485	Entrepreneurship					C3	C2			C3	C3		
	QCE-486	Civil Engineering Project			C3		P6				C3	A4	C5	C3
Coverage			**64**	**37**	**13**	**18**	**18**	**7**	7	**5**	**4**	**27**	**6**	**4**

5 Annexure-D1: Mapping of Courses to PLOs (For Intake Batch 2024 to Onwards)

Semester	Course Code	Subject	PLO-1	PLO-2	PLO-3	PLO-4	PLO-5	PLO-6	PLO-7	PLO-8	PLO-9	PLO-10	PLO-11	PLO-12
SEMESTER 1	QCE-111	Civil Engineering Materials	C2/C3	C4										
	QCE-111 L	Civil Engineering Materials (Lab)	C2				P3					A2		
	QNS-112	Applied Physics & Electro-Mechanical Fundamentals	C2/C3											
	QNS-112 L	Applied Physics & Electro-Mechanical Fundamentals (Lab)	C3				P3				A2			
	QCE-113	Engineering Drawing	C2									C3		
	QCE-113 L	Engineering Drawing (Lab)	C3				P4				A2			
	QBH-114	Functional English						A3				C3		
	QNS-115	Quantitative Reasoning-I	C2	C4										
	QCS-116	Applications of ICT	C2				C3			C4				
	QCS-116 L	Applications of ICT (Lab)	C3				P3				A2			
SEMESTER 2	QCE-121	Engineering Surveying	C2	C3										
	QCE-121 L	Engineering Surveying (Lab)	C3				P3					A4		
	QNS-122	Geology for Engineers	C2						C2					
	QBH-123	Islamic Studies/ Ethics	C2					C1		C3				
	QCE-124	Engineering Mechanics	C3	C3										
	QCE-124 L	Engineering Mechanics (Lab)	C2				P3				A4			
	QBH-125	Ideology and Constitution of Pakistan	C3					A3		C2				
	QCS-126	Computer Programming	C2	C3										
	QCS-126 L	Computer Programming (Lab)	C3				P3		A3					
	QNS-127	Quantitative Reasoning-II	C2	C3										

Semester	Course Code	Subject	PLO-1	PLO-2	PLO-3	PLO-4	PLO-5	PLO-6	PLO-7	PLO-8	PLO-9	PLO-10	PLO-11	PLO-12
SEMESTER 3	QCE-231	Advance Engineering Surveying	C2	C3										C3
	QCE-231 L	Advance Engineering Surveying (Lab)	C3				P3				A3			
	QCE-232	Civil Engineering Drawing & Graphics	C2				C5	C3						
	QCE-232 L	Civil Engineering Drawing & Graphics (Lab)	C2				P3				A2			
	QCE-233	Fluid Mechanics	C2	C3/C4										
	QCE-233 L	Fluid Mechanics (Lab)	C2				P4				A4			
	QCE-234	Mechanics of Solids-I	C2	C3										
	QCE-234 L	Mechanics of Solids-I (Lab)	C1				P3				A4			
	QCE-235	Structural Analysis - I	C2	C3										
	QNS-236	Advanced Calculus		C4	C3									
SEMESTER 4	QCE-241	Mechanics of Solids-II	C2/C3	C4										
	QCE-241 L	Mechanics of Solids-II (Lab)			C3		P3				A3			
	QCE-242	Construction Engineering	C3							C4				
	QNS-243	Applied Mathematics	C2	C3										
	QCE-244	Soil Mechanics	C2	C4	C3									
	QCE-244 L	Soil Mechanics (Lab)	C3				P3					A4		
	QCE-245	Quantity & Cost Estimation	C2	C3									C3	
	QCE-245 L	Quantity & Cost Estimation (L)	C2				P3				A4			
	QBH-246	Communication & Presentation Skills								A3		C3		
	QBH-247	Sociology for Engineers						C2		A2				

Semester	Course Code	Subject	PLO-1	PLO-2	PLO-3	PLO-4	PLO-5	PLO-6	PLO-7	PLO-8	PLO-9	PLO-10	PLO-11	PLO-12
SEMESTER 5	QNS-351	Numerical Analysis		C3/C4										
	QCE-352	Advanced Fluid Mechanics		C4	C4	C4								
	QCE-352 L	Advanced Fluid Mechanics (Lab)	C3				P4					A4		
	QBH-353	Expository Writing	C2							A3		C3		
	QCE-354	Geotechnical Engineering	C2	C4	C5									
	QCE-354 L	Geotechnical Engineering (Lab)	C2				P3				A4			
	QCE-355	Reinforced Concrete Design-I	C3	C4	C5									
	QCE-355 L	Reinforced Concrete Design-I (Lab)					P3				A2	C3		
SEMESTER 6	QCE-361	Reinforced Concrete Design-II	C3		C5									
	QCE-361 L	Reinforced Concrete Design-II (Lab)			P4		C3					A4		
	QCE-362	Environmental Engineering	C2	C3					C4					
	QCE-362 L	Environmental Engineering (Lab)	C3			P4						A4		
	QCE-363	Structural Analysis - II	C3	C4										
	QCE-364	Engineering Hydrology	C2	C4										
	QCE-364 L	Engineering Hydrology (Lab)	C2			P1						A4		
	QCE-365	Highway & Traffic Engineering	C2		C3			C3						
	QBH-366	Civics & Community Engagement	C3					C2			C2			

Semester	Course Code	Subject	PLO-1	PLO-2	PLO-3	PLO-4	PLO-5	PLO-6	PLO-7	PLO-8	PLO-9	PLO-10	PLO-11	PLO-12
SEMESTER 7	QCE-471	Foundation Engineering	C2		C5	C5								
	QCE-472	Pavement Analysis & Design	C2		C3									
	QCE-472 L	Pavement Analysis & Design (Lab)	C3				P3					A3		
	QCE-473	Modelling & Simulation	C1				C3							
	QCE-473 L	Modelling & Simulation (Lab)	C3				P3					A4		
	QCE-474	Hydraulics Engineering	C2	C4										
	QCE-474 L	Hydraulics Engineering (Lab)				C4	P1					A4		
	QMS-475	Project Management						C2				A2	C3	
	QCE-476	FYDP Part-1			C3		P5				C3	A4	C5	C3
SEMESTER 8	QCE-481	Irrigation Engineering	C2	C4										
	QCE-481	Irrigation Engineering (Lab)	C2			P4					A4			
	QNS-482	Geo Informatics	C2	C3			C3							
	QNS-482	Geo Informatics (Lab)	C2				P3				A4			
	QCE-483	Steel Structures	C2	C4	C5									
	QIE-484	Architecture & Town Planning	C3					C3	C4					
	QIE-485	Occupational Health & Safety						C1	C3					
	QMS-486	Entrepreneurship	C1					C2		C2			C5	
	QCE-487	FYDP Part-2			C3		P5				C3	A4	C5	C3
Coverage			**61**	**27**	**14**	**6**	**28**	**11**	**5**	**8**	**17**	**18**	**5**	**3**

6 Annexure-E National Qualification Framework – Curriculum Design (For Intake Batch 2020-2023)

Domain	Knowledge Area	PEC/HEC Recommended		Institute's Program Breakup	
		Total Credits	Overall %	Total Credits	Overall %
Non-Engineering	Humanities	As per discipline specific NCRC guidelines	25% – 35 %	9	30%
	Management Sciences			10	
	Natural Sciences			22	
Engineering	Computing	As per discipline specific NCRC guidelines	65% – 75%	**7**	70%
	Engineering Foundation			29	
	Major Based Core (Breadth)			23	
	Major Based Core (Depth)			26	
	Inter-Disciplinary Engineering Breadth (Electives)			5	
	Senior Design Project	6		6	
	Industrial Training (Summer)	0		0	
Total		130 – 138	100%	137	100%

1 Annexure-E1 National Qualification Framework – Curriculum Design (For Intake Batch 2024 and Onwards)

Domain	Knowledge Area	PEC/HEC Recommended		Institute's Program Breakup	
		Total Credits	Overall %	Total Credits	Overall %
Non-Engineering	Humanities	As per discipline specific NCRC guidelines	25% – 35 %	16	30%
	Management Sciences			04	
	Computer Sciences			03	
	Natural Sciences			18	
Engineering	Advanced Computer and Information Sciences	As per discipline specific NCRC guidelines	65% – 75%	06	70%
	Engineering Foundation			24	
	Major Based Core (Breadth)			22	
	Major Based Core (Depth)			22	
	Multi-Disciplinary Engineering / Specialty Courses			07	
	Flexible Engineering / Non-Engineering Courses			08	
	Senior Design Project	6		6	
	Industrial Training (Summer)	0		0	
Total		130 – 138	100%	136	100%

2 Annexure-F: Course Offerings & Student Academic Load for Each Semester (For Batch 2020-2023)

Semester-1

Course Code	Subject	Credit Hours	Pre-requisite	Engineering (E)/ Non-Engineering (NE)	Knowledge Area
QCE-111	Civil Engineering Materials	2+1=03	None	E	Engineering Foundation
QIE-112	Basic Electro Mechanical Engineering	2+1=03	None	E	Inter-Disciplinary Engineering
QCE-113	Engineering Drawing	2+1=03	None	E	Engineering Foundation
QBH-114	Functional English	02	None	NE	Humanities
QNS-115	Applied Calculus	03	None	NE	Natural Sciences
QBH-116	Pakistan Studies	01	None	NE	Humanities
	Total Credit Hours	**15**			

