PROSPECTUS

FOR UNDERGRADUATE STUDIES

2019
2020

CIVIL ENGINEERING

UNIVERSITY OF ASIA PACIFIC

Chief Editor
Dr. Farzana Rahman

Editorial Board
UAP-CE faculty members

First Edition	Sep 2000
Second Edition	Oct 2001
Third Edition	Mar 2004
Fourth Edition	Mar 2006
Fifth Edition	Jun 2008
Sixth Edition	Apr 2010
Seventh Edition	Apr 2012
Eighth Edition	May 2014
Ninth Edition	April 2017
Tenth Edition	Jan 2020

Cover Design
Nishat Tasnim, Lecturer, Dept. of Architecture

Photography
Bachhu Sheikh, Assistant Director Public Relations
Md. Afzalul Islam Chowdhury, UAP CE Undergraduate Student (Batch 38)
Md. Mahmud Hasan, UAP CE Undergraduate Student (Batch 42)

DISCLAIMER
The information contained in this prospectus is subject to change at the discretion of the Department of Civil Engineering, UAP.

Published by
Department of Civil Engineering
University of Asia Pacific
January 2020

PREFACE

It is a great pleasure to publish the tenth edition of the prospectus for Undergraduate Studies of the Department of Civil Engineering of University of Asia Pacific (UAP). The department of Civil Engineering commenced its journey in 1997 with undergraduate program with a vision for creating quality civil engineers with only about 10 students. Eventually having grown in capacity, the Department enrolls 180 students in undergraduate and 20 students in graduate program in a bi-semester academic year – Fall and Spring.

The Department has outstanding and exceptionally rich faculty members; 13 out of 28 faculty members hold PhD from well-reputed foreign universities in Australia, Canada, Europe, Japan and USA. The current teacher–student ratio of the department is 1:24. The specialization of the faculty members includes areas of Geotechnical, Transportation, Environmental, Structural, and Water Resource Engineering. About 1064 students have so far graduated till Spring 2018 semester from the department. The graduates of the department are working in different government and private organizations in Bangladesh. Many graduates are also working abroad. Some graduates are doing masters and PhD in Bangladesh and abroad.

Through a continuous development process, the department highlighted the necessity to furnish all laboratories with modern equipment to conduct undergraduate classes as well as to perform undergraduate and graduate research works. The laboratory facilities serve the purposes of practical illustration and experiments for research in different engineering disciplines. The department received several national and international research grants for doing research on various civil engineering issues, such as advanced seismic analysis, earthquake retrofitting of structures, structural assessment, surface water pollution, recycling and sustainable development of concrete construction works in Bangladesh. The research results of the faculty members get published on a regular basis in different national and international reputed journals and conference proceedings.

In addition to the academic and research activities, the faculty members of the department are actively engaged with consultancy services related to civil engineering concerns and are also directly participating in testing of materials using the laboratories of the department. The UAP campus has shifted to its permanent City Campus in 2016, which has increased the capacity and efficiency of its administration manifold. In the new environment at its own campus, UAP has vowed to take a leadership role to educate the students through Outcome Based Education method and to ensure a student-centered learning environment. Besides the academic activities, the department organizes several co-curricular activities that encourage students' talents. The events are organized through different clubs, sports programs and study tours. Department has several clubs namely Math Club, English Club, Film Club, Transportation club, Structure Club, and Environment and disaster Management club. Each of these clubs is independent and fully functional through a working body consisting of a faculty advisor and student members. The activities of the clubs include event specific quizzes, presentations, projects, social awareness programs and poster exhibitions.

The department's efforts have been recognized outside the borders of the university when it became the first Civil Engineering program to be accredited by the Board of Accreditation for Engineering and Technical Education (BAETE) in 2007. The IEB accreditation provides the Department with a national as well as a global acknowledgement of the quality and standards of its program. In 2008, the University Grants Commission (UGC) granted approval to the Department of CE to commence its Masters' program, thus making it the first CE program among private universities to obtain such approval. This milestone indicates the commitment of the department for continuous development. The Department and its faculty members adopted HEQEP's quality assurance protocols to achieve outcome-based education system. Moderation of exams and scrutiny of exam papers in each semester facilitate the quality assurance of the Department's program. The culture of quality has begun to be institutionalized at the Department and is a milestone that has uplifted the Department to a unique level.

In January 2018 the UGC-nominated external peer review team (EPRT) reviewed the curriculum, academic rigor of the BSc program, inspected physical facilities in the labs and rated it 'Very Good' to implement outcome based education (OBE) in teaching-learning. Another review team from Board of Accreditation for Engineering and Technical Education (BAETE) visited the department in 2018. After thorough scrutiny, the department was able to retain its status as an IEB accredited program. The BSc in civil engineering program is accredited with the grade 'good' for the next three years, ending in 2021. The Department recognizes talented and top ranking students by providing opportunities to be recruited as department teaching assistants, and subsequently become faculty members at UAP or high ranking elsewhere in teaching, research or in industry at home and abroad.

On behalf of the Department of Civil Engineering, I would like to thank the editorial board members for their earnest endeavors to compose this prospectus. I strongly believe that it would be a useful and constructive reference book for the students, guardians and the faculties

January, 2020

Dr. Farzana Rahman
Professor and Head
Department of Civil Engineering

CONTENTS

International Mother Language Day 2019

Victory day of Bangladesh

Discussion of National Mourning day

Honorable Vice Chancellor and Honorable Chairman of the BOT cutting the cake to mark the 20th anniversary of the CE Department

IEB felicitated National Professor Dr. Jamilur Reza Chowdhury

UAP felicitated the National Professors in 2018

Meeting of the UAP Board of Trustees

GPH Ispat - Prothom Alo “In Genious” Activation event at UAP

UAP Receives Recognition from Seven Rings Cement

Significant Achievements

National Prof. Jamilur Reza Chowdhury receiving the Highest Civilian Award of Japan "the order of the rising sun, gold rays with neck ribbon"

Prof Tanveer Ferdous Saeed of UAP CE receiving UGC award for outstanding research from the President of People's Republic of Bangladesh

Faculty members of UAP CE with External Peer Review Team (HEQEP project by World Bank through UGC) securing "Very Good" rank

UAP students' team secured Champion position in Youth Symposium 2019 (Unity for Peace and Harmony) organized by United International University

1.1 Introduction

University of Asia Pacific (UAP) was established in 1996 as a private university under the Private University Act 1992, with a vision to enhance the opportunities for higher education in Bangladesh. Its curriculum has been approved by the University Grants Commission of the Government of the People's Republic of Bangladesh. Late Hedayet Ahmed, former Secretary of Education of the People's Republic of Bangladesh was the founder Vice-Chancellor of the university. The university started by offering four years bachelor degree programs in Computer Science & Technology and Business Administration only. Now UAP offers undergraduate programs in nine disciplines and postgraduate programs in six disciplines.

UAP is a social business project conceived off by the UAP Foundation, a non-profit, non-commercial foundation based in Dhaka. The principal aim of the foundation is to promote human and social development through inter alia, improved educational opportunities, innovative educational programs relevant to the needs of an emerging society and to develop skills, expertise and awareness of the youth through appropriate institutional means.

The main objective of University of Asia Pacific is to provide high quality education at undergraduate and graduate levels relevant to the needs of a dynamic society. The courses and curricula are so designed as to enable a student to enter the practical world or pursue higher academic and professional goals with a solid academic foundation. The academic goal of the university is to go beyond the boundary of the class rooms and equip the students with the means to become productive members of the community and continue the practice of lifelong learning.

1.2 Vision and Mission

The Vision

UAP's vision is to advance science, technology, and humanities through innovation in higher education, research and development for a better society.

The Mission

UAP's mission is to hold excellence high in maintaining faculty members and staff, facilities for faculty research and student practicum harmonized with co-curricular activities so that UAP produces graduates to meet the global standards and in creating impact to the society.

To achieve such a mission, UAP would maintain a highly qualified and strongly motivated faculty to educate students in curricula that accommodates latest advances in science and technology and best practices in teaching and learning supported by modern laboratories, library facilities, and vibrant co-curricular activities. In

pursuance of creativity, cutting-edge knowledge and technological innovation, UAP encourages and supports faculty members in research, publication and sharing knowledge with co-professionals.

The courses and curricula are designed to provide high quality education at tertiary level relevant to the changing demands of society and equip students to enter into the national and international job market or pursue higher academic and professional goals with a solid academic foundation. The goal of the university is not just to prepare the students to pass the examinations, but to equip them with the needed social skills to become productive and proactive members of the community and remain open to learning to become "future leaders' and useful members of the society.

1.3 Schools and Departments

At present, UAP has five schools comprising relevant departments

School of Business
- Department of Business Administration

School of Engineering
- Department of Civil Engineering
- Department of Computer Science and Engineering
- Department of Electrical and Electronic Engineering

School of Environmental Sciences and Engineering
- Department of Architecture

School of Humanities and Social Science
- Department of English

School of Law
- Department of Law and Human Rights

School of Medicine
- Department of Pharmacy

School of Science
- Department of Basic Science and Humanities
- Department of Mathematics

At the moment, these departments are running undergraduate degree programs in nine

disciplines and post graduate degree programs in six disciplines.

1.4 Board of Trustees

The Board of Trustees representing the UAP foundation was established by a group of eminent educationists, industrialists and administrators who share the same vision and social commitments. University of Asia Pacific was the first project of the foundation aimed at realizing these noble goals. Mr. C. M. Shafi Sami, Former Foreign Secretary and Former Advisor, Caretaker Government is the current Chairperson of the Board of Trustees.

1.5 Central Administration

Md. Abdul Hamid, Honorable President of the People's Republic of Bangladesh is the Chancellor of the University of Asia Pacific. Eminent educationist and renowned engineer Professor Dr. Jamilur Reza Choudhury is the current Vice Chancellor of UAP, while Professor Dr. M. R. Kabir is the Pro-Vice Chancellor. The Central Administration also includes Air Commodore Ishfaq Ilahi Choudhury, ndc, psc (Retd.) as Treasurer and Associate Professor Sarwar Razzaq Chowdhury as Registrar.

2.1 Academic Programs

2.1.1 Undergraduate Studies

UAP currently offers the following undergraduate programs

- B. Arch.
- BBA
- B. Sc. in Civil Engineering
- B. Sc. in Computer Science and Engineering
- B. Sc. in Electrical and Electronic Engineering
- LL.B. (Hons)
- B. Sc. in Mathematics
- BA (Hons) in English

All these are four-year programs except B. Arch., which is a five-year program.

Academic programs are conducted on semester basis; i.e. two semesters per year. At present the university has more than 4,000 students, with a large number of faculty members engaged in different departments on full time basis. The faculty is a blend of senior teachers with wide experience both at home and abroad and young teachers with fresh ideas. A number of renowned educationists of different disciplines are involved in teaching (as guest faculty) on part time basis.

2.1.2 Postgraduate Studies

UAP currently offers postgraduate programs in six disciplines. The department of Business Administration offers the MBA degree which is a 60 credit hour program over two-year duration, including professional internship and Executive MBA degree, a 42 credit hour program over one and a half years.

The department of Pharmacy offers Masters in Pharmaceutical Technology (M. Pharm.) which is a twenty-four credit hour program over one-year duration.

Two Masters degrees, Master of Science in Computer Science and Master of Science in Computer Science and Engineering are offered by the department of Computer Science and Engineering, both of which are 36-credit hour program.

The department of Law and Human Rights offers LLM (regular) degree which is a full time program of 26 credit hour having one-year duration.

The department of Civil Engineering offers Master of Science in Civil Engineering and Master of Civil Engineering. Both are 36 credit hour programs of two-year duration.

Two Masters Programs in English are offered by Department of English. MA in English (1 year) is a 36 credit hour program while MA in English (2 years) is a 72-credit hour program.

2.2 Academic Council

Academic council is the highest academic body of the university. It is chaired by the Vice-Chancellor of UAP and comprises the departmental Heads and various senior faculty members of the university as well as eminent academicians of the country.

2.3 The Campus

The university completed the construction and moved to its City Campus at 74/A Green Road in May 2016. Office of various academic departments of UAP are arranged at various floors in the following order

Department of English	3rd Floor
Department of Basic Science & Humanities	3rd Floor
Department of Pharmacy	4th Floor
Department of Electrical & Electronic Engg	5th Floor
Department of Civil Engg	6th Floor
Department of Computer Science & Engg.	7th Floor
Department of Architecture	8th Floor
Department of Law & Human Rights	9th Floor

In addition to the academic departments, UAP campus consists of the following departments and other facilities.

Board of Trustees	2nd Floor
Central Administration	2nd Floor
Examinations Section	2nd Floor
Account Section	2nd Floor
Admission Office	1st Floor
Medical Center and Central Cafeteria	1st Floor
Central Library	1st Floor

2.4 Resources

2.4.1 Library

The university has a fairly well stocked central library located on the first floor of the city campus. Adequate facilities exist with a large number of textbooks, reference books, journals, and periodicals for study in the air conditioned reading room in a quiet and congenial environment. A number of local daily newspapers and international news magazines are also subscribed for the benefit of students. The library remains open from 9.00 am to till 9.00 pm on all working days and 9.00 am to 5.00 pm on Saturday. In addition to the central library each department has its own library and reading room, which consists of books, technical journals and other publications relevant to the respective disciplines.

2.4.2 Laboratory

UAP is a pioneer among the private universities of Bangladesh in providing adequate laboratory facilities for the students of respective departments. The laboratories are self-sufficient and rich in instruments and other facilities to carry out practical classes. Other than practical classes, the students and faculty of UAP can carry out their research work in these laboratories also. Several quality researches works culminating in national and international awards and publications for UAP students and faculty members have been conducted in the laboratories of the departments of Civil Engineering, Computer Science & Engineering, Electrical & Electronic Engineering and Pharmacy.

2.4.3 Other Facilities

The university runs a well-equipped Medical Center for medical consultation, free of cost for students. Other than treatment, medication and first aid, the Medical Center arranges seminars and lectures to build health awareness within the campus and encourage various preventive health measures like immunization and develop healthy food habits.

The university has its own Central Cafeteria, which provides hygienic food at reasonable cost for the students, faculty and staff.

2.5 The Campus Environment

University of Asia Pacific is proud to nurture a healthy and fully non-political academic atmosphere within the campus, where the students, faculty and staff can enjoy a peaceful and happy working environment and visitors feel welcome. It enjoys growth of an open-minded, friendly and disciplined fraternity, always developing in wisdom and virtue.

2.5.1 Academic Rules and Discipline

The academic environment of UAP is guided at every step by its academic rules, which is based on discipline and conforms to the norms and values of the society. UAP students are expected to conform to the highest standard of discipline and conduct her/himself within and outside the premises of the university in a manner befitting the student of a university of national importance. S/he must show due courtesy and considerations to the teachers and other fellow employees of the university and render sincere co-operation to her/his fellow students. The students must also pay due attention and courtesy to the visitors.

This standard of discipline is applied even more stringently within the classes and particularly during the examination hours. The examination rules of UAP define the duties of all concerned to hold the examinations in the fairest manner possible. They are applied to ensure that the students can take their examinations peacefully and are evaluated fairly to reflect their intelligence, depth of knowledge, understanding and presentation skills. Deviations from the defined rules may result in strict punishment, possibly resulting in expulsion from the university.

2.5.2 Teacher-Student Relationship and Academic Advising

UAP enjoys exemplary teacher-student relationship built on mutual trust, with an unconditional respect for the teacher reciprocated by giving topmost priority to the best interest of the students.

In order to help in planning her/his academic activities, each student is assigned an Academic Adviser (from the faculty members of the student's department) who advises the student on the courses s/he should take each semester and keeps in touch to monitor her/his academic performance and progress. The Academic Adviser works as a bridge between the student and faculty as well as the university administration.

2.5.3 Co-curricular Activities

Co-curricular activities are recognized as an integral component of a modern education system. Recognizing this imperative, UAP strives to provide facilities for such activities that will help to develop well-groomed, responsible and self-disciplined individuals. UAP undertakes programs with active involvement of students to sharpen intellectual qualities through inter-university debates, cultural and social activities and other creative pursuits. Such informal interaction between the students and faculty is conducive to the growth of balanced personality.

Provisions have been made within UAP campus for sports activities. The university carries out various cultural programs at the campus. Besides, all the departments have formed individual student forums and clubs to carry out regular cultural activities.

2.6 Academic and Technical Collaborations

In this era of revolutionized communication system and free exchange of information, there is a strong compulsion to promote interaction among students and intellectuals for sharing of knowledge, especially with institutions of higher education. Such interaction provides access to ever-changing scenarios of modern education delivery system and the most up-to-date innovative developments in teaching-learning methodology.

Recognizing this imperative, UAP has built a number of collaborative programs with various professional bodies

Several departments of UAP have been accredited by relevant professional bodies of the country; e.g.

Institute of Architects (IAB)	Dept. of Architecture
Institute of Engineers Bangladesh (IEB)	Dept. of CE, CSE, EEE
Pharmacy Council of Bangladesh	Dept. of Pharmacy

In fact, the Pharmacy and Civil Engineering departments of UAP were the first among private universities to earn such accreditations. UAP graduates are therefore eligible to be members of professional bodies like IAB, IEB, Pharmacy Council, and several of them have already earned their memberships in these prestigious bodies. Apart from the mentioned professional bodies specific to the departments, UAP maintains central membership with certain other academic and professional bodies as follows:
American Chamber of Commerce (AmCham), Universitities of Asia and the Pacific Region (AUAP), International Association of University President (IAUP) and the Association of Commonwealth Universities.

2.7 Institute of Energy, Environment, Research and Development (IEERD)
The Institute for Energy, Environment, Research and Development (IEERD) is a multi-disciplinary research and academic institute with a separate administrative structure. The purpose of the 'Institute' is to keep pace with regional and global research of development and education in energy including clean energy, increasing energy efficiency of equipments and appliances, work on quality of materials, environment, water resources and water management and other related fields at the university. IEERD has organized several seminars on Energy and Environment by nationally and internationally known speakers. The significant contribution of IEERD is to provide grants to the research proposals after critical perusal and also provide expenses for conference attendance and journal publications to the faculty members to promote research and development.

2.8 Center for Research, Testing, Training and Consultancy (CRTTC)
The Center for Research, Training, Testing and Consultation (CRTTC), UAP offers a common platform to the UAP faculty members of the departments of Civil Engineering, Electrical and Electronic Engineering, Computer Science and Engineering, Architecture, Pharmacy, Business Administration, Law and Human Rights, English, and Basic Science and Humanities to professionally develop themselves through conducting research and engaging in academic pursuits so that they can make a constructive contribution to society and more specifically to their respective disciplines.

2.9 Institutional Quality Assurance Cell (IQAC)
In its quest of excellence in the tertiary education of Bangladesh, the University Grants Commission (UGC), in conjunction with World Bank, took up the HEQEP (Higher Education Quality Enhancement Project) to implement in various universities of Bangladesh – both public and private. Under this project, *Institutional Quality Assurance Cell (IQAC)* was formed at UAP in order to promote and develop quality assurance culture at the university level as well as to conduct *Self-Assessment (SA) activities* at the eight degree awarding departments at UAP to establish a quality assurance system at the departmental level. The areas that would be covered under this initiative are: Governance; Curriculum Design & Review; Student Admission; Infrastructure; Teaching & Learning; Student Support Services; Staff & Facilities; Research & Extension. Self-assessment activities are completed by this time and all eight degree awarding programs at UAP have been evaluated by 'External Peer Review Team (EPRT)' who recognized the overall improvement through this process.

2.10 Directorate of Students' Welfare (DSW)
DSW is the meeting point for students of UAP so that they can participate in various co and extra-curricular activities of the University. The primary objective of the DSW is to emphasize the wholeness of the university experience through the synchronized development of body, mind, and spirit. It emphasizes enhancing the student experience through "outside of classroom learning" and through various co-curricular activities. UAP has a large numbers of students' clubs; some are based in the departments which reflect departmental specialization, while there are central clubs that are directly managed by the DSW. Clubs are supervised by advisers, who are faculty members of UAP and takes a keen interest in the club activities. The central clubs give opportunities to students to discover and hone their true potentials. At DSW, students are able to develop their organizational, management and leadership skills. The club activities often touch the lives of individuals outside the university and help enhance the image of the university before the society and the nation.

2.11 Office of International Affairs (OIA)
Office of International Affairs has been formed to address the needs of the students and academic staff regarding collaborative and exchange opportunities at home and abroad. The formation of the office was triggered by the gap of knowledge regarding the external admission and funding opportunities among the students and the need to revive the existing collaborations at University of Asia Pacific. A faculty member is appointed as the contact point for facilitating the activities of the office and maintaining the liaison between the University and the external institutions.

2.12 Present and Future Prospect

The past achievements of UAP have set in motion its plans for the future. The university has constructed its own city campus at Green Road and has also purchased another piece of land (at Purbachal) for its outer campus which will include all kinds of academic and extra-curricular facilities. Several undergraduate and postgraduate programs of UAP are awaiting the final approval of the UGC.

With great zeal, UAP is continuing its commitment to provide quality education for its diverse student body. To improve the moral, intellectual and spiritual condition of the future generation of the country, this institution of higher learning is marching forward with great pace and vigor.

3.1 Brief Description of Undergraduate Course System

UAP has designed the curricula and syllabi of subjects offered in the undergraduate courses to meet the growing technological challenges confronting the nation and the world as a whole. The curricula and syllabi are relevant to the current needs and are responsive to the emerging challenges.

3.1.1 Academic Calendar

The entire undergraduate study is generally (other than B. Arch.) a 4-year program. Each academic year comprises two semesters; i.e., Fall (typically -October to March) and Spring (typically April to September). In addition to these two regular semesters, there may be provision for a short semester in the intervening periods between the two semesters.

3.1.2 Duration of Semesters

Duration of each regular semester (Spring or Fall) is generally 18 weeks, which is organized in the following way

Classes	14 weeks
Mid Semester Examination	1 week
Recess before Final Examination	1 week
Semester Final Examination	2 weeks
Total	18 weeks

Mid Semester examination is held according to the academic calendar, normally after 7 weeks of class. The classes remain suspended for one week during the Mid Semester examination.

Short Semesters have more intensive 8-week duration, with 7 weeks of Class + Mid Semester Examination and 1 week for Final examination.

3.1.3 Credit Structure and Course Pattern

The entire undergraduate program is covered through a set of theoretical and laboratory/sessional courses, fieldwork and project/thesis.

Theoretical Courses

One lecture per week per regular semester is equivalent to one credit hour. Thus, a three credit hour course has three lectures per week throughout a regular semester.

Laboratory Courses/Sessional Courses/Fieldwork/Project/Thesis

Credits for laboratory/sessional/field or design work are usually half of the class hours per week per semester. Thus, a one and half credit hour course has classes for three hours per week throughout the semester. Credits are also assigned to project and thesis work taken by students.

3.1.4 Types of Course

Core Courses

A number of compulsory courses are identified as core courses, which form the nucleus of the Bachelor degree program.

Optional Courses

Apart from the core courses, students will have to complete a number of courses, which are optional in nature. Hence students have some choices in selecting courses from a specified group or a number of courses.

3.1.5 Course Registration

A regular student is normally required to take a minimum of 15 credits and a maximum of 24 credits in a regular semester. The regular period of course registration starts a week before the commencement of semester classes and extends up to two weeks after the semester begins.

3.1.6 Grading System

The grading system is designed to evaluate the performance of a student in a given course based on a scheme of continuous assessment. For theoretical courses this continuous assessment is generally made through class assessment (assignments, attendance and quizzes/reports/presentations), a Mid Semester examination and a Semester Final examination.

The percentile distribution of marks for a theoretical course is as follows:

Class Assessment	30%
Mid Semester Examination	20%
Final Examination	50%
Total	100%

Assessments for Laboratory/ Sessional/Fieldwork courses are made by evaluating the attendance and performance of students in class, oral examinations during laboratory hours and quizzes. Assessment in design courses is done through evaluation of performance during class hours, home assignments/reports and quizzes. The eventual performance of a student in each course is based on the numerical grade obtained in the course and is evaluated by a letter grade equivalent to certain grade points. Letter grades and the corresponding grade points are as follows:

Numerical Grade	**Letter Grade**	**Grade Point**
80% and above	A+	4.00
75% to less than 80%	A	3.75
70% to less than 75%	A-	3.50
65% to less than 70%	B+	3.25
60% to less than 65%	B	3.00
55% to less than 60%	B-	2.75
50% to less than 55%	C+	2.50
45% to less than 50%	C	2.25
40% to less than 45%	D	2.00
Less than 40%	F	0.00
Exemption	E	---
Incomplete Work	I	---
Satisfactory	S	---

Grade ‘F’: If a student fails to achieve at least 40% mark in a course, s/he will get ‘F’ grade in that course. Besides, absence in Final Examination at the end of each academic semester will also result in ‘F’ grade.

Grade ‘E’: A student transferred to UAP from another university/academic institution will earn ‘E’ grades in the courses exempted at UAP.

Grade ‘I’: Grade ‘I’ may be given to a candidate when s/he fails to appear at the Semester Final examinations only for reasons beyond her/his control. Grade ‘I’ shall be converted to the actual grade obtained by the student when available by the following semester. Otherwise grade ‘I’ shall be converted to an ‘F’ grade and the student has to re-register for the particular course.

