INTRODUCTION

The Department of Civil Engineering at Institut Teknologi Brunei (ITB) was established in 1998 as a pioneer in providing higher education in the field of Civil Engineering in Brunei Darussalam. It accepted its first intake of students (ITB Intake 14) in August of the same year for the course Higher National Diploma in Civil Engineering. The course is accredited by the Brunei Darussalam Technical and Vocational Education Council (BDTVEC).

In August 2001, the department started to offer a Bachelor's Degree (BEng) in Civil Engineering under a twinning arrangement with Queen's University Belfast (QUB) in the UK. Under this ITB-QUB twinning programme (1+2), the students would spend their first year in ITB and the subsequent two years of their study in QUB.

In July 2004, the department added a new HND programme: HND in Construction Engineering and Management. This HND programme is also accredited by BDTVEC.

Commencing from August 2007, the department has upgraded the twinning arrangement with QUB for (2+2) MEng in Civil Engineering, MEng in Environmental and Civil Engineering and (2+1) BEng in Civil Engineering. Under this new arrangement, the students would spend Year 1 and 2 at ITB and the subsequent one year (BEng) or two years (MEng) at QUB.

The department is active in developing its teaching programme to continue to meet the demands of the local construction industry. We maintain regular dialogues with the local industry and conduct targeted survey to identify these demands. This approach will ensure the continual high rate of employment and relevance of our successful graduates.

The department is also capable of offering consultancy services to engineering organisations in Brunei Darussalam. Most of our staff are active in research and development activities and would offer short courses each year to cater for construction sector.

PROGRAMMES

The Civil Engineering Department currently offers three undergraduate degree programmes and two HND programmes:

- BEng in Civil Engineering [ITB-QUB (2+1)];
- MEng in Civil Engineering [ITB-QUB (2+2)]; and
- MEng in Environmental and Civil Engineering [ITB-QUB (2+2)]
- HND in Civil Engineering (BDTVEC);
- HND in Construction Engineering and Management (BDTVEC);

The main aim of the degree programmes is to meet the demand of civil engineers in the development works carried out by the public and private sectors in Brunei Darussalam. At present, the first two years of these programmes are conducted at ITB with the subsequent one year (BEng) or two years (MEng) at Queens University Belfast, UK.

The two HND programmes are intended to provide relevant education and training to the higher technician/paraprofessional personnel for appropriate deployment in the civil engineering industry in Brunei Darussalam. The duration of the course is two and a half years full time study, comprising of four academic study semesters and one semester of supervised work experience. Each semester is six months long.

Teaching Methods

The department employs a wide variety of teaching methods. The courses are delivered through classroom lectures and tutorials and are augmented by laboratory works where appropriate. A variety of support methods are also used within individual units - these include computer simulations, classroom exercises, assignments and independent learning tasks, major and minor projects, industrial visits, case studies and student presentations.

Assessments for Degree and HND Programmes

Progression from one semester to the other and assessment are based on the individual module at degree level / unit at HND level. The elements of assessment for each module/unit can comprise of course works, laboratory works and an end of module/unit test assessments. The format of each element is as below:

a) Course Work Assessments which may include:
- written tests (Phase Tests);
- assignments; and
- oral tests.

b) Laboratory Work Assessments which may include:
- practical work reports; and
- practical and oral tests.

c) End of Module/Unit Assessments are held at the end of each semester (For year 2 of the MEng/BEng twinning programme, the end of module assessment is carried out at the end of the year). They are comprehensive written tests, except in case of projects that would consist of a combination of written reports, presentations and oral tests.

Careers and Further Studies

In Brunei Darussalam, various government, semi-government and private organisations seek the services of paraprofessionals in the field of Civil Engineering and Construction for the successful completion of their coming and on-going projects. On the successful completion of the courses offered in the Department of Civil Engineering in ITB, students can look forward to a variety of careers in any of these organisations. These organisations include Ministry of Development particularly Public Works Department, Brunei Shell Petroleum Sdn. Bhd., and many other private and government organisations dealing with building construction and maintenance, highways, drainage, beach development, ports and so on. Our accredited programmes will also allow those students who have achieved excellent results to pursue higher education in this discipline.

MEng/ BEng undergraduate degrees in CIVIL ENGINEERING

Duration: 4 years for MEng and 3 Years for BEng

Award: Upon completion, the degree is awarded by the Queens University of Belfast, United Kingdom.