Semester-2

Course Code	Subject	Credit Hours	Pre-requisite	Engineering (E)/ Non-Engineering (NE)	Knowledge Area
QCE-121	Computer Programming	02	None	E	Computing
QIE-122	Architecture & Town Planning	02	None	NE	IE
QBH-123	Islamic Studies	02	None	NE	Humanities
QNS-124	Engineering Mechanics	3+1=04	None	NE	Natural Sciences
QNS-125	Applied Differential Equations	03	None	NE	Natural Sciences
QBH-126	Sociology & Development	02	None	NE	Humanities
	Total Credit Hours	**15**			

Semester-3

Course Code	Subject	Credit Hours	Pre-requisite	Engineering (E)/ Non-Engineering (NE)	Knowledge Area
QCE-231	Engineering Surveying - I	2+1=3	None	E	Engineering Foundation
QCE-232	Civil Engineering Drawing & Graphics	1+1=2	QCE-113	E	Computing
QNS-233	Numerical Analysis	03	None	NE	Natural Sciences
QCE-234	Mechanics of Solids-I	2+1=3	QNS-124	E	Engineering Foundation
QNS-235	Engineering Geology & Seismology	03	None	NE	Natural Sciences
QCE-236	Construction Engineering	03	None	E	Engineering Foundation
	Total Credit Hours	**17**			

Semester-4

Course Code	Subject	Credit Hours	Pre-requisite	Engineering (E)/ Non-Engineering (NE)	Knowledge Area
QCE-241	Mechanics of Solids-II	3	QCE-234	E	Depth
QCE-242	Fluid Mechanics - I	3+1=04	-------	E	Engineering Foundation
QCE-243	Concrete Technology	1+1=02	-------	E	Breadth
QCE-244	Soil Mechanics	3+1=04	-------	E	Engineering Foundation
QCE-245	Engineering Surveying - II	2+1=03	QCE-231	E	Breadth
QCE-246	Structual Analysis - I	03	QNS-124	E	Engineering Foundation
	Total Credit Hours	**19**			

Semester-5

Course Code	Subject	Credit Hours	Pre-requisite	Engineering (E)/ Non-Engineering (NE)	Knowledge Area
QNS-351	Probability & Statistics	3+1=04	-------	NE	Natural Sciences
QCE-352	Fluid Mechanics - II	3+1=04	QCE-242	E	Breadth
QMS-353	Hazards and Disaster Management	02	-------	NE	Management Sciences
QCE-354	Structural Analysis – II	03	QCE-246	E	Breadth
QBH-355	Business Communication	02	QBH-114	NE	Humanities
QCE-356	Geotechnical & Foundation Engineering	3+1=04	QCE-244	E	Depth
	Total Credit Hours	**19**			

Semester-6

Course Code	Subject	Credit Hours	Pre-requisite	Engineering (E)/ Non-Engineering (NE)	Knowledge Area
QMS-361	Engineering Economics & Construction Management	3+1=04	-------	NE	Management Sciences
QCE-362	Hydraulics Engineering	2+1=03	QCE-352	E	Depth
QCE-363	Reinforced Concrete Design-I	03	-------	E	Breadth
QCE-364	Transportation Engineering-I	03	-------	E	Breadth
QCE-365	Environmental Engineering- I	2+1=03	-------	E	Breadth
QCE-366	Quantity & Estimation	2+1=03	-------	E	Computing
	Total Credit Hours	**19**			

Semester-7

Course Code	Subject	Credit Hours	Pre-requisite	Engineering (E)/ Non-Engineering (NE)	Knowledge Area
QCE-471	Reinforced Concrete Design-II	3+1=04	QCE-363	E	Depth
QCE-472	Transportation Engineering-II	3+1=04	QCE-364	E	Depth
QCE-473	Environmental Engineering -II	2+1=03	QCE-365	E	Depth
QCE-474	Structural Dynamics & Earthquake Engineering	02	-------	E	Breadth
QBH-475	Professional Ethics	02	-------	NE	Humanities
QCE-476	Civil Engineering Project	0+3=03	-------	E	Civil Engineering Project
	Total Credit Hours	**18**			

Semester-8

Course Code	Subject	Credit Hours	Pre-requisite	Engineering (E)/ Non-Engineering (NE)	Knowledge Area
QNS-481	Geo Informatics	1+1=02	QCE-245	NE	Natural Science
QCE-482	Steel Structures	03	-------	E	Depth
QCE-483	Irrigation Engineering	02	QCE-352	E	Depth
QCE-484	Engineering Hydrology	2+1=03		E	Engineering Foundation
QMS-485	Entrepreneurship	02	-------	NE	Management Sciences
QCE-476	Civil Engineering Project	0+3=03	-------	E	Civil Engineering Project
	Total Credit Hours	**15**			

Total Credit Hours = 137

1 Annexure-F1: Course Offerings & Student Academic Load for Each Semester (For Batch 2024 and Onwards)

Semester I				
Code	Course	Contact hours		Credit hours
		Theory	Pract	Total
QCE-111	Civil Engineering Materials	2	3	3
QNS-112	Applied Physics & Electro-Mechanical Fundamentals	2	3	3
QCE-113	Engineering Drawing	1	6	3
QBH-114	Functional English	3	0	3
QNS-115	Quantitative Reasoning-I	3	0	3
QCS-116	Application of ICT	2	3	3
Total Contact Hours		**13**	**15**	**-**
Total Credit Hours		**13**	**5**	**18**

Semester 2				
Code	Course	Contact hours		Credit hours
		Theory	Pract	Total
QCE-121	Engineering Surveying	2	3	3
QNS-122	Geology for Engineers	2	0	2
QBH-123	Islamic Studies/ Ethics	2	0	2
QCE-124	Engineering Mechanics	2	3	3
QBH-125	Ideology and Constitution of Pakistan	2	0	2
QCS-126	Computer Programming	2	3	3
QNS-127	Quantitative Reasoning-II	3	0	3
Total Contact Hours		**15**	**9**	**-**
Total Credit Hours		**15**	**3**	**18**

Semester 3				
Code	Course	Contact hours		Credit hours
		Theory	Pract	Total
QCE-231	Advance Engineering Surveying	2	3	3
QCE-232	Civil Engineering Drawing & Graphics	1	6	3
QCE-233	Fluid Mechanics	2	3	3
QCE-234	Mechanics of Solids-I	2	3	3
QCE-235	Structural Analysis - I	3	0	3
QNS-236	Advanced Calculus	3	0	3
Total Contact Hours		**13**	**15**	**-**
Total Credit Hours		**13**	**5**	**18**

Semester 4				
Code	Course	Contact hours		Credit hours
		Theory	Pract	Total
QCE-241	Mechanics of Solids-II	2	3	3
QCE-242	Construction Engineering	2	0	2
QNS-243	Applied Mathematics	3	0	3
QCE-244	Soil Mechanics	2	3	3
QCE-245	Quantity & Cost Estimation	2	3	3
QBH-246	Communication & Presentation Skills	2	0	2
QBH-247	Sociology for Engineers	2	0	2
Total Contact Hours		**15**	**9**	**-**
Total Credit Hours		**15**	**3**	**18**

Semester 5				
Code	Course	Contact hours		Credit hours
		Theory	Pract	Total
QNS-351	Numerical Analysis	3	0	3
QCE-352	Advanced Fluid Mechanics	2	3	3
QBH-353	Expository Writing	3	0	3
QCE-354	Geotechnical Engineering	3	3	4
QCE-355	Reinforced Concrete Design - I	3	3	4
Total Contact Hours		**14**	**9**	**-**
Total Credit Hours		**14**	**3**	**17**

Semester 6				
Code	Course	Contact hours		Credit hours
		Theory	Total	Total
QCE-361	Reinforced Concrete Design-II	3	3	4
QCE-362	Environmental Engineering	2	3	3
QCE-363	Structural Analysis - II	3	0	3
QCE-364	Engineering Hydrology	2	3	3
QCE-365	Highway & Traffic Engineering	2	0	2
QBH-366	Civics & Community Engagement	2	0	2
Total Contact Hours		**14**	**9**	**-**
Total Credit Hours		**14**	**3**	**17**

Semester 7				
Code	Course	Contact hours		Credit hours
		Theory	Pract	Total
QCE-471	Foundation Engineering	2	0	2
QCE-472	Pavement Analysis & Design	2	3	3
QCE-473	Modelling & Simulation	1	3	2
QCE-474	Hydraulics Engineering	2	3	3
QMS-475	Project Management	2	0	2
QCE-476	FYDP Part-1	0	9	3
Total Contact Hours		**9**	**18**	**-**
Total Credit Hours		**9**	**6**	**15**
Semester 8				
Code	Course	Contact hours		Credit hours
		Theory	Pract	Total
QCE-481	Irrigation Engineering	2	3	3
QNS-482	Geo Informatics	1	3	2
QCE-483	Steel Structures	2	0	2
QIE-484	Architecture & Town Planning	2	0	2
QIE-485	Occupational Health & Safety	1	0	1
QMS-486	Entrepreneurship	2	0	2
QCE-487	FYDP Part-2	0	9	3
Total Contact Hours		**10**	**15**	**-**
Total Credit Hours		**10**	**5**	**15**
Total Credit Hours		**136**		