Grade ‘S’: Grade ‘S’ is given when a course, according to the syllabus, is extended to two consecutive semesters and grade ‘S’ is given in the first semester to mean satisfactory progression.

3.1.7 Calculation of Grade Point Average (GPA)

A student's semester performance is evaluated by Grade Point Average (GPA), which is computed in the following manner:

$$GPA = \frac{\Sigma \text{ (Grade Point} \times \text{Credits)}}{\Sigma \text{ Earned Credits}}$$

The grade points are points against letter grades as shown earlier. Credits are only for those courses registered for at UAP.

3.1.8 Performance Evaluation and Award of Degree

The performance of a student is evaluated in terms of semester GPA and cumulative grade point average (CGPA), which is the weighted GPA for all semesters completed.

To be awarded a degree at UAP, a student needs to complete a minimum number of credit hours specified in the curriculum, including the specified core courses. The minimum CGPA requirement for obtaining a Bachelors degree is 2.25. Candidates will be awarded a degree with honors if their CGPA is 3.75 or above.

3% of the total seats are reserved (with 100% Tuition Fee waiver) for children of Freedom Fighters. 3% of the total seats are reserved (with 100% Tuition Fee waiver) for poor and meritorious students from underdeveloped regions of Bangladesh.

3.2 Tuition Waiver Policy

University of Asia Pacific (UAP) provides financial assistance to meritorious students both at the time of admission and in subsequent semesters.

Golden GPA holders in both SSC and HSC will get 100% waiver at entry. Moreover, students having average GPA of 5.00 (with fourth subject), 5.00 (without fourth subject), 4.50 and 4.00 (out of 5.00) in S.S.C. and H.S.C. (or equivalent) would also get 100%, 75%, 50% and 25% tuition fees waiver in the 1st semester respectively.

In subsequent semesters, the students of each department would get partial to 100% tuition fees waiver based on their semester GPA. Moreover, regular students upon completing at least one semester at UAP are eligible to avail of the Vice-Chancellor's Special Tuition Fee Waiver facilities as per the criteria shown in the following Table:

Semester GPA	Tuition Waiver %
3.50-3.74	25%
3.75-3.89	50%
3.90-3.99	75%
4.00	100%

Top 3% students of each department will be offered 100% tuition fee waiver, 10~100% VC's tuition fee waiver is available for poor but meritorious students. Besides, special tuition fee waivers are also available for poor but meritorious students as well as siblings studying together at UAP (60% tuition fee waiver for 2nd siblings, 100% tuition fee waiver for 3rd siblings).

However, all the tuition waiver criteria are conditional upon the students' record of good conduct at UAP as recommended by her/his Academic Adviser and Head of the students' department.

3.3 Repeat Examination

Repeat Examinations of a completed semester are held within the first two weeks of the following semester. A student would be allowed to appear at the Repeat Examinations if s/he fails in three theory courses or less but not exceeding 10 credit hours in a regular semester. Candidates willing to appear at these examinations must apply to the Head of the Department through the Academic Adviser stating their willingness to appear at the said examination with the receipt of payment of Tk. 3000 per course within five working days after the semester final results are published.

Repeat Examinations on theory courses would be held on 50 percent of marks for each course and the marks for Class Assessment and Mid Semester Examination would be carried. There are no Repeat Examinations for sessional courses. The maximum grade to be obtained by a student in Repeat Examination would be 'B' (equivalent to 60%).

The following grading system would be followed in the Repeat Examinations:

60% and above	B
55% to less than 60%	B-
50% to less than 55%	C+
45% to less than 50%	C
40% to less than 45%	D
Less than 40%	F

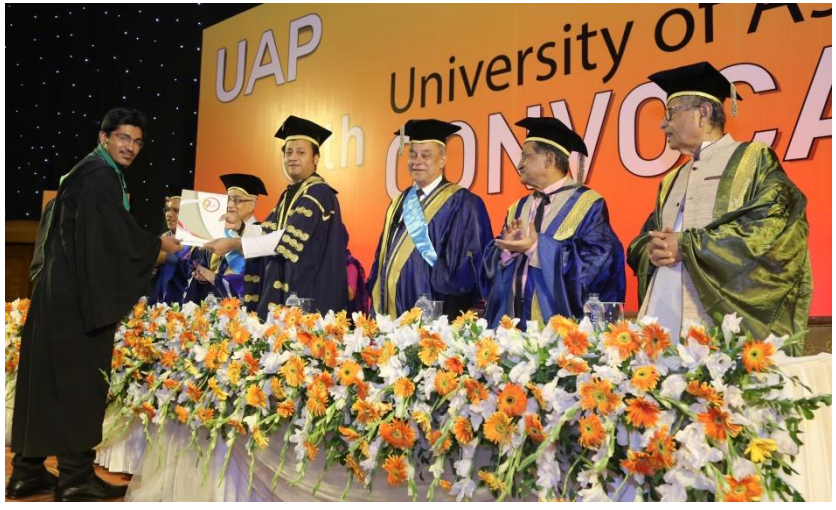
Students who appeared in Repeat Examination will not be eligible for merit based waiver/scholarship.

3.4 Improvement of Grades

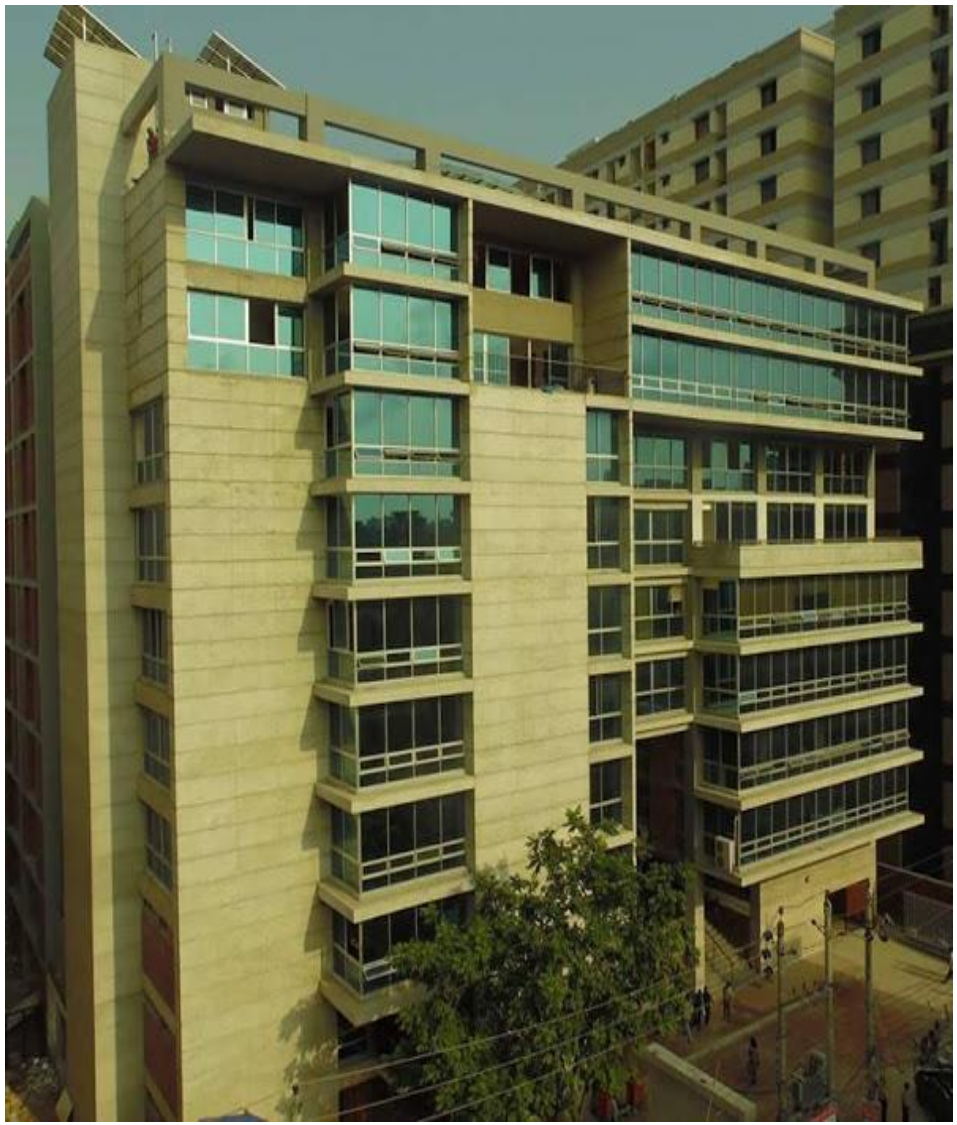
The provision for improvement of grades applies to those who obtained a grade of C or lower in any course. Such candidates may be allowed to improve their grades by surrendering the earlier grade obtained. The provision is divided into two categories, based on the student's CGPA being above or below 2.25. Certain academic and financial conditions apply for both categories.

For further details of the academic rules, students should consult the university information booklet for Examination Rules and Procedures.

CE students receiving Vice-Chancellor and Chancellor Gold Medal and certificate from Vice-Chancellor and Chancellor during 8th and 9th Convocations



Faculty Members of the Department of Civil Engineering (CE) at University of Asia Pacific



Department of Civil Engineering (CE)

Nature provides us with plenty of resources, at the same time subjecting us to its hostile behavior. Human beings need to tame this nature to support development activities and utilize the natural resources properly. Throughout the history of modern civilization, Civil Engineers have been doing this work and have always been at the forefront of the drive for the improvement of our standard of living. In every modern society, Civil Engineers always play the key roles in the planning, design and construction of the infrastructure that improve the modern life.

From the buildings that we live in to the offices and industries we wok in, the roads and bridges that we travel on, from the skyscrapers and historic buildings that symbolize cities and define the skylines to the towers that provide electricity and telecommunication, the shelters that protect populations to the dams that generate power, Civil Engineers have always been the essential torch bearers of human civilization. From flood mitigation to riverbank protection, design against earthquake to protection for cyclones, planning for traffic control to environmental pollution control, they strive to mitigate human sufferings on a huge range of problems.

4.1 Civil Engineering from Bangladesh's Point of View

Like any other developing country, Bangladesh needs an enormous amount of work to build its infrastructure. Many government and non-government development projects have been implemented since the independence of the country. For the four decades, these projects have always involved a large number of Civil Engineers. Still a lot of development work has to be accomplished to build the infrastructure in the years to come.

These development activities are impossible to undertake without the direct involvement of Civil Engineers. So, there is an excellent opportunity for the Civil Engineers, especially in Bangladesh, to participate in these development projects, to serve the nation as well as to build their own careers.

Once the infrastructure is built, constant maintenance of the system at a standard level is also a big task. Be it real estate development or construction and maintenance of telecommunication towers, water quality improvement or noise pollution control, flood control or river training, rainfall prediction or traffic planning, tunnel excavation or road construction, seismic retrofitting or repair of structural damage, there is hardly any aspect of infrastructural development in Bangladesh that is possible without Civil Engineers.

4.2 Civil Engineering at UAP

The department of CE at UAP started its journey in the Fall 1997 semester. At the moment, the department offers a 4-year undergraduate program and 2-year graduate in Civil Engineering. As per academic calendar, the first batch of students graduated in Spring 2001. Since then, 32 batches have graduated on schedule, one in each semester.

The course outline covers all the fields within the Civil Engineering discipline and it eventually leads the students to decide their field of choice for specialization. The program starts with foundation courses in basic sciences, mathematics, humanities, social sciences and management with basic courses in Civil Engineering.

Subsequently, specialization takes place in the fields of Structural, Environmental, Geotechnical, Transportation and Water Resources Engineering. These include studies on the properties of building materials, soil, irrigation and flood control, seismic analysis and design, waste management, environmental impact assessment, traffic management and safety studies, to name only a few. Construction management, another specialization considered, takes interdisciplinary approach between engineering and management aspect.

The curriculum is designed to give the students a strong theoretical background coordinated with laboratory experiences, projects and practical work which will provide them necessary impetus to work in their fields of specialization with expertise and ease.

The department of Civil Engineering has started offering Master of Science in Civil Engineering from Fall 2009. It is a full time program of 36 credits having 2 years duration.

4.3 Vision and Mission

Vision

The vision of the Department is to become a source of engineering solutions to sustainable infrastructure development through excellence in creative education and research to meet the challenges of 21st century.

Mission

We strive to be an internationally renowned Civil Engineering Department in education, research, innovation, publication and teaching that will best serve the society. The specific missions of the Civil Engineering Department are to:

- Uphold well qualified and highly motivated faculty members,
- Maintain laboratory facilities equipped with modern instruments for teaching and research to enhance research KPI (secure research fund, publish quality research articles, research product) of the department by conducting quality research,
- Offer up-dated curriculum through continuous reviewing of the program based on the recommendations of stakeholders and benchmarking of internationally recognized programs.
- Implement Outcome Based Education system for successful continuation of accreditation from national and international accreditation authorities,
- Provide opportunities for co-curricular activities for learning social skills and responsibilities,
- Cultivate collaboration and interaction with local industry and international scientific community, and
- Conduct forward looking inter and multi-disciplinary research to find solutions to sustainable infrastructural development.

5.1 Admission

Department of Civil Engineering admits new students in two semesters within a year; i.e., Fall and Spring, to work towards a full-time four-year B. Sc. Engineering degree and two-year M.Sc. degree in Civil Engineering.

5.1.1 Eligibility

The department enrolls students in undergraduate program who have passed their H.S.C. or equivalent degree based on the following minimum acceptable criteria:
Students must have a combined SSC + HSC (or equivalent) GPA of at least 7.5 out of 10.0 (with at least 3.0 out of 5.0 in HSC or equivalent). For students with Diploma Engineering background, the minimum combined GPA requirement for SSC + Diploma is 7.0 out of 9.0, with at least 2.5 out of 4.0 in Diploma Engineering. In addition, students must have Mathematics and Physics in HSC (or equivalent), and Chemistry in at least SSC or HSC (or equivalent).

All the candidates are required to appear at a written Admission Test. Admission at based on a weighted average of her/his CGPA in SSC (20%), HSC (30%) and marks obtained in the Admission Test (50%).

A student transferred to UAP from another recognized university or academic institution may be exempted from certain courses based on satisfactory performance (a grade of C or better) in courses considered equivalent to corresponding courses at UAP, as decided by the Course Equivalence Committee. A transfer student pursuing a Civil Engineering degree at UAP can be exempted from a maximum of 80 credit hours.

In Masters Program, Department enrolls students who have a B.Sc. Engineering degree or equivalent from any recognized university/institution in the relevant field/branch with a CGPA of at least 2.5 in the scale of 4.0 or its equivalent.

Detailed information about the admission requirements and procedure is available at the Admission Office of UAP, which is located at the First Floor of the campus

Phone: +8802-9126812, PABX: +8802-58157091~4, +8802-58157096 (Ext 0, 120)
FAX: +8802-58157097, E-mail: admission@uap-bd.ed

6.1 Brief Description of the CE Course System

At present, the CE department offers B. Sc. Engineering degree at the completion of 161 credit hours. The course structure has been designed to provide the graduates with adequate theoretical and experimental backgrounds in Basic Science, Mathematics, Basic Engineering, Humanities, Civil Engineering Practice as well as the major branches of Civil Engineering; i.e., Environmental, Geotechnical, Structural, Transportation and Water Resources Engineering.

The following Table shows the item wise distribution of the credit hours for the CE curriculum.

Type of Course	Credit Hour		
	Theoretical	Sessional	Total
Basic Science	6.0	3.0	9.0
Mathematics	12.0	0.0	12.0
Basic Engineering	34.0	16.5	50.5
Humanities	16.0	0.0	16.0
Civil Engineering Practice	5.0	0.0	5.0
Environmental Engineering	6.0	1.5	7.5
Geotechnical Engineering	6.0	1.5	7.5
Structural Engineering	15.0	4.5	19.5
Transportation Engineering	6.0	1.5	7.5
Water Resources Engineering	9.0	1.5	10.5
Optional Courses	10.0	1.5	11.5
Project & Thesis	0.0	4.5	4.5
Total	125.0	36.0	161.0

6.2 Fees

Every student selected for admission needs to pay Tk. 85,000 for 1st semester fees, and an additional Tk. 21,500 (i.e., Tk. 13,000 as admission fee, Tk. 5,000 as extra-curricular activity fee, Tk. 3,000 as caution money, Tk. 500 for certificate verification and ID card), totaling Tk. 1,06,500 at the time of admission. Caution Money taken from the students would be refundable at the time of her/his graduation from the university.

For students with H.S.C., 'A' Levels and Diploma Engineering background, the semester fee of Tk. 85,000 consists of Registration fee of Tk, 40,000 and Tuition fee of Tk. 45,000. Therefore, the total cost for 8 (= 4 × 2) semesters is Tk. 6,80,000 (= 8 × 85,000) in addition to the 21,500 mentioned before. In her/his final year at UAP, a student also needs to pay Tk. 6,000 as convocation fee.

As mentioned in section 3.2, UAP offers tuition waiver/scholarship to eligible students based on their academic background (i.e., S.S.C. and H.S.C./equivalent results) and performance at UAP.

7.1 Faculty Members

7.1.1 Full Time Faculty Members

CE Departmental

Farzana Rahman, Ph.D.
Professor & Head
B. Sc. Engg. (Civil), M. Sc. Engg.
Ph.D., Saitama University, Japan

M. R. Kabir, Ph.D.
Professor
B. Sc. Engg. (Civil), M. Sc. Engg., Post Graduate Diploma
Ph.D., Catholic University of Leuven, Belgium

M. Shamim Z. Bosunia, Ph.D, PEng
Professor Emeritus
B. Sc. Engg. (Civil), M. Sc. Engg.
Ph.D; University of Strathclyde, UK

A. M. M. Shafiullah, Ph.D.
Professor,
B. Sc. Engg. (Civil), M. Sc. Engg.
Ph.D; University of Strathclyde, UK

Md. Abdur Rouf
B. Sc. Engg. (Civil), M. Sc. Engg.
Ph.D; University of Liverpool, UK

Md. Mujibur Rahman, Ph.D.
Professor
B. Sc. Engg. (Civil), M.Eng.Sc.
Ph.D., Environmental Engineering, University of Adelaide, Australia

Iftekhar Anam, Ph.D.
Professor
B. Sc. Engg. (Civil), M. S.
Ph.D., Texas A&M University, USA
Muhammad Mizanur Rahaman, Ph.D.

Professor
B. Sc. Engg. (Civil), M. Sc. Engg., Lic.Sc..
D.Sc., Helsinki University of Technology, Finland

Tanveer Ferdous Saeed, Ph.D.
Professor
B. Sc. Engg. (Civil), M. Engg. (EEM)
Ph.D., Monash University, Australia

Emtazul Haque
Associate Professor
B. Sc. Engg. (Civil)
M. Sc. Engg., The University of Oklahoma, USA

Sarah Tahsin Noor, Ph.D.
Associate Professor
B. Sc. Engg. (Civil), M. Sc. Engg.
Ph.D., Concordia University, Canada

Nehreen Majed, Ph.D.
Associate Professor
B. Sc. Engg. (Civil), M. Sc. Engg.
Ph.D., Northeastern University, USA

Md Ashraful Alam, Ph.D.
Associate Professor
B. Sc. Engg. (Civil), M. Sc. Engg.
Ph.D. (Structure), University of Malaya, Malaysia

Syed Jamal Uddin Ahmed
Assistant Professor
B. Sc. Engg. (Civil)
M. Sc., The University of Dundee, Scotland, UK

Md. Mahmudul Hasan
Assistant Professor
B. Sc. Engg. (Civil), M. Engg.
Ph.D., Ritsumeikan University, Japan
Sharmin Nasrin, Ph. D.
Assistant Professor
B. Sc. Engg. (Civil), M. Sc. Engg.
Ph.D., Queensland University of Technology, Australia

Dr. Md Jihad Miah
Assistant Professor
B. Sc. Engg. (Civil), M. Sc. Engg.
Ph.D. Str. Engg., University of Pau and Pays de I'Adour, France

Rumman Mowla Chowdhury
Assistant Professor
B. Sc. Engg. (Civil), BUET
M. Sc., University of Stuttgart, Germany

Mansura Sharmin
Assistant Professor
B. URP, BUET
M. Engg., CE, University of Toronto

Mohammad Sabbir Rahman
Lecturer
B. Sc. Engg. (Civil), SUST
M.Sc. in CE, Kunsan National University, Gunsan, South Korea

Nandita Saha
Lecturer
B. Sc. Engg. (Civil), UAP
Master of Engineering, Osaka University, Japan

Md. Nazmul Alam
Lecturer
B. Sc. Engg. (Civil), UAP
M. Engg (Civil), BUET

Uzzwal Kumar Deb Nath
Lecturer
B. Sc. Engg. (Civil), BUET
M.A.Sc., Concordia University, Canada

Mahfuza Tabassum
Lecturer
B. Sc. Engg. (Civil), UAP

Abdullah Al Farabi
Lecturer
B. Sc. Engg. (Civil), BUET

Zarin Tasnim
Lecturer
B. Sc. Engg. (Civil), BUET

Joya Rani Mallick
Lecturer
B. Sc. Engg. (Civil), BUET

Md. Shadman Sakib
Lecturer
B. Sc. Engg. (Civil), BUET

7.1.2 Interdepartmental Faculty Members offering Courses in the CE Department

Dept. of Basic Science & Humanities

Sultan Mahmood, Ph.D.
Professor, Department of Basic Sciences & Humanities, UAP
B.Sc. (Hons), M.Sc. (RU), M.Phil. (BUET), Ph.D. (KUET & Sweden).

Md. Asadujjaman
Assistant professor, DU
M.S. in Pure Mathematics, DU
B.S. (Hons) in Mathematics, DU

Sk. Reza-E-Rabbi
Lecturer, Department of Basic Sciences & Humanities, UAP
B.Sc. (Hons.) M. Sc. KU.

Samsun Nahar
Assistant Professor, Department of Basic Sciences & Humanities, UAP
B.Sc. (Hons.), M.S. (DU) M.Phil. (BUET)

Shahina Naznin
Lecturer, Department of Basic Sciences & Humanities, UAP
B.Sc. (Hons.) M.S. DU.

Md. Nahian Chowdhury
Assistant Professor, Department of Basic Sciences & Humanities, UAP
B. Sc. (Hons), M Sc., SUST

Md. Anisur Rahman
Assistant Professor, Department of Basic Sciences & Humanities, UAP
B. Sc. (Hons), M. Sc., NU, M. Phil, BUET

Dr. Md. Azizar Rahman
Assistant Professor, BUET
B.Sc. (Hons), M.Sc. (RU), M.Phil. (BUET), Ph.D. (Australia).

Shipra Sarkar
Associate Professor, JU
B.Sc. (CU), M.Sc. (DU), M.Phil. (DU).

Dr. A. K. M. Jasim Uddin,
Professor, JU

Dept. of English

Arpita Haque,
Lecturer, Department of English, UAP
B.A.(Hons), M.A. (DU).

Injamamul Sarwer
Lecturer, Department of English, UAP
B.A.(Hons), M.A. (DU).

Iffat Jahan Suchona, Lecturer
Lecturer, Department of English, UAP
B.A.(Hons), M.A. (DU).

Dept. of Business Administration

Md. Jaber Al Islam
Lecturer, Department of Business Administration, UAP
BBA, MBA (DU)

Ms. Rubaba Nazneen Noor
Lecturer, Department of Business Administration, UAP
BBA, MBA (DU)

Ms. Barnali Nandi
Lecturer, Department of Business Administration, UAP
BBA, MBA (DU)

Ms. Tasneem Tarannum
Lecturer, Department of Business Administration, UAP
BBA (UAP), MBA (DU)

Dept. of Electrical & Electronic Engineering

Tanima Tasnim
Lecturer, Department of EEE, UAP
B. Sc. Engg. M.Sc. Engg. (BUET

Mr. Kazi Mahtab Kadir
Lecturer, Department of EEE, UAP
B. Sc. Engg. (IUT), M.Engg. (USA)

7.1.3 CE Departmental Full Time Faculty Profiles

Dr. Farzana Rahman, Professor and Head
Ph.D. in Civil Engineering, Saitama University, Japan, 2009
M.Sc., Saitama University, Japan, 2005
B.Sc., Engg. (Civil), BUET, 1998

Dr. Farzana joined UAP in 2013 as an Assistant Professor and currently working as a Professor and Head of the Department of Civil Engineering Department. Before joining UAP, she worked as an Assistant Professor in Presidency University Dhaka from January 2010. Dr. Farzana teaches various theoretical and sessional Courses on Transportation and basic Civil Engineering in undergraduate and graduate programs. She teaches the courses namely Traffic Engineering, Transportation Planning and Management, Highway Materials and Traffic Engineering Laboratory, Introduction to Civil Engineering, Details of Construction, Surveying, and Civil Engineering Drawing for undergraduate program. Dr. Farzana teaches graduate courses on Transportation Planning, Traffic Engineering and Transport Modeling. Dr. Farzana has also served as the Coordinator of the Postgraduate Program of the department.

