

Environmental Engineering Education in Bangladesh

Bangladesh is a country, which is suffering from different types of environmental problems. Recently, the climate change issues are making it much more critical to survive in the future. To sustain in such an adverse environment, Environmental Engineering education should be explored to invent & develop our own technology to counteract the environmental challenges.

Courses to be Offered

Compulsory Courses:

Challenges in Disaster Engineering

Highlights sciences of major types of disasters (i.e. earthquakes, cyclones, flood, tsunami, etc) and their impact of natural disasters on engineered and non-engineered structures in Bangladesh



Challenges in Environmental Engineering

Discusses challenges for the environment, i.e., water resources, energy, population, agriculture, land degradation, etc.

Advanced Numerical Modeling

Emphasizes geometric and material nonlinearities in structural mechanics for conducting static and dynamic analysis of civil engineering structures



Advanced Mechanics

Covers advanced theories of solid & fluid mechanics.

Project Management and Controlling

Focuses on advanced project management approaches to finance, plan, design, construct, monitor construction projects

Optional Courses:

Waste Reduction & Control

Focuses on waste Management, waste minimization, advanced and complex waste treatment methods and waste conversion techniques.

Human Water Resources

Natural Preservation and Human-Nature Interaction

Highlights human interaction on nature, evaluation images of urbanized cities, pattern of urbanization using GIS and environmental planning and control.

Earthquake Engineering

Covers seismology, seismic design of structures, seismic assessment & strengthening of structures, and modern seismic robust concepts.



Flood Control

Focuses on flood modeling, flood routing & forecasting, flood control & management, flood resistant rural infrastructures.



Wind Engineering

Emphasizes nature of wind induced vibrations & their damages to structures (engineered and non-engineered), advanced approaches of wind resistant design of structures, and their strengthening against wind-induced vibrations.

Table-1: Academic Curricula

Semester	Compulsory Courses (Cr)	Optional Courses (Cr)	International Schools (Optional)
Pre-Semester	-	-	-
I	4 Courses @ 3 Cr = 12	-	8hrs Summer/ Winter Schools
II	1 course @ 3 Cr = 3	3 Courses @ 2 Cr = 6	-
III	-	3 Courses @ 2 Cr = 6	8 hrs Summer /Winter Schools + 8 hrs Summer/ Winter Schools
IV	-	-	-
Total	15	12	24hrs International Summer/ Winter Schools

Table 1: Academic Curricula (Contd.)

Semester	Language Training	Thesis (Cr)	Total (Cr)
Pre-Semester	German-I	-	-
I	Intermediate German-I	-	12
II	Intermediate German-II	3.0	12
III	-	6.0	12
IV	-	12.0	12
Total	-	21.0	48

Faculty Members

Prof. Dr. Md. Saiful Islam

Structural Engineering, Concrete Technology

Prof. Dr. Mahmood Omar Imam

Transportation Engineering, Project Management & Control

Prof. Dr. Md. Jahangir Alam

Structural Engineering, Earthquake Engineering

Prof. Dr. Swapan Kumar Palit

Transportation Engineering, Environmental Engineering

Prof. Dr. Md. Hazrat Ali

Modeling, Optimal Water Management

Assoc. Prof. S. M. Farooq

Geotechnical Engineering

Assoc. Prof. Dr. Md. Robiul Alam

Structural Engineering
Computational Mechanics

Dr. Md. Abdur Rahman Bhuiyan

Bridge Engineering, Earthquake Engineering.

Participating Universities

University of Kassel (UNIKA), Germany

UNIKA offers a broad range of studies covering the engineering, natural and social sciences as well as the arts to a total of about 17000 students on three campuses. Its civil engineering department offers BE & MS programs with specialization in structural engineering, construction management planning & management and environmental engineering. Structural Engineering students from a Germany can specialize in earthquake engineering e-learning environment. Its structural laboratory unique testing capabilities on its 7x14m strong reaction frame.