2 Annexure-G: Laboratories & Lab Work

Number of Total Engineering + Computing Courses: 29

Number of Lab Courses: 24

Number of Laboratories: 12

Sr. No	Name of Laboratory (Staff Names-Qualifications)	Lab(s) of Course(s) Conducted in the Lab	Type(s) of Workstations (No. of each type)		Nature of Experiments	No. of Students per Workstation
1	**Concrete Lab** 1. Engr. M. Asad Khan – MS Structural Engineering – (Lecturer) 2.Engr. Faheem Ullah B.Sc. Civil Engg.- (Lab Engineer) 3. M. Ali Mehar - DAE Civil - Lab. Tech 4.Sahibzada Arsalan – Matric - Lab. Attendant	• Engineering Materials • Concrete Technology	Digital Oven	01		
			Curing Tank & Temperature Control Unit	01	Hands-on	
			Compression Testing Machine	01	Hands-on	
			Concrete Hand Mixer Machine	01	Hands-on	
			Vicat Apparatus	05	Hands-on	
			Cone & Temper	05	Hands-on	
			Lechatlier Apparatus	05	Hands-on	
			Wire Mesh Bucket & Spring Balance	02	Hands-on	
			Digital Oven	02	Hands-on	
			Trowel	02	Hands-on	
			Steel Pan	16	Hands-on	
			6” X 12” Cylindrical Mould	06	Hands-on	
			4” X 8” Cylindrical	14	Hands-on	

			Mould			
			6” X 6” Cubical Mould	04	Hands-on	
			4” X 4” Cubical Mould	10	Hands-on	
			2” X 2” Mortar Mould	05	Hands-on	
			Compaction Factor Apparatus	01	Hands-on	
			Vibrating Table	05	Hands-on	
			Slump Cone	02	Hands-on	
			Capping Apparatus & Mould	1	Hands-on	
			Temping Rod	05	Hands-on	
			Chisel	01	Hands-on	
			Rebounding Hammer	01	Hands-on	
			50 ml Beakers	10	Hands-on	
			500 ml. Beakers	01	Hands-on	
			Lichatelier Flask 500 ml	02	Hands-on	
			Lichatelier Flask 250 ml	01	Hands-on	
			Rubber Hammer	06	Hands-on	
			Iron Hammer	01	Hands-on	
			Digital Balance (1kg)	01	Hands-on	
			Digital Balance (5kg)	01	Hands-on	
			Digital Balance (30kg)	01	Hands-on	
			Safety Gloves	04	Hands-on	

List of Experiments; QCE-111; Civil Engineering Materials (Performed in Concrete lab)

1. Determination of Fineness of Hydraulic cement.
2. Normal Consistency of Hydraulic Cement.
3. Initial & Final setting time of Cement.
4. To determine the compressive strength of mortar with various mix ratios.
5. Sieve Analysis of Coarse Aggregate.
6. To determine different densities of coarse aggregate.
7. Sieve Analysis of Fine Aggregate.
8. To determine different densities of fine aggregate.
9. Water Absorption Test of Bricks.
10. Efflorescence test of Bricks.
11. Hardness test of Bricks.
12. Soundness test of Bricks.
13. Structure test of Bricks.
14. Compressive test of Bricks.
15. Comparative analysis of water absorption capacity of different class of bricks.
16. Comparative analysis of compression capacity of different class of bricks using.

List of Experiments; QCE- 243; Concrete Technology

- Introduction to concrete technology, safety briefing & apparatus set up
- Fineness of cement
- Consistency of cement
- Soundness of cement
- Inorganic impurities in sand
- Slump Test of Concrete.
- Compaction factor test of Concrete.
- To determine compressive strength of mortar cubes.
- To determine compressive strength of concrete cylinders.

- To determine compressive strength of concrete cubes.
- To determine the Tensile strength of Mortar by Briquette Apparatus.
- Schmidt rebound hammer test

Suggested OEL:

- Comparative analysis of compressive strength of concrete by using different concrete mix ratios
- Comparative analysis of compressive strength of concrete by using different admixture in concrete mix ratios

Sr. No	Name of Laboratory (Staff Names-Qualifications)	Lab(s) of Course(s) Conducted in the Lab	Type(s) of Workstations (No. of each type)		Nature of Experiments	No. of Students per Workstation
2	**Survey Lab** 1. Engr. M. Naveed Akhtar– MSc Geotechnical Engg. -Lab Incharge (Lecturer) 2. Engr. Abdul Basit - B.Sc. Civil Engg. Lab Engineer 3.Umer Khaliq – DAE Civil- Lab Assistant 4. Sami Ullah – Matric - Lab Attendant	• Engineering Surveying-I • Engineering Surveying-II	Uforks	10	Hands-on	05
			Hammer	10	Hands-on	
			Alidades	10	Hands-on	
			Spirit Level	09	Hands-on	
			Engineering Chain	10	Hands-on	
			Plum bob	11	Hands-on	
			Ring Arrows	39	Hands-on	
			Plane Table	10	Hands-on	
			Steel Tape	10	Hands-on	
			Cloth Tape	10	Hands-on	
			Fiber Tape (Green+Yellow)	07+03	Hands-on	
			Ranging Rod	54	Hands-on	

			Prismatic Compass	05	Hands-on	
			Trough Compass	10	Hands-on	
			Staff Rod	30	Hands-on	
			Plane Table Tripod	10	Hands-on	
			Theodolite Tripod	16	Hands-on	
			Auto Level Tripod	03	Hands-on	
			Compass Tripod	05	Hands-on	
			Total Station	01	Hands-on	
			Auto Level	06	Hands-on	
			Theodolite	08	Hands-on	
			Calculator	02	Hands-on	
			GPS	02	Hands-on	
			Cloth Bags	14	Hands-on	
			Gunter Chain	02 (66')	Hands-on	
			Pegs (wooden + Iron)	45+39=84	Hands-on	
			Invar Tape	02	Hands-on	

List of Experiments; QCE-231: Engineering Surveying-I

1. Measuring of a building, by using Measuring Tape and Pacing.
2. Measurement of distance by ranging and chaining
3. Locating various objects by chain surveying and determine offsets
4. Study of various parts and temporary adjustment of prismatic compass
5. Measurement of bearings of sides of traverse with prismatic compass
6. Measurement of bearings of sides of building by prismatic compass and computation of correct included angles
7. Study and temporary adjustment of Plane table
8. Locating given traverse by Plane Table surveying using Radiation Method (One Full size drawing sheet)
9. Locating given traverse by Plane Table surveying using Intersection Method (One Full size drawing sheet)
10. Locating given traverse by Plane Table surveying using Traverse Method (One Full size drawing sheet)
11. Study of various parts of level.
12. Temporary adjustment of level
13. Determine the height, distance and angle measurement of two points by using level
14. Determination of elevation of various points with level by collimation plane method and rise & fall method.
15. Study of various parts of level &Temporary adjustment of level.

List of Experiments; QCE-245: Engineering Surveying-II

1. To measure the horizontal angle by using theodolite
2. To plot an open traverse (Direct Angles) using theodolite
3. To plot a closed traverse using theodolite
4. Study the different parts and temporary adjustment of theodolite
5. Carrying out of a road alignment project (Determination of NSL of road cross sections)
6. Carrying out of a road alignment project (Plotting of NSL and design levels in field book)
7. Carrying out of a road alignment project (Layout of design levels of road cross sections)
8. To set out a simple curve by deflection angle using Theodolite
9. To find the Co-ordinates and Elevation of a Point with GPS

10. Field work with Total Station

Sr. No	Name of Laboratory (Staff Names- Qualifications)	Lab(s) of Course(s) Conducted in the Lab	Type(s) of Workstations (No. of each type)		Nature of Experiments	No. of Students per Workstation
3	**Transportation Lab** 1. Dr. Kamran Aziz– PhD Transportation Engg. -Lab Incharge 2. Engr. Faheem Ullah - B.Sc. Civil Engg. Lab Engineer 3. Umar Khaliq B-Tech (Pass) Civil - Lab Assistant 4. Sami Ullah – Matric - Lab Attendant	Transportation Engineering-II	Bitumen penetrometer	02	Hands-on	05
			C.B.R Machine	01	Hands-on	
			Unconfined Compression apparatus	01	Hands-on	
			Core cutter	01	Hands-on	
			Pensky-Matens closed cup tester	01	Hands-on	
			C.B.R Molds	05	Hands-on	
			Analogue penetrometer	01	Hands-on	
			Consolidation test apparatus	01	Hands-on	
			China dishes	02	Hands-on	
			Casagranda apparatus	01	Hands-on	
			Digital Balance(30kg)	01	Hands-on	
			Digital Balance(5kg)	01	Hands-on	
			Flasks	04	Hands-on	
			Glass beakers	12	Hands-on	
			Los Angles Test Machine	01	Hands-on	
			Liquid limit test apparatus	02	Hands-on	
			Plastic limit apparatus	01	Hands-on	
			Softening point test apparatus	02	Hands-on	
			Sieve set	01	Hands-on	

			Straight edge	01	Hands-on	
			Spatula	01	Hands-on	
			Steel scale	01	Hands-on	
			Sample container	01	Hands-on	
			Triple Beam balance	01	Hands-on	
			Trowel	01	Hands-on	
			Plastic bottles	02	Hands-on	
			Rubber gloves pair	04	Hands-on	
			Flash and fir point apparatus	01	Hands-on	
			Ductility apparatus	01	Hands-on	
			Standard proctor hammer	01	Hands-on	
			Standard moulds	01	Hands-on	
			Modified proctor hammer	01	Hands-on	
			Modified mold	02	Hands-on	
			Soil sample can	06	Hands-on	
			Gas cylinders	02	Hands-on	
			Magnetic hot plate	01	Hands-on	
			Speedy moisture tester	01	Hands-on	
			Showels	02	Hands-on	
			Bitumen pan	01	Hands-on	

List of Experiments; 472; Transportation Engineering-II

- Aggregate Gradation Test
- Los Angles Abrasion Test
- Specific gravity & Absorption Test of Coarse Aggregates
- Shape Test of Aggregates

- California Bearing Ratio Test
- Penetration test of bitumen
- Ductility test of bitumen
- Softening point test of bitumen
- Flash and fire point test of bitumen.