Her research aims to provide tools that would be appropriate in considering the consequence of decisions related to transportation planning and design. Her transportation engineering research has been focused within four main areas: 1) to improve road safety analysis and evaluation techniques, 2) to develop, implement and evaluate traffic calming decision making process and its prioritization system, 3) Statistical modeling to improve the level of knowledge associated with transportation planning implications and 4) to evaluate service quality of public transport. Dr. Farzana employs statistical methods in the residential street safety analysis, particularly in modeling the relationship between safety and street characteristics. Specific aspects of her research include: formal procedures in deciding when and which improvements such as traffic calming devices are required; improvement of public transport service quality; tools for designing safety for new roads; pedestrian safety facilities; parking management for increasing mobility on arterial roads; and tools for traffic management improvements. Her current research is firstly on implementation of bus priority lanes in the context of heterogeneous traffic in developing cities and secondly assessment of ride sharing service based on customers' opinion in Dhaka city. Her research will also continue to improve the knowledge base for using these tools by developing more practical procedures for estimating the outcomes of decisions.

Dr. M. R. Kabir, Professor
Ph.D., Catholic University of Leuven, Belgium, 1993
Post Graduate Diploma, Anna University, India, 1985
M. Sc. Engg., BUET, 1984
B. Sc. Engg. (Civil), University of Roorkee, India, 1980

Dr. Kabir has been the Head of the CE department for several times since joining the university in 2001. He has a distinguished academic and professional background spanning over thirty years.

Before joining UAP, he held various respectable academic positions like faculty member of BUET, Visiting Faculty in the University of Alberta, The University of Texas at Austin and The Technical University of Delft. He has also worked as a guest faculty in several public and private universities of Bangladesh.

At UAP, he has held positions of Acting Registrar and Acting Vice Chancellor before becoming the Pro Vice Chancellor in 2003, a position he currently holds. He has taught courses on Open Channel Flow, Hydrology, Irrigation and Flood Control, Introduction to Civil and Environmental Engineering and Hydraulics Lab.

Dr. Kabir has about forty publications in national and international journals and proceedings, including papers in the journals of American Society of Civil Engineers (ASCE), Natural Hazards, Urban Water, Science and Technology and the Institution of Engineers Bangladesh (IEB). His current research interests include hydrology, river engineering, flood control, sediment transport, etc. He supervised the thesis works of several under and post-graduate students at BUET and UAP. He has been a member of the editorial and review board of several technical journals and bulletins, including the IEB Journal of CE and Journal of WRE at BUET.

In addition to teaching and research, he has worked as the principal investigator and main resource person in numerous government and non-government projects and has offered services as a technical expert to organizations like IWM, IUCN, DWASA, LGED, Department of Fisheries, Water Development Board, Roads and Highways Department, etc. He is a Life Fellow of the Institution of Engineers, Bangladesh and Life Member of Bangladesh Earthquake Society and Bangladesh Computer Society.

Prof. Kabir has recently been appointed the Country Chapter Committee Chair of the Association of Universities of Asia and the Pacific (AUAP), which is an association of the university chief executives from higher education institutions in Asia Pacific and around the world.

Dr. M. Shamim Z. Bosunia, Professor Emeritus
Ph.D., University of Strathclyde, UK, 1979
M.S., BUET, 1972
B. Sc. Engg. (Civil), BUET, 1965

Prof. Dr. M. Shamim Z. Bosunia is a prominent academician and structural engineering expert of Bangladesh. He joined BUET as a lecturer of Dept. of Civil Engineering in 1969, became a professor in 1981 and retired from BUET in 2009. Having played a pivotal role in UAP's formative years, he now serves as *Emeritus Professor* of its Dept. of Civil Engineering. He completed his master's with a thesis on *Torsional Behavior of Plain and Reinforced Beams of Brick Aggregate Concrete* and PhD with dissertation on *The Deterioration of Portland Cement Paste Exposed to Sodium Chloride Environments*. He is considered a pioneering academician promoting modern concrete construction in Bangladesh. His areas of expertise include repair and rehabilitation of structures, durability of structural concrete, low cost housing in rural areas etc. As a leading expert concrete technologist, he made significant contribution to the first Bangladesh National Building Code (BNBC) published in 1993. Areas of his contribution include building materials, design of concrete and ferrocement structures, evaluation of existing buildings etc. Prof. Bosunia has published more than thirty journal papers and research articles throughout his career which stand as excellent references to the engineering community. He served as the Chairman of all civil engineering committees of Bangladesh Standard Testing Institution (BSTI) and played a vital role in setting up Bangladeshi standards of various construction materials. He also served as a member of the board of governors of the Housing and Building Research Institute (HBRI). Currently he is serving as an independent director of the Prime Bank Ltd. as well as the chairman of the Board of Rajshahi WASA. Prof. Bosunia is rendering various consultancy services in the capacity of Team Leader or member for the last four decades. Areas of his works include the East-West Interconnector Transmission Line over Jamuna, repair and rehabilitation of hundreds of cyclone shelters in the coastal areas of Bangladesh and preparing master plan for cyclone shelters, repair and strengthening of Bangabandhu National Stadium and Mirpur Cricket Stadium, design of Mirpur Indoor Stadium, design of a number of high-rise buildings in the country including the 39-storied City Center in Dhaka, design of various bridges of RHD. At present, he is serving as a member of the Panel of Experts for the mega projects Padma Multipurpose Bridge and the Karnaphuli Tunnel appointed by the govt. of Bangladesh. As an academician and professional, Prof. Bosunia draws immense respect and popularity from his students and engineers, which made him the President of the Institution of Engineers for 2013-14.

Dr. A.M.M. Safiullah, Professor
Ph.D., University of Strathclyde, UK, 1981
M.Sc., BUET, 1977
B. Sc. Engg. (Civil), BUET, 1969

Professor Abul Mukarram Mohammad Safiullah is an eminent academician and an expert in Geotechnical Engineering who was the Vice-Chancellor of BUET from 2006 until 2010 and of AUST from 2011 until 2019. Currently, he is working as a Professor in the Department of Civil engineering at UAP. Prof. Safiullah earned his bachelor's and master's degree in Civil Engineering from BUET in 1969 and 1977 respectively. During his long carrier in BUET spanning four decades, he served as the Head of the Department (1993), Dean of the Faculty of Civil Engineering (1998), Director of Planning and Development (1989), Project Manager of University of Alberta-BUET Institutional Linkage Project (1989), Directorate of Continuing Education (1995), Provost of Sher-e-Bangla Hall (1983). He was appointed by the govt. as the chairman or member of many committees or bodies to help govt. in policy-making decisions. He has served as the Vice-Chairman of the Board of Accreditation for Engineering and Technical Education, IEB, member of Bangladesh Professional Engineers' Registration Board, etc. Prof. Safiullah has also been involved in University Grants Commission (UGC) as Member of UGC Award Committee, Equivalence Committee, Higher Education Quality Enhancement Project (HEQEP) and Accreditation for Higher Education. As an academician and a researcher, Prof. Safiullah has significantly contributed to the development of Geotechnical Engineering in Bangladesh through his research and teaching. He has authored quite a number of technical papers in national and international journals and conference proceedings. He is one of the authors of foundation chapter of the *Bangladesh National Building Code* (BNBC, 1993) and *Design Manual for Road Structures* prepared for the Local Government Engineering Department. As an expert geotechnical engineering consultant, Prof. Safiullah has been engaged in various projects as a member or team leader. Significant projects of his involvement include the Padma Bridge, Dhaka Mass Rapid Transit Development Project, Rooppur Nuclear Power Plant, Bangabandhu (Jamuna) Bridge, Multipurpose Cyclone Shelter Programme, East-West Electrical Interconnector Project, 20-Storied Building for Sena Kalyan Sangstha, Kaptai Hydraulic Project, Chittagong Port, Transmission Tower Project, Bangladesh Nuclear Safety Committee, etc. In recognition to his service to the engineering community of Bangladesh, academic excellence and valuable contribution in enhancing the quality of engineering education, Prof. Safiullah was awarded the *IEB Gold Medal* in 2015.

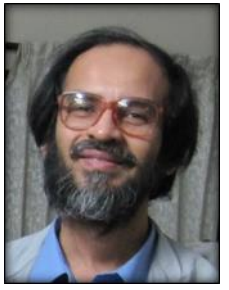
Dr. Md. Abdur Rouf, Professor
Ph.D., University of Liverpool, UK, 1984
M.S., BUET, 1981
B. Sc. Engg. (Civil), BUET, 1975

Dr. Rouf joined as a lecturer in the department of Civil Engineering of BUET in May 1975 after obtaining B.Sc. Engg. degree from BUET. He completed M.Sc. Engg. in Civil Engineering from BUET in 1981 and obtained Ph.D with specialization in structural Engg from the University of Liverpool, U.K. in 1984 under Commonwealth Scholarship. Prof. Rouf has a no. of publications in the national and international journals and conference proceeding. He is a co-author of a book on computer programming and contributed in preparing the Road structures manual and Earth work Manual for practicing engineers of LGED. Prof Rouf has been involved in civil engineering projects of national importance namely: Microwave Tower Project of BTTB at Chittagong, Paisharhat Bridge at Barisal, Hi-Tech Park project at Kaliakoir, Truss Roof of the Bulk Godown of Ghorashal Urea Fertilizer factory, Novotheatre building Complex , Bangladesh Bank Training Academy at Mirpur and investigation of Causes of Cracks of Jamuna Multipurpose Bridge. Prof. Rouf also served as a technical advisor to the Inter Ministerial Dispute Negotiation Committee for the Bhairab Bridge (RHD). He was also involved in Sectional Committees for framing standards for clay bricks, cement blocks & hollow blocks, and reinforcing steel in Bangladesh Standards & Testing Institutes (BSTI). He was engaged in Tender Evaluation and construction supervision of Third Karnaphuli Bridge. Prof. Rouf served as Acting Vice-Chancellor, Dean of the Faculty of Civil Engineering, Head of the Dept of Civil Engineering, Director of Planning & Development, System Analyst of BUET Computer Centre, Project Manager of BUET- University of Alberta Institutional Linkage Project sponsored by CIDA, Canada. Prof. Rouf has been engaged in teaching for more than forty two years teaching courses on Structural Brickwork, Structural Analysis & Design, Reinforced & Prestressed Concrete, Strength of Materials, Analytic Mechanics, Computer Programming & Numerical Methods and Surveying. His current areas of Interest are Structural Brickwork, Brickwork Arch, Structural Analysis and Design of Reinforced and Prestressed Concrete structures, Brick Aggregate Concrete, Quantity Estimating & Cost Analysis; Quality Control in Construction. Prof. Rouf was involved in extensive computer works for carrying out the research works for Masters and for PhD using the computers IBM 370-115 of BUET, IBM 360-System of Bureau of Statistics, Bangladesh Secretariat and IBM 4341, CDC 7600 and ICL 1906s of the University of Liverpool, U.K.

Dr. Md. Mujibur Rahman, Professor
Ph.D., University of Adelaide, Australia, 1988
M.Eng.Sc. University of Melbourne, Australia, 1984
B. Sc. Engg., (Civil), BUET, 1976

Dr. Md. Mujibur Rahman currently, is a Professor of Civil Engineering at the University of Asia Pacific, a leading private university in Dhaka Bangladesh. Prof. Rahman is a Life Fellow of the Institution of Engineers, Bangladesh. A former Professor and Head of Civil Engineering Department at the Bangladesh University of Engineering & Technology, BUET, Prof. Rahman also worked as an Adjunct Professor, University of Guelph, Ontario, Canada; as a Visiting Professor of Portland State University, Oregon, USA; University of Alberta, Canada and the University of Texas at Austin, USA. Professor Rahman also acquired additional administrative experience at BUET such as Director of Planning and Development Directorate, Director of International Training Network (ITN), and as Founder Director of Center for Environmental and Resource Management. Prof. Rahman obtained his B.Sc. in Civil Engineering from BUET, M.Eng.Sc from the University of Melbourne and Ph.D. from the University of Adelaide, Australia, and specializes in Environmental Engineering. Major areas of research and teaching interest of Dr. Rahman include Urban Sanitation; Fecal Sludge Management; Solid Waste Management, Air and Water Pollution; Urban Drainage and Green Infrastructures; Environmental and Social Impact Assessment; Socio-economic aspects of Development Projects; Involuntary Resettlement: Resettlement Strategies; Climate Change Issues; Environmental Challenges of Low Income Urban Communities. Prof. Rahman has more than 80 publications in national and international peer reviewed journals, conference proceedings, and research reports. He is the co-Author of the Text Book on Water Supply and Sanitation: Rural and Low Income Urban Communities and is editor of Books on Contemporary Environmental Challenges. Prof. Rahman played a lead role in establishing ITN-BUET, a national capacity building center for water and waste management. He is a member of the National Forum for Water Supply and Sanitation and actively involved in capacity development initiatives for sustainable sanitation in Bangladesh. Prof. Rahman provided leadership in formulation of "Institutional and Regulatory Framework for FSM in Bangladesh 2017", "National Strategy for Water Supply and Sanitation in Hard to Reach Areas of Bangladesh 2012", and "National Sanitation Strategy 2005". Prof. Rahman led the development of the 'Master Plan' and design of the "Hatirjheel" project, a project aimed at improving urban stormwater drainage, traffic congestion and restoring back the severely degraded wetland of central Dhaka.

Dr. Iftekhar Anam, Professor
Ph.D., Texas A&M University, USA, 2000
M.S., The University of Texas at Austin, USA, 1996
B. Sc. Engg. (Civil), BUET, 1993



Dr. Anam joined UAP as an Assistant Professor in 2000, following on teaching and research positions at BUET, UT Austin and Texas A&M University.
Dr. Anam's main research interest is based on structural dynamics, including earthquake engineering, ocean wave mechanics, offshore structures, dynamic soil-structure interaction etc. He has developed theoretical and numerical methods for the calculation of nonlinear wave forces, wave kinematics, foundation stiffness and probabilistic modeling. His works have been published in journals and monographs published by American Society of Civil Engineers (ASCE), American Society of Mechanical Engineers (ASME), International Society of Offshore and Polar Engineers (ISOPE) and presented at various international conferences. At UAP, Dr. Anam has taught several theoretical and sessional courses on Engineering Mechanics, Structural Analysis and Design. He has led the research work on structural dynamics and earthquake engineering at UAP and has supervised undergraduate and postgraduate thesis/project works on the analyses of RC buildings, bridges, pavements, towers, skyscrapers, floating houses, low-cost houses, soil-structure interaction, probabilistic structural dynamics, structural control, ductility, seismic detailing and retrofit of RC frames, flat slabs, as well as masonry structures, developing numerical and experimental models on linear and nonlinear structural dynamic analyses for seismic ground motion, impact, blast, wind and hydrodynamic loading. Results of his research works at UAP have been published in proceedings of international conferences across the world. He has also developed the Structural Mechanics and Strength of Materials Laboratory at UAP, housing the first Universal Testing Machine (UTM), first Reversible UTM and first seismic shake table developed in Bangladesh.
Dr. Anam has also performed consultancy services for CRTTC-UAP on structural assessment and retrofitting of existing buildings, strengthening RC structures against earthquakes using dynamic analyses, utilization of Glass Fiber Reinforced Polymer (GFRP) bars in Bangladesh.
He has served as the principal investigator and main resource person in government funded research projects and training courses on structural dynamics and earthquake engineering and served in the Review Board of updated BNBC as well earthquake-resistant design manuals developed in the projects CNCRP and SATREPS/TSUIB, funded jointly with JICA.

Dr. M. Mizanur Rahaman, Professor
Post graduate Degree in pedagogy, Helia University of Applied Sciences, Finland, 2012
D.Sc., Helsinki University of Technology, Finland, 2009
Lic.Sc., Helsinki University of Technology, Finland, 2005
M.Sc., Helsinki University of Technology, Finland, 2003
B.Sc. Engg. (Civil), BUET, 2000

Dr. Rahaman joined UAP in 2013 after working as a postdoctoral researcher in the Department of Civil and Environmental Engineering at Aalto University, Finland and a visiting scholar in the Department of Geography at the University of Cambridge, UK. He received formal pedagogy education and training on grading, curriculum design and test evaluation from Finland and UK. Dr. Rahaman is the author of over 60 scientific articles among which 55 are peer-reviewed publications. His current research interests are integrated water resources management, transboundary river basin institutions, water security, global water policies and water laws. His research findings are published in many reputed journals including Natural Resources Forum, Water Policy, International Journal of Water Resources Development, and Integrated Environmental Assessment and Management among others. He has experience of working in the field in Bangladesh, Bhutan, Canada, Finland, India, Nepal and United Kingdom. He has been an invited lecturer in eleven universities including the University of Toronto (Canada), University of East Anglia (UK), University of Bergen (Norway), Fudan University (China) and OSCE Academy (Bishkek, Kyrgyzstan). During 2016-2017, Dr. Rahaman worked as a visiting professor at OSCE Academy, Bishkek, Kyrgyzstan. He has given oral presentations in numerous international scientific conferences including ten as an invited speaker.Dr. Rahaman has instructed one doctoral thesis, five master's thesis and 19 bachelor thesis in water resources field. He also acted as an external examiner of two doctoral theses. He is an editorial board member of the International Journal of Sustainable Society and Journal of Water Resources Engineering and Management. Previously, he served as an editorial board member of Water International (2007-2009). Dr. Rahaman was interviewed by global news channel Aljazeera about Grand Ethiopian Renaissance Dam on Nile river basin. Dr. Rahaman served as Head, Department of Civil Engineering, University of Asia Pacific, during 15 April 2017 to 30 April 2019. He also served as Additional Director, Institutional Quality Assurance Cell of UAP, during November 2016 to May 2017. Since 01 April 2019, in addition to his academic duties, Dr Rahaman is working as the Director of the "Institute for Energy, Environment, Research and Development (IEERD)" of University of Asia Pacific.

Dr. Tanveer Ferdous Saeed, Professor
Ph. D., Monash University, Australia, 2011
M. Engg. (EEM), AIT, Thailand, 2006
B. Sc. Engg. (Civil), BUET, 2004

Dr. Tanveer Ferdous Saeed joined as an Associate Professor in the Department of Civil Engineering, UAP in 2016 and had been promoted as a Professor in, 2019. Prior to the joining at UAP he worked as an Assistant Professor in the Department of Civil Engineering, Ahsanullah University of Science and Technology from April 2011- April 2016. Professor Saeed received his B.Sc. degree in Civil Engineering from BUET, M.Sc. in Environmental Engineering from Asian Institute of Technology (AIT), Thailand, and PhD in Civil Engineering from Monash University, Australia. He is specialized on the fate and mathematical modelling of pollutants removal from wastewater. Professor Saeed published many publications in peer reviewed journals such as: Environmental Technology, Journal of Environmental Management, Chemical Engineering Journal, Journal of Environmental Chemical Engineering, Environmental Technology & Innovation, Environmental Science and Pollution Research, Journal of Cleaner Production, Critical Reviews in Environmental Science and Technology, Water Science and Technology, Journal of Environmental Sciences, Wetland Science, Bio resource Technology, Environmental Science & Technology, Chemosphere, Water Research, Process Biochemistry and *American Journal of Tropical Medicine and Hygiene*. He is also serving as the reviewer of many peer reviewed international journals He is the lead author of a text book Environmental Sanitation, Wastewater Treatment and Disposal (published by University Grants Commission of Bangladesh), that is often followed as a text/ reference book at undergraduate/postgraduate levels to cover environmental engineering course curricula in different national and international technical universities. Professor Saeed received many research and academic awards. These include book author reception award by the University Grants Commission of Bangladesh in the year 2016, University Grants Commission (UGC) Award in the year 2013 and UGC Gold Medal in 2016 for best research in Engineering and Technology, AIT fellowship during his MSc studies at AIT, Faculty of Engineering Post Graduate Award, Monash Graduate Scholarship, and Monash Travel Grant Award while pursuing his PhD studies at Monash University. Professor Saeed is the pioneer of introducing constructed wetland systems in Bangladesh, to provide treatment of wastewaters and polluted surface waters. Professor Saeed was the advisor of Environmental Disaster and Management Club of UAP, from October,2017- April 2018.

Emtazul Haque, Associate Professor
M. Sc. Engg., The University of Oklahoma, USA, 1997
B. Sc. Engg. (Civil), BUET, 1992

Mr. Haque joined UAP in 2006 following an excellent academic career as well as extensive research and professional experience at home and abroad. In addition to specializing on Geotechnical Engineering, he has professional experience in structural engineering and pavements. Before joining UAP, he headed a development company as its Managing Director in Dhaka; worked as a consultant (foundation and structural design) in Dhaka, the Manager Technical Services (Geotechnical Engineering) at Terra-Mar, Inc. in USA and design engineer at Design Associates Ltd. in Dhaka, Bangladesh.

As a Graduate Research Associate at The University of Oklahoma, Mr. Haque performed extensive experimental and numerical analyses on cracking characteristics of Continuously Reinforced Concrete Pavements. He devised a tensile loading arrangement using a Universal Testing Machine to simulate inherent shrinkage cracks in CRC pavements and also developed a two-dimensional model of the CRC slabs using FLAC, a commercial software based on finite difference method.

Mr. Haque had been involved in many industrial, commercial, residential, private housing and public projects in the city of Houston, Beaumont and Austin in Texas, USA. Scope of works under these projects included extensive field and laboratory investigation and geotechnical analyses and engineering recommendations for the design and construction of underreamed drilled pier foundations, pile foundations for single and multi-span bridges, retaining walls, communication towers, pavement thickness design and subgrade preparation, underground utility lines and lift stations. He performed extensive slope stability analyses to evaluate the stability of existing and proposed slopes and provided recommendations regarding geometry, preparation and drainage to construct/maintain safe and stable slopes for numerous landfills, lakes, retention ponds and bayous in Texas.

He has been involved in the geotechnical investigation, foundation and structural design as well as pile load tests of numerous multi-storied residential and commercial projects, shopping complexes, effluent treatment plants in Dhaka Division.

At UAP, Mr. Haque currently teaches courses like Engineering Mechanics, Soil Mechanics, Engineering Geology and Geomorphology, Foundation Engineering and Soil Mechanics Lab. His research includes calculation of bearing capacity of foundations, assessment of geotechnical properties of Dhaka subsoil.

Dr. Sarah Tahsin Noor, Associate Professor
Ph.D., Concordia University, Canada, 2011
M.A.Sc, Concordia University, Canada, 2005
B. Sc. Engg. (Civil), BUET, 2002

Dr. Sarah Tahsin Noor obtained her Master and PhD in Geotechnical Engineering. She was the recipient of Canada Graduate Scholarship (2007) from the Natural Sciences and Engineering Research Council (NSERC) in Canada. Some of her other remarkable achievements are Hydro Quebec Award (2007), Concordia University Graduate Fellowship (2007), and the 2nd winner position in a career contest (2010) jointly organized by American Association of Cost Engineering International (AACEI) and SNC-Lavalin, Montreal. She became member of Golden Key International Honor Society, as nominated by its Chapter at Concordia University. Sarah sets the vision of her professional career in different dimensions; being an academician, getting involved in professional activities and working for society as engineer. In 2011, she joined in the department of Civil Engineering at UAP in the full-time position of Assistant Professor. Before that she received certified training on effective teaching methods offered by Education Department, Concordia University. She also won Concordia University Teaching Fellowship (2008). Sarah has been practicing Outcome based Education (OBE) method in delivering lectures since 2016. Her passion for OBE has engaged her in applying the ability as life-long learner of OBE with enthusiasm under the supervision of Washington Accord Mentors to BAETE from Board of Engineers Malaysia (BEM). The collaborative supports from Industry help her proceed the research work with advanced technology. Sarah published research in reputed journals, and peer-reviewed national and international conferences. Her research interest includes pile tests, investigation on in-situ soil behaviour, foundations in problematic soils, numerical modeling in geotechnical engineering, and so on. She also received the recognition for the research works of her team in International Conferences through Best Paper Award, Best Presentation Award, and publications in Scopus Indexed Proceedings. She had also performed as external examiner of Masters and PhD Theses on invitation from universities of home and abroad. Sarah had served as the director of Center for Research, Training, Testing and Consultation (CRTTC) from 2014 to 2019.

Sarah serves as a certified evaluator of Board of Accreditation of Engineering and Technical Education (BAETE), Bangladesh for on-site evaluation and accreditation of BSc Engineering Programs. She offers on-site training to faculty members on Outcome based Education (OBE) for preparing the program for Outcome based Accreditation (OBA). Sarah is member of IEB and executive member of IABSE.

Dr. Nehreen Majed, Associate Professor
Ph.D., Northeastern University, USA, 2011
M.Sc., Civil and Environmental Engineering, BUET, 2005
B. Sc. Engg. (Civil), BUET, 2003

Dr. Nehreen Majed started her journey at University of Asia Pacific (UAP) as an Assistant Professor in the Department of Civil Engineering in Fall 2014. She got promoted to Associate Professor in Fall 2017. Previously, she worked as an Assistant Professor at the Department of Environmental Science and Management at North South University (NSU) in Dhaka during 2012-2013. She also served as a member in the coordination committee for the formation of the Department of Civil and Environmental Engineering at NSU. Dr. Nehreen has completed her BSc (Civil Engg) in 2003 and MSc (Environmental Engg) in 2005 from Bangladesh University of Engineering and Technology (BUET). She worked as a research officer at ITN-BUET until 2005 working in the water supply and sanitation sector in Bangladesh. Then she completed her PhD degree in 2011 from Northeastern University at Boston, in United States of America specializing in Environmental Engineering while working as a graduate teaching/research assistant for the department of Civil and Environmental Engineering. Her fields of expertise encompass water quality assessment and control, water and wastewater treatment, biological nutrient removal and microbial ecology. Apart from looking at phosphorus analyzing techniques and advanced lab-scale configurations for nutrient removal, her PhD research introduced a novel technique to evaluate cellular level distribution of storage polymers in the organisms that are relevant in enhanced biological phosphorus removal. At UAP, Dr. Nehreen is working on spatial and temporal variation of river water quality, evaluation of effluent treatments plants in industries, uptake and bio-accumulation of environmental contaminants etc. She has a number of publications in internationally acclaimed peer-reviewed journals like Environmental Science and Technology, Current Opinions in Biotechnology, Water Research, Water Science and Technology, Water Environment Research, Frontiers in Environmental Science, Environmental Monitoring and Assessment and also in peer-reviewed conference proceedings. Apart from the academic responsibilities, Dr. Nehreen is the founder Director of the Office of International Affairs (OIA) at UAP. Dr. Nehreen is also working as a member of the self-assessment committee while actively participating in the implementation of the Outcome Based Education (OBE) in the department. She also serves as a certified evaluator of Board of Accreditation of Engineering and Technical Education (BAETE), Bangladesh for on-site evaluation and accreditation of BSc Engineering Programs.