Introduction

The Department of Civil Engineering offers undergraduate degree programmes MEng in Civil Engineering, MEng in Environmental & Civil Engineering and BEng in Civil Engineering under a twinning arrangement with the Queens University of Belfast (QUB), United Kingdom. The first two years of these programmes will be conducted at ITB with the subsequent one year (BEng) or two years (MEng) years conducted in Belfast by QUB.

The degrees are accredited by the following Professional Engineering Institutions within the United Kingdom Engineering Council:

- The Institution of Civil Engineers; and
- The Institution of Structural Engineers.

Programme Aim

The main aim of the degree programmes is to meet the demand of Civil Engineers in the development works carried out by public and private sectors in Brunei Darussalam and worldwide.

Programme Objectives

Successful graduates will be able to:

- plan, design and supervise civil engineering projects independently;
- undertake analysis and design tasks of civil engineering projects using relevant codes and standards;
- take full responsibility of civil engineering projects and guide team of technical staff for the supervision of civil engineering works;
- undertake research and higher studies leading to masters and doctorate degree; and
- qualify for the professional development programme to become chartered civil engineers.

Programme Structure

The first two years of these programmes are conducted in ITB with the subsequent one year (BEng) or two years (MEng) to be conducted at QUB, UK. At the end of Year 2 (depending on their achievement and upon approval by QUB), students can choose (which depends on the modules selection) the degree pathway that leads to MEng in:

- Civil Engineering; or
- Environmental and Civil Engineering.

Programme Content

YEAR 1 (at ITB)

Semester 1

Communications 1
Engineering Surveying 1 (i)
Engineering Drawing 1
Mathematics 1
Mechanics of Solids and Structures 1 (i)

Semester 2

Construction Materials 1
Construction Practice 1
Engineering Design 1
Further Mathematics 1
Engineering Surveying 1 (ii)
Mechanics of Fluids 1
Mechanics of Solids and Structures 1 (ii)

YEAR 2 (at ITB)

Communications
Engineering Geology
Geotechnics
Hydraulics
Structures
Design
Highway and Traffic Engineering
Mathematics

YEAR 3 for BEng and Year 3&4 for MEng (at QUB)

Please refer to modules offered at QUB via www.qub.ac.uk or consult the Head of Department or Degree programme coordinator for more details.

Minimum Entry Requirements

All candidates are required to have English IELTS minimum score of 6.0 or Credit in 'O' level English or other equivalent as defined by QUB. The specific minimum entry requirements for our degree programmes are as follow:

i) MEng Civil and Environmental Engineering/MEng Civil Engineering (entry into Year 1)

3 'A' levels with minimum grades of BBC, including 'B' grades in Mathematics and a science* subject

ii) BEng Civil Engineering (entry into Year 1)

a. 3 'A' levels with minimum grades of CCD, including 'C' grades in Mathematics and a science* subject

OR

b. Successful completion of the first year of the ITB HND in Civil Engineering with an overall average of 70%, including distinctions (i.e. above 80%) in selected numerical/analytical units

OR

c. Successful completion of the two-year ITB HND in Civil Engineering with a majority of Merits in selected numerical/analytical units

iii) BEng Civil Engineering (direct entry to Year 2)

Successful completion of the ITB HND in Civil Engineering with Merits in all modules.

Any other entry requirements will be kept under review by QUB's in consultation with ITB.

*Science subjects accepted include Physics, Chemistry, Biology, Technology, Geography and Computer Science.

Entry Requirements for Foreign applicants:

Minimum entry requirement for foreign students applying for programmes at ITB will be dealt with in case by case basis. Pleasse contact the Head of Department for more details.

HND in CIVIL ENGINEERING

Duration: 2 ½ years

Introduction

The Department of Civil Engineering also offers Higher National Diploma in Civil Engineering accredited by the Brunei Darussalam Technical and Vocational Education Council (BDTVEC). The course is intended to provide education and training opportunities, which are directly relevant to the requirements of the Civil Engineering Industry in Brunei Darussalam. The duration of the programmes is two and half years of full time study.

Programme Aim and Objectives

The general aim of the programme is to provide for the training of higher technician and paraprofessional personnel for deployment in the Civil Engineering industry in Brunei Darussalam. Successful graduates will have a broad knowledge of civil engineering at the Higher Technician level in Civil Engineering and its related areas.