Suggested OEL:

- Calculation of Abrasion Value of Coarse Aggregate sample obtained from different Sources
- Calculation of different parameters of Bitumen obtained from different sources.

Sr. No	Name of Laboratory (Staff Names-Qualifications)	Lab(s) of Course(s) Conducted in the Lab	Type(s) of Workstations (No. of each type)		Nature of Experiments	No. of Students per Workstation
4	**Environmental Engineering Lab** 1. Dr. M. Jehanzaib – Phd Water Resources – Lab Incharge 2. Engr. M. Airaf Hussain B.Sc Civil Engg. - Lab Engineer 3. Mr. Hafiz M. Muzzamil- Btech (Pass) Civil - Lab Assistant 4. Sami Ullah- Matric - Lab Attendant	• Environmental Engineering- I • Environmental Engineering-II	Titration Appratus with all glassware and accessories	(08)	Hands-on	05
			BOD incubator with all accessories	(01)	Hands-on	
			COD Reactor with all accessories	(01)	Hands-on	
			Filtration assembly with vacuum pump	(01)	Hands-on	
			Water Bath	(01)	Hands-on	
			Magnetic Hot Plate	(02)	Hands-on	
			Muffule Furnace	(01)	Hands-on	
			Oven	(01)	Hands-on	
			Distillation unit with all accessories	(01)	Hands-on	
			Benchtop pH meter	(01)	Hands-on	
			Collony Counter	(01)	Hands-on	
			Analytical Balance 0.001	(01)	Hands-on	
			Analytical Balance 0.01	(02)	Hands-on	
			Binocular Microscope	(01)	Hands-on	
			Orbital shaker	(01)	Hands-on	
			Turbidity Meter with all accessories	(01)	Hands-on	
			Conductivity Meter with all accessories	(01)	Hands-on	

			Pocket pH meter	(02)	Hands-on	
			TDS meter (pocket size)	(01)	Hands-on	
			UV Spectrophotometer	(01)	Hands-on	
			Multiparameter spectrophotometer	(01)	Hands-on	

List of Experiments; QCE-365: Environmental Engineering- I

Water Parameters

Physical Parameters

- Determination of color of water by multi parameter photometer
- Determination of suspended solids
- Determination of Dissolved Solids
- Determination of total solids
- Determination of Turbidity of water by turbidity meter

Chemical Parameter:

- Determination of pH Value by titration & pH Meter
- Determination of total hardness
- Determination of Arsenic
- Determination of Fluoride
- Determination of Nitrate
- Determination of Chloride
- Determination of Sulphate
- Determination of total alkalinity

List of Experiments; QCE-473: Environmental Engineering- II

- Determination of colour
- Determination of total solids (TS)
- Determination of total suspended solids (TSS)
- Determination of volatile solids (VSS)
- Settleability Test
- Turbidity of Wastewater
- Dissolved Oxygen
- Biochemical Oxygen Demand
- Chemical Oxygen Demand
- Determination of Total Alkalinity
- Determination of Chlorides

Sr. No	Name of Laboratory (Staff Names-Qualifications)	Lab(s) of Course(s) Conducted in the Lab	Type(s) of Workstations (No. of each type)		Nature of Experiments	No. of Students per Workstation
5	**Fluid Mechanics Lab** 1. Engr. Ahsan Ullah – MSc – Water Resource Lab Incharge 2. Engr. M. Airaf Hussain B.Sc Civil Engg. - Lab Engineer 3. Mr. Hafiz M. Muzzamil- Btech (Pass) Civil - Lab Assistant 4. Sami Ullah- Matric - Lab Attendant	• Fluid Mechanics-I • Fluid Mechanics-II	Flow Visualization Tank	01	Hands-on	05
			Hydrostatic Pressure Apparatus	01	Hands-on	
			Meta Centric Height Apparatus	01	Hands-on	
			Bernoulli's Theorem Validity Apparatus	01	Hands-on	
			Orifice Jet & Flow Apparatus	01	Hands-on	
			Osborne Reynolds Apparatus	01	Hands-on	
			Flow Meter Apparatus	01	Hands-on	
			Energy Losses In Bends & Fitting Apparatus	01	Hands-on	
			Fluid Friction Apparatus	01	Hands-on	
			Free & Forced Vortex	01	Hands-on	
			Hydraulic Bench	01	Hands-on	
			Flow Over Wear	04	Hands-on	
			Pelton Wheel	01	Hands-on	

			Apparatus			
			Dead Weight Tester	01	Hands-on	
			Impact of Jet Apparatus	01	Hands-on	
			Pipe Friction Apparatus	01	Hands-on	
			Orifice Discharge Apparatus	01	Hands-on	
			Centrifugal Pump	01	Hands-on	
			Reciprocating Positive Displacement Pump	01	Hands-on	
			Stop Watch	2	Hands-on	
			Plastic Pipe Nozzle (1 Inch)	2	Hands-on	
			Plastic Pipe Nozzle (0.5 Inch)	2	Hands-on	
			Plastic Pipe (1 Inch)	15 ft	Hands-on	
			Plastic Pipe (0.75 Inch)	15 ft	Hands-on	
			Jubilee Clip (1 Inch)	12	Hands-on	
			Jubilee Clip (0.75 Inch)	12	Hands-on	
			GI Gate Valve (0.5	2	Hands-on	

			Inch)			
			GI Lever Valve (0.5 Inch)	2	Hands-on	
			GI Back Valve (0.5 Inch)	2	Hands-on	
			GI 45^0 Elbow (0.5 Inch)	4	Hands-on	
			GI 90^0 Elbow (0.5 Inch)	4	Hands-on	
			GI 90^0 Short Bend (0.5 Inch)	1	Hands-on	
			12 Inch GI Pipe Segment (0.5 Inch)	4	Hands-on	
			8 Inch GI Pipe Segment (0.5 Inch)	8	Hands-on	
			12 Inch GI Pipe Segment (3/4 Inch)	8	Hands-on	
			6 Inch GI Pipe Segment (3/4 Inch)	8	Hands-on	
			GI Tee (1/2 × 3/4)	4	Hands-on	
			GI Elbow (1/2 × 3/4)	4	Hands-on	

			GI Union (3/4 Inch)	2	Hands-on	
			GI Elbow (3/4 Inch)	4	Hands-on	
			Wall Clip (3/4 Inch)	8	Hands-on	
			GI Water Tap (0.5 Inch)	4	Hands-on	
			GI Union (0.5 Inch)	1	Hands-on	
			GI Berry Nipples (0.5 Inch)	8	Hands-on	
			GI Tee (0.5 Inch)	4	Hands-on	
			GI Socket (0.5 Inch)	4	Hands-on	
			GI Socket (1/2 × 1 ¼)	1	Hands-on	
			Tape/Wire	8	Hands-on	

List of Experiments; QCE-242; Fluid Mechanics-I

- To determine physical properties of a fluid.
- Demonstration of Various Parts of Hydraulics Bench
- Calibration of Pressure Gauge (Bourden gauge) Using Dead Weight Pressure Gauge Calibrator
- Determination of Meta-Centric Height of Floating Body
- Visual demonstration and study of laminar and turbulent flow
- Calibration of orifices by various methods
- Verification of Bernoulli's Theorem
- Calibration of the Venturimeter

- Calibration of Rectangular Notch
- Calibration of Triangular Notch
- Osborne Reynolds Number Experiment
- To determine the emptying time of tanks

List of Experiments; QCE-352; Fluid Mechanics-II

- Determine of pressure on various types of valves.
- Determine of pressure on various pipe fittings
- To visualize the free and forced vortex flow
- Flow meter measurement experiments
- To determine the pipe friction factor
- Demonstration of various parts of Centrifugal pump
- Demonstration of various parts of Rotary pump
- To determine the relationship between head loss due to fluid friction and velocity for flow of water through smooth bore pipes.
- To determine the relationship between head loss due to fluid friction and velocity for flow of water through roughened pipes
- To determine the efficiency of the Pelton Wheel Turbine.
- To design a piping system for water flow process (Open-Ended)
- Visual demonstration on hydro power station
- Field visit to a water supply scheme.