Dr. Md Ashraful Alam,Associate Professor
Ph.D. University of Malaya, Malaysia, 2010
M.Eng.Sc. University of Malaya, Malaysia, 2006
B. Sc. Engg. (Civil), BUET, 2003

Dr. Alam joined at UAP in 2017 as an Assistant Professor. Before joining at UAP, he worked at UNITEN (Malaysia) as senior lecturer since 2011; University of Malaya as research assistant, part time lecturer and structural engineer; Texture consultant (Dhaka) as structural engineer. He is highly experienced with Outcome Based Education (OBE) system both for undergraduate and postgraduate engineering programs. At present, he is the member of coordination committee of BAETE. He experienced to teach courses at undergraduate and postgraduate programs in structural engineering field i.e. Design of Concrete Structures, Analysis and Design of Tall Building, Advanced Concrete Design, Repair and Strengthening of Concrete Structures and Analysis of Structures. Dr Alam supervised PhD (2) and Masters students (6) as main supervisor. He is highly interested and actively involved with product / industry based research. The main research interest of Dr. Alam includes strengthening / retrofitting of structure. He innovated anchor and embedded connector systems; high strength natural fibre composite plates for strengthening of structures.
He had one patent (approved) and published more than 70 research articles in journals and conferences. The selected articles of Dr Alam had been published in ISI expanded indexed Journals (i.e. Materials and Structures, Construction and Building Materials, Building Engineering, Arabian Journal for Science and Engineering, Steel Composite Structures and Structural Engineering and Mechanics). He had been awarded silver and bronze medals from international research exhibition including ITEX, MTE and UNIREX. Dr Alam secured and directed several research grants from Ministry of Malaysia and Bangladesh, university and collaborator. He had various administrative experiences at UNITEN (Malaysia) including postgraduate program head; curriculum development for Master of Structural Engineering (MSE) program, implementation of OBE in MSE program; head of structure and materials unit; OBE and SAR committee. At present Dr Alam is working as coordinator of MSc in Civil Engineering Program at UAP. He is also the member of admission test committee, IQAC and coordinator to implement OBE in lab courses (CE) at UAP. Dr Alam is professionally recognized by national and international bodies, he is the member of IEB; Associate member of ASCE and Graduate member of ICE. He is the reviewer of ISI indexed journals, national and international conferences. Dr Alam is closely attached with construction industry as well**.**

Dr. Mahmudul Hasan, Assistant Professor
Ph.D., Ritsumeikan University, Japan, 2014
M. Engg., Ritsumeikan University, Japan, 2010
B.Sc. Engg. (Civil), KUET, 2002

Dr. Hasan, joined UAP in 2015 as an Assistant Professor, with specialization on Environmental Engineering, in the department of Civil Engineering. Just after the completion of PhD at 2014, he started his career in academia as an Assistant Professor at the department of Civil Engineering in University of Information Technology & Sciences (UITS), Dhaka. Later he was entrusted with the position of Head of the Department. In addition to academia he has experience in working as an Assistant Engineer at Department of Public Health Engg. (DPHE), in the project namely Bangladesh Water Supply Program Project (BWSPP) funded by World Bank. His work was extended to the Planning Division, DPHE afterwards. He also has international working experiences for instance Tepia Corporation Japan and Kankyosoken Co. Ltd., Japan. Dr. Hasan has been working and doing research in the environmental sector for over 10 years with research interests include: Environmental sanitation, Fecal sludge management, Water supply, Water and wastewater treatment, Environmental impact assessment (EIA), Environmental management. During his six years research journey in Japan, he worked under the supervision of Prof. Dr. Jun Nakajima to develop a low cost Simple Ceramic Filter (SCF) and also to investigate its sustainable applications in water and wastewater treatment processes. His pioneer PhD research findings were published in different peer-reviewed journals and presented at various international and national level conferences received different prestigious awards and honors and also got recognition through several media coverage in Japan. Currently Dr. Hasan working on Sanitation, Water quality indices (WQI), River water quality, Dhaka city lake water, Wastewater treatment using duckweed etc. Dr. Hasan has a number of publications internationally acclaimed peer reviewed journals namely Desalination, Water Science and Technology: Water Supply, Environmental Technology & Innovation, Water Environment Research, Journal of Water and Environment Technology (JWET), Environmental Engineering Research. He completed several training programs, workshops, attended seminars that include: Urban Rainwater Harvesting System, Fecal Sludge and Septage Management, Bangladesh Water Security, Water Safety Plan, Participatory Management of Low-Cost Water Supply and Sanitation etc.

Dr. Hasan was a member of the Self-Assessment Committee till 2018 and currently he is actively participating in the implementation of the Outcome Based Education (OBE). He is a life fellow of Institute of Engineers Bangladesh (IEB), Bangladesh.

Syed Jamal Uddin Ahmed,Assistant Professor
MSc. in Concrete Engineering, University of Dundee, 2010
BSc. in Civil Engineering, BUET, 2004

Syed Jamal Uddin Ahmed joined UAP as Assistant Professor in October 2013. Earlier he served as Assistant Professor in the Department of Civil Engineering of the University of Information Technology and Sciences (UITS), Dhaka. After the B.Sc in Civil Engineering from BUET, Syed Jamal worked as Assistant Engineer at Local Government Engineering Department (LGED) for two years and had experience in infrastructural development in Cox's Bazar District. Later he worked as Civil Engineer at a power plant extension project in Tabuk and as Project Engineer for similar projects in Jeddah, Kingdom of Saudi Arabia.

Syed Jamal completed his M.Sc. in Concrete Engineering and Environmental Management with distinction from the University of Dundee, Scotland, UK in 2010. His research dealt with the Rapid Chloride Durability of concrete through electro-chemical test methods which served as a part of standardization of Rapid Chloride test into British Standard.

At UAP, Syed Jamal takes theory and lab courses on Structural Engineering and Engineering Materials in undergraduate and postgraduate levels. In the recent semesters he taught Engineering Mechanics-I, Mechanics of Solids-I, Design of Concrete Structures-II, Concrete Technology, Engineering Materials Lab and Field Surveying. He also supervises thesis of undergraduate and postgraduate students. Syed Jamal is also serving as Director, CRTTC (Center for Research, Training, Testing and Consultation) at the UAP. He is also the advisor for Art & Photography Club of CE students and Faculty Advisor for American Concrete Institute (ACI) Student Chapter at UAP.

His main research interests are Cement and Concrete Technology, Concrete Durability and Assessment, novel cementitious materials, Sustainable Construction and Reinforced concrete. His research at UAP dealt with self-compacting concrete, fly ash, concrete mix parameters, effect of epoxy coating on the bond between steel and concrete, study of rice husk ashes, development in compressed earth blocks and so on. His interests also encompass computer programming and development of mobile applications. Syed Jamal is a member of IEB.

Dr. Sharmin Nasrin, Assistant Professor
Ph.D., Queensland University of Technology, Australia, 2015
M. Sc Engg., University of Melbourne, Australia, 2003
B. Sc. Engg. (Civil), University of Madras, 2000

Dr. Sharmin Nasrin started her journey at University of Asia Pacific (UAP) as an Assistant Professor in the Department of Civil Engineering in Spring 2016. She completed Bachelor of Engineering (Civil) from University of Madras, India in 2000. Followed by that in 2003 she received Master of Environmental Engineering degree from the University of Melbourne, Australia. She joined Department of Main Roads and Transport, Queensland, Australia as a Transport Modeller and worked there from 2005 to 2010. In 2010 she joined Queensland University of Technology (QUT) as a Master by Research student. Then after completion of articulation since 2011 she studied full time towards PhD. She also has been awarded Australian Postgraduate Award for PhD. In her PhD Sharmin translated BRT plans into the operating system and identified the urban area's own specific needs, opportunities and constraints considering Dhaka as a case study. For doing that Sharmin conducted extensive travel survey on commuters in Dhaka for the work trip. She identified the acceptability of Bus Rapid Transit to commuters in Dhaka by comparing mode choice model developed with both Revealed Preference and Stated Preference Survey data. Ultimately her research made a substantial contribution by identifying the importance of stability in governance for success of any major mass transit project in a developing country's megacity. Sharmin also worked in BCL Associates Ltd., Bangladesh as a Transport Planner and Environmental Engineer. In BCL she worked in Japan International cooperation Agency (JICA) funded 'City Governance' project. She also worked as an Assistant Professor in Presidency University, Bangladesh. Sharmin also contributing as primary investigator in two collaborative international projects with the University of Leeds, UK, University of Manchester, UK, University of Oxford, UK, WALK21, UK (International NGO) under the name of Sustainable Transport Equity Partnerships (STEPS) and International Network for Transport and Accessibility in Low Income Communities (INTALINC). Sharmin's primary research interest includes travel behaviour, transport planning, and transport modelling. She has a number of publications in internationally acclaimed peer-reviewed journals like lecture notes in Civil Engineering: Transportation Research, IOP Conference Series: Materials Science and Engineering, and Transportation Research Record (TRR) and also in several international conference proceedings.

Dr. Md Jihad Miah,**Assistant Professor**
Ph.D.,University of Pau and Pays de l'Adour, France, 2017
M.Sc. Engg., Politecnico di Milano, Italy, 2013
B.Sc. Engg. (Civil), University of Asia Pacific, 2010

Dr. Jihad Miah joined UAP in November 2017 as an Assistant Professor in the Department of Civil Engineering. He has been awarded UniverLecco Gold Scholarship in 2011 to pursue Master's degree at Politecnico di Milano, Italy. Dr. Jihad is an active technical member of RILEM TC 256-SPF: "Spalling of concrete due to fire: testing and modeling".
Dr. Jihad has taught several theory courses in undergraduate and postgraduate level at UAP in the area of Concrete Technology. He is supervising undergraduate and postgraduate thesis works in the department. Since April 2019, Dr. Jihad is working as "Assistant Proctor" of UAP. Prior to joining UAP, Dr. Jihad worked as a Researcher for three years at Scientific and Technical Centre for Building (CSTB), France. He also worked as a visiting doctoral researcher at Politecnico di Milano, Italy. Dr. Jihad also worked as a Research Assistant at CSTB, Politecnico di Milano and UAP.
Dr. Jihad's main research interest is in the area of concrete structures in fire, fire spalling of concrete, thermal and mechanical response of concrete structures, durability of heated concrete. His PhD thesis proposed a mechanism for fire spalling of concrete which is one of the main goals of RILEM TC 256-SPF. His doctoral dissertation received PhD Student Awards 2018 – "Honorable Mention" in American Concrete Institute (ACI), Italy-Chapter. His works have been published in prestigious journals such as Cement and Concrete Composites and Construction and Building Materials. Dr. Jihad presented his research work at various international and national peer-reviewed conferences across the world (e.g., USA, UK, Germany, Sweden, France, Italy, Czech Republic, China, Malaysia, Indonesia, India and Bangladesh). At UAP, Dr. Jihad is working on different research topics in the area of concrete structures including strengthening of structures using ferrocement technique focusing on mechanical, durability and ductility of ferrocement mortar, ultra-low strength and high-performance concrete, fair-faced concrete and recycling of industrial residues as construction raw materials. Dr. Jihad has been published the research works from UAP in peer-reviewed journals such as Magazine of Civil Engineering, International Journal of Engineering Research in Africa, International Journal of Structural and Civil Engineering Research, Key Engineering Materials and Global Science and Technology Journal. Dr. Jihad has received best paper and outstanding paper awards in different international conferences such as in Malaysia and Bangladesh.

Rumman Mowla Chowdhury, Assistant Professor
M.Sc., University of Stuttgart, Germany, 2014
B. Sc. Engg. (Civil), BUET, 2011

Rumman Mowla Chowdhury started her journey at University of Asia Pacific (UAP) as a Lecturer in the Department of Civil Engineering in Fall 2015. Later she got promoted to Assistant Professor in Fall 2016. Previously she was a lecturer in Stamford University immediately after her graduation from BUET.
Rumman has completed her BSc (Civil Engineering) in 2011 from Bangladesh University of Engineering and Technology (BUET) and MSc (Environmental Engineering) in 2014 from University of Stuttgart along with German Government Scholarship (IPSWAT). She worked as Junior Engineer in Institute of water modeling, IWM for 1 and a half years. Over there her major responsibilities were related to research on Hydro-Morphological Characteristics of Mora Modhumoti river, Hydro-Morphological characteristics of Surma river near Sylhet town, Updating of the geomorphologic characteristics of the river Ganges Up to River Brahmaputra, result extraction and post processing from two dimensional model simulation. Along with these she has to work on Arc GIS soft-wear.
Her research interests are involved with different technologies for removing heavy metal from synthetic solution. Until now she received effective outcomes from electrochemical technologies for removing heavy metals which has been presented in a conference on advancement in water and waste water treatment and reuse organized by National University of Singapore by herself. Furthermore, adsorption technique was another way for removing heavy metal which was done by addition of powdered activated carbon. She has knowledge in Arc-GIS and Hec-RAS software which is being implemented for simulating flood inundation maps.
She has been involved with conducting training program on Microsoft Excel for the final year students. Moreover, she is responsible for the environment and disaster management club of the department and centrally advising the Drama Club of University of Asia Pacific.

Mansura Sharmin , Assistant Professor
MEng. in Civil (Transportation) Engineering,
University of Toronto, 2013
Bachelor in URP, BUET, 2008

Mansura Sharmin joined UAP as a Lecturer in October, 2016. Since October, 2017, she has been working as an Assistant Professor here. She completed her MEng from the Department of Civil Engineering, University of Toronto in 2013, with specializing in Transportation Planning and Engineering. Before that, she completed BURP from BUET in 2008. Prior to joining in UAP, she worked as a Transportation Planner in AECOM, Canada Ltd. Her research interest includes travel demand modeling, traffic operation studies, network modeling, transportation system analysis, sustainable transportation, public transportation, etc. Besides academic responsibilities, Ms. Mansura is working as an Advisor in the Departmental Transportation Engineering Club (TEC) at UAP.

Mohammad Sabbir Rahman, **Lecturer**
M.Engg.(Structure and Earthquake Engg.)Kunsan National University, South Korea, 2016
B.Sc. (Civil and Environmental Engg.), SUST, Bangladesh, 2012

Mohammad Sabbir Rahman joined UAP in 2017 as a Lecturer following an excellent academic and an extensive research and professional career. In addition to his specialization in Earthquake Engineering especially in Vibration control of structures under Earthquake excitation, he has professional experience in structural engineering.

Before joining UAP, he served as a Lecturer in the Department of Civil Engineering of the University of Information Technology and Sciences (UITS), Dhaka. In the meantime, he was also engaged in Design, Research and Development team in AUSPICIOUS. After obtaining his B.Sc in Civil and Environmental Engineering from SUST, Mr. Sabbir Rahman worked as a Junior Design Engineer (Structural Engineer) at MAK Consultant, Dhaka for more than two years. He also gained experience in structural investigation of readymade garments industry when he worked at Bureau Veritas (Bangladesh) Private Ltd. as a structural engineer. As a Graduate Research Assistant in the Structural System Laboratory of the Department of Civil and Environmental Engineering at Kunsan National University (KNU), Kunsan, South Korea, Mr. Sabbir Rahman performed numerical analyses on Vibration Control of Structures under Earthquake excitation. He also served as the Team leader on a project to finalize the design of Base-isolated Archetype Nuclear Test model (ANT). The Nuclear power plant was invented by KEPCO E&C, South Korea.

Mr. Sabbir Rahman's main research interest is based on structural dynamics, including earthquake engineering, vehicular vibration, offshore structures, dynamic soil-structure interaction, random vibrations and Fiber based reinforcement etc. His works have been published in the journals and monographs of the Advances in Structural Engineering (ASE), Structural Engineering and Mechanics (SEM), Journal of the Earthquake Engineering Society of Korea (JEESK). Additionally, he presented his research works at various international conferences across the world e.g. South Korea, Malaysia and so on.

Md. Nazmul Alam,Lecturer
MEngg. (Civil), BUET, 2018
BSc. in Civil Engineering, UAP, 2013

Md. Nazmul Alam joined as a Lecturer at the Department of Civil Engineering on October, 2015. He completed his B. Sc. Engineering degree (securing 1st position) from UAP in October, 2011 and was awarded Chancellor's Gold Medal for his excellent academic result in undergraduate level. He did his undergraduate thesis on Earthquake Concern for Masonry Building and Soft Soil.
In 2018, Mr. Nazmul completed his M. Engineering degree on Structural Engineering from BUET. He did his undergraduate thesis on Evaluation of Response Modification Factor for Shear Wall-Plat Plate Structural systems.
Before joining UAP, Mr. Nazmul worked as a lecturer at the department of civil engineering at European University of Bangladesh from May 2015 to September 2015. He worked as a teaching assistant at UAP for the semester of Fall 2011.
Mr. Nazmul also has about two years professional experience as a structural engineer with a consultancy firm named Engineering and Resource Associates Limited (ERA). His field of experience therein involves analysis and design of RC and steel buildings, Detail Engineering Assessment (DEA) and Retrofitting of Existing Ready Made Garments (RMG) Buildings, review of design of RC and steel buildings and extensive research-based-study on RCC and Steel related codes, standards and specifications.
His research interest is in the field of Structural Engineering which includes Structural Dynamics, Earthquake Engineering, Seismic Retrofitting and Rehabilitation, Tall Building, Soil Structure Interaction, Nonlinear Finite Element Analysis and Advanced Engineering Materials.

Nandita Saha,Lecturer
Masters of Engineering, Osaka University, 2019
BSc. in Civil Engineering, UAP, 2013

Nandita Saha joined UAP in 2014 as a Lecturer. She obtained her B. Sc. in Civil Engineering (securing 2nd position) from UAP in spring 2013, earning Vice Chancellor's Gold Medal for her outstanding result. During her stay in UAP she was selected in Vice Chancellor List and Dean List for extraordinary results for several times.

She completed her undergraduate thesis on Structural Engineering, on the topic "A comparative study of the analysis and design methods of mat foundation over cohesionless soil".

She received the MEXT scholarship from Japanese government and pursued her Masters at Osaka University in Japan. She obtained her Masters of Engineering from Osaka University on March 25th, 2019. Her research topic was," Experimental study on tensile and shear capacity of post installed bonded anchors in concrete with brick chips".

At present Nandita Saha teaches courses like Design of concrete structure, Design of Prestressed Concrete and Details of construction.

Uzzwal Kumar Deb Nath,Lecturer
B.Sc. in Civil Engineering, BUET, 2007
M.A.Sc. in Building Engineering, Concordia University, 2016

Uzzwal Kumar Deb Nath has joined the Department of Civil Engineering at University of Asia Pacific (UAP) in October 2019. At UAP, he is currently instructing undergraduate courses on Professional Practices and Communication, Details of Construction, Structural Mechanics and Materials Lab, and Hydraulics Lab. Prior to joining UAP, he served as Lecturer (Senior Scale) at Daffodil International University (DIU) and Adjunct Faculty at East West University (EWU).

He obtained his M.A.Sc. degree in Building Engineering at Concordia University, Québec, Canada in 2016, and B.Sc. degree in Civil Engineering at Bangladesh University of Engineering and Technology (BUET) in 2007. From 2013 to 2017, He worked as a Research Assistant at Concordia University, Canada. After completion of his bachelor's degree, he had been employed in different organization for about five years in Bangladesh. He worked as Assistant Engineer at Public Works Department (PWD), Scientific Officer at Water Resources Planning Organization (WARPO), and Junior Engineer at Institute of Water Modeling (IWM).

He has written several journal and conference papers and book; and delivered presentation at a number of national and international conferences and workshops. He is a Reviewer for two international journals, i.e., Journal of Structural Engineering (American Society of Civil Engineers, ASCE) and American Journal of Civil Engineering (AJCE).

Mahfuza Tabassum, Lecturer
BSc. in Civil Engineering, UAP, 2014

Mahfuza Tabassum has joined as a Lecturer at UAP in October 2016 and currently teaches courses on Engineering Mechanics, Numerical Analysis & Computer Programming, Computer Programming Lab and Civil Engineering Drawing.
She obtained her B.Sc. in Civil Engineering from UAP in 2014. Her undergraduate thesis was on Structural Engineering. Her thesis topic was "Numerical and Shake Table Analysis of Steel Structures". She has one conference paper based on her thesis and also worked for CRTTC, UAP using Nonlinear Time History Analysis for a proposed new building.
She had been a Teaching Assistant at UAP from January 2015 to October 2016

Zarin Tasnim,Lecturer
BSc. in Civil Engineering, BUET

Ms. Zarin Tasnim has been a lecturer at UAP since April 2019. Before joining at UAP, she served as a lecturer at Military Institute of Science and Technology (MIST), Bangladesh.
She completed her BSc in Civil Engineering from BUET in September 2017 and is currently pursuing her MSc in Environmental Engineering at BUET. She has presented his work in Civil and Water Resources Engineering Conference, Dhaka and also published in Global Science and Technology Journal, Australia. She is currently the advisor of Geotechnical Engineering club in the department. Zarin worked as a team member in 'Assessment of Air Quality Parameters' in the MRT project in 2018 ; during the period of working as a lecturer at Dept. of EWCE, MIST.

Abdullah Al Farabi, Lecturer
BSc. in Civil Engineering, BUET, 2017

Abdullah Al Farabi joined the Department of Civil Engineering at University of Asia Pacific (UAP) in November, 2018. At UAP, he is currently instructing undergraduate courses on Engineering Mechanics, Transportation Engineering Sessional and Hydraulics Lab. Prior to joining UAP, he served as Lecturer in Military Institute of Science and Technology (MIST).
He obtained his B.Sc. in civil engineering degree from Bangladesh University of Engineering & Technology (BUET) on September 2017. He completed his undergraduate thesis on Transportation Engineering and his thesis topic was Applicability of Delay Models Under Non-Lane Based Homogeneous Road Traffic Condition. He is also pursuing M.Sc. in Civil & Transportation Engineering in BUET. His post-graduation thesis is on the topic of Traffic Signal Timing Optimization. His involvement in research has led him to publish two international conference papers on ICACE-2018 and ICCIM-2019.
Apart from the academic responsibilities, he holds the position of advisor of UAP CE Film Club and UAP Film Club.

Joya Rani Mallick, Lecturer
BSc. in Civil Engineering, BUET, 2018

Joya Rani Mallick joined the Department of Civil Engineering at University of Asia Pacific (UAP) in October, 2019. At UAP, she is currently instructing undergraduate courses on Engineering Drawing Sessional, Concrete Structure Design Sessional, Geo-technical Engineering Lab I and Environmental Engineering Lab I. Prior to joining UAP, she served as a Lecturer in Ahsanullah University of Science and Technology (AUST) and Military Institute of Science and Technology (MIST).

She obtained her B.Sc. in civil engineering degree from Bangladesh University of Engineering & Technology (BUET) on October, 2018 and graduated with honors. During her stay in BUET, she achieved University Merit Scholarship and was on the Dean's List for extraordinary results for 4 years. She completed her undergraduate thesis on Geo-Technical Engineering and her thesis topic was Effect of Salinity on the Consolidation and Permeability Characteristics of a Coastal Soil from Bangladesh. She is also pursuing M.Sc. in Civil & Environmental Engineering in BUET. Her involvement in research has led her to publish one international conference paper on ICDRM-2019.

Md. Shadman Sakib,Lecturer
BSc. in Civil Engineering, BUET, 2018

Md. Shadman Sakib joined the Department of Civil Engineering at University of Asia Pacific (UAP) in October, 2019. At UAP, he is currently instructing undergraduate courses on Steel and Timber Structure, Concrete & Steel Structure design Lab, Transportation and Environmental Engineering sessionals. Prior to joining UAP, he worked as a Lecturer in Ahsanullah University of Science and Technology (AUST) and as a Research Assistant in BUET-JIDPUS.

He completed his B.Sc. in Civil Engineering from Bangladesh University of Engineering & Technology (BUET) on October, 2018. He majored in Structural Engineering and is currently is pursuing his M.Sc. in the same division. His undergraduate thesis was based on the proposed Bangladesh National Building Code-2017. He did a comparative study on the changes (Wind and Seismic Provisions) made from the older version of 1993 BNBC code and there implications in Steel and RC Structural design. Later, he published 2 International Conference paper on the topic at iCDRM 2019 and iCSER- 2019.

