Full-time

DIPLOMA PROGRAMMES

Prospectus 2015/2016

BCA ACADEMY

THE BEST BUILT ENVIRONMENT FOR SINGAPORE, OUR DISTINCTIVE GLOBAL CITY

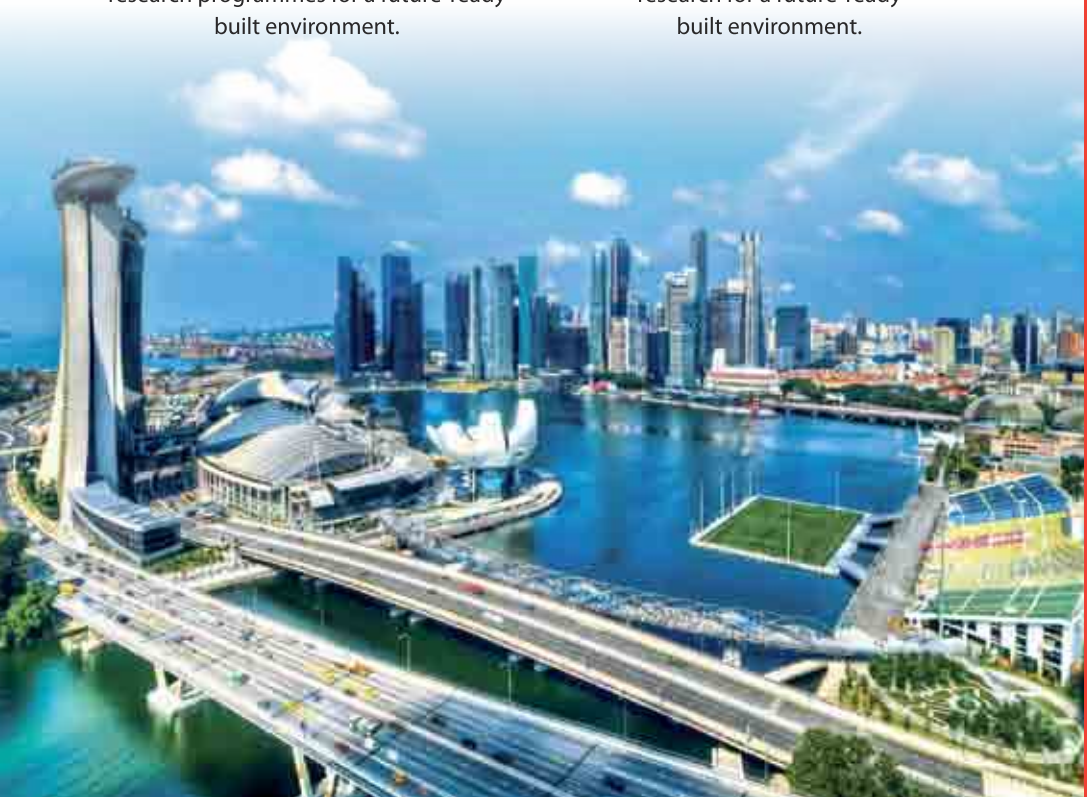
Singapore is a distinctive global city with a world-class built environment. International surveys consistently ranked Singapore as one of the most liveable cities—a great place to live, work, play and learn. The BCA Academy - a leading institution in education and research on the built environment - is proud to be a part of this achievement. Through its comprehensive range of training, education and research programmes, the BCA Academy plays an important role in supporting the development of an excellent built environment.

OUR MISSION

To provide quality training, learning and research programmes for a future-ready built environment.

OUR VISION

To be a leader in education and research for a future-ready built environment.



CONTENTS

ABOUT BCA ACADEMY

Since 1984, the BCA Academy offers a wide range of programmes for the training of personnel in the industry at all levels, from construction tradesmen and supervisors to technicians, managers and professionals. To support the national agenda on various fronts, such as raising construction productivity and promoting sustainable development, the Academy has also developed training frameworks to groom competent professionals and workers in these fields, e.g. "green" professionals and BIM managers. The training programmes include Masters and Undergraduate Programmes (in collaboration with reputable universities), Diploma and Specialist Diploma Programmes, and Certification Courses.