Sr. No	Name of Laboratory (Staff Names- Qualifications)	Lab(s) of Course(s) Conducted in the Lab	Type(s) of Workstations (No. of each type)		Nature of Experiments	No. of Students per Workstation
6	**Engineering Mechanics Lab** 1. Engr. Farman Ullah – MSc. Structural Engg – Lab Incharge 2. Engr. Faheem Ullah – BSc Civil Engg 3. Hafiz M. Muzamil - DAE Civil – Lab Assistant 4. Sami Ullah – Matric - Lab Attendant	• Engineering Mechanics • Mechanics of Solid-I	Screw Jack Apparatus	01	Hands-on	05
			Reaction of Beam Apparatus	01	Hands-on	
			Wheel and Differential Axel Apparatus	01	Hands-on	
			Gravesend's Apparatus	01	Hands-on	
			Pulleys	04	Hands-on	
			Fly Wheel Apparatus	01	Hands-on	
			Inclined Plane Apparatus-Aluminum	01	Hands-on	

			Belt and Pully Apparatus	01	Hands-on	
			Wheel and Axel Apparatus	01	Hands-on	
			Inclined Plane Apparatus-Wooden	01	Hands-on	
			Searle's Apparatus	01	Hands-on	
			Stand	02	Hands-on	
			Stop Watch	09	Hands-on	
			Micro Meter	20	Hands-on	
			Auto Clock	08	Hands-on	
			Magnifying Glasses	10	Hands-on	
			Digital Vernier Caliper	10	Hands-on	
			Digi Matric	10	Hands-on	

			Caliper			
			Compression Spring	02	Hands-on	
			Extension Spring	05	Hands-on	
			First Aid Box	01	Hands-on	
			Weights (0.5N-5N)	21	Hands-on	
			Weights (5gms-5kg)	92	Hands-on	

List of Experiments QNS-124; Engineering Mechanics

1. Introduction to lab equipment and experiments
2. Demonstration of forces in various parts of roof truss,
3. To find the mechanical advantages, velocity ratio and efficiency of simple screw jack
4. To find the two conditions of equilibrium using a suspended meter rod.
5. To determine the effort required to lift a load and efficiency of lifting by a wheel and axle
6. To verify the law of polygon of various forces,
7. To determine the effort required to lift a load and efficiency of lifting by a wheel and differential axle.
8. To calculate moment of inertia of Fly wheel,

9. Investigation of Hook's law that is the proportional relation between force and stretching in elastic deformation,
10. Measurement of forces on supports in statically determinate beam,
11. Demonstration for the determination of shear forces and Bending Moment in beams.
12. To Verify the Laws of Friction and to Find the Coefficient of Friction Between Wooden Surfaces, Glass Surfaces, Plastic Surfaces and Iron Surfaces.
13. To find the coefficient of friction between pulley and belt

List of Experiments QCE-234; Mechanics of Solid-I

1. Introduction to solid mechanics' lab, subject importance, scope, and to study the layout of the lab.
2. Demonstration of various parts of UTM, to study stress and strain curve of a general materials
3. To find the tensile strength of a steel bar using U.T.M
4. Determination of bend test on a steel bar using U.T.M.
5. To measure strain in the mild steel specimen & to plot a graph between stress & strain
6. To measure the stiffness of an extension spring and to plot a graph between Loading and extension
7. Compressive test on concrete cube using U.T.M
8. Determination of deflection and rotation in overhanging beams
9. To measure the extension of compression spring
10. Determination of horizontal thrust in three hinged parabolic arches
11. Determination of horizontal thrust in two hinged parabolic arches

Sr. No	Name of Laboratory (Staff Names-Qualifications)	Lab(s) of Course(s) Conducted in the Lab	Type(s) of Workstations (No. of each type)		Nature of Experiments	No. of Students per Workstation
7	**Soil Mechanics Lab** 1. Engr. Javed Islam – MSc Structural Engineering – Lab Incharge 2. Engr. Abdul Basit- B.Sc. Civil Engg.- Lab Engineer 3. Ali Meher – B-Tech (Pass) Civil - Lab Assistant 4. Sahibzada Arsalan - Matric - Lab Attendant	• Soil Mechanics • Geotechnical & Foundation Engineering	Casagrande Apparatus	03	Hands-on	05
			Hydrometer	04	Hands-on	
			Electronic Balance (5kg)	01	Hands-on	
			Electronic Balance (1kg)	01	Hands-on	
			Electronic Balance (40kg)	01	Hands-on	
			Electronic Balance (60kg)	01	Hands-on	
			Direct Shear Apparatus	01	Hands-on	
			ASTM-Fine Sieves	01	Hands-on	
			Standard Proctor Hammer	02	Hands-on	

			Modified Proctor Hammer	02	Hands-on	
			Standard Proctor Mould	02	Hands-on	
			Modified Proctor Mould	01	Hands-on	
			Shrinkage Limit Apparatus	02	Hands-on	
			Plastic Limit	02	Hands-on	
			Large Size Tray	01	Hands-on	
			Single Beam Consolidation Apparatus	01	Hands-on	
			Plastic Hammer	05	Hands-on	
			Moisture Container (Small& Large)	14	Hands-on	
			Mould Extractor	01	Hands-on	
			Constant Head	01	Hands-on	

			Apparatus			
			Falling Head Apparatus	01	Hands-on	
			Unconfined Compression Machine	01	Hands-on	
			Graduated Cylinder (250 ml)	01	Hands-on	
			FDT Cone Apparatus	05	Hands-on	
			Speedy Moisture Test Apparatus	01	Hands-on	
			Lechatlier' Flask	06	Hands-on	
			Rubber Pressure Bottle	04	Hands-on	
			China Dish	02	Hands-on	
			Rubber Gloves	04		
			Straight Edge	06		

			Mercury Bottles	03		
			Thermometer	10		
			Dolly with Collar	02		
			Mechanical Sieve Shaker	01		
			Stop Watch	02		
			Standard Penetration Test (SPT)	01	Hands-on	

List of Experiments; QCE-244: Soil Mechanics

1. Identification of Soil (Visual Manual Procedure),
2. Determination of Moisture content of soil (Oven dried and speedy moisture content),
3. Determination of specific gravity of soil,
4. Determination of liquid limit of soil,
5. Grain-size analysis of soil (including both mechanical and hydrometer analysis),
6. Determination of Plastic limit and Plasticity Index of soil,
7. Determination of shrinkage limit of soil,
8. Classification of soil according to AASHTO and USCS,
9. Modified/Proctor Compaction Test,
10. Determination of parameters of consolidation test/coefficient of consolidation by odometer test,

11. Constant Head Permeability test (Granular Soil),
12. Falling Head Permeability (Granular and Fine-grained soils)

List of Experiments; QCE-356: Geotechnical & Foundation Engineering

1. Determination of permeability of clayey soil by constant head test,
2. Determination of permeability of granular soil by falling head test,
3. Direct shear test,
4. Unconfined compression test,
5. Determination of shear strength parameters by Unconsolidated Undrained test,
6. Determination of shear strength parameters by Consolidated Undrained test,
7. Determination of shear strength parameters by Consolidated Drained test,
8. Visual demonstration of Pile load test,
9. Vane shear test,
10. Standard penetration test,
11. Visual demonstration of Cone penetration test,
12. Visual demonstration of Plate load test,
13. Introduction to Soil Investigation Report

Sr. No	Name of Laboratory (Staff Names-Qualifications)	Lab(s) of Course(s) Conducted in the Lab	Type(s) of Workstations (No. of each type)		Nature of Experiments	No. of Students per Workstation
8	**Material Testing Lab** 1. Engr. M. Asad Khan, Msc Structural Engineering, Lab Incharge (Lecturer) 2. Engr. Faheem Ullah Bsc Civil Engineering, Lab Engineer 3. Mr. Ali Mehr, DAE Civil, Lab Assistant 4. Sahibzada Arsalan - Matric, Lab Attendent	• Mechanics of Solids-I • Concrete Technology • Geotechnical & Foundation Engineering	Universal testing machine(UTM) Tri axial Machine	01 01	Hands-on Hands-on	05

List of experiments; QCE-234 Mechanics of Solid-I

1. Demonstration of various parts of UTM, to study stress and strain curve of a general materials
2. To find the tensile strength of a steel bar using U.T.M
3. Determination of bend test on a steel bar using U.T.M.
4. Compressive test on concrete cube using U.T.M

List of experiments; QCE-243: Concrete Technology

1. To determine compressive strength of mortar cubes.
2. To determine compressive strength of concrete cylinders
3. To determine compressive strength of concrete cubes.
4. To determine compressive strength of mortar cubes.
5. Split cylinder test
6. Anchorage development and splicing of reinforcement
7. Tensile strength of reinforcement bars

List of experiments; QCE-356: Geotechnical & Foundation Engineering

1. Determination of shear strength parameters by Unconsolidated Undrained test,
2. Determination of shear strength parameters by Consolidated Undrained test,
3. Determination of shear strength parameters by Consolidated Drained test,