After graduation, he studied numerical modelling of semi-rigid steel end-plate moment connections, as part of voluntary research initiative under his thesis supervisor, Dr. Khan Mahmud Amanat. At present, he is studying the mechanics of 'Seismic Design and Behavior of Self-centering Braced Frame with Controlled Rocked and Energy Dissipating Fuses' for his M.Sc. thesis. At BUET-JIDPUS he had involvement in research regarding 'Retrofitting of Masonry Structure' and 'Static Tri-axial test' on hill tract soil specimen. He has 4 journal paper currently under review on the stated topics.

Apart from his academia, he won a couple to intervarsity competition on Mechanics, Truss Bridge design and Earth Resistant Structure Design in his undergrad.

7.1.4 Teaching Assistants

Md. Ariful Islam, Teaching Assistant
B. Sc. Engg. (Civil), UAP, 2017.

Md. Ariful Islam completed his BSc in Civil Engineering from University of Asia Pacific, Bangladesh. His undergraduate thesis was 'Assessing Bus Service Quality Based on Public Perception: A Case Study Comparing Dhaka and Chittagong City by Structure Equation Model (SEM)'. He is currently doing MSc in Civil Engineering and working as a Graduate Teaching Assistant at this University. Islam does research in Transportation Engineering. His current thesis topic is 'Paratransit Service Quality Prediction and Attribute Ranking Using Neural Network and Fuzzy Approach'.

Anupom Halder, Teaching Assistent
B.Sc. Engg. (Civil), UAP, 2019

Anupom Halder obtainted his B.Sc in Civil Engineering from UAP in 2019 and his Undergraduate thesis topic was Assessment of Drainage congestion in Dhaka city.
He has joined as a Teaching Assistant at UAP in April 2019. He is currently pursuing his M.Sc in Civil Engineering at University of Asia Pacific.

Md. Kawsar Ali, Teaching Assistant
B. Sc. Engg. (Civil), UAP, 2019.

Md. Kawsar Ali completed his B.Sc in Civil Engineering from University of Asia Pacific, Bangladesh. He completed his undergraduate thesis on Concrete Structure under the supervision of Dr. Md Jihad Miah and His undergraduate thesis was “Flexural Performance of RC Beams made with Steel Slag Aggregate”. Kawsar also awarded UAP Academic Merit Scholarship in each term during his B.Sc Engineering studies at UAP. He is currently pursuing his M.Sc in Civil Engineering and working as a Graduate Teaching Assistant at University of Asia Pacific.

Adib Ashhab Ankon, Teaching Assistant
B.Sc Engg. (Civil), UAP, 2019

Adib Ashhab Ankon joined as Graduate Teaching Assistant at the Department of Civil Engineering in Fall-2019 session. He completed his B.Sc Engineering degree (securing 1st position) from University of Asia Pacific (UAP) in Spring-2019 and also awarded Vice Chancellor’s Award in each semester for his academic results. He did his undergraduate thesis on “Flood hazard mapping of Jamuna River floodplain using HEC-RAS 1D/2D coupled mode.” Beside his study, he was involved in various academic, cultural and social activities with several clubs and organizations. He is currently pursuing his M.Sc in Civil Engineering at University of Asia Pacific.

7.1.5 Supporting Office Staff

Tarique Bin Mohammed
Departmental Administrative Officer

Hedayetul Islam
Office Assistant

Md. Al Amin
Laboratory Assistant

A. T. M. Rashedur Rahman Sarkar
Laboratory Assistant

Shahadat Hossain
Laboratory Assistant

Md. Ruhul Amin
Laboratory Assistant

Reazul Islam
Laboratory Assistant

Md. Al-Amin
Library Assistant

Md. Homaun Kabir
Laboratory Attendant

Md. Ujjal
Laboratory Attendant

Md. Marajul Islam
Laboratory Attendant

Arifa Khatun
Messenger

Faruq Hossain
Messenger

7.1.6 Departmental Students

Students of Spring-2019 (Batch 44)

Students of Fall-2018 (Batch 43)

Students of Spring-2018 (Batch 42)

Students of Fall-2017 (Batch 41)

Students of Spring-2017 (Batch 40)

Students of Fall-2016 (Batch 39)

Students of Spring-2016 (Batch 38)

Students of Fall-2015 (Batch 37)

8.1 CE Departmental Resources

8.1.1 Classroom Facilities

The department of CE has spacious, air-conditioned classrooms within its premises. The rooms have maximum sitting capacity varying from 40 to 80 students and are equipped with comfortable sitting arrangements, white boards, multimedia and overhead projectors. These rooms are used mainly for theoretical classes, while the engineering laboratories are used for practical classes. Departmental computer laboratory is used for classes requiring computer usage.

Students in Class Room and Drafting Room

8.1.2 Laboratory Facilities

Ever since its inception, the CE department has realized the importance of in-house laboratories and has given priority to develop the necessary facilities. As a result, UAP became the first private university in Bangladesh to provide complete in-house laboratory facilities in all branches of Civil Engineering. Some of the experiments performed in these laboratories have been developed within the department itself, and are not offered by any other CE program in Bangladesh.

Structural Mechanics and Strength of Materials Laboratory

The Strength of Materials laboratory (commonly known as the SM lab) is among the largest labs set up in the CE department. Established in Spring 2003, the lab is used for the purposes of teaching, research and testing by departmental faculty and students. The experiments performed in this lab are based on concepts learnt in theoretical courses on Strength of Materials.

At present, the experiments in this lab include tension test of mild steel, compression tests of timber, metallic spring, direct shear test of timber and metal specimens, test of beam bending, biaxial bending, non-destructive tests, impact test of metal specimens, buckling and torsion tests, the tension and hardness test of metal specimens.

Using the digitized UTM

Loading in Beam-Frame Testing

Hardness Test of Metals

Impact Test of Metals

Using Loading Frame

Generating earthquake in ground vibration apparatus

The Universal Testing Machine (UTM) and earthquake shake table of this lab were the first of their kind built in Bangladesh and have produced accurate results for academic and research purposes for more than ten years. The experimental research performed in this lab includes works on model beams, columns, skyscrapers, masonry buildings.

Hydraulics Laboratory

Operating since Spring 2002, the Hydraulics Laboratory offers more than ten experiments on Fluid Mechanics and Hydraulic Engineering to 2nd and 3rd year students.

The Hydraulics lab is equipped with adequate facilities to offer experiments on Fluid Mechanics and Open Channel Flow. Two of its major apparatus are the Hydraulic Bench and the Flume, both offering testing options and quality comparable to the highest standards.

Verification of Bernoulli's Theorem

Locating the Centre of Pressure

Collecting data from Hydraulic Bench

Measuring flow data using Glass Sided Flume

At present, the experiments performed using the Hydraulic Bench include flow measurements through orifice, mouthpiece, V-notch and Venturimeter as well as the determination of the coefficient of velocity by coordinate method.

The experiments using the Flume are the flow measurements through a broad-crested weir, sharp-crested weir, sluice gate and Parshall flume. Besides it is used for the demonstration of hydraulic jumps.

In addition to the two major apparatus, the lab also has the apparatus for determining the Center of Pressure and for verifying Bernoulli's theorem.

Engineering Materials Laboratory

The Engineering Materials lab, operating since Spring 2001 was one of the earliest labs set up in the CE department. Over the years, it has grown significantly in size, scope and apparatus. Currently, the lab is being used for offering sessional courses to 2nd year students, as well as for research by final year students and the departmental faculty. Structural construction in Bangladesh as well as in many parts the world is still largely dependent on concrete. Despite the use of steel, masonry, timber etc., concrete is still the most widely used construction material for building structures in our country and is used worldwide. Therefore, the materials primarily tested in the Engineering Materials Laboratory in the Department of Civil Engineering (CE) of UAP are concrete itself or its constituents (i.e., cement, fine aggregate and coarse aggregate).

The experiments on cement performed in this lab include the normal consistency, initial setting time of cement and test for compressive and tensile strength of cement mortar. The tests on aggregate include the sieve analysis, specific gravity, absorption capacity of fine and coarse aggregate, unit weight and void test as well as Los Angeles abrasion test of aggregates.

Concrete cylinder and cube specimens are also used for tests of strength (compression and tension) as well as workability (slump). The lab is also equipped with adequate curing facilities for the concrete specimens. The stress-strain diagrams of the concrete specimen are also drawn using measurements from the strain gages. In addition to concrete crushing tests, non-destructive tests are also performed by Schmidt Hammer. The Reversible Universal Testing Machine (RUTM) of this lab was the first of its kind built and used in Bangladesh.

Sieve Size Analysis

Compressive Strength test of Cylinder

Using the Reversible UTM

Operating Furnace Oven

Transportation and Traffic Engineering Laboratory

The CE department's Transportation and Traffic Engineering Laboratory has been operating since the Spring 2003 semester. The primary purpose of this lab was to offer the sessional course on Transportation Engineering to 3rd year students, but it is equipped with research facilities for the students and faculty.

Since Traffic Engineering and materials are parts of the broader field of Transportation Engineering, they have both been included in the lab. In addition to testing of transportation materials like aggregate, sub grade and bitumen, the departmental students and faculty also work on traffic capacity measurements. The sessional course on Transportation Engineering includes about fifteen tests on Traffic Engineering and Transportation materials. The lab tests on Traffic Engineering include the determination of roadway capacity and saturated flow at traffic signals.

The tests on aggregate include the aggregate impact value, aggregate crushing value, ten percent fines value, flakiness index, elongation index and angularity number.

Standard Penetrometer

Impact Test of Aggregates

Using Marshall Mixture Machine

Using CBR Apparatus

Using Flash and Fire Device

Ductility test of Bitumen

Tests on bituminous materials include determination of specific gravity, penetration and solubility. Besides, the Marshall method of mix design and the California Bearing Ratio (CBR) test of sub-grade soils are also performed in the laboratory.
The lab is equipped with adequate instruments like Impact testing apparatus, Marshall method apparatus, CBR apparatus, standard penetrometer, solubility measuring accessories, traffic counter and various necessary accessories.

Geotechnical Engineering Laboratory

The stability and proper functioning of most Civil Engineering structures depend on the foundation and the soil it is built upon. The available variety of soil is so wide and their features are so different that it is essential to know their physical and mechanical properties by a number of tests. These include the physical appearance, texture, density, permeability, strength and other important properties.

The tests in the department's Geotechnical Engineering Lab are aimed at determining these properties. The Geotechnical Engineering lab has been operating since Spring 2001. It offers a sessional course on Soil Mechanics to 3rd year students.

Grain Size Distribution

Unconfined Consolidation Test

Hydrometer Test

Digital Triaxial Test Appartus

Using Direct Shear Apparatus

Consolidation Unit

The lab tests on general properties of the soil include the field identification tests, Atterberg's Limit tests, specific gravity and relative density tests, compaction test, grain size distribution by sieve analysis and hydrometer analysis of soil sample. Permeability test of soil is also performed using the permeability testing apparatus.
Strength tests performed in the lab include the Direct Shear test, the Unconfined Compression test and the Triaxial Test. All the instruments are equipped with strain gages in order to get the load-deformation or stress-strain curves.

In order to perform these tests properly, the lab has the necessary devices like hydrometer, deflocculating agent, drying oven, desiccator as well as special tools like the consolidation unit, direct shear machine and unconfined compression machine.

Environmental Engineering and Chemistry Laboratory

The Environmental Engineering Laboratory offers sessional courses, as well as research and testing facilities for the students and faculty. This lab was established very early in the department, and has been operating since Fall 1999. The lab currently offers about fifteen experiments on Environmental Engineering.

The experiments on water quality include the comparison of color, measurement of pH, turbidity, carbon-dioxide, total solids, dissolved solids, suspended solids, alkalinity, hardness, chlorine concentration, iron concentration, chemical coagulation, residual chlorine and chlorine demand.

The tests on sound pollution include analysis of the combined effect of noise and analysis of noise protection efficiency. The lab is equipped with apparatus like the pH meter, color comparator, turbidity meter, digital sound level meter, Arsenic

measuring kits and other necessary devices.
In addition to offering sessional courses, results from the lab have been used for research works on water quality assessment, sound pollution and Arsenic measurement.

pH Determination

Using HACH DR-6000

Determination of TS, TDS

Determination of E-coli

Other tools and apparatus of the lab

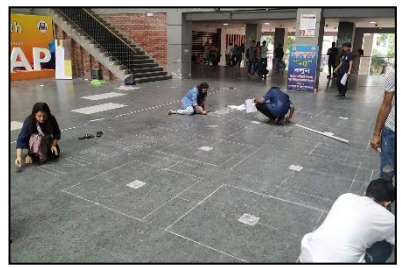
The tests performed in the Chemistry lab include standardization of different solutions (of sodium hydroxide, hydrochloric acid, sodium thiosulphate, potassium permanganate etc.) by standard solutions (of oxalic acid, sodium hydroxide, sodium carbonate, potassium dichromate, sodium oxalate etc.), determination of metal contents (copper, ferrous ion, calcium etc) in various solutions.

Survey Equipment

The CE department has been offering courses on theoretical and practical surveying to 1st year students since its inception. At present, the department offers ten fieldworks on practical survey and is equipped with all the necessary instruments.

The fieldworks performed are on chain survey, traverse survey, plane tabling, leveling and contouring, measurement of height, area calculation, curve setting, house setting and route survey. The major equipment's include the theodolite, level, plane table along with the necessary accessories.

Plane Table surveying



House Setting

Levelling

Measuring the height of a building

Computer Laboratory

The department has a Computer Laboratory with adequate computer facilities (about fifty computers, printer and internet facilities) for use by the students. The works in this lab include programming, research, report writing, drafting, internet browsing etc.

The department offers an introductory course on computer applications and computer based drawing (AutoCAD) to 1st year students, a computer programming course (C++) to 2nd year students and computer application course in CE to final year students. All these courses are offered in this lab.

The computers in the lab are equipped with softwares useful for Civil Engineering use, particularly for the courses taught in the department as well for research. These include AutoCAD, Fortran, C, SPSS, Microsoft Project and several softwares for structural analysis (e.g., ETABS, SAP, Grasp, SAFE, BATS etc.).


Class in progress and students working at the Computer Laboratory

8.1.3 UAP Central Library and Departmental Study

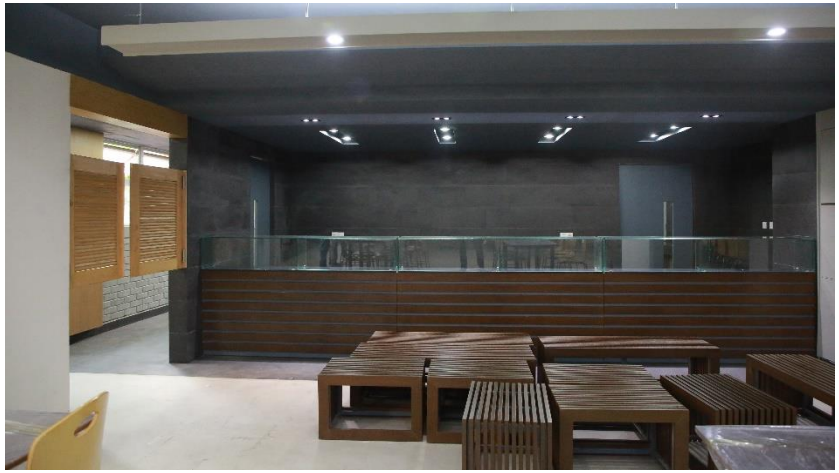
UAP has a spacious Central Library at the first floor of the City Campus. Other than that, the department of CE has designated space to contain departmental text and reference books, thesis papers of the students and faculty members, journal papers, conference papers, software CDs, magazines and newspapers. Students can study in the library between class hours and check out reference items for a brief period.

UAP Central Library

8.1.4 UAP Central Cafeteria

The UAP Central Cafeteria provides hygienic food at reasonable cost for the students, faculty and staff. A television is also provided there for recreation.

UAP Central Cafetaria



9.1 Other Academic Activities

An educational institution for higher studies cannot confine its activities to classrooms and laboratories only. It should come up with various new ideas, innovations for the society by research, seminars/conferences/workshops for creating public awareness in different relevant issues through publications, training programs for professionals etc. The Department of CE brings out regular research publications including write-ups from national and international authors and organizes various activities that bring it closer to professionals and general public, sharing knowledge in various Civil Engineering issues.

9.1.1 Faculty- Student Research, Publications and Conferences

The faculty members of the department had been involved in various research works and consultancy for both government and non-government organizations as resource persons, investigators and experts. IUCN, IWM, Department of Fisheries (DOF),

Department of Public Health Engineering, Bangladesh Water Development Board (BWDB), Dhaka Water supply and Sewage Authority (DWASA), Roads Highways Department (RHD), Local Government Engineering Department (LGED), Soil and Water Foundation, EnergyPac Engineering. etc. are to name some of the organizations where the faculty members have worked as consultants.

Besides, the departmental faculty worked as resource persons for special trainings for professionals in organizations like IEB, PWD, JICA, Structural Engineers Ltd. (SEL), Holcim Bangladesh, Bio Properties Limited (BPL), Bangladesh Steel Re-rolling Mills (BSRM), Bangladesh Earthquake Society (BES), Bengal Fine Ceramics, IDA (Institute of Diploma Engineers Association of Bangladesh), Bangladesh Institute of Labor Studies etc. They have also received funds for research work from different organizations as well as the Ministry of Science, Information and Communication Technology. The faculty members have a number of publications in reputed national and international journals as mentioned below:

- Advances in Civil Engineering
- Alexandria Engineering Journal
- American Journal of Tropical Medicine and Hygiene
- Arabian Journal for Science and Engineering
- Bio resource Technology
- Canadian Geotechnical Journal
- Chemosphere
- Construction and Building Materials
- Current Opinions in Biotechnology
- Desalination
- Environmental Engineering Research
- Environmental Science & Technology
- Environmental Technology & Innovation
- Indian Journal of Science and Technology
- Integrated Environmental Assessment and Management
- International Journal of Geomechanics
- International Journal of Sustainable Society
- International Journal of Water Resources Development
- Journal of Advanced Civil Engineering Practice and Research
- Journal of Building Engineering
- Journal of Environmental Sciences
- Journal of Environmental Treatment Techniques
- Journal of Water and Environment Technology (JWET)
- Natural Resources Forum
- Open Civil Engineering Journal
- Process Biochemistry
- Steel Composite Structures
- Structural Engineering and Mechanics
- Sustainable Water Resources Management
- Water Environment Research
- Water Policy
- Water Research
- Water Science and Technology
- Wetland Science

The departmental students are also involved in a number of project/research activities. For graduation from the CE department, submission of a thesis is mandatory for each student of the department. Students are categorized according to their CGPA and field of interests and assigned a supervisor who is expert in that field. Besides, an external expert (a renowned academician or professional working in relevant topics) is included in the Thesis Committee for each student, who must eventually present her/his thesis satisfactorily to the members of the committee.

Major areas of research that the faculty members actively pursue through grants and students' theses are listed as follows:

Geotechnical Engineering

- Pile tests, behavior of unsaturated soil, soil improvement techniques, investigation on in-situ soil behavior, liquefaction problem, foundations in problematic soils (including sensitive clay and collapsible soil), numerical modeling in geotechnical engineering
- Calculation of bearing capacity of foundations, assessment of geotechnical properties of subsoil.

Structural Engineering

- Strengthening / retrofitting of structure, natural fibre composite laminates for structural application, non-linear analysis of strengthened structure and light weight slab system
- Analyses of RC buildings, bridges, pavements, towers, skyscrapers, floating houses, low-cost houses, soil-structure interaction, probabilistic structural dynamics, structural control, ductility, seismic detailing and retrofit of RC frames, flat slabs, as well as masonry structures, developing computer programs as well as experimental models on linear and nonlinear structural dynamic analyses for seismic ground motion, impact loading, blast loading, wind and hydrodynamic loading
- Structural Dynamics, Earthquake Engineering, Seismic Retrofitting and Rehabilitation, Tall Building, Soil Structure Interaction, Nonlinear Finite Element Analysis and Advanced Engineering Materials
- Vehicular vibration, offshore structures, dynamic soil-structure interaction, random vibrations and Fiber based reinforcement
- Strengthening of RC beams using ferrocement; Flexural strength and ductility behavior of ferrocement mortar using steel and jute fibers ; Mechanical and durability performances of Fair-Faced and High-Performance concrete; Development of ultra-low strength concrete; Utilization of induction furnace steel slag as coarse and fine aggregate; Recycling of brick dust, stone dust and waste iron swarf as fine aggregate; Cement and Concrete Technology; Concrete Durability and Assessment; novel cementitious materials; Sustainable Construction and Reinforced concrete

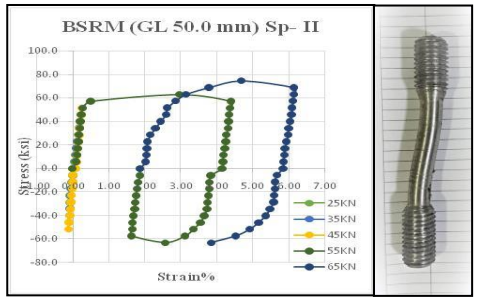
Transportation Engineering

- Present and Future- Simulation Analysis and Evaluation for Traffic Impacts on Highway of Cox's Bazar City in Bangladesh based on VISSIM Simulation System
- Analysis Of Passenger Service Quality of Bangladesh Railway by SPSS
- Possible Causes and Solution of Traffic Congestion In Dhaka City
- An Analysis of Motorcycle and Heavy Vehicle Accident Severity
- Traffic Safety Assessment in Dhaka City based on Roadway Design Elements
- Measures for Systematic Vehicular Movement At a Selected Intersection
- Optimizing Signal Timing- An Efficient Way To Handle Traffic Congestion

Water Resources and Environmental Engineering

- Integrated water resources management, International water conflicts and security, Global water policies and laws, water pricing.
- Fate and mathematical modeling of pollutants removal from wastewater.
- Spatial and temporal variation of river water quality, waste loads from outfall discharge
- Evaluation of effluent treatments plants in industries, Life Cycle Assessment of waste management and waste water treatment technologies
- Uptake and bio-accumulation of environmental contaminants through food-chain,
- Technologies for removing heavy metal from synthetic solution
- Environmental sanitation, Fecal sludge management, Water supply, Water and wastewater (domestic and industrial) treatment, Environmental pollution control, Environmental Impact Assessment (EIA), Environmental management

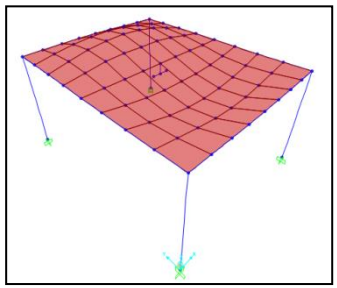
Research Walls made of Compressed Earth Block **Professor Iftekhar Anam**



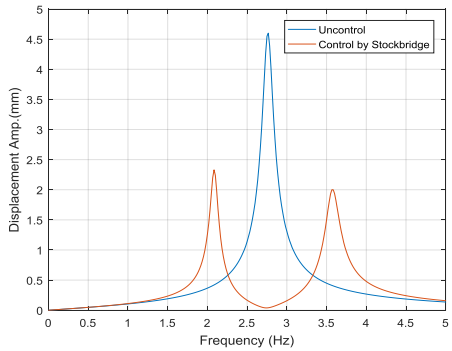
Reversible Load Test of Steel Bars

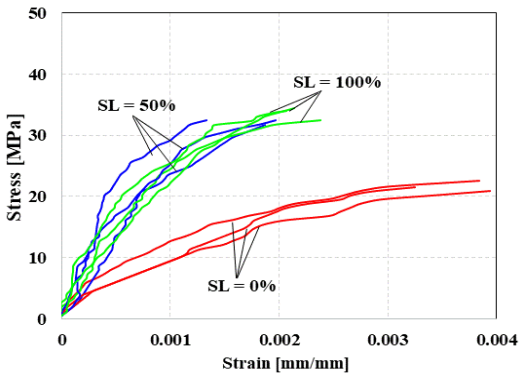
Punching of Flat Slabs

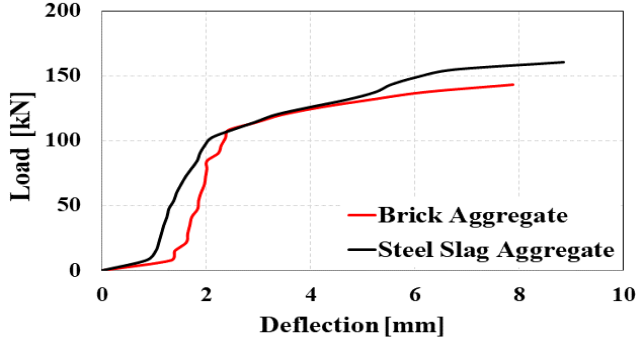
GFRP Slabs



Research on Floor Vibration Control (Mohammad Sabbir Rahman)







Research on compressive and flexural strength of concrete made with steel slag (SL) aggregate (Dr. Md Jihad Miah)


Professor Farzana Rahman's research on Video survey for implementing bus priority lanes in major arterials (Shahbag to Bijoy Shorony) in Dhaka and Data collection for users perception of bus service and survey on low income community



Traffic emission data collection for undergraduate research (For emission data collection, device and technical persons are supported by Department of Chemistry, University of Dhaka. Test vehicle is supported by UAP) (Mansura Sharmin)

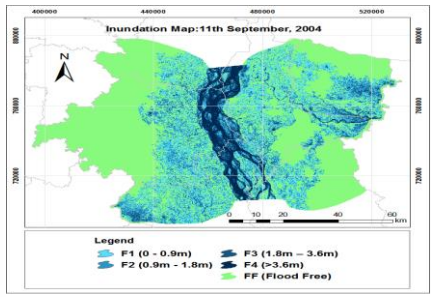

Focus group discussion on low-income women mobility at korail slum area (Dr. Sharmin Nasrin and Mansura Sharmin)

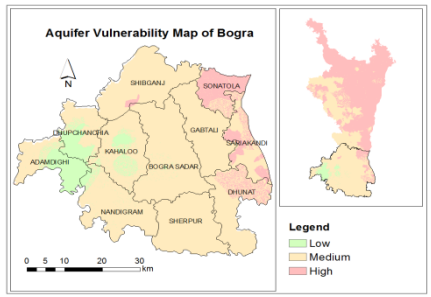

Research project on Main Kabadak river & Cut point and Water sample collection of Kabadhak, Benta & Marichap river (Emtazul Haque)

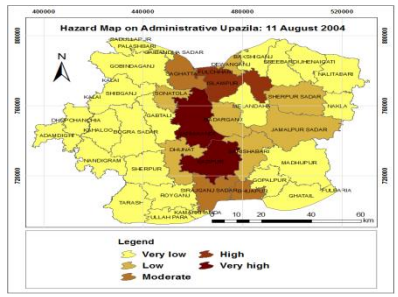



Research of Associate Professor Dr. Nehreen Majed on pollution status of rivers through sampling from outfalls and surface water from Buriganga, Dhaleshwari and Turag rivers

Research data collection of Compressive strength test under the project entitle "Effect of water quality on strength properties of concrete" (Dr. Mahmudul Hasan)







Flood inundation map developed by model simulation at Jamuna River floodplain on 11 September 2004 and Aquifer Vulnerability Assessment and Hazard map on administrative unit on 11 August 2004 (Rumman Mowla Chowdhury)



Professor Saeed's research project at UAP 'Constructed wetlands for wastewater treatment in Bangladesh' and his students working in Environmental Engineering and Chemistry Laboratory.