BCA Academy is recognized by Ministry of Education (MOE) as a Government-affiliated educational institute that offers construction specific programmes in Singapore. Today, the BCA Academy is probably the only institution in the world that provides a full range of training and education programmes tailored to meet the diverse needs of the building industry at all levels.

A VIBRANT LEARNING ENVIRONMENT FOR STUDENTS

At the BCA Academy, we strive to provide our students with a holistic and well-rounded education. Students who pass through our academic rigour are well-equipped with the skills and knowledge, and the confidence, to attain a successful career. The large number of international students also makes studying at the BCA Academy more interesting and engaging.

OUR FACILITIES

The Academy is constructing a new building which will be operational in mid-2015. The building will have unique features to facilitate experiential learning which will enrich skills, expertise and knowledge. This will make BCA Academy an industry-focused 'smart' campus, where students and the industry can look forward to new learning experiences and opportunities.


RESOURCE CENTRE

RESOURCE CENTRE @BCA ACADEMY

There is a wide range of reference books for students to access at the Resource Centre.

LOUNGE & GYMNASIUM

The lounge and gymnasium located at the Academy's cafeteria are for students to rest and relax in between lessons. A gymnasium equipped with the latest fitness machines is also available for students to use.


LOUNGE


GYMNASIUM

STUDENT SERVICES CENTRE

The Student Services Centre (SSC) is a convenient, first point of contact for students to obtain information and services during their course of study at BCA Academy.

SSC aims to create a caring and holistic environment by looking into students' welfare and needs. The centre also strives to inculcate a strong sense of belonging in the students as well as in the graduates.

Key services provided by SSC includes:

- Alumni Activities
- Further studies & career guidance
- General services
- Student care

STUDENT SERVICES CENTRE

ACADEMIC PATHWAY

4 Bachelor Degree Programmes offered by BCA Academy and renowned universities

3 BCA Academy Diploma Programmes (3 Years)

2 Pre-Diploma Foundation Programme (1 Year) / GCE 'O' Level Holders

1 Sec 4 Normal Academic

The BCA Academy diploma programmes are 3-year full-time programmes catered for GCE 'O' level holders and ITE graduates. These programmes are tailored to meet the diverse needs of the building industry. Our students enjoy holistic education that goes beyond textbooks. They are equipped with knowledge and skills that made them workforce ready. To future help our young; we have also launched a one year Pre-Diploma Foundation Programme (FP) catering to Secondary 4 Normal (Academic) students with good results to better prepares them for entry into the relevant BCA Academy Diploma programmes.

KEY BENEFITS OF BCA ACADEMY DIPLOMA PROGRAMMES

1. All our diplomas are incorporated with green building related modules.
2. All our diplomas are incorporated with Building Information Modelling* (BIM) knowledge and skills.
   **BIM is a 3-D technology that allows building designs to be simulated digitally so that design clashes can be identified and resolved before construction. Our graduates who are equipped with BIM knowledge and skills are in demand as 80% of Singapore's construction industry will use BIM by 2015.*
3. Some diploma programmes award additional qualifications on top of Diploma certificate. These additional qualifications will prepare graduates with specific skills and knowledge needed by the industry.
4. Students are exposed to industry-led competitions and collaborations due to Building and Construction Authority (BCA) strong links with the built industry.
5. All our diplomas will be awarded 1.5 years advanced standings for Bachelor of Construction Management awarded by University of Newcastle.

A recent benchmarking study conducted by the National Recognition Information Centre for the United Kingdom (NARIC) revealed that our diplomas are comparable to the local polytechnics, equivalent to Australian diplomas and closely aligned with first year UK degree programmes.

Go to www.bcaa.edu.sg/naric.aspx for details on the benchmarking study.

PRE-DIPLOMA FOUNDATION PROGRAMME (FP)

The BCA Academy Pre-Diploma Foundation Programme (FP) is a one-year programme with a practice-oriented curriculum that caters to Secondary 4 Normal (Academic) students with good results to better prepare them for entry into the relevant BCA Academy Diploma programmes. Students can now opt for a one-year BCA Academy FP instead of taking their GCE 'O' Level Examinations in Secondary 5.