Sr. No	Name of Laboratory (Staff Names-Qualifications)	Lab(s) of Course(s) Conducted in the Lab	Type(s) of Workstations (No. of each type)		Nature of Experiments	No. of Students per Workstation
9	**Drawing Hall** 1. Engr. Javed Islam – MSc Structural Engg. – Lab Incharge 2. Engr. Abdul Basit – BSc Civil Engg – Lab Engineer 2. Mr. Hafiz M. Muzammil – B-Tech (Honor) Civil - Lab Assistant 3. Sahibzada Arsalan– Matric - Lab Attendant	Engineering Drawing	Drawing Tables	40	Hands-on	01
			Stools	40	Hands-on	

List of Experiments; QCE-113: Engineering Drawing

- Border line / margin, title box, gothic lettering, isometricviews, orthographic views (first and third angles) and sections
- Architectural plan, elevation and section of a simple building
- Structural details of a simple building
- Architectural and structural details of a boundary wall
- Architectural and structural details of stair case
- Structural details of a water tank
- Plumbing, sanitation, and roof drainage plan of a simple building
- Electrical and HVAC drawings of a simple building
- Draw different types of lines in Engineering Drawing (New Task added)
- To draw a square, rectangle. triangle, ellipse, and circle, of size 30cm. (New Task added)
- To draw 3 parallel lines in each shape inclined at 30° and 45° from center, 10 cm apart. (New Task added)

Sr. No	Name of Laboratory (Staff Names-Qualifications)	Lab(s) of Course(s) Conducted in the Lab	Type(s) of Workstations (No. of each type)		Nature of Experiments	No. of Students per Workstation
10	**Computer Lab** 1. Mr. Waqas Khan – M.Phil. Computer Science Lecturer/ Lab Incharge 3. Mr. Sahibzada Arsalan– Matric - Lab Attendant	• Computer Programming • Civil Engineering Drawing & Graphics • Construction Management • Geo Informatics • Reinforced Concrete Design-II	LCD	40	Hands-on	01
			Keyboard	40	Hands-on	
			Mouse	40	Hands-on	
			Hard Disk	40	Hands-on	
			RAM	80	Hands-on	
			Processor	40	Hands-on	
			DVD-ROM	40	Hands-on	
			Power supply	40	Hands-on	
			Software installed: MS office; AutoCAD; Primavera; SAP2000; GIS; HEC-RAS;			

List of experiments; QCE-121: Computer Programming;

1. Introduction (Computer hardware and components, Numbers System, Conversion between bases)
2. Exercises on Programming Tools and use of web as an academic resource. Hello World, Simple Calculator, Advance Calculator
3. Introduction (Integers, Unsigned Integers, Signed Integers, Number Representations and Ranges, ASCII Codes, Algorithms and Flowcharts)
4. Introduction to Programming Language C++ / VB & Input/output, Operators, Selection
5. Prepare Graph Program
6. Practice Simple CAD
7. Practice 3D drawings
8. Exercises on Programming Tools, and, use of web as an academic tool
9. Loop (For, while and do-while loops)
10. Functions in Programming Language C++ / VB
11. Review of Projects, Mini Project Preparation

List of experiments; QCE-232: Civil Engineering Drawing & Graphics

- Architectural Drawings.
- Computer Aided Drawing (AutoCAD)
- General and basic know how related to computer aided drafting, e.g., coordinate system, drawing setup procedure, basic draw commands, basic edit commands.
- Layers, creating test and defining styles options, block and drawing import/export options; Cross hatching.
- Save and plot (2D) and isometric drawings.
- Use of Auto CAD in drawing plans, elevation and section of single and double-story buildings, Building Drawings. Building symbols.
- Types of building drawings, proposed drawing, submission drawing, working drawing & completion drawing.
- Drawings of Hydraulic and Drainage Structures.
- Plumbing and Electrical Details of a Simple Building.
- Introduction to 3D Drawings by using Software Google-Sketchup.

List of experiments; QMS-361: Construction Management

- Development of Construction Project Schedule using Scheduling Softwares such as MS Project and Primavera.
- Creating a new Projects in primavera P6 Professionals.
- Defining Organization breakdown structure (O.B.S)
- Defining Enterprise project structure. (E.P.S)
- Interlinking both EPS & OBS. (adding these 3 tasks)
- Defining Project Calendar in primavera P6 Professionals.
- Defining Activities (including activity codes, names, duration etc.)
- Defining activity relationships.
- Performing Scheduling of project.
- Defining Work Breakdown Structure.
  Defining Constraints of the projects.

List of experiments; QCE-481: Geo Informatics

- Introduction to Geo Informatics & QGIS software.
- Practice of Adding Vector & Raster Layer
- Practice of working with attributes, identify feature, query.
- Practice of Adding New shape file .shp Layer
- To find the coordinates of a point on ground using GPS.
- Practice of Adding Delimited Text Layer
- To covert coordinate system of a map using GIS software.
- Practice Network Analysis & Finding the shortest path.
- To covert projection of a map using GIS software.
- To generate a point coverage showing the meteorological station map.
- Image processing using any Remote Sensing Software.
- To locate the features on the ground, measure lengths and areas of the objects using Google earth.

Sr. No	Name of Laboratory (Staff Names-Qualifications)	Lab(s) of Course(s) Conducted in the Lab	Type(s) of Workstations (No. of each type)		Nature of Experiments	No. of Students per Workstation
11	**Basic Electro-Mechanical Lab** 1. Engr. Faheem Ullah – BSc Electrical Egg. – Lab Engineer 2. Mr. Khurshid Iqbal - Lab Assistant, EED 3. Sahibzada Arsalan – Matric – Lab Attendent	Basic Electro Mechanical Engineering	E/M apparatus	01	Hands-on	05
			Digital multilmeter	16	Hands-on	
			E and M training system	05	Hands-on	
			Two stroke diesel engine	01	Demonstration	
			Four stroke diesel engine	01	Demonstration	
			Two stroke petrol engine	01	Demonstration	
			Four stroke petrol engine	01	Demonstration	

List of Experiments; QIE-112; Basic Electro Mechanical Engineering

1. Introduction to simple electrical instruments,
2. Study the use of millimeters,
3. To verify OHM's law,
4. Voltage divider rule,
5. To verify KVL,
6. To verify KCL.
7. Demonstration of 2 stroke diesel engine,
8. Demonstration of 2 stroke petrol engine,
9. Demonstration of 4 stroke diesel engine,
10. Demonstration of 4 stroke petrol engine,
11. Demonstration of vapor compression refrigeration system

Sr. No	Name of Laboratory (Staff Names-Qualifications)	Lab(s) of Course(s) Conducted in the Lab	Type(s) of Workstations (No. of each type)		Nature of Experiments	No. of Students per Workstation
12	**Hydraulics & Hydrology Lab** 1. Engr. Ahsan Ullah – MS Civil Engineering (Water resources) – Lab Incharge 2. Engr. M. Airaf Hussain B.Sc Civil Engg. - Lab Engineer 3. Mr. Hafiz M. Muzzamil- Btech (Pass) Civil - Lab Assistant 4. Sami Ullah Matric - Lab Attendant	• Hydraulics Engineering • Engineering Hydrology	Hydraulic Flume	01	Hands-on	05
			Hydraulic bench	01	Hands-on	
			Meta Centric Height Apparatus	01	Hands-on	
			Bernoulli's Theorem Validity Apparatus	01	Hands-on	
			Orifice Jet & Flow Apparatus	01	Hands-on	
			Osborne Reynolds Apparatus	01	Hands-on	
			Flow Meter Apparatus	01	Hands-on	
			Stop Watch	2	Hands-on	
			Plastic Pipe Nozzle (1 Inch)	2	Hands-on	

			Plastic Pipe Nozzle (0.5 Inch)	2	Hands-on	
			Plastic Pipe (1 Inch)	15 ft	Hands-on	
			Plastic Pipe (0.75 Inch)	15 ft	Hands-on	
			Jubilee Clip (1 Inch)	12	Hands-on	
			Jubilee Clip (0.75 Inch)	12	Hands-on	
			GI Gate Valve (0.5 Inch)	2	Hands-on	
			GI Lever Valve (0.5 Inch)	2	Hands-on	
			GI Back Valve (0.5 Inch)	2	Hands-on	
			GI 45^0 Elbow (0.5 Inch)	4	Hands-on	
			GI 90^0 Elbow (0.5 Inch)	4	Hands-on	
			GI 90^0 Short Bend (0.5 Inch)	1	Hands-on	
			GI Tee (1/2 × 3/4)	4	Hands-on	

			GI Elbow (1/2 × 3/4)	4	Hands-on	
			GI Union (3/4 Inch)	2	Hands-on	
			GI Elbow (3/4 Inch)	4	Hands-on	
			Wall Clip (3/4 Inch)	8	Hands-on	
			GI Water Tap (0.5 Inch)	4	Hands-on	
			GI Union (0.5 Inch)	1	Hands-on	
			GI Berry Nipples (0.5 Inch)	8	Hands-on	
			GI Tee (0.5 Inch)	4	Hands-on	
			GI Socket (0.5 Inch)	4	Hands-on	
			GI Socket (1/2 × 1 ¼)	1	Hands-on	
			Tape/Wire	8	Hands-on	

List of Experiments; QCE-362; Hydraulics Engineering

- Hydrostatic Pressure
- Bernoulli's Theorem Experiment
- Energy Losses in Pipes
- Orifice and Jet Flow
- Free and Forced Vortex
- Flow over V Notch

- Flow over Rectangular Notch
- Types of Pumps
- Hydraulic Jump Experiment

List of Experiments; QCE-484; Engineering Hydrology

- Studying different meteorological and hydrological instruments.
- Demonstration of Meteorological instruments at Dera Ismail Khan Meteorological Observatory.
- Determination of average rainfall over a catchment by “arithmetic average method”.
- Determination of average rainfall over a catchment by “Theissen polygon method” in Arc-GIS.
- Determination of Average Rainfall Over a catchment by Isohyetal Method.
- Determination of infiltration parameters with double ring infiltrometer.
- Determination of hydraulic jump in lab flume.
- Downloading Digital Elevation Model (Dem) From USGS Earth Explorer.
- Stream Network Delineation in Arc-GIS using Digital Elevation Model Data.
- Watershed Delineation in Arc-GIS using Digital Elevation Model Data.