Research of Professor Md. Mizanur Rahaman through Questionnaire survey for SDG 6 at Shahidbug slum

Based on the theses the students of this department have publications in international conferences. Some of the research works done by the students were accepted in international conferences like:

- 16th IRCS Conference and International Symposium on Rainwater Utilization
- 13th IWA International Conference on Wetland Systems
- 6th International Conference on Environmental Science and Technology
- 12th IWA International Conference on Wetland Systems
- International Symposium on Transboundary Water Resource Cooperation in Asia: Progress and Prospect
- IWRA World Water Congress, Scotland
- IUCN Regional Workshop on Water Governance and Diplomacy, AIT, Thailand
- Conference on Water Security and Climate Change: Challenges and Opportunities in Asia, Fudan University, China
- People's South Asian Association for Regional Cooperation (SAARC) Convergence, Nepal
- World Environmental and Water Resources Congress, ASCE, USA
- International Conference on Water and Environmental Engineering, BUET, Bangladesh
- International Conference on Advances in Civil Engineering, CUET, Bangladesh
- International Conference on Civil Engineering for Sustainable Development (ICCESD-2012), KUET, Bangladesh
- 6th International Engineering Conference, Energy and Environment, Malaysia
- International Engineering Education Conference , Madinah, Saudi Arabia
- International Engineering Convention (IntEC), Damascus, Syria
- International seminar on civil and infrastructure engineering, Malaysia
- IOP Conference Series: Earth and Environmental Science
- International Conference on Innovation, Science, Engineering and Technology
- 10th Asia Pacific Structural Engineering and Construction Practice Conference
- 4th International conference on Civil Engineering for Sustainable Development
- IABSE-JSCE Joint Conference on Advances in Bridge Engineering-III
- 1st International Conference on Advances in Civil Infrastructure and Construction Materials
- 4th Annual Paper Meet and 1st Civil Engineering Congress
- 17th ICSMGE International Conference on Soil Mechanics and Geotechnical Engineering
- Lecture Notes in Civil Engineering, Springer, Singapore
- IOP Conference Series: Materials Science and Engineering
- IWA-ASPIRE conference and exhibition, Tokyo, Japan
- Water and Environment Technology Conference (WET-2013) Tokyo, Japan
- Annual conference of Japan Society of Water Environment (JSWE), Japan
- 2nd International Conference on Structural Engineering Research, Bangladesh
- 4Th Feiic-International Conference On Engineering Education And Research, Madinah, Saudi Arabia
- International Engineering Conference, Energy And Environment (Encon), Malaysia
- The 2nd international conference on civil, offshore and environmental engineering conference, Malaysia

9.1.2 Collaborations

The department holds several national and international collaborations in teaching and research at personal and department levels which are listed below:

Faculty Name	Collaborating Organization	Nature of collaboration (Teaching/Research/Consultancy)
Dr. Iftekhar Anam	• Japan: U. Tokyo, Osaka, Tohoku University • Bangladesh: HBRI, PWD, BUET, AUST	Research (Project *TSUIB*, Earthquake Rest. Design in Bangladesh)
	• Auspicious BD Ltd.	Research (*Characterization of GFRP Bars for Utilization in Civil Works of Bangladesh*)

	• Forum 86 and HBRI	Research (*Low Cost Housing Research in Bangladesh*)
Dr. Farzana Rahman	• Eastern Asia Society for Transportation Studies International Research Group (IRG)	Research *Gender and Transport Nexus: achieving a more equitable and inclusive society*
	• BUET • Loughborough University, UK	Research: -Assessing the bus priority lanes for Shahbag to Bijoy shoroni intersection -Paratransit service quality Bus service quality prediction
Dr. Farzana Rahman Dr. Sharmin Nasrin	• Asia Pacific, Bangladesh • Pernambuco, Brazil • CEDUS, Chile • CESS, India • Lagos State, Nigeria • Lahore • De La Salle, Manila • IDS, Nairobi • Pretoria & Cape Town, S. Africa • Urban Lab, Makerere, Uganda	Research Project Name: *Sustainable Urban Transport in Low Income and Vulnerable Settlements (SUMLIVS)*
Dr. Farzana Rahman Dr. Sharmin Nasrin	• University of Leeds, UK, • WALK 21 • UN Environment • University of Manchester, UK • FIA Foundation • University of Nairobi, Kenya	Research Project Name: *Sustainable Transport Equity Partnership (STEP)*
Dr. Farzana Rahman Dr. Sharmin Nasrin	• University of Oxford, UK • University of Leeds, UK • University of Manchester, UK • University College London, UK • University of Cape Coast, Ghana • Lagos State University, Nigeria • Makerere University, Uganda	Research Project Name: *International Network for Transport and Accessibility in Low Income Communities (INTALINC)*
Dr. Muhammad Mizanur Rahaman	• Foreign Service Academy, Ministry for Foreign Affairs, Government of Bangladesh	Teaching
	• Water Resources Planning Organization (WARPO), Government of Bangladesh	External expert member in technical committee
	• International Centre for Integrated Mountain Development (ICIMOD), Nepal	External peer reviewer of grant application
	• University of Pretoria, South Africa	External examiner of PhD thesis

	• BUET (Bangladesh) and UNSW (Australia)	Member of technical committee, International conference
Dr. Tanveer Ferdous Saeed	• WaterAid, Bangladesh	Research
Dr. Md Jihad Miah	• Scientific and Technical Centre for Building, Marne la Vallée, France • Université Paris Est, Marne la Vallée, France • University of Pau and Pays de l'Adour, Anglet, France • Technische Universität Dresden-TU Dresden, Dresden, Germany	Research

9.1.3 Seminars, Trainings and Workshops

The department regularly organizes lectures, seminars, conferences, workshops and training programs on various important issues relevant to the Civil Engineering. They include lectures and papers presented by invited specialists as well as presentations by the faculty members and the students of the university, particularly the department of CE.
The seminars organized by the department during the last two years are:

“Bioelectrochemical Conversion of Greenhouse gases: Challenges and Perspectives” (December 2019)
Mohammad Jamil Islam, PhD. Student, South Dakota School of Mines and Technology, USA.

“Karnaphuli Tunnel” (November 2019)
Dr. Sayeed Ahmed, Executive Director, SMEC; Mr. Gavin Strid, Project Manager, Karnaphuli Tunnel Project and Mr. David David Kern, Construction Manager, Karnaphuli Tunnel Project.

"**Addressing Urban Informality-Challenges and Solutions" (June 2019)**
Mr. Sohel Rana, Urban Planning and Design Officer of UN-Habitat, Kenya, was the guest speaker.

"**Systematic Water Quality Assessment and an Appropriate Nano-enabled Treatment Solution for Low-income U.S. Communities" (June 2019)**
Dr. Navid Saleh, Associate Professor, Civil, Architectural and Environmental Engineering, The University of Texas at Austin, USA, was the guest speaker.

"Fecal Sludge Treatment in Bangladesh" (January 2019)
Dr. Tanveer Saeed, Associate Professor of Dept. of Civil Engineering, UAP, was the guest speaker. Dr. Mujibur Rahman, Professor of Dept. of Civil Engineering (UAP), Dr. Abdullah Al- Muyeed, Head of Policy and Advocacy, WaterAid were the keynote speakers.

"Slope Stabilisation Using Soil Nail System" (December 2018)
Sheikh Muhammad Ferdous, Chartered Professional Civil Engineer, Institution of Civil Engineers (ICE), United Kingdom, was the guest speaker.

“Science and Engineering Research in US - Role of the Government, National Labs and Universities” (December 2018)
Dr. Taher Saif, Professor of Mechanical Science and Engineering of University of Illinois at Urbana-Champaign was the guest speaker.

"Water and Flood Management Perspectives in Bangladesh" (November 2018)
Prof. Dr. M. Monowar Hossain, Executive Director, Institute of Water Modeling (IWM), was the guest speaker.

"**Mega-Project Management Techniques: Introduction to Project Delivery Model and Earned Value Management System" (November 2018)**
Mohammad Jahangir, CEO & President of PCSM CA Inc., Canada, was the guest speaker.

“Race for Humanity: Overview of Rohingya Response Activities” (July 2018)
Dabaraj Dey, Project Engineer (Site Development), International Organization for Migration (IOM), Cox’s Bazar, Bangladesh, was the guest speaker.

“Sustainable Development Practices in Bangladesh: A Bottom Up Approach" (May 2018)
Mohammed Abdul Baten, Senior Lecturer, School of Environmental Science and Management, Independent University, Bangladesh, was the guest speaker.

"The Future of the Rickshaw: Mobility, Informal Labor and Aspirations of Modernity" (January 2018)
Annemiek Prins, PhD Candidate at University of Aberdeen, United Kingdom, was the guest speaker.

"Challenges in Deep Excavation" (December 2017)
Sheikh Muhammad Ferdous, Chartered Professional Civil Engineer (CEng), was the guest speaker.

“Comparative analysis of traffic performance between roundabouts and signalized intersections using micro simulation" (December 2017)
Dr. Bidoura Khondaker, PhD, PEngg., Team Lead, Research and Development (R&D) project, ISL Engineering and Land Services Ltd. and University of Calgary, was the guest speaker.

“Integrating Humanities with Engineering Fundamentals" (November 2017)
Dr. Kauser Jahan, Professor and Head, Department of Civil and Environmental Engineering, Rowan University, New Jersey, USA was the guest speaker.

"Through the silts: poem, prayers, and promises for Chuknagar" (November 2017)
Nishat Tasnim Oyshee, Lecturer at Department of Architecture of UAP presented her graduation work which was based on the genocide that took place in Chuknagar, Khulna at liberation war of 1971.

"Challenges in Water Resources Development in Bangladesh" (November 2017)
Dr. Umme Kulsum Navera, Professor of Department of Water Resources Engineering, BUET.

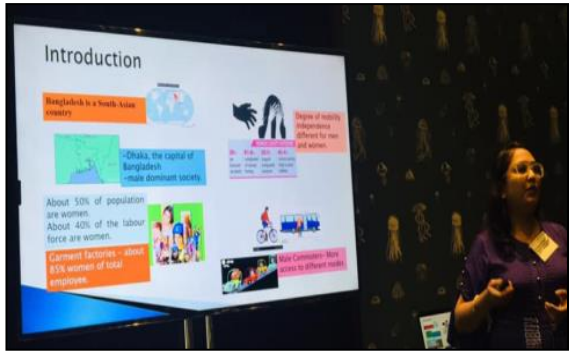
"Spatiotemporal Variation of Tropical Rainforest Trees Wateruse” (July 2017)
Md. Shawkat Islam Sohel, Adjunct Researcher, Tropical Forests and People Research Centre, University of the Sunshine Coast, Australia, was the guest speaker.

9.1.4 Center for Research, Training, Testing and Consultation (CRTTC)

The *Center for Research, Training, Testing and Consultation (CRTTC)* was established in 2005 to test building construction materials using the laboratory facilities of the CE department, as well as to provide training and consultancy services on various Civil and Environmental Engineering issues. CRTTC offers access to University’s state-of-the-art laboratory equipment and facilities to companies of all sizes with a wide range of testing and analysis services. The high quality specialized equipment, machinery and tools can be hired with or without academic expertise whichever is preferred by the project. Tests and analysis are carried out by expert technicians, servicemen and stuffs under the direct supervision of faculty members.

The services performed by *CRTTC* includes a wide range of tests for materials like cement, concrete, aggregate, steel, timber, bitumen, water quality and others. Currently, the *CRTTC* is providing regular professional service to various design and construction firms interested to test their construction materials and/or needing consultancy in structural analysis, design, repair and maintenance.

Professor Farzana Rahman presenting ("Transport and Mobility: Meeting the Needs of Working Women") at the dissemination Seminar of INTALINC at the University of Oxford held in May 2018



Dr. Sharmin Nasrin presenting at 4th International Conference on Women's Issues in Transportation at University of California, Irvine, USA in September 2019

ProVC Prof M. R. Kabir, as a panelist at the 4th Rainwater Harvesting Convention at Dhaka, by Water Aid

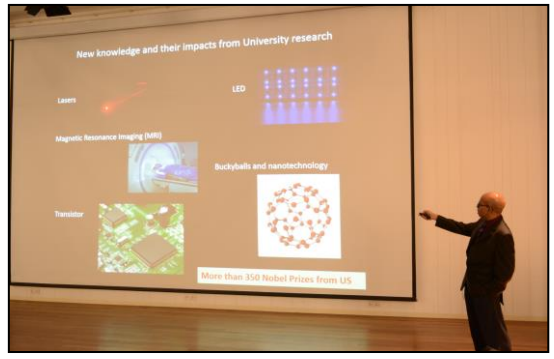
"Sustainable Transport Equity Partnership" workshop on mobility challenges of low income population jointly organized by UAP and Dhaka Transport Coordination Authority (DTCA), The University of Leeds, UK, WALK21 in March, 2019 in Dhaka

Visit Korail Bosti as to Make Dhaka Walkable, STEPs Project (UAP-CE)

Sylhet city Corporation visit (UAP-CE)

UAP CE faculty members with Professor Siti Hawa Hamza, Washington Accord Mentor from Board of Engineers, Malaysia visiting for mentoring on Outcome based Education facilitated by BAETE

UAP CE Faculty members with the Industrial Advisory Panel



Professor Taher Saif from University of Illinois of Urbana-Champaign providing a seminar on “Science and Engineering Research in US – Role of the Government, National Labs and Universities”

UAP CE faculty members with the children under voluntary activity of CE students “Sholpo Meyadi Shishu Shikhya Karjokrom”

Civil Engineering Career Expo 2020

Dr. Sayeed Ahmed, Executive Director, SMEC providing a seminar on the construction of “Karnaphuli Tunnel”

UAP CE was the First Winner of Idea session, held at UAP in 2019

UAP CE was the First Runner up of Idea session, held at UAP in 2019

First UAP Junior High School Math Olympiad-2018 organized by UAP CE

UAP CE as a participant, brought UAP the recognition of ACI Outstanding University - 2018

Visit to WARPO by the final year students

Presenting Authors at ICCESD-2018, KUET

Seminar on *"Fecal Sludge Treatment in Bangladesh"*

Seminar on "Systematic Water Quality Assessment and an Appropriate Nano-enabled Treatment Solution for Low-income U.S. Communities"

A day long training program on "Rainwater Harvesting System"

Seminar on "The Future of the Rickshaw: Mobility, Informal Labor and Aspirations of Modernity"

Seminar on "Addressing Urban Informality – Challenges and Solutions"

Seminar on "Slope Stabilization using soil nail system"

Seminar on "Mega project management techniques"

Technical Training Session for students by Crown Cement, RMC, and Crown Izonil Mortar

A training program on "Professional Approaches and Present Scopes for Civil Engineers in Bangladesh"

9.1.5 Industrial Advisory Panel

University of Asia Pacific appointed eight eminent industrial personalities as the "Industrial Advisor" of the Department of Civil Engineering in June 2018 to form Industrial Advisory Panel (IAP) as a step to strengthen Department-Industry Interaction. The industrial advisory panel will advise the department with valuable ideas and insights of industry requirements to improve academic and research quality of the undergraduate and graduate programs offered by the Department of Civil Engineering. Members of the panel are:

Prof. Dr. M. Monowar Hossain
Executive Director
IWM

Engr. Md. Abdul Awal
Managing Director
The Structural Engineering Ltd.

Engr. M. A. Sobhan, PEng.
Managing Director
DMP Consultants Ltd.

Engr Itemad Ud Daulah
Chairman
DIRD Group

Engr. H S Mozaddad Faruque
Director General
Bangladesh Water Development Board

Engr. Md. Shah Alam
Technical Advisor (Marketing & Sales)
Crown Cement Group

Engr. Abu Mohammed Masud
CEO & Managing Director
Icon Engineering Services

Dr. Abdullah Al Mamun
Director, BRRL and SE, RHD

Dr. Sayeed Ahmed
Executive Director – Bangladesh
SMEC (Member of the Surbana jurong Group)

9.2 Study Tours

Faculty-guided study tours are arranged for students of various years, particularly Final Year. The tours are arranged to locations that carry technical importance for the students of this department (e.g. Teesta Barrage, Jamuna Multipurpose Bridge, Power Plant, River Research Institute, Cement Factories, Water Treatment Plant, Waste disposal Site).

9.3 The CE Student Forum, Extra and Co-curricular Activities

With a pragmatic view to hold extra and co-curricular activities, the CE Department of the UAP has formed The CE Students' Forum. This forum maintains a governing body that gets renewed every semester and also aims at overseeing the various activities that are organized by eight different clubs hosted in the CE Department.

The different clubs hosted in the CE Department include Math Club, Civil Engineering Structure Club, Geotechnical Engineering Club, Environmental and Disaster Management Club, Transportation Club, Art and Photography Club, Sports Club and Cultural Club. Each of these clubs is independent and fully functional through a working body consisting of a faculty advisor, president, vice president and student members. The activities of the clubs include event specific quizzes, presentations, projects, poster exhibitions and various club specific competitions (such as Sudoku and Rubik's cube competition by Math Club) all of which are held during every semester. Except for the listed clubs and activities, there are exhibitions and events in the Civil Engineering Festival every semester that are organized by the art and photography club and cultural club. The students of the department participate in different cultural programs, sports activities like cricket, football, table tennis, badminton, chess, carrom, etc., arranged by the department or centrally by the university. They also participate in annual inter-departmental debate competitions as well as cricket, football and badminton tournaments. Besides the department arranges picnic each year, which includes all the faculty members and the students of the department. These activities help the students to relax and improve the teacher-student relationship.

Project exhibition of Civil Engineering Structure Club

Winter Cloth Donation by Environment club

Presentation on fire Safety

Debate Competition

Creating Environmental Awareness

Campus cleaning program

Spring-2019 football tournament Champion

CE-Festival, Spring 2019

Color fest Spring-19

Farewell program of 37th batch

Annual picnic Fall-18

Study tour Spring-19

9.4 Accreditation and recognition

In 2007, the Department of CE became the first Civil Engineering program to get the Award of Accreditation Certificate by the Board of Accreditation of Engineering and Technical Education (BAETE), and celebrated this achievement in a grand ceremony also marking 10 years since its inception.

It may be mentioned here that the BAETE Accreditation earned by the CE department has allowed its graduates to apply for membership of the Institute of Engineers, Bangladesh (IEB) and a large number of CE graduates have already become full Members as well as Associate Members of IEB.

In 2018 the department reached another milestone. In January the UGC-nominated external peer review team (EPRT) inspected the curriculum, physical facilities and academic rigor of the BSc program and rated it 'Very Good'. The team praised the faculty members for their commitment to implement outcome based education (OBE) in teaching-learning. Right around that time another review team from Board of Accreditation for Engineering and Technical Education (BAETE) visited the department. After thorough scrutiny the department was able to retain its status as an IEB accredited program. The BSc in civil engineering program was accredited with the grade 'good' for the next three years, ending in 2021.

UAP is also the recipient of "Seven Rings Cement Award -2018" for its outstanding contribution in nation building through educating and producing excellent Civil Engineers for the country. On 6 December 2018, Head CE received the award on behalf of UAP along with 10 Vice Chancellors of leading Engineering Universities (including BUET, CUET, KUET, RUET, SUST, DUET, IUT, AUST) on the same stage at Grand Ballroom of Radisson Blu Hotel, Dhaka.

9.5 CE Graduates and Alumni Association

Since the graduation of the first batch of students in Spring 2001, thirty seven batches of Civil Engineers have graduated from the department. Almost all the graduates of the department have successfully accommodated themselves in different well known organizations like LGED, RAJUK, Grameen Phone, DDC, Concord Builders Ltd., Building Technology and Ideas (BTI), The Structural Engineers Ltd. (SEL), Icon Engineering Services (IES), Crown Cement Group Ltd., Rupayan Real Estate, Mir Readymix, Project Builders Ltd. (PBL), Department of Environment, Steelco Limited, Bangladesh Building Systems Limited, China Bangla Ceramic, RAK Ceramic etc. Some of them have also established their own design/construction firms. Besides, many of the CE graduates have been employed in foreign countries like USA, Canada, Australia, UK, Singapore and UAE.

Several UAP graduates are doing post graduate studies in Civil Engineering at BUET, the premier engineering university of the country. Some graduates are also doing post graduate studies (e.g., MBA) at Dhaka University. The department has encouraged its graduates to pursue higher education at reputed institutions abroad by organizing lectures like *Opportunities for Students: A Global Perspective* and *Higher Studies in Europe and Canada*. Many of its graduates have also gone for higher studies in foreign countries like USA, UK, Switzerland, Italy (on UniverLecco Gold Scholarship), France, Germany, Japan (on Monbusho Scholarship), South Korea (on Brain Korea 21- South Korean Government Scholarship Scheme), South Africa, Thailand, Belgium, Canada etc.

The CE department believes that students are the torchbearers of the department and university and maintains a cordial relationship with its graduates. While it encourages the graduates to reach the sky, it always keeps the doors open for them to be home once more.

UAP Civil Engineers Alumni Association (CEAA) started its journey with the vision to establish a common platform for social, cultural and professional activities among the UAP alumni, develop stronger bond and cohesion among the fellow alumni in order to help & support each other personally and professionally. CEAA holds a formal executive body and a constitution of its own.

Different initiations are in progress from the alumnae association with the view to address the needs of the society as well as the fellow alumnae members**. Donation Cell** has been enacted for supporting the meritorious but poor students of civil engineering department. Initial target of this cell is to support five students per semester. **Job Managerial Cell** will aim to provide a common platform for job seekers and job recruiters to find the best fit between the demands and the fields of expertise. **Professional Skill Development Cell** will provide trainings, workshops, site tour etc to improve the professional skills. **Counseling Cell** will provide professional counseling to provide proper suggestions before staring of the career. **Blood Donation Cell** will collect and list the Blood groups of all alumni and current students. Besides this, CEAA organizes monthly meeting, annual get together etc.

Executive committee 2019-20 have commences some successful events like Annual Picnic 2019 where 550 alumni were gathered. The association also sponsored Iftar Mahfil 2019 with 700 alumni and current students.

9.6 Concluding Remarks

Ever since its inception, University of Asia Pacific has dedicated itself in providing quality education, encouraging each academic department, faculty, staff and student to a strong commitment to excellence. The quality of education it offers is primarily dependent on the quality of its faculty members and the students. But for technical education, especially for Civil Engineering, two other factors greatly influence the quality; i.e., laboratory and research facilities.

In a standard Civil Engineering curriculum there are numerous theoretical and practical courses directly dependent on modern and sophisticated laboratory equipment. So laboratories rich in necessary equipment play a key role for the improved learning of the students of the department. In the CE department of UAP, the courses dependent on laboratories start from the very first semester and continue up to the graduation. The department provides full-fledged in-house laboratory facilities for its students. In fact this was the first private university in Bangladesh with such complete laboratory facilities for the Department of CE.

Thus the Department of CE has put concerted effort to comply with UAP's mission of providing quality education and uphold its commitment to excellence, demonstrating it through its academic environment and the quality of its academic services. It has always tried to provide complete Civil Engineering education with class lectures, laboratory demonstrations and quality research work.

The faculty members and students of this department are already making their mark in various capacities at home and abroad. The department and its well-wishers expect these achievements to grow in the years to come.