Upon graduation, a student will exhibit personal development necessary to:

- be aware of the role of engineering in society,
- communicate effectively in a civil engineering context,
- appreciate that engineering is an integration of management and technology,
- recognise the interaction between civil engineering projects and the impact that such projects have upon the physical and social environment,
- acknowledge the need for on-going education, and extend their training as required by the demands of a changing work environment,
- perform drafting tasks associated with civil engineering design and construction.
- utilise computer aided drafting systems and design packages,
- carry out typical maintenance and service procedures for the maintenance and operation of civil works and buildings,
- carry out quality assurance procedures in conformance to national and international standards.

Programme Structure

The two and a half years full-time study comprises of four academic study semesters and one semester of Supervised Work Experience (SWE). Each semester is of six months duration. During the two and a half years of the programme, students will also be required to develop or enhance their competence in common skills needed for the world of work.

Programme Content

Semester 1

Communication
Computing

Engineering Mathematics
Civil Drawing
Surveying 1
Construction Materials

Semester 2

Mechanics of Solids
Computer Aided Drafting
Hydraulics
Soil Mechanics
Surveying 2

Semester 3

Supervised Work Experience in related industries.

Semester 4

Traffic and Highway Engineering
Construction Technology
Water Supply, Sewerage and Waste Management
Structures 1
Quantities, Estimates and Valuation
Project

Semester 5

Construction Management
Foundation and Pavement
Structures 2
Hydrology and Drainage
Project

Common Skills

The unit of Common Skills is an integrated part of HND programme and runs from Semester 1 to Semester 5.

Minimum Entry Requirements

a. A minimum of one pass in a relevant English medium subject at GCE A-level (preferably Mathematics), with three credits in relevant English medium subjects (these usually include Mathematics) and a credit in the Malay language at GCE O-level;

OR

b. A relevant BDTVEC National Diploma with acceptable grades and a credit in Malay language at O-level or a credit in Malay language at PMB level;

OR

c. An acceptable qualification and/or relevant experience deemed to be equivalent to one of the above;

AND

d. A pass in written numeracy and literacy tests and an interview conducted by ITB.

Entry Requirements for Foreign applicants:

Minimum entry requirement for foreign students applying for programmes at ITB will be dealt with in case by case basis. Please contact the Head of Department for more details.

HND in CONSTRUCTION ENGINEERING AND MANAGEMENT

Duration: 2 ½ years

Introduction

The Department of Civil Engineering offers a Higher National Diploma in Construction Engineering and Management which is accredited by the Brunei Darussalam Technical and Vocational Education Council (BDTVEC). The course is intended to provide education and training opportunities which are directly relevant to the requirements of the Construction Industry in Brunei Darussalam in addition to the HND in Civil Engineering. The duration of the courses is two and half years of full time study.

Programme Aim and Objectives

The HND CEM programme aims to provide relevant education and training to the higher technician and paraprofessional personnel for appropriate deployment in the construction industry in Brunei Darussalam.

Successful graduates will understand the concepts of the fundamentals of Civil Engineering construction and would be equipped with construction management and quantity surveying skills at supervisory level. Other skills such as land surveying, manual drafting, AutoCAD and computer applications in Construction and Quantity Surveying will also be entrusted within the students.

Programme Structure

The two and a half years full-time study comprises of four academic study semesters and one semester of Supervised Work Experience (SWE). Each semester is of six months duration. During the two and a half years of the programme, students will also be required to develop or enhance their competence in common skills needed for the world of work.

Programme Content

Semester 1

Communication
Computing
Mathematics for Construction
Construction Drawing
Surveying 1
Construction Materials

Semester 2

Computer Aided Drafting
Fundamentals of Structures
Fundamentals of Geotechnics and Pavements
Water and Drainage
Surveying 2

Semester 3

Supervised Work Experience

Semester 4

Building Services & Maintenance Management
Construction Technology
Construction Management & Law
Quantities, Estimations & Valuations
Project

Semester 5

Computer Applications in CM&QS
Specification and Quality Assurance
Health, Safety and Environment
Heating, Ventilation and Air-conditioning systems
Project

Common Skills

The unit of Common Skills is an integrated part of HND programme and runs from Semester 1 to Semester 5.