3 Annexure-H: Admission Response & Annual Intake

Sr. No.	Intake Batch	Allowed Intake	Total Student Admitted	Present Strength	No. of Sections	No. of DAE Students	No. of B. Tech Students	Total Student Applied	No. of Students having less than 60% in HSSC
01	2015	40	37	-	01	01	--	45	Nil
02	2016	40	40	40	01	01	--	110	Nil
03	2017	40	40	37	01	01	--	119	Nil
04	2018	40	36	31	01	01	--	82	Nil
05	2019	40	22	21	01	01	--	57	Nil
06	2020	40	18	18	01	01	01	20	Nil
07	2021	40	17	17	01	06	01	30	Nil
08	2022	40	11	10	01	04	01	25	Nil
09	2023	40	23	20	01	15	01	43	Nil
10	2024	40	11	09	01	03	01	20	Nil
11	2025	40	22	22	01	08	01	30	Nil

4 Annexure-I: Faculty Strength

Sr. No	Name	PEC #	Designation	Joining Date	Details of Qualifications			Specialization	Experience Teaching (Total) Years	Dedicated/ Shared	Cr. Hrs. taught in the Current (Spring-2025) & Last Semester (Fall-2024)	
					Degree	Year	Institution				MS	BS
1	Engr. Dr. Kamran Aziz	Civil/38536	HOD	29-09-2025	Ph.D.	2025	Tongji University, Shanghai, China.	Transportation Engineering	6	Dedicated	NA	0+0
2	Engr. Dr. M. Jehanzaib	Agri/3735	Assistant Professor	15-03-2021	Ph.D.	2020	Hanyang University, South Korea	Water Resources Engineering	7	Dedicated	NA	5+5
3	Engr. Dr. Muhammad Salman Khan	Civil/ 40095	Assistant Professor	01-10-2025	Ph.D.	2025	Tongji University, Shanghai, China.	Structural Engg	5	Dedicated	NA	0+0
4	Engr. Muhammad Asad Khan	Civil/57746	Lecturer	03-02-2020	MS	2021	CECOS, Peshawar	Structural Engineering	3	Dedicated	NA	12+11
5	Engr. Ahsan Ullah Khan	Civil/62179	Lecturer	03-10-2023	MS	2024	NUST, Islamabad	Water Resources Engineering & Manage.	1.5	Dedicated	NA	13+10
6	Engr. Naveed Akhtar	Civil/21209	Lecturer	25-04-2025	MS	2018	CECOS, Peshawar	Geo-Technical Engineering	7	Dedicated	NA	10+0
7	Engr. Farman Ullah	Civil/58217	Lecturer	15-05-2025	MS	2024	NUST, Islamabad	Structural Engineering	1	Dedicated	NA	12+0
8	Engr. Javed Islam	Civil/42892	Lecturer	10-09-2025	MS	2021	COMSATS Islamabad	Structural Engineering	3	Dedicated	NA	12+0

List of Shared/Visiting Faculty from other Departments/Organizations, sorted by Designation

Sr. No	Name	PEC #	Designation	Qualifications			Specialization	Department/ Organization
				Degree	Year	Institution		
1	Dr. Abdul Wahab	NA	Associate Professor	M.Phil. leading to Ph.D.	1997	Glasgow University	Islamic Studies	Basic Sciences & Humanities
				MA	1981	University of Peshawar	Islamiat	
				MA	1979	University of Peshawar	Arabic	
				BA	1976	University of Peshawar	Islamic Theology	
2	Madam Akasha Imrani	NA	Lecturer	MS	2021	Qurtuba University	Management Sciences	Management Sciences
				MBA	2009	Qurtuba University	Finance	
				BBA	2007	Qurtuba University	Business Administration	
3	Mr. Mudassar Javed	NA	Lecturer	MS	2018	IIUI, Islamabad	Math's	Basic Sciences & Humanities
4	Mr. Muhammad Umair	NA	Lecturer	M.Phil.	2022	Gomal University	Computer Science	Dept. of Computer Science

List of full time Lab Engineers

Sr. No	Name	PEC #	Designation	Details of Qualifications			Specialization	Joining Date	Dedicated/ Shared
				Degree	Year	Institution			
1	Engr. Airaf Hussain	Civil / 54641	Lab Engineer	BSc	2019	Qurtuba University, D.I. Khan	Civil Engineering	30-09-2021	Dedicated
2	Engr. Abdul Basit	Civil / 59098	Lab Engineer	BSc	2020	Qurtuba University, D.I. Khan	Civil Engineering	31-03-2025	Dedicated
3	Engr. Faheem Ullah	Civil / 58401	Lab Engineer	BSc	2020	Qurtuba University, D.I. Khan	Civil Engineering	22-04-2025	Dedicated

5 Annexure J: Faculty Summary

Present Scenario

	Faculty Teaching Engineering Subjects				Faculty Teaching Non-Engineering Subjects			
	BSc	**MSc**	**PhD**	**TOTAL**	**BSc**	**MSc**	**PhD**	**TOTAL**
Program Faculty (Dedicated)	03	07	03	**13**	00	00	00	**00**
Program Faculty (shared with other programs)	00	00	00	**00**	00	00	00	**00**
Shared Faculty (from other programs)	00	00	00	**00**	00	03	01	**04**
Visiting Engg. Faculty	00	00	00	**00**	00	00	00	**00**

Number of New Faculty members inducted in the program since last PEC Visit

BSc	02
MSc	03
PhD	02

Scenario at the time of Last PEC Visit

	Faculty teaching Engineering Subjects				Faculty teaching Non-Engineering Subjects			
	BSc	**MSc**	**PhD**	**TOTAL**	**BSc**	**MSc**	**PhD**	**TOTAL**
Program Faculty (Dedicated)	03	08	02	**13**	00	00	00	**00**
Program Faculty (shared with other programs)	00	00	00	**00**	00	00	00	**00**
Shared Faculty (from other programs)	00	00	00	**00**	00	03	01	**04**
Visiting Engg. Faculty	00	00	00	**00**	00	00	00	**00**

Number of Faculty members who left the program since last PEC Visit

BSc	02
MSc	04
PhD	01

6 Annexure-K: Faculty Workload

Sr. No.	Name	Degree Level	Current Semester Loading Spring-2025			Last Semester Loading Fall-2024		
			Credit Hours		Course Titles	Credit Hours		Course Titles
			Theory	Practical		Theory	Practical	
1.	Engr. Dr. Muhammad Umar	BS	-	-	-	02	01	Mechanics of Solid – I
			-	-	-	03	01	Probability & Statistics
2.	Dr. Muhammad Jehanzaib	BS	02	-	Irrigation Engineering	02	-	Hazards & Disaster Management
			02	01	Environmental Engineering	03		Civil Engineering Project
3.	Engr. M. Asad Khan	BS	03	-	Mechanics of Solid – II	03	01	Environmental Engineering-II
			03	-	Structural Analysis - I	03	01	Reinforced Concrete Design-II
			03	-	Reinforced Concrete Design – I			
			-	03	Civil Engineering Project	-	03	Civil Engineering Project
4.	Engr. Ahsan Ullah	BS	03	01	Fluid Mechanics – I	03	01	Fluid Mechanics-II
			02	01	Hydraulics Engineering	02	01	Applied Physics & Electro Mechanical
			02	01	Engineering Hydrology	-	-	-
			-	03	Civil Engineering Project	-	03	Civil Engineering Project
5.	Engr. Naveed Akhtar	BS	02	01	Engineering Surveying – II	-	-	-
			03	01	Engineering Economics & Construction Management	-	-	-
			03	-	Steel Structures	-	-	-
6.	Engr. Farman Ullah	BS	02	01	Engineering Surveying	-	-	-
			02	01	Engineering Mechanics	-	-	-
			02	01	Quantity & Estimation	-	-	-
			-	03	Civil Engineering Project	-	-	-
7.	Engr. Javed Islam	BS	03	01	Soil Mechanics			-
			03	-	Transportation Engineering – I			-
			01	01	Geo Informatics			-
			-	03	Civil Engineering Project			-
8.	Engr. M. Hamad Khan	BS	-	-	-	02	01	Engineering Drawing
			-	-	-	03	01	Geotechnical & Foundation Engineering
			-	-	-	03	01	Transportation Engineering – II