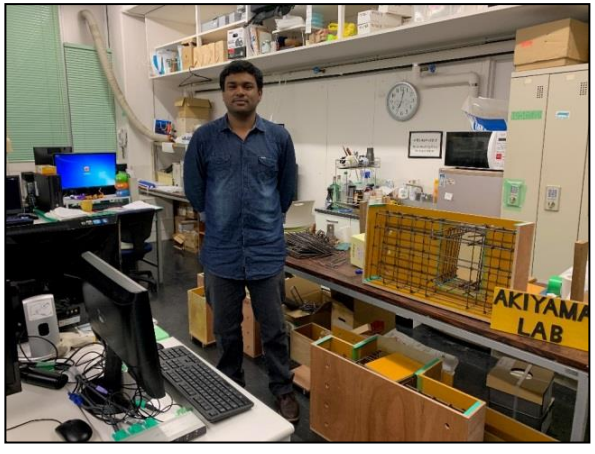
To face the challenge of the twenty first century, the department promises to give its utmost effort. It is committed to continue and improve upon the sincere service, innovative ideas and determined effort to produce quality civil engineers whose scholarly achievements and strong leadership will make it an institution the nation can be proud of.

Graduates of UAP CE shining at Home and Abroad

UAP-CE graduate S M Jamil Uddin (28th Batch) is doing PhD on Construction Engineering and Management in the Department of Civil Engineering at North Carolina State University (NC State), USA. He is working as a Graduate Research and Teaching Assistant at North Carolina State University.

UAP-CE graduate Isreq Hossen is doing post Grad at Manhattan College, USA. He is working as a Graduate Research Assistant at Manhattan College and also working for Lawler Environmental Group (LEG) as a Lab Safety Officer.

UAP-CE graduate, Md. Jobaer Uddin (30th Batch) is doing M.Sc in Civil Engineering at University of North Florida, USA. He is working as a graduate teaching and research assistant at UNF.



UAP-CE graduate Ramiz Ahmed Raju is doing PhD in the Department of Civil Engineering at Waseda University, Japan. He has been awarded MEXT Scholarship for his PhD degree. He is working as a Teaching Assistant at Waseda University.

UAP-CE graduate H M Golam Samdani is doing PhD in the Department of Civil Engineering at Osaka University, Japan.

Abizer Yousuf Kapadia (31st batch) presenting his article on undergraduate thesis work (Coagulation potential of river water) at the ASCE World Environment and Water Resources Congress at Minnesota, USA in June, 2018.

UAP-CE graduate Dr. Suvash Chandra Paul (13th Batch) is working as an Associate Professor in the Department of Civil Engineering at International University of Business Agriculture and Technology, Dhaka, Bangladesh.

UAP-CE graduate Yashin Abdullah Ali is doing M. Sc. in the Department of Civil Engineering at Technical University of Munich, Germany.

UAP-CE graduate Mohammad Safayat Hossain is doing M. Sc on Environmental Engineering in the Department of Environmental Engineering at Ondokuz Mayıs Üniversitesi, Turkey.

UAP-CE graduate Sawgat Hossain is doing double masters on Management of built environments and management engineering at Politecnico di Milano, Milan, Italy.

UAP-CE graduates Golam Ajam Rubel working as a Trainee Mud Logger at Schlumberger- Geo Services in Malaysia. Schlumberger Limited (founded in 1926) is the world's largest oilfield services company. Schlumberger has four principal executive offices located in Paris, Houston, London, and The Hague.

Sumayatul Mosharraf (37th Batch) participating in AYIMUN (Asian Youth International Model United Nations) at Bangkok, Thailand in November 2018 being one of the 2000 delegates from all over the world

UAP-CE graduates are faculty members of the European University, Bangladesh

MD Mosheur Rahman Shourov, (30th Batch), Yousuf Dinar (23rd Batch), Yashin Abdullah Ali, CE(31st Batch), Md. Tariq Aziz (26th Batch)- Best Booth Winners of 2019 International Day Event at Technical University Munich (TUM), Germany

UAP-CE graduates are working at Rohingya Refugee Camp, Bangladesh

UAP CE graduates as Employees of MRT-06

UAP Alumni Association picnic in 2019

Shakrain Festival in 2019, UAP Alumni Association

UAP executive committee meeting 2019-2020

UAP Annual Iftar Mahfil 2019, UAP Alumni Association

10.1 COURSE REQUIREMENTS FOR UNDERGRADUATE STUDENTS (CE)

LEVEL I		**TERM I**		**TERM II**			
Course No.	Theory/Sessional Course Title [Prerequisites]	*Cr.H.	Co.H.	Course No.	Theory/Sessional Course Title [Prerequisites]	Cr.H.	Co.H.
HSS 101	English I: Oral and Written Skills	3.0	3	HSS 103	English II: Language Composition Skill	3.0	3
PHY 101	Physics	3.0	3	CHEM 111	Chemistry	3.0	3
MTH 101	Mathematics I	3.0	3	MTH 103	Mathematics II	3.0	3
CE 101	Engineering Mechanics I	3.0	3	CE 103	Engineering Mechanics II [Pre. CE 101]	3.0	3
CE 107	Introduction to Civil and Environmental Engineering	2.0	2	CE 105	Surveying	4.0	4
CSE 100	Computer Skills	1.5	3	CE 104	Civil Engineering Drawing II [Pre. CE 102]	1.5	3
CE 102	Civil Engineering Drawing I	1.5	3	CE 106	Practical Surveying	1.5	3
PHY 102	Physics Lab	1.5	3	CHEM 112	Chemistry Lab	1.5	3
		18.5	23			20.5	25
LEVEL II		**TERM I**		**TERM II**			
Course No.	Theory/Sessional Course Title [Prerequisites]	Cr.H.	Co.H.	Course No.	Theory/Sessional Course Title [Prerequisites]	Cr.H.	Co.H.
HSS 211(a)	Bangladesh Studies (Society and Culture)	2.0	2	ECN 201	Principles of Economics	2.0	2
HSS 211(b)	Bangladesh Studies (History of Bengal)	2.0	2	MTH 203	Mathematics IV [Pre. MTH 101]	3.0	3
MTH 201	Mathematics III	3.0	3	CE 203	Engineering Geology and Geomorphology	3.0	3
ECE 201	Basic Electrical Engineering	3.0	3	CE 205	Numerical Analysis and Computer Programming	3.0	3
CE 211	Mechanics of Solids I [Pre. CE 101]	3.0	3	CE 213	Mechanics of Solids II [Pre. CE 211]	3.0	3
CE 201	Engineering Materials	4.0	4	CE 221	Fluid Mechanics	3.0	3
CE 200	Details of Construction	1.5	3	CE 204	Quantity Survey Lab	1.5	3
CE 202	Engineering Materials Lab	1.5	3	CE 206	Computer Programming Lab	1.5	3
ECE 202	Basic Electrical Engineering Lab	1.5	3	CE 212	Structural Mechanics and Materials Lab [Pre. CE 211]	1.5	3
		21.5	26			21.5	26

[Prerequisites can be waived subject to approval of Course Teacher]

LEVEL III		**TERM I**		**TERM II**			
Course No.	Theory/Sessional Course Title [Prerequisites]	*Cr.H.	Co.H.	Course No.	Theory/Sessional Course Title [Prerequisites]	Cr.H.	Co.H.
ACN 301	Principles of Accounting	2.0	2	IMG 301	Principles of Management	2.0	2
CE 311	Structural Engineering I [Pre. CE 211]	3.0	3	CE 313	Structural Engineering II [Pre. CE 213, 311]	3.0	3
CE 315	Design of Concrete Structures I [Pre. CE 211]	3.0	3	CE 317	Design of Concrete Structures II [Pre. CE 315]	3.0	3
CE 331	Environmental Engineering I (Water Supply Engineering)	3.0	3	CE 333	Environmental Engineering II (Waste Water Engineering)	3.0	3
CE 341	Geotechnical Engineering I (Soil Mechanics)	3.0	3	CE 351	Transportation Engineering I (Transport and Traffic Design)	3.0	3
CE 361	Open Channel Flow [Pre. CE 221]	3.0	3	CE 363	Engineering Hydrology	3.0	3
CE 312	Structural Engineering Sessional I [Pre. CE 213]	1.5	3	CE 316	Concrete Structures Design Sessional [Pre. CE 311, 315]	1.5	3
CE 332	Environmental Engineering Lab I	1.5	3	CE 342	Geotechnical Engineering Lab [Pre. CE 341]	1.5	3
CE 222	Hydraulics Lab [Pre. CE 221]	1.5	3	CE 354	Transportation Engineering Lab	1.5	3
		21.5	26			21.5	26

Summer (Non-Credit Course)	Credit
CE 300 Professional Training	0.0

LEVEL IV		**TERM I**		**TERM II**			
Course No.	Theory/Sessional Course Title [Prerequisites]	Cr.H.	Co.H.	Course No.	Theory/Sessional Course Title [Prerequisites]	Cr.H.	Co.H.
CE 401	Project Planning and Management	3.0	3	CE 403	Professional Practices and Communication	2.0	2
CE 411	Structural Engineering III [Pre. CE 313]	3.0	3	CE 418	Computer Applications in Civil and Environmental Engineering	1.5	3
CE 441	Geotechnical Engineering II	3.0	3	----------	Optional Course (Theory)	2.0	2
	(Foundation Engineering) [Pre. CE 341]			----------	Optional Course (Theory)	2.0	2
CE 451	Transportation Engineering II	3.0	3	----------	Optional Course (Theory)	2.0	2
	(Highway Design and Railways)			----------	Optional Course (Theory)	2.0	2
CE 461	Irrigation and Flood Control [Pre. CE 361]	3.0	3	----------	Optional Course (Theory)	2.0	2
CE 412	Structural Engineering Sessional II [Pre. CE 317]	1.5	3	----------	Optional Course (Sessional)	1.5	3
CE 400	Project/Thesis	1.5	3	CE 400	Project/Thesis	3.0	6
		18.0	21			18.0	24

[Prerequisites can be waived subject to approval of Course Teacher]

10.2 Outline of Undergraduate Courses

First Year First Semester

HSS 101: English Language I (Oral and Written Skills)
Credits: 3.0

Introduction, Greeting, Personal Details. Biography (Written Assignment). Homophones, Homonyms/Vowel Sounds. Spellings (Anagrams); Confusing Spellings, Words Commonly Misspelled and Wrongly Used. Uses of Definite and Indefinite Articles in Singular and Plural Sentences. Tenses- Present, Past, Future. Pronouns and Possessives. Affirmative, Negative and Interrogative Sentences. Prepositions and Directions (Writing Road Directions). Adjective: Comparative and Superlatives Sentences and Paragraphs (Written Test/Assignment). Transformation of Parts of Speech and Their Uses in Sentences: Noun, Adjective, Verb, Adverb. Punctuation and Capital Letters. Describing Objects (Written Assignment/Test). Note Taking/Summarizing. Translation from Bangla to English. Narrative Writing- Story Writing. Listening Test. Oral Presentation. Continual Oral Presentation of News Summary.

PHY 101: Physics
Credits: 3.0

Mechanics: Measurements, Motion in One Dimension, Motion in a Plane, Particle Dynamics, Work and Energy, Circular Motion, Simple Harmonic Motion, Rotation of Rigid Bodies, Central Force, Structure of Matter, Mechanical Properties of Materials.

Properties of Matter: Elasticity, Stresses and Strains, Young's Modulus, Bulk Modulus, Rigidity Modulus, Elastic Limit, Poisson's Ratio, Relation Between Elastic Constants, Bending of Beams. Fluid Motion, Equation of Continuity, Bernoulli's Theorem, Viscosity, Stoke's Law. Surface Energy and Surface Tension, Capillarity, Determination of Surface Tension by Different Methods.

Waves: Wave Motion and Propagation, Simple Harmonic Motion, Vibration Modes, Forced Vibrations, Vibration in Strings and Columns, Sound Wave and its Velocity, Doppler Effect. Elastic Waves, Ultrasonic, Practical Applications.

Optics: Theories of Light, Huygen's Principle, Electromagnetic Waves, Velocity of Light, Reflection, Refraction, Lenses, Interference, Diffraction, Polarization.

Heat and Thermodynamics: Temperature and Zeroth Law of Thermodynamics, Calorimetry, Thermal Equilibrium and Thermal Expansion, First Law of Thermodynamics, Specific Heat, Heat Capacities, Equation of State, Change of Phase, Heat Transfer, Second Law of Thermodynamics, Carnot Cycle, Efficiency, Entropy, Kinetic Theory of Gases.

MTH 101: Mathematics I
Credits: 3.0

Differential Calculus: Functions of one variable; Limit, Continuity and Differentiability – Successive Differentiation, Leibnitz's Theorem; Rolle's Theorem, Mean Value Theorem; Taylor's Theorem and Maclaurin's Theorem. Lagrange's and Cauchy's Forms of Remainder; Expansion of Functions in Taylor's and Maclaurin's Series; Evaluation of Indeterminate Forms by L'Hospital's Rule; Determination of Maximum and Minimum Values of Functions; Points of Inflexion; Conic Sections; Tangent and Normal; Applications, Curvature, Radius of Curvature, Center of Curvature. Functions of more than one variable; Limit, Continuity, Differentiability, Directional Derivative, Partial Derivatives, Euler's Theorem, Jacobians, Tangent Plane and Normal to Surfaces.

Integral Calculus: Definition of Integral and its Properties, Primitives, Fundamental Theorem of Integral Calculus, Indefinite Integrals; Integration by Summation of Series, Standard Integrals, Integration by Summation and Integration by Parts, Integration by Successive Reduction, Improper Integrals, Beta and Gamma Functions, Evaluation of Areas and Arc-lengths, Intrinsic Equation, Volumes and Surface Areas of Solids and Surface Areas of Solids of Revolution, Multiple Integration, Iterated Integration and Fubini's Theorem, Change of Variables.

CE 101: Engineering Mechanics I
Credits: 3.0

Unit Conversion; Coplanar Concurrent Forces; Moments and Parallel Coplanar Forces; Non-Concurrent Non-Parallel Coplanar Forces; Centroids, Moment of Inertia of Areas, Flexible Cords.

CE 107: Introduction to Civil and Environmental Engineering
Credits: 2.0

Importance of Civil and Environmental Engineering; Branches of Civil Engineering; Civil Engineering Structures: Definition of Structures and its Types, Classification of Buildings Based on Occupancy, Different Components of a Building, Discussion on Loads on Structures, Importance of Soil Testing in Construction and Design, Building Regulations; Water and Environment: Man and Environment, Basic Population Dynamics, Water resources, River system in Bangladesh, Water Pollution,

Components of Environment, Ecosystem, Flow of Matter and Energy Through an Ecosystem, Biodiversity, Urban Air Pollution, Acid Rain, Global Warming, Renewable and Non-renewable Energy; Transportation System: Mode of Transport, Road Network, Discussion on the National Road Network of Bangladesh.

CSE 100: Computer Skills
Credits: 1.5

Computer Fundamentals: Some Basic Concepts about Computer, DOS: Some useful Commands of DOS and Their Uses. Windows: Concepts, Icon, Toolbar, Windows, File manager, Program Item, Program Run, Control Panel. MS-Word: File Open, Save, Edit and Details of MS-Word, Excel: Calculation, Function, Chart, and Details of Excel. FoxPro: File Creation, Sorting, Reporting, Indexing, Displaying, Antivirus: Functions, Use of Some Antivirus Programs. Hand on Experience with Computer, Utility S/W: NORTON Utility S/W, Internet, e-mail.

CE 102: Civil Engineering Drawing I
Credits: 1.5

Introduction - Lettering, Numbering and Heading, Plane Geometry-Pentagon, Hexagon, Octagon, Ellipse, Parabola, Hyperbola. Projection (Solid Geometry)- Cube, Triangular Prism, Square Prism, Pentagonal Prism, Hexagonal Prism, Cone, Cylinder. Development -Cube, Pyramid, Cone, Prism: Section and True Shape-Cube, Pyramid, Cone, Prism, Isometric Drawing: Cube, Pyramid, Cone, Oblique Drawing Cube. Pyramid, Cone Interpretation of Solids-Plan, Elevation and Section of One Storied Buildings.

PHY 102: Physics
Lab Credits: 1.5

Laboratory works on Compound Pendulum, Young's Modulus, Modulus of Rigidity, Specific Heat, Refractive Index, Specific Rotation, Radius of Curvature, Focal Length, Resistance, Specific Resistance using Meter Bridge, Half Deflection Method, Post Office Box, Potentiometer.

First Year Second Semester

HSS 103: English II (Language Composition Skills)
Credits: 3.0

Listening and Note Taking; Subject- Verb Agreement; Error Analysis and Correction; Joining Words/Conjunctions; Reported Speech; Active/Passive Sentences; Direct/Indirect Instruction for Operations, Sequencing; Words/Phrases/Flow; Charts; Reading Comprehension and Summarizing; Conditional Sentences; Paragraph Writing; Antonyms/Synonyms; Idiomatic Words/Phrases; Uses of Too/Enough; Uses of Since/For; Letter Writing: Formal/Informal; Applications/Telegraphic Language; Classifications and Charts; Essay Writing; Report Writing; Listening Test; Oral Presentation.

CHEM 111: Chemistry
Credits: 3.0

Atomic Structure; Periodic Table; Chemical Bonds; Physical and Chemical Properties of Water; Different Types of Solution, Concentration Unit; Chemical Equilibrium and Thermochemistry; Reaction Kinetics; Colloid and Colloidal Solution; Chemical Corrosion; Chemistry of Environmental Pollution; Polymers Paint and Varnishes.

MTH 103: Mathematics II
Credits: 3.0

Solid Geometry: The Equations of Plane and Straight Line, Sphere, Conicoids, Elementary Properties, Transformation of Axes. Vector Space, Vector in Three Dimensions.

Vector Analysis: Scalars and Vectors, Equality of Vectors, Addition and subtraction of Vectors. Multiplication of Vectors by Scalars,. Position Vector of a Point, Resolution of Vectors. Scalar and Vector Product of two Vectors and Their Geometrical Interpretation. Triple Products and Multiple Products. Application to Geometry and Mechanics, Linear Dependence and Independence of Vectors, Differentiation and Integration of Vectors together with Elementary Applications, Definition of Line, Surface and Volume Integral. Gradient, Divergence and Curl of Point Functions. Various Formulae. Gauss's Theorem, Stoke's Theorem, Green's Theorem and their Applications.

CE 103: Engineering Mechanics II [Prerequisite CE 101]
Credits: 3.0

Friction, Plane motion, Force System that Produces Rectilinear Motion, Work, Kinetic Energy, Power, Impulse and Momentum, Non-Coplanar Forces, Moment of Inertia of Masses.

CE 105: Surveying
Credits: 4.0

Reconnaissance Survey; Linear Measurements; Traverse Survey; Leveling and Contouring; Calculation of Areas and Volumes; Problems of Heights and Distances; Curves and Curve Ranging, Transition Curve, Vertical Curves. Tacheometry: Introduction, Principles and Problems on Tacheometry. Astronomical Surveying: Definition, Instruments, Astronomical Corrections, Systems of Time. Photogrammetry Introduction of Terrestrial Photography, Aerial Photography, Reading of Photomossaic, Scale: Project Surveying; Errors in Surveying; Remote Sensing; Introduction to Global Positioning System (GPS).

CE 104: Civil Engineering Drawing II [Prerequisite CE 102]
Credits: 1.5

Plan, Elevation and Sections of Multi-Storied Buildings; Reinforcement Details of Beams, Slabs, Stairs etc. Plan and Section of Septic Tank; Detailed Drawing of Roof Truss; Plan, Elevation and Sections of Culverts, Bridges and Other Hydraulic Structures; Buildings; Introduction to Computer Aided Drafting (CAD).

CE 106: Practical Surveying
Credits: 1.5

Field works on Chain, Plane Table, Traverse Survey; Calculation of Area, House Setting, Curve Setting; Leveling, Contouring, Calculation of Height.

CHEM 112: Chemistry Lab
Credits: 1.5

Standardization of alkali, acid and salt solutions; Detection of Copper, Iron and Calcium in solutions.

Second Year First Semester

HSS 211(a): Bangladesh Studies (Society and Culture)
Credits: 2.0

The Sociological Perspective: Definition, Nature, Sociology as a Scientific Discipline, Relation with Other Social Sciences. Primary Concepts: Society, Community, Association, Institution, Group Culture, Norms and Values. Social Structure & Process: Social Stratification, Social Classes, Caste System, Social Mobility. Social Institutions: Family, Marriage, Economic Institutions- Property, Ownership; Political Institutions: Forms of State & Forms of Government; Local Government; Religious and Cultural Institutions. Culture, Cultural Diffusion and Change, Bengali Culture. Problems of Society, Social Problems of Bangladesh. Social Change, Theories of Social Change, Social Change in Bangladesh. Urbanization Process and Its Impact on Bangladesh Society.

HSS 211(b): Bangladesh Studies (History of Bengal)
Credits: 2.0

The land: Geographical Factors, The People. Historical Perspectives. Ancient Bengali: Sasanka-Rise of the Palas - the Senas. Early Medieval Bengal. Coming of the Muslims. The Independent sultanate of Bengal: Ilyas Shahi and Hossein Shahi Bengal. Development of Bengali Language & Bengali Literature. Late medieval Bengal: The Establishment of Mughal Rule in Bengal Bara Bhuiyans: Subedars and Nawabs, Coming of the Europeans New Approach in Bengal Architecture Beginning of British rule in Bengal: Battles of Plassey & Buzas. Diwani (1765). The Dual government. Permanent Settlement (1793) Nineteenth Century Bengali Renaissance: Areas of Social & Religious Reforms-Raja Rammohan Roy, Ishwar Chandra Vidyasagar, Titu Meer. Partition of Bengal (1905). Language Movement (1952) Movement for Autonomy; 6-point and 11-Point Programs. The 1970 Election-Military Action, Genocide in the East Pakistan. The Liberation War. The Emergence of Bangladesh as a Sovereign Independent State in 1971.

MTH 201: Mathematics III
Credits: 3.0

Matrices: Definition, Algebra of Matrices, Determinants, Adjoint of Square Matrices, Inverse of a Matrix. Elementary Operations; Reduction to Echelon Form; Solution of a System of Linear Equations.

Linear Algebra: Definition of Linear (Vector) Space, Subspace, Linear dependence and

independence, Basis and dimension, Singular and non-singular linear Transformation, Rank and Nullity, Representation of Linear Transformation by Matrices, Change Matrix, Determinant and Trace, Eigen Value and Eigen Space, Eigen Vector, Normal and Canonical Form of Matrices, Matrix Polynomials.

Statistics and Probability: Frequency Distribution, Mean, Median, Mode and Other Measures of Central Tendency. Standard Deviation and Other Measures of Dispersion. Moments, Skewness and Kurtosis. Elementary Probability Theory and Discontinuous Probability Distribution, e.g. Binomial, Poison and Negative Binomial. Continuous Probability Distributions, e.g. Normal and Exponential. Characteristics of Distributions. Elementary Sampling Theory. Estimation. Hypothesis Testing and Regressing Analysis.

ECE 201: Basic Electrical Engineering
Credits: 3.0

DC Circuits: Electric Current and Ohm's Law, Network Theorems, Work, Power, Energy, Magnetic Hysteresis. AC Circuits: AC Fundamentals, Phasor Algebra, Series AC Circuits, Parallel AC Circuits.

CE 211: Mechanics of Solids I [Prerequisite CE 101]
Credits: 3.0

Fundamental Concepts of Stress and Strain, Mechanical Properties of Materials; Strain Energy, Stresses and Strains in Members Subjected to Tension, Compression, Shear and Temperature Changes; Bending Moment and Shear Force Diagrams of Beams and Frames; Flexural and Shearing Stresses in Beams; Shear Center; Thin Walled Pressure Containers; Riveted and Welded Joints.

CE 201: Engineering Materials
Credits: 4.0

Introduction to commonly used Engineering Materials; Mechanical Properties, Crystal and Amorphous Structures; Atomic Structures, and Bonding; Bricks, Cement, Fine Aggregate, Coarse Aggregate, Mortar, Concrete; Salinity problem in Concrete; Corrosion of Steel in Concrete; Prevention of Corrosion of Steel in Concrete; Concrete for Special Purposes; Ferrocement, Properties and uses of Rubber, Plastics and Timber, Metallic Coatings, Paints, Varnishes.

CE 200: Details of Construction
Credits: 1.5

Foundations; Different Types of Foundation; Brick Masonry, Framed Structures and Bearing Walls; Arches and Lintels; Details of Floors and Roof; Pointing; Plastering and Interior Finishing; Scaffolding, Staging; Shoring and Underpinning; Thermal Insulation and Acoustics; House Plumbing.

CE 202: Engineering Materials Lab
Credits: 1.5

General discussion on Brick, Cement, Fine aggregate, Coarse Aggregate and Concrete; Determination of Normal Consistency of Cement by Vicat's Apparatus; Determination of the Initial Setting Time of Cement with Vicat's Apparatus; Test for Direct Compressive Strength of Cement Mortar; Sieve Analysis of Fine and Coarse Aggregate; Specific Gravity and Absorption Capacity of Fine Aggregate; Specific Gravity and Absorption Capacity of Coarse Aggregate; Unit Weight and Void in Aggregate, Resistance to Degradation of Small Sized Coarse Aggregate by Abrasion and Impact of the Los Angeles Abrasion Machine; Compressive Strength of Cylinder and Cube Concrete Specimens; Tests of Bricks: Shape, Size, Surface Hardness, Absorption, Unit Weight, Efflorescence and Compressive Strength.