FP students are given provisional places in diploma programmes, subject to them passing all modules in the one-year FP. The requirement to pass all courses ensures that students continue to work hard during their FP year and are well prepared for future studies.

PROGRAMME CURRICULUM

The one-year full-time FP curriculum comprises of three (3) foundation knowledge courses and seven (7) specialized (Domain cluster) courses as listed below:

A) FOUNDATION KNOWLEDGE COURSES

1. English & Communication
2. Basic Mathematics
3. Basic Physics

B) SPECIALISED (DOMAIN CLUSTER) KNOWLEDGE COURSES

1. Technical Drawing & Specification
2. Computer Aided Drawing
3. Building Technology Fundamentals
4. Design Studio Workshop
5. Building Information Modelling (BIM)
6. Electrical Technology Fundamentals
7. ACMV Fundamentals & Green Building Technology

The assessments for the foundation knowledge courses and several specialized courses will be based entirely on continual assessments. Continual assessments include common tests, projects and assignments.

COURSE SYNOPSIS

FAS814 ENGLISH & COMMUNICATION 1
This course aims to develop accurate and effective oral, listening, reading and writing skills of the students by raising their awareness of the English grammar and the purposeful use of the language at the word, phrase, sentence and text levels. This course also focuses on improving the communication skills of the students by developing their understanding of the communicative process.

FMT902 BASIC MATHEMATICS 1
This course provides students with necessary mathematical knowledge and skills to handle problems encountered in their course of study. The topics included are algebra, linear and quadratic equation, trigonometric functions as well as plotting graphs.

FPH928 BASIC PHYSICS 1
Students should be able to determine external forces in two dimensions; describe linear, rotational and relative motion; apply Newton's laws, and solve problems involving forces, work and energy using the knowledge of kinematics and kinetics.

FDG817 TECHNICAL DRAWING & SPECIFICATION
Students should be able to visualize the features of an object from its orthographic projections, and produce isometric and sectional drawings. They should also be able to interpret Architectural, Structural and M&E drawings and technical specifications, and produce schematic drawings of M&E systems based on standard drawing convention.

FDG818 COMPUTER AIDED DRAWING
Students should be able to use computer aided design/drafting programs to produce 2D for presentation, construction drawings and detailing.

FCS039 BUILDING TECHNOLOGY FUNDAMENTALS
Students should be able to identify and explain the range of advanced technologies that are available and appropriate for the construction of residential, commercial and industrial buildings and to facilitate technological decision making in context of the wider construction process.

FID105 DESIGN STUDIO WORKSHOP
Students should be able to understand and apply the basic Principles of Design which are fundamental to the design of the built environment.

FAS815 ENGLISH & COMMUNICATION 2
This course builds on the foundation laid in English & Communication 1 in an upward spiral progression, to raise the students' proficiency in the English Language. In this course, students will further develop their critical thinking and apply good communication skills in a variety of communicative contexts, through an active engagement with a range of texts and genre. The term 'text' may refer to any communicative product - oral, written, or visual.

FMT903 BASIC MATHEMATICS 2
This course covers topics including algebra, factors and factoring, functions, linear equations, quadratic equations, graphs, right triangles and vectors, trigonometry identities and equations and differentiation.