Sr. No.	Name	Degree Level	Current Semester Loading Spring-2025			Last Semester Loading Fall-2024		
			Credit Hours		Course Titles	Credit Hours		Course Titles
			Theory	Practical		Theory	Practical	
9.	Engr. M. Roshan Yousaf	BS	-	-		03	-	Structural Analysis - II
			-	-		02	01	Engineering Surveying-I
			-	-		03	-	Engineering Geology & Seismology
10.	Engr. Asfandyar Khan	BS	-	-		03	-	Construction Engineering
			-	-		02	-	Structure Dynamics and Earthquake Engg
			-	-		02	01	Civil Engineering Materials
11.	Engr. M Umar	BS	-	-		01	01	Civil Engineering Drawing & Graphics
12.	Engr. Iraf Hussain	BS	01	-	Concrete Technology	-	-	-
13.	Engr. Abdul Basit	BS	02	-	Geology for Engineers	-	-	-
14.	Mr. Abdul Mateen	BS	02	-	Islamic Studies / Ethics	-	-	-
15.			02	-	Ideology & Constitution of Pakistan	-	-	-
16.	Mr. Umair Younis	BS	02	01	Computer Programming	-	-	-
17.	Miss. Hijab Zahra	BS	02	-	Entrepreneurship	-	-	-
18.	Miss. Hina Bibi	BS	-	-	-	03	-	Functional English
19.	Prof. Dr. Abdul Wahab	BS	02	-		01	-	Pakistan Studies
20.	Mr. Mudassir Javed	BS	03	-	Quantitative Reasoning -II	-	-	-
21.	Miss. Akasha Imrani	BS	02	-	-	02	-	Professional Ethics
22.	Miss Tehreem Zara	BS	-	-	-	03	-	Quantitative Reasoning-I
		BS	-	-	-	03	-	Numerical Analysis
23.	Mr. M Aslam	BS	-	-	-	-	-	-
						02	-	Business Communication
24.	Mr. Waqas Khan	BS	-	-	-	02	01	Application of ICT

7 Annexure-L: Financial Health

QURTUBA UNIVERSITY
Of Science and Information Technology
D.I Khan, Peshawar Khyber Pakhtunkhwa, Pakistan.

No. QUSIT- I/6/13/2017
Dated 22-2-2017

Notification

The Board of Governors, Qurtuba University of Science & IT in its 13th meeting held on 28-1-2017 approved the General Financial Rules and Regulations to the University, in order to regulate the University Finances according to the international standard of accounts (copy annexed).

(Prof Dr. Muhammad Mansoor Khan)
Additional Registrar

Cc:

1. Director Finance
2. Manager Finance
3. PA to Vice Chancellor
4. PA to Registrar

Additional Registrar

10. DELEGATION OF POWERS

The following authorities of the University shall exercise the mentioned financial powers:-

S.NO	HEAD OF EXPENDITURE	NAME OF AUTHORITY	EXTENT OF DELEGATION
1.	Pay and Allowances	President or his nominees	Full Power Delegated Powers
2.	Scholarships and others Awards to Students	Vice Chancellor Treasurer / Director Finance	Full Powers Full Powers for other than merit
3.	Remuneration / honorarium to part-time teachers /employees	President Vice Chancellor	Full Powers
4.	Cash award for meritorious services	Board of Governors / President	Full Power Delegated Power
5.	Other award scholar ships for M.S / Ph.D studies abroad	Board of Governors / President Vice Chancellor	Full Power Delegated Power
6.	Loan to employees (out of Revolving Funds)	Vice Chancellor Loan Committee	Full Power Full Power
7.	Laboratories Expenses and contingencies	Vice Chancellor Dean Head	Full Power Full Power Within budget allocation for their offices / Deptt:
8.	Conduct of Examinations	President Vice Chancellor Controller of Examinations	Full Power Full Power Delegated Power
9.	Remuneration / Secrecy payment	President Vice Chancellor Controller of Examinations	Full Power Full Power Delegated Power

☆ Dean is member of Finance & Planing Comm

QURTUBA UNIVERSITY
of Science & Information Technology

Engineering Programes

(BUDGET PROFILE)

Particulars		2022-23 (Actual)	2023-24 (Estimated)	2023-24 (Revised/ Estimated)	2024-25 (Estimated)
A.	**Total Resources**				
i.	**Opening Balance**	**627,283**	**525,948**	**4,647,474**	**1,133,474**
ii.	**Grants**				
a.	Federal Government (Annual)	-	-	-	-
b.	Supplementary / Additional Grant	-	-	-	-
c.	Grant for Tenure Track Faculty	-	-	-	-
d.	Provincial Govt. Grant	-	-	-	-
e.	Donations	-	-	-	-
f.	University Reserve Funds	-	-	-	-
	Sub Total: (ii)	-	-	-	-

iii.	**Own Resources**				
	a. Income from Regular Fee Structure	32,347,078	29,500,000	21,500,000	26,000,000
	b. Income from Self-financing Scheme	-	-	-	-
	c. Income from Self-support Scheme	-	-	-	-
	d. Income from Other Resources	940,700	600,000	950,000	1,000,000
	Sub Total: (iii)	**33,287,778**	**30,100,000**	**22,450,000**	**27,000,000**
	Total Resources: [A = i + ii + iii]	**33,915,061**	**30,625,948**	**27,097,474**	**28,133,474**
B.	**Expenditure**				
	I. Operational				
i.	Total Pay & Allowances - Faculty Departments]	20,119,764	17,200,000	16,000,000	16,200,000
ii	Total Pay & Allowances - Officers / Staff [in all other Administrative Departments]	2,371,335	2,400,000	2,520,000	2,600,000
iii.	Non-Salary Expenditures- Other Charges	5,349,740	8,387,000	5,832,000	6,365,000
iv	Contingencies	26,580	60,000	30,000	35,000
v	Research / Publication	362,587	400,000	380,000	400,000
vi	Quality Enhasment QEC	470,902	650,000	650,000	650,000
	Sub Total: (I)	**28,700,908**	**29,097,000**	**25,412,000**	**26,250,000**
II.	**Development**				
i.	Civil Works	23,562	30,000	20,000	25,000
ii	Furniture	32,560	30,000	25,000	30,000

iii.	Lab Equipments	124,005	150,000	122,000	135,000
iv	Computers / I.T. Equipment	42,400	200,000	100,000	120,000
v.	Books & Journal	233,546	300,000	200,000	250,000
vi.	Chemicals and Lab consumables	16,150	100,000	50,000	80,000
vii	Elecrtical Equipments	94,456	80,000	35,000	40,000
	Sub Total: (II)	**566,679**	**890,000**	**552,000**	**680,000**
	Total Expenditure: [B = I + II]	**29,267,587**	**29,987,000**	**25,964,000**	**26,930,000**
C.	**Surplus / Deficit [A - B]**	**4,647,474**	**638,948**	**1,133,474**	**1,203,474**

QURTUBA UNIVERSITY
of Science & Information Technology

Engineering Programes

(Non-Salary Heads of Expenditure)

S.No	Particulars / Budget Heads	2022-23 (Actual)	2023-24 (Estimated)	2023-24 (Revised/ Estimated)	2024-25 (Estimated)
1	Faculty Development Programme	304,892	400,000	325,000	340,000
2	Supporting Offices for Academic Advancement	245,879	350,000	250,000	280,000
3	Faculty incentive	351,470	450,000	370,000	400,000
4	Legal Fees , Consultancy and delegation	382,000	500,000	400,000	450,000
5	Electronic Communication (Internet Charges)	30,667	35,000	32,500	35,000
6	Repair & MaintenanceFurniture & Fixture	10,258	30,000	15,000	20,000

7	Repair & Maintenance I.T. Equipment	9,874	25,000	10,000	15,000
8	Maintenance of Lawn and Plantation	11,258	22,000	15,000	20,000
9	Misc - Repair	4,250	20,000	12,000	15,000
10	Repair & Maintenance Lab	22,584	50,000	25,500	30,000
11	Courier Services & Postage	18,574	35,000	22,000	25,000
12	Utilities & Generator Expenses	235,892	300,000	250,000	300,000
13	P.O.L. Charges	312,586	500,000	350,000	380,000
14	Study Tours	326,985	400,000	380,000	400,000
15	Stationery	61,162	100,000	80,000	100,000
16	Printing and publications	259,870	350,000	280,000	320,000
17	Conferences / Seminars / Workshops	385,695	550,000	400,000	450,000
18	Advertising & Publicity	412,586	400,000	500,000	520,000
19	Co-Curiculm activities	145,824	220,000	200,000	220,000
20	Sports Activities	212,570	300,000	240,000	250,000
21	Conduct Of Examination , Training , software etc	286,951	350,000	300,000	315,000
22	Convocation	-	1,000,000	-	-
23	Merit Scholarships /Need Base / Fee Concession	542,500	650,000	550,000	580,000
24	Gold Medals & Special Scholarships	423,650	600,000	450,000	480,000
25	Travelling and Convance	214,780	450,000	225,000	240,000
26	Entertainment	136,983	300,000	150,000	180,000

Total Non-Salary Expenditures-Other Charges:	**5,349,740**	**8,387,000**	**5,832,000**	**6,365,000**