ECE 202: Basic Electrical Engineering Lab
Credits: 1.5

Construction and Operation of Simple Electrical Circuits; Verification of KVL, KCL and Superposition Theorem; Transmission and Distribution of Electric Power; AC Waves; KVL and KCL for AC Circuits; Verification of Maximum Power Transfer Theorem

Second Year Second Semester

ECN 201: Principles of Economics
Credits: 2.0

Introduction: Definition of Economics. Micro and Macro Economics, Relative Importance in the Formulation of National Economic Policies.

Microeconomics:
Demand Analysis - Law of Diminishing Marginal Utility, Demand Function, Demand Curve, Law of Demand, Elasticity of Demand; Supply Analysis- Supply function, Factors Influencing Supply. Law of Supply, Elasticity of Supply; Market Equilibrium - Equilibrium Price and Quantity; Indifference Curve (I-C)- Construction of I-C. Properties of I-C. Line, Consumer's Equilibrium with the Help of Budget Line, Income Effect, Price Effect, Substitution Effect; Production - Production Function. Factors of Production. Production Possibility Curve; Cost and Revenue - Total, Average, Marginal.
Macroeconomics:

National Income - GNP, GDP and NNP. Income Circular Flow, Diagram, Methods of Measuring National Income; Money: Functions of Money, Value of Money, Inflation; International Trade: Terms of Trade,. Free Trade and Protection; Public Finance: Public Income, Public Expenditure, Public Debt. Direct and Indirect Tax; Planning in Bangladesh.

MTH 203: Mathematics IV [Prerequisite MTH 101]
Credits: 3.0

Differential Equation: Definition, Formation of Differential Equations, Solution of First Order Ordinary Differential Equations by Various Methods, Solution of Ordinary Differential Equation of First Order and Higher Degrees, Solution of General Linear Equations of Second and Higher Orders with Constant Coefficient, Solution of Euler's Homogenous Linear Equations.

Fourier Analysis: Real and Complex Form Finite Transform. Fourier Integral Fourier Transforms and Their Uses in Solving Boundary Value Problems.

Laplace Transforms: Definition, Laplace Transforms of Some Elementary Functions. Sufficient Conditions for Existence of Laplace Transforms. Inverse Laplace Transforms. Laplace Transforms of Derivatives. The Unit Step Function Periodic Functions. Some Special Theorems on Laplace Transforms. Partial Fraction. Solutions of Differential Equations by Laplace Transforms. Evaluation of Improper Integral.

CE 203: Engineering Geology and Geomorphology
Credits: 3.0

Minerals; Identification of Minerals; Common Rock Forming Minerals, Physical Properties of Minerals, Mineroloids Rocks, Types of Rocks, Cycle of Rock Change; Earthquake and Seismic Map of Bangladesh; Structural Geology; Faults; Types of Faults, Folds and Fold Type; Domes; Basins; Erosional Process; Quantitative Analysis of Erosional Land Form. Channel Development; Channel Widening; Valley Shape; Stream; Terraces; Alluvial Flood Plains; Deltas and Alluvial Fans; Channel; Morphology; Channel Patterns and the River Basin; Geology and geomorphology of Bangladesh.

CE 205: Numerical Analysis and Computer Programming
Credits: 3.0

Basic Components of Computer System; Introduction to a Computer Programming Language; Sequential, Selective and Repetitive Structures; Arrays; Subprograms; Numerical Solution of Algebraic and Transcendental Equation; Matrices; Solution of Systems of Linear Equations; Curve Fitting by Least Squares; Finite Differences; Divided Differences; Interpolation; Computer Applications to Civil Engineering Problems; Numerical Differentiation and Integration; Numerical Solution of Differential Equations.

CE 213: Mechanics of Solids II [Prerequisite CE 211]
Credits: 3.0

Torsional Stress and Rotation; Compound Stresses; Helical Springs; Transformation of Stresses; Deflection of Beams by Direct Integration, Moment Area and Conjugate Beam Methods; Buckling of Column.

CE 221: Fluid Mechanics
Credits: 3.0

Development and Scope of Fluid Mechanics. Fluid Properties. Fluid Statics. Kinematics of Fluid Flow. Fluid Flow Concepts and Basic Equations- Continuity Equation, Bernoulli's Equation, Energy Equation, Momentum Equation and Force in Fluid Flow. Similitude and Dimensional Analysis. Steady Incompressible Flow in Pressure Conduits, Laminar and Turbulent Flow, General Equation for Fluid Friction. Empirical Equations for Pipe Flow. Minor Losses in Pipe Flow. Fluid Measurement: Pitot Tube, Orifice, Mouthpiece, Nozzle, Venturimeter, Weir. Pipe Flow Problems- Pipes in Series and Parallel, Branching Pipes, Pipe Networks.

CE 204: Quantity Survey Lab
Credits: 1.5

Different Types of Estimates. Approximate Estimate. Method of Building Estimate. Detailed Itemized Estimate of a Building. Analysis of Rates. Specification of Construction Materials. Method of Measurement of Works. Contracts. Valuation. Estimate of Bridge, Steel Truss, and Highway construction.

CE 206: Computer Programming
Lab Credits: 1.5

Introduction to Computer programming; Programming with Sequential, Selective, Repetitive Structures; Arrays, Subprograms; Applications in Civil Engineering and Numerical Analysis.

CE 212: Structural Mechanics and Materials Lab [Prerequisite CE 211]
Credits: 1.5

Verification of Lame's Theorem, Flexible Cord, Center of Gravity; Friction Factors, Simple Harmonic Motion, Coefficient of Restitution; Tension, Direct Shear, Impact Test of Metals; Non-Destructive Tests; Compression and Bending Test of Timber; Test on Biaxial Bending; Torsion, Helical Spring; Buckling Test of Columns.

Third Year First Semester

ACN 301: Principles of Accounting
Credits: 2.0

Introduction to Accounting, Generally Accepted Accounting Principles (GAAP), Accounting Cycle, Accounting Information Processing, Information User Groups; Principles of Journal Entries, Ledger, Trial Balance, Adjusting Entries, Rectifying Entries, Financial Statement (Income Statement, Cash Flow Statement, Balance Sheet); Bank Reconciliation Statement, Objectives and Procedure; Managerial and Cost Accounting: Introduction to Cost Concepts, Job Order Costing, Process Costing (Including Contract Costing), Cost Volume - Profit Analysis, Costing for Decision Making and Reporting, Flexible Budget and Standard Costing, Capital Budgeting, Analysis of Financial Statements

CE 311: Structural Engineering I [Prerequisite CE 211]
Credits: 3.0

Stability and Determinacy of Structures; Shear Force and Bending Moment of Frames and Arches; Influence Lines of Beams, Frames, Plate Girders and Trusses; Calculation of Maximum and Minimum Forces; Wheel Loads; Calculation of Wind and Seismic Load; General Cable Theorem; Analysis of Space Trusses.

CE 315: Design of Concrete Structures I [Prerequisite CE 211]
Credits: 3.0

Fundamental Behavior of Reinforced Concrete; Tests, quality control and inspection; Introduction to WSD and USD Method; Analysis and Design of Singly Reinforced, Doubly Reinforced and T-beam by WSD and USD Methods; Design for Shear by WSD and USD; Bar Curtailment; One Way Slabs by WSD and USD.

CE 331: Environmental Engineering I (Water Supply Engineering)
Credits: 3.0

History and Development of Water Supply System, Bangladesh Scenario, Objectives and Elements of Water Supply. Water Demands, Fire Demands, Planning and Design Considerations. Hydrological Cycle, Sources of Water Supply, Surface Water, Ground Water, Rain Water and Grey Water. Surface Water: Conveyance of Water, Water Hammer, Pipe Laying, Valves, Fittings and Taps, Detection and Prevention of Waste and Meters. Ground Water: Groundwater Exploration, Aquifer Properties and Groundwater Flow, Well hydraulics, Water Well Design, Construction and Maintenance, Recharge of Ground Water. Water Treatment: Water Quality and Its

Standard, Plain Sedimentation, Coagulation and Flocculation, Filtration, Disinfection,

Arsenic, Iron and Hardness Removal Processes. Analysis and Design of Distribution Systems. Pumps and Pumping Machineries. Water Supply Management: User Community, Water Source Management, Institutional Aspects, Water Ethics and Pricing, Water Use and Reuse, Technological Options for Rural and Low Income Urban Communities.

CE 341: Geotechnical Engineering I
Credits: 3.0

Introduction to Geotechnical Engineering; Formation, Type and Identification of Soils, Soil Composition, Soil Structure and Fabric, Index; Properties of Soil; Engineering Classification of Soils Compaction; Principles of Total and Effective Stresses; Permeability and Seepage; Stress-Strain-Strength Characteristics of Soils; Compressibility and Settlement Behavior of Soils; Lateral Earth Pressure; Stress Distribution.

CE 361: Open Channel Flow [Prerequisite CE 221]
Credits: 3.0

Properties and Classification of Open-Channel Flow, Velocity and Pressure Distribution. Energy and Momentum Principles, Specific Energy and Transition Problems. Critical Flow and Control Principles of Flow Measurement and Devices. Concept of Uniform Flow, Chezy and Manning Equations, Estimation of Resistance Coefficients and Computation of Uniform Flow. Hydraulic Jump and Its characteristics. Theory and Analysis of Gradually Varied Flow, Computation of flow profile. Design of Channels. Diffusion and Dispersion in Open Channels.

CE 312: Structural Engineering Lab I [Prerequisite CE 213]
Credits: 1.5

Design of a Steel Structures; e.g., Industrial Truss/Tower and Multi-Storied Steel Frame; Introduction to Plate Girders.

CE 332: Environmental Engineering Lab I
Credits: 1.5

Physical, Chemical and Bacteriological Tests of Water and Waste Water; Design of Water Supply System.

CE 222: Hydraulics Lab [Prerequisite CE 221]
Credits: 1.5

Center of Pressure, Proof of Bernoulli's Theorem. Flow Through Venturimeter. Flow Through Orifice. Coefficient of Velocity by Coordinate Method. Flow through Mouth Piece. Flow over V-notch. Flow Over Sharp Crested Weir, Fluid Friction in Pipe.

Third Year Second Semester

IMG 301: Principles of Management
Credits: 2.0

Introduction; Management Concept; Evaluation of Management Thoughts; Managerial Constraints/Environment; Managerial Skills; Decision Making; Group Decision Making; Planning Organizational Goals, Basics of Planning, Planning Tools and Techniques, Strategic Planning; Organizing and Staffing: Organization Theory, Foundations of Organizational Design, Authority and Power, Job Design and Staffing, Human Resource Management; Leading Organizational Behavior, Motivating Communicating, Leadership; Controlling Nature of Organizational Control, Control Techniques, Evaluating Organizational Performance, Management Information System; Management in International/Multinational Organizations; Management and Ethics; Time Management.

CE 313: Structural Engineering II [Prerequisite CE 213, 311]
Credits: 3.0

Approximate Analysis of Statically Indeterminate Structures; Calculation of Deflection by the Virtual Work Method; Analysis of Statically Indeterminate Structures by Flexibility Method; Moment Distribution; Influence Lines of Statically Indeterminate Structures.

CE 317: Design of Concrete Structures II [Prerequisite CE 315]
Credits: 3.0

Design of Two-Way Slabs, Flat Slabs, Flat Plates, Columns, Footings, Pile Foundations, Retaining Walls by WSD and USD; Introduction of Prestressed Concrete. Analysis and Preliminary Design of Prestressed Beam Section.

CE 333: Environmental Engineering II (Waste Water Engineering)
Credits: 3.0

Introduction to Environmental Sanitation: Sanitation and Health; Objectives and Definition of Sanitation; Classification of Wastes and Sanitation Systems; On-site Sanitation Systems for Rural and Low Income Urban Communities; Simple Pit Technology; Pour-flush Sanitation Technologies; Communal Sanitation System; Wastewater Engineering: Conventional Sewerage System; Wastewater Collection Systems; Estimation of Wastewater Flow; Hydraulic Requirements and Design of Sanitary Sewer System; Construction, Operation and Maintenance; Sewer Appurtenances; Plumbing System; Small Bore Sewerage System; Simplified Sewerage System; Stormwater and Sullage Drainage System Design; Wastewater Treatment and Disposal: Wastewater Characteristics; Preparatory, Primary and Secondary Treatment Methods; Attached Growth System; Suspended Growth System; Waste Stabilization Ponds; Advanced Treatment processes; Wastewater Disinfection; Effluent Disposal; Sludge Treatment and Disposal.

CE 351: Transportation Engineering I (Transport and Traffic Design)
Credits: 3.0

Introduction to Transportation Engineering; Development of Transportation Systems; Elements of Transportation System; Transportation in Bangladesh; Modal Share; Transportation Planning; Concepts Collection, Study and Analysis of Basic Data; Highway; Location and Surveys; Geometric Design of Highways; Elements of Design, Cross - Section Elements, Curves and Sight Distances; Road Intersections; Traffic Engineering: the Road/Traffic System, Vehicle and Traffic Characteristics, Traffic Control Devices, Traffic Studies, Parking and Roadway Lighting, Waterways and Terminals.

CE 363: Engineering Hydrology
Credits: 3.0

Hydrologic Cycle, Weather and Hydrology, Precipitation, Evaporation and Transpiration, Infiltration, Stream Flow, Application of Telemetry and Remote Sensing in Hydrologic Data Acquisition, Rainfall-Runoff Relations. Hydrographs, Unit Hydrographs; Hydrologic Routing; Statistical Methods in Hydrology.

CE 316: Concrete Structures Design Sessional [Prerequisite CE 311, 315]
Credits: 1.5

Preliminaries of RCC Design; Overview of Concrete Bridges; Design of Slab Bridge, Deck Girder Bridge and Balanced Cantilever Bridge; Design of Connections, Railings and Substructure.

CE 342: Geotechnical Engineering Lab [Prerequisite CE 341]
Credits: 1.5

Field Identification Tests, Grain Size Analysis by Sieve and Hydrometer, Specific Gravity Test, Atterberg Limit Test, Permeability Tests, Unconfined Compression Test, Compaction Test, Relative Density Test, Direct Shear Tests, Consolidation Tests.

CE 354: Transportation Engineering Lab
Credits: 1.5

Tests on Bituminous Materials, Tests on Subgrade, Subbase and Base Materials; Mix Design; Roadway Capacity Studies.

Fourth Year First Semester

CE 401: Project Planning and Management
Credits: 3.0

Principles of Management, Principles of Construction Management, Construction Contracts and Specifications, Inspection and Quality Control, Construction Safety, Construction Planning and Scheduling, PERT, CPM, Case Studies, Resource Scheduling, PERT A Cost Accounting System, Linear Programming. Psychology in Administration, Materials Management, Demand Forecasting, Inventory Control, Store Management, Procurement. Project Planning and Evaluation, Feasibility Reports, Cash Flow, Pay Back Period, Internal Rate of Return. Benefit-Cost Ratio, Construction Equipment and Plants. Replacement Studies.

CE 411: Structural Engineering III [Prerequisite CE 313]
Credits: 3.0

Analysis of Statically Indeterminate Structures by Stiffness Method; Structural Analysis by Energy Formulation; Geometric Nonlinearity of Beams and Frames; Structural Analysis by Finite Elements.

CE 441: Geotechnical Engineering II [Prerequisite CE 441] (Foundation Engineering)
Credits: 3.0

Soil Investigation Techniques; Settlement Computation; Types of Foundations; Bearing Capacity of Shallow and Deep Foundations Settlement and Distortion of Foundations; Design and Construction of Footings, Rafts and Piles; Slope Stability Analysis.

CE 451: Transportation Engineering II (Highway Design and Railways)
Credits: 3.0

Highway Materials, Sub Grade, Sub Base and Base Courses Soil Stabilization and Soil Aggregates in Road Constructions, Low-Cost Roads, Production, Properties and Uses of Bituminous Materials and Mix Design Methods, Design, Construction and Maintenance of Flexible and Rigid Road Pavements, Equipment, Railways, General Requirements, Alignment, Permanent Way, Station and Yards, Signaling, Points and Crossings, Maintenance.

CE 461: Irrigation and Flood Control [Prerequisite CE 361]
Credits: 3.0

Importance of Irrigation. Sources and Quality of Irrigation Water. Soil Water Relationship. Consumptive Use and Estimation of irrigation, Methods of Irrigation, Water Requirements, Design of Irrigation, Canal System. Irrigation Structures. Irrigation Pumps. Problems of Irrigated Land. Flood and Its Control.

CE 412: Structural Engineering Lab II [Prerequisite CE 317]
Credits: 1.5

Design of a Low-Rise Reinforced Concrete building (Wall System); Design of a Multi-Storied Reinforced Concrete building (Beam-Column System); Provisions for Earthquake Resistant Design; Design of Shear Walls; Design of Flat Slab and Waffle Slab Systems; Design of underground Reinforced Concrete WaterTank.

CE 400: Project and Thesis
Credits: 1.5

Experimental and Theoretical Investigation of Various Topics in Structural Engineering, Concrete Technology, Environmental Engineering, Transportation Engineering and Geotechnical Engineering Individual or Group Study of One or More Topics from Any of the Above Fields. The Students will be Required to Submit Thesis/Project at the End of the Work.

Fourth Year Second Semester

CE 403: Professional Practices and Communication
Credits: 2.0

The Project Cycle; Project Proposal; Contractual Provisions; Techniques of Specification Writing; Evaluation of Bids; Project Evaluation.

Interpretation of Literature, Documents, etc.; Communicating; Preparation of Reports; Industrial and Labor Relations; Professional Ethics in Civil Engineering.

CE 418: Computer Applications in Civil and Environmental Engineering
Credits: 1.5

Computer softwares related to Civil and Environmental Engineering

CE 400: Project and Thesis
Credits: 3.0

Experimental and Theoretical Investigation of Various Topics in Structural Engineering, Concrete Technology, Environmental Engineering, Transportation Engineering and Geotechnical Engineering Individual or Group Study of One or More Topics from Any of the Above Fields. The Students will be Required to Submit Thesis/Project at the End of the Work.

Optional Courses:

(For Structural Division)

CE 413: Structural Engineering IV
(Theory of Elasticity and Elastic Instability of Structures) [Prerequisite CE 213]
Credits: 2.0

Introduction to Theory of Elasticity, Plane Stress and Plane Strain Conditions; Two Dimensional Problems in Rectangular and Polar Coordinates; Torsion of Circular and Non-circular Shafts, Instability of Structures; Stability Functions.

CE 415: Structural Engineering V
(Prestressed Concrete) [Prerequisite CE 213, 315]
Credits: 2.0

Pre-stressed Concrete: Materials; Prestressing System; Loss of Prestress Analysis of Sections for Flexure, Shear, Bond and Bearing; Beam Deflections and Cable Layout, Partial Prestress. Design of Pre-stressed Sections for Flexure, Shear, Bond and Bearing.

CE 417: Structural Engineering VI
(Design of Steel Structures) [Prerequisite CE 213]
Credits: 2.0

Behavior of Structural Steel Members and Steel Frames, Code Requirements; Design of Tension and Compression Members by WSD and LFD Methods; Design of Beam, Beam-Column Joint Design.

CE 419: Structural Engineering VII
(Introduction to Finite Element Method) [Prerequisite CE 411]
Credits: 2.0

Introduction to Finite Element Method as Applied to Civil Engineering Problems. One Dimensional Stress Deformation And Time Dependent Flow Problem, Two Dimensional Plane Stress and Plane Strain Analysis of Stress Deformation Problems.

CE 421: Structural Engineering VIII
(Structural Dynamics and Earthquake Engineering) [Prerequisite CE 411]
Credits: 2.0

Fundamentals of structural dynamics; SDOF system: Free vibration and forced vibration, numerical solution of SDOF equation; MDOF system: Eigenvalue problem, modal analysis, numerical solution of MDOF equations; Earthquake Engineering: Fundamentals of earthquake engineering and seismic vibration, building codes, earthquake resistant design of buildings.

CE 423: Structural Engineering IX
(Earthquake Resistant Design and Retrofitting) [Prerequisite CE 411]
Credits: 2.0

Review of structural dynamics and earthquake engineering; Control of dynamic response: Active and passive control, base isolation, TMD, TLD, diagonal bracing; Seismic response and design of masonry and RC structures: Seismic detailing for RC structures, repair and retrofitting of existing masonry and RC structures.

CE 425: Structural Engineering X
(Concrete Technology) [Prerequisite CE 201]
Credits: 2.0

Hydration process of blended cements, heat of Hydration; Structures of Hydrated Cement; Properties of Fresh Concrete, Pumped Concrete, Ready-mixed Concrete; Re-tempering; Chemical and Mineral admixtures; Superplasticizer; Microstructure of Hardened Concrete; Properties of Hardened Concrete; Destructive and Non-Destructive Tests; Bond between Steel and Concrete; Autogeneous Healing; Temperature effect; Deterioration of Concrete structures; Causes of Inadequate Durability; Identification of Causes of Deterioration; Carbonation and Chloride-induced Corrosion of Steel Bars in Concrete; Chloride Diffusion into Concrete; Sulfate Attack, Efflorescence, Erosion; High performance Concrete; Lightweight Concrete; No-Fines Concrete; Shotcrete.

CE 416: Structural Engineering Lab III [Prerequisite CE 317]
Credits: 1.5

Design of various RC structures; e.g., underground water tank, overhead water tank, folded plate roof.

(For Environmental Division)

CE 431: Environmental Engineering III
(Solid Waste Management) [Prerequisite CE 333]
Credits: 2.0

Solid Waste Management: Sources and Types of Solid Wastes; Physical and Chemical Properties of Solid Wastes; Solid Wastes Generation; On-Site Handling, Storage and Processing, Collection of Solid Wastes, Transfer Stations and Transport; Ultimate Disposal Methods; Resources and Energy Recovery, Soil Pollution. Industrial Solid Waste Collection and Disposal; Hazardous Waste Management.

CE 433: Environmental Engineering IV
(Environmental Pollution and Its Control) [Prerequisite CE 331]
Credits: 2.0

Environmental Pollution and Its Control: Water Pollution-Sources and Types of Pollutants; Waste Assimilation Capacity of Streams; Dissolved Oxygen Modeling; Ecological Balance of Streams; Industrial Pollution; Heavy Metal Contamination; Detergent Pollution and Eutrophication; Groundwater Pollution; Marine Pollution; Pollution Control Measures, Water Quality Monitoring and Management. Air Pollution - Sources and Types of Pollutants; Effects of Various Pollutants on Human Health, Materials and Plants; Air Pollution Meteorology; Global Warming and Green House Effects; Air Pollution Monitoring and Control Measures.

CE 435: Environmental Engineering V (Environment and Development Projects)
Credits: 2. 0

Development and Environment; Concept of Sustainable Development; Socio-economic Indicators of Development; Human Development; Human Poverty; Development Projects; Environmental Issues and Priorities; Environmental Implication of Sectoral Developments; Characteristics of Environmentally sound, sustainable Development Projects; Environmental Quality Standards; Economic Aspects of Environmental Quality Control; Special Topics.

CE 437: Environmental Engineering VI (Environmental Management)
Credits: 2.0

Introduction to Environment and Ecosystem; Overview of Terrestrial, Aquatic and Wetland Ecosystems; Environmental Management Objectives; Key Concepts of Environmental Management; Environmental Management Approaches; Environmental Principles, Policies and Legislations; Global, Regional and Local Dimensions of Environmental Management; Environmental Assessment; ISO 14000; Environmental Management System; Environmental Pollution Prevention.

CE 439: Environmental Engineering VII (Environmental Impact Assessment)
Credits: 2.0

Historical Background; Definition; Legal Framework; Project Cycle and Environmental Assessment; Screening; Initial Environmental Examination; Environmental Impact Assessment; Impact Characteristics and Functions of EIA; Scoping and Baseline Studies; EIA Methodologies; Impact Mitigation; Environmental Monitoring; Water Quality Impacts; Impacts on Terrestrial and Aquatic Systems; Impact on Socio-economic, Heritage and Culture; People's Participation in EIA; Environmental Auditing; Review of EIA; Resource Requirements and Costs of EIA; Case Studies.

CE 531: Environmental Engineering VIII
(GIS and Remote Sensing)
Credits: 2.0

Concepts of Geographic Information Systems (GIS), Definition, Data Structure, Data Processing and Management, Spatial Analysis; GIS Software, Basic Principles of Remote Sensing (RS) and Global Positioning Systems (GPS); Definition, Data Acquisition, Spectral Characteristics of Land Cover, Multi Spectral Analysis, Image Interpretation, Geometric Corrections, Classification Techniques; Integration of RS and GPS with GIS, GIS Application in the Field of Environment.

CE 432: Environmental Engineering Lab II [Prerequisite CE 331]
Credits: 1.5

Design of Water Treatment Plants; Design of Sewerage System.

Department of Civil Engineering
University of Asia Pacific

Published by
Department of Civil Engineering
Level # 6, 74/A Green Road, Farmgate,
Tejgaon, Dhaka-1215, Bangladesh.
+88 02 912 8590
headce@uap-bd.edu

www.uap-bd.edu
/uapcenb