Minimum Entry Requirements

a. A pass in ONE appropriate A-level subject (business subjects may be accepted as an alternative provided other requirements are met) and credits in FOUR GCE O-level subjects which must include Malay Language AND THREE relevant English medium subjects (these normally include Mathematics);

OR

b. A relevant BDTVEC National Diploma in Construction or equivalent (other ND may also be considered for entry into this programme) with acceptable grades and a credit in Malay Language at O-level or a credit in Malay language at PMB level;

OR

c. An acceptable qualification and/or relevant experience deemed to be equivalent to one of the above;

AND

d. A pass in written numeracy and literacy tests and an interview conducted by ITB.

Entry Requirements for Foreign applicants:

Minimum entry requirement for foreign students applying for programmes at ITB will be dealt with in case by case basis. Pleasse contact the Head of Department for more details.

LABORATORIES

Some of the civil engineering testing equipment and apparatus from our specialised groups of laboratories are shown below:

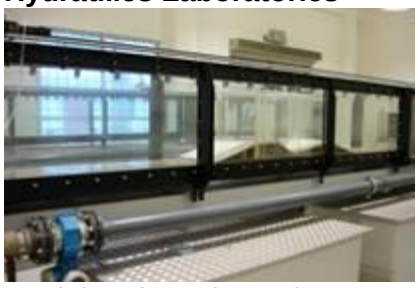
Concrete Laboratories

Compression Testing Machine

Geotechnics Laboratories

Triaxial apparatus

Hydraulics Laboratories



Modular Flow Channel

Public Health Laboratories

Fume Cupboard

Structures Laboratories

Testing Frame

Various other equipment

Surveying

Theodolite

RESEARCH AND CONSULTANCY

ACADEMIC RESEARCH

Most of our staff are active in research on major civil engineering areas which covers structures, geotechnical and transportation engineering, water resources and environmental engineering, construction and energy efficiency & conservation in a building.

FINAL YEAR HND STUDENT PROJECTS

Our HND students are required to work on a CE/CEM-related practical research topic or project as part of the requirement of their HND programme. The Department of Civil Engineering typically allows the students to choose from a wide range of project topics which reflect both the research interests of our staff and the potential demands from the local industry.

CONSULTANCY SERVICES

At the request from the local companies, we can provide consultancy services on challenging problems in the field of civil engineering and construction management.

SHORT COURSES

We are able to offer specialist short courses in any field related to civil engineering that include computer-aided drafting as part of our commitment to provide training to the local civil engineering industry.

STUDENT PROJECTS

For the Project unit in the HND programmes, the students are required to work in groups of about 3 students over a period of 2 semesters in subject areas relevant to their programmes.

The projects provide an opportunity for the students to apply their knowledge gained from the HND programmes in practical situations and therefore helping them to further enhance such knowledge. Problem-solving type of project is especially encouraged although other types of project such as comparative study and case review are also welcomed. The problem solving projects would benefit the construction industry in Brunei Darussalam.

At the end of Semester 5, each group of students is required to submit a written document summarising their project works and findings. The students are also required to present their works to our members of staff and invited guests from the industry.

The research projects carried out by our HND Students for the year of 2008 are listed in the following tables:

HND Civil Engineering

Subject area	**Project Title**
Structural Engineering	Preliminary Damage Assessment of a Concrete Structure
	Design of Resettlement Scheme House
	A Steel design of the Basic House of the Resettlement Housing Scheme
	Defects of Institut Teknologi Brunei Buildings
Water Resources Engineering and Environmental Engineering	Irrigated Agriculture in Brunei Muara District (A Case Study of Kg Junjongan Paddy Scheme)
	On-Site Stormwater Detention (OSD): A Requirement for Development Plans
	BOD determination Using Oxidirect Equipment
	A study on the performance of wastewater treatment in Brunei
	Application of Water Resources Computation For Water Resources for Rainwater Conservation on Domestic Dwellings
Geotechnical Engineering	A review of slope protection/remedial measures in Brunei Darussalam
	Strength and drainage characteristics of Recycled Soil
Transportation	Road Safety Inspection on an accident prone road in Brunei Darussalam
	Assessment of Brunei Public Bus System
Construction Management	Delays of Project
Design	Design Proposal for a Low-Cost Parking Area at ITB
	Designing a Lower Cost Outdoor Futsal Field

HND Construction Engineering and Management

Subject area	Project Title
Water Resources Engineering	Rainwater Harvesting System
Construction	The Study of the Variation in Contractors' Rates/ Price
	A study of variation order in contracts

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