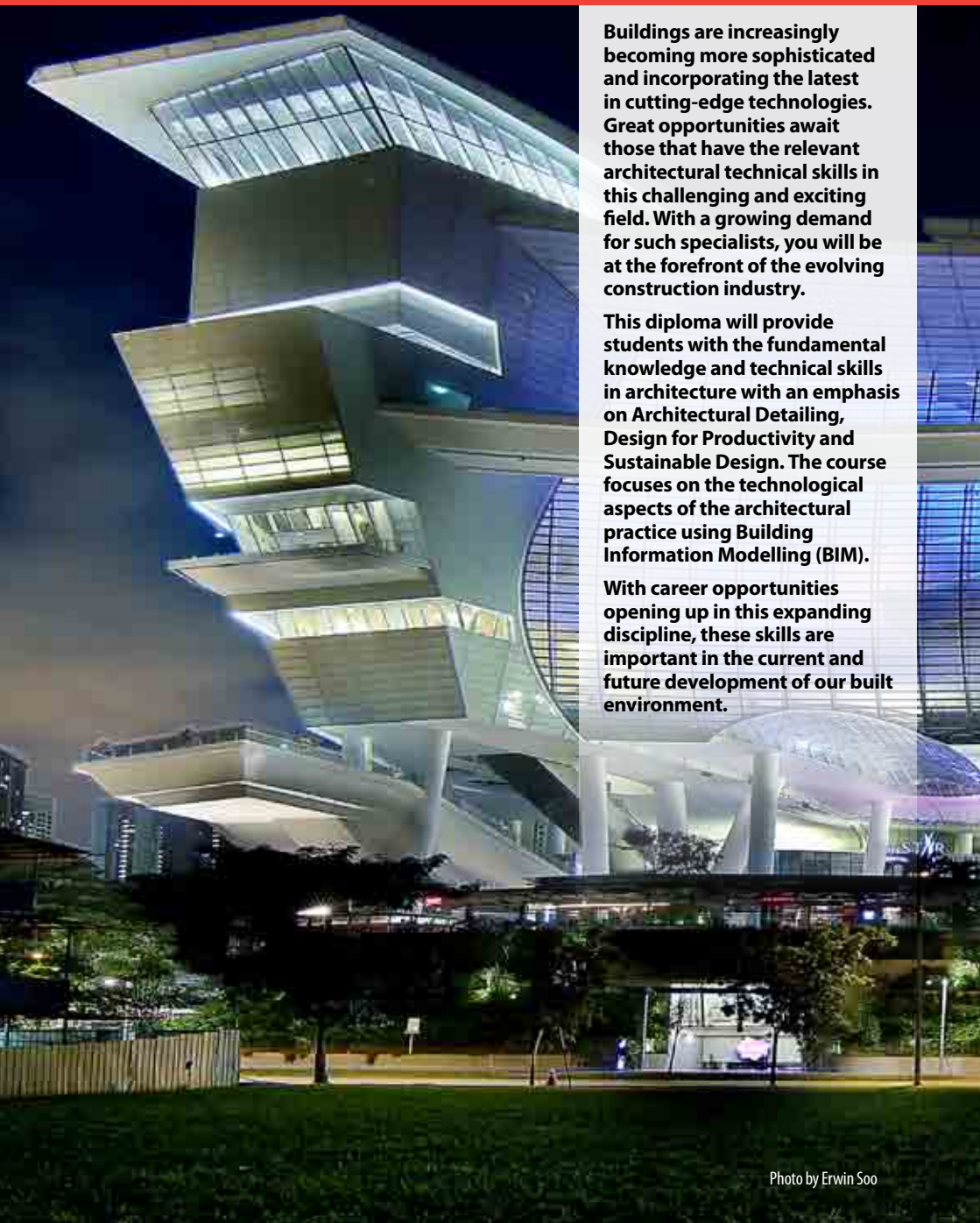
FPH929 BASIC PHYSICS 2
Students should be able to understand the basic principles of thermodynamics and fluid mechanics, the basic concept of electric and magnetic fields, electric potential, electromotive force, and the properties of basic electrical circuits.

FBI884 BIM MODELLING
This course equips students with the skill to use BIM software to model Plumbing and Sanitary systems, and Fire Protection system. Students are expected to apply their design knowledge in the BIM project.

FEE235 ELECTRICAL TECHNOLOGY FUNDAMENTALS
This course introduces students to the Electrical Engineering. It covers the fundamental principles of DC circuits, AC circuits, lighting systems, transformers, DC machines and AC machines. After the successful completion of this course, the students will have adequate technical knowledge in analysis of basic lighting systems, transformers and electrical machines.

FAC231 ACMV FUNDAMENTALS & GREEN BUILDING TECHNOLOGY
Students should be able to explain the functions of air-conditioning and mechanical ventilation, describe the heat and work transfer processes of refrigeration cycles and their components, describe the properties of air-water mixtures and use the psychrometric chart. In addition this course introduces some of the renewable and sustainable energy systems that are available in the industry.