Chittagong University of Engineering & Technology (CUET), Chittagong, Bangladesh

CUET is one of the prestigious degree awarding universities in

Bangladesh. There are 7 engineering departments, one institute of energy technology and three centers, namely, Earthquake Engineering Research Center (EERC), Center for Environmental Studies and Engineering (CESE) and Center for Information and Communication Technology (CICT). The department of Civil Engineering offers BE, ME, MS & PhD degrees. There are outreach programs to create disaster & environmental awareness of citizens. Research in disaster mitigation has focused on earthquake, flood, cyclone, landslides. Research on environmental engineering focuses on river pollution, arsenic contamination, potable water, waste and waste management.

Shajalal University of Science & Technology (SUST), Syhlet, Bangladesh

SUST was started in 1991 with 3 departments and now there are 21 departments in 7 faculties with 450 faculty members and 10000 students. The department of Civil & Environmental Engineering offers BE, ME, MS degrees. Teaching & research is supported by specialized labs: structural, geotechnical, environmental, transportation, water resource which perform quality control for industry.



Admission Requirements

For admission into Master of Science in Disaster and Environmental Engineering degree, a candidate

- Must have at least one first class/first division (CGPA 3.0 out of 4.0) in any public examination,
- Should have at least CGPA of a minimum of 2.65 out of 4.0 or its equivalent in B.Sc. Engg. in relevant branch,
- Must not have third division/class in any public examination, and
- All candidates should submit a written research proposal.

Scholarships

Scholarships will be provided to deserving full-time students.

Sponsors

- German Academic Exchange Program (DAAD)
- Shajalal University of Science & Technology (SUST), Bangladesh.

- Chittagong University of Engineering & Technology (CUET), Bangladesh.
- Kassel University, Germany.
- United Nations Development Program (UNDP)

Admission Deadlines

1 st Announcement for application	16 August 2010
2 nd Announcement for application	Within 15 Sep, 2010
Application submission deadline	18 October, 2010
Selection of candidates for admission:	28 October, 2010
Publication of eligible candidates	1 November, 2010
Registration	10 & 11 November, 2010
German Language Camp	12 Dec- 31 Dec, 2010
Inauguration of the course and class start	9 January, 2011

Further Information

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Course Coordinator

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This is a DAAD funded project for the creation of **Regional Centers of Excellence for Disaster & Environmental Engineering Education in Bangladesh.**

UNIKASSEL
VERSITÄT



Kassel University
Germany



CUET
Bangladesh



SUST
Bangladesh

Engineering & Technology (CUET)

Admission Brochure for Master of Science in Disaster & Environmental Engineering Program

Bangladesh is one of the most disastrous countries in the world with respect to disaster vulnerability. It faces numerous environmental challenges, because it is a country with high disaster and environmental hazards; such as, floods, earthquakes, draughts, river pollution and arsenic ground water contamination; which are just a part of the problems. A **diploma or bachelor engineering** without any preparation upon entering into the workforce. Compounded by an unchecked and unplanned development, a very grave situation has arisen over the past decades which severely jeopardizes the country's sustainable economic and social developments. Only if engineering educational levels can cope with such challenges, sustainable development can be reached eventually. **Engineers with diploma degrees** typically work in construction sites as supervisors. Their educational qualifications are limited to basic engineering skills, and do not include knowledge on disaster engineering issues like seismically safe construction or environmental problems like water resources management, water treatment, arsenic problem, river pollution & flood mitigation. **Engineers with bachelor degrees** usually work in design and construction implementation planning, but lack knowledge relating to engineering issues concerning disaster and environmental challenges is also limited or non-existent. **Masters level students** are mainly trained towards academic careers at universities. **Doctoral students** are very rare. Many students often obtain their master's degrees from abroad and don't come back. This "brain drain" will only stop, if **excellent regional academic centers** are developed where the scientific challenges of the country can be tackled with sufficient resources.

Disaster Engineering Education in Bangladesh

It is now well recognized that Bangladesh is one of the most vulnerable countries to climate change and sea level rise. Natural disasters exert an enormous threat to development. The linkage between development and disaster risk are not difficult to visualize, so to adapt and become fully prepared for such challenges disaster engineering education is indispensable now.