Diploma in **ARCHITECTURE** (Technology)



Buildings are increasingly becoming more sophisticated and incorporating the latest in cutting-edge technologies. Great opportunities await those that have the relevant architectural technical skills in this challenging and exciting field. With a growing demand for such specialists, you will be at the forefront of the evolving construction industry.

This diploma will provide students with the fundamental knowledge and technical skills in architecture with an emphasis on Architectural Detailing, Design for Productivity and Sustainable Design. The course focuses on the technological aspects of the architectural practice using Building Information Modelling (BIM).

With career opportunities opening up in this expanding discipline, these skills are important in the current and future development of our built environment.

Photo by Erwin Soo

PROGRAMME OBJECTIVES

The Diploma in Architecture (Technology) programme aims to equip students with the following capabilities:

- Relevant practical skillsets in architectural detailing and Building Information Modelling (BIM) to assist the architects;
- Familiarity with local building regulations, good practices and guidelines for project documentation and submission;
- Knowledge of sustainable building design, productive technologies and materials;
- Problem-solving and life skills in the following areas:
- Effective communication across all levels in an organisation;
- Creative problem solving skills
- Professionalism and good work ethics in carrying out jobs and interact well with co-workers and/or those outside their work group.

CAREER PROSPECTS

Graduates have the potential to become the new generation of specialists with exciting and rewarding careers such as:

- Architectural Assistants
- Architectural/BIM Technician
- Architectural Visualizer

ENTRY REQUIREMENTS

3 GCE 'O' LEVELS
a) English Language (EL1) – Grades 1 to 7;
b) Art or Design & Technology – Grades 1 to 6; and
c) Any relevant subject – Grades 1 to 6; OR
ITE Higher NITEC or GCE 'N' levels and NITEC with a minimum GPA of 2.75 in a relevant discipline. Higher NITEC applicants with GPA of 3.0 or higher may be granted course exemptions for relevant courses on a case-to-case basis and may complete the diploma programme in less than 3 years.

Students who have attempted GCE 'O' levels but do not meet the specified grade in English and/or Art or Design & Technology may apply to BCA Academy to take an English and/or Design test for the Academy to assess their eligibility for admission.

Candidates with other academic qualifications and related experiences may be considered for admission on a case-by-case basis.

PROGRAMME STRUCTURE

YEAR 1

DDG810 Drawing Presentation
DID101 Design & Creative Methods
DIT835 Digital Media Presentation
DDG807 CAD1 (Autocad)
DCS049 Building Technology
DPD877 Life Skills A
DAR136 Architectural Design 1
DAR144 Development Control Requirements
DAR139 Architectural Styles 1
DBI859* BIM for Architecture
DDG808 CAD2 (Sketchup)
DBU706 Elements of Business

YEAR 2

DPD878 Life Skills B
DAR141 Architectural Detailing 1
DAR145 Building Plan Requirements
DBI863 Advanced BIM for Architecture
DLW917 Basic Business Law
DPQ612 Management Systems for Construction
DPD879 Management Skills A
DAR137 Architectural Design 2
DAR142 Architectural Detailing 2
DAR140 Architectural Styles 2
DDG816 3D CAD
DBS205 Building Services
DPC419 Procurement Management

YEAR 3

DPD880 Management Skills B
DAR146 Green Building & Universal Design
DAR143 Architectural Detailing 3
DBI874 BIM Design and Coordination
DBI842 Sustainable Building with BIM
DPR712 Project Management
DCM862 Technical Communications
DAR147 Design for Productivity
DAR138 Architectural Design 3
DBI843 BIM Customisation
DFP911 Final Year Project
DFP912 Industrial Attachment

COURSE SYNOPSIS

DPD877 ARCHITECTURAL DESIGN 1

This course introduces the architectural design vocabulary of form, space and functionality that affects the human psyche and well being. Students will get to learn the principles of design, the fundamentals of environmental and social psychology, to present architectural ideas and make aesthetic judgments about building design.

DAR139 ARCHITECTURAL STYLES 1

This course seeks to inform students of understanding potential strategies for design from pre-modern history, the myths, the arts and philosophies. It is structured to promote analytical thinking skills in learning from the past so as to conceive and articulate new design ideas for architectural projects and details.

DBI859 BIM FOR ARCHITECTURE

This course covers the concepts and terminologies for Building Information Modelling (BIM). Technical details such as BIM modelling requirements, BIM discipline views and modelling methods will be covered. Students will be able to apply the knowledge of BIM to generate 3D building models for architectural design.

DCS049 BUILDING TECHNOLOGY

This course provides students with an overview of the building works. Students will be introduced to the various types of building elements such as foundation systems, floors, walls, roofs, staircases, ramps, doors and windows as well as surface finishes. It also covers basic site analysis and preparatory works prior to the commencement of construction.

DDG807 CAD 1

The course covers the use of 2D CAD software for presentation, construction drawings and detailing. Learners will be introduced to the Singapore CAD standards for submission and construction drawings.

DDG808 CAD 2

The course covers the use of a 3D modelling programme to quickly produce 3D sketch models for presentation and visualisation including the use of plug-ins for photo-realistic lighting effects.

DID101 DESIGN & CREATIVE METHODS

This course introduces the concepts of creative thinking, the techniques and tools for problem solving and conceptualization of ideas, to the synthesis and evaluation stages of the design process. Students will

also learn basic photographic and image editing techniques to capture and present their ideas creatively.

DDG810 DRAWING PRESENTATION
This course introduces the basics of hand-drafting and sketching to create meaningful visuals in two and three-dimensional forms. They will get to explore the use of different drawing media, techniques and formats for presentation.

DAR144 DEVELOPMENT CONTROL REQUIREMENTS
This course develops competency in students to prepare architectural documentation for statutory submission and approvals. It makes reference to the Singapore Master Plan, Concept and Control Plans; and covers URA's Development Control Parameters such as plot ratio, gross floor area, district zoning and conservation guidelines.

DBU706 ELEMENTS OF BUSINESS
This course equips students with knowledge on how to start a business, to distinguish between businessman and entrepreneurs, to perform micro-economic analysis and break-even analysis.

DPD877 LIFE SKILLS A
DPD878 LIFE SKILLS B
This course aims to equip students with skills and techniques that could help them set personal goals in their lives, develop a healthy self esteem and project a positive and professional image. They will also learn to manage basic personal finance prudently and acquire critical thinking and problem-solving skills. The course is covered over two semesters.

DIT835 DIGITAL MEDIA PRESENTATION
Students will be exposed to the Rich Internet Application (RIA) structure, RIA animation techniques, motion graphics, and storyboarding. It also covers Basic coding to generate dynamic design and interactive navigation elements will be discussed.

DAR137 ARCHITECTURAL DESIGN 2
The course will focus on case studies of the various types of residential buildings. Students will learn to prepare BIM models from architectural sketches, modify them in response to client changes or to comply with regulatory requirements for authority submission.

DBI863 ADVANCED BIM FOR ARCHITECTURE
This course enables students who have the basic knowledge of Revit to increase their productivity through advanced design development tools. Students will work on a building project that includes files linking, family components, and material creation. Students will also learn rendering and walkthrough techniques.

DAR141 ARCHITECTURAL DETAILING 1
This course covers the various types of building materials, finishes and components, specifications, installation, maintenance considerations and good industry practices for wall, floor and ceiling systems.

DAR142 ARCHITECTURAL DETAILING 2
This course covers the various types of building materials, finishes and components, specifications, installation, maintenance considerations and good industry practices for doors and windows, fitments, staircases and signage.

DAR140 ARCHITECTURAL STYLES 2
This course provides a review of the concepts and associated principal theories of contemporary design from the modern era. This will then form the basis for a systematic approach to evaluating architectural design through the process of investigation, critical observation, and analysis. This will enable students explain and rationalise design issues ranging from the use of technology to social issues that confront the architectural profession today.

DAR145 BUILDING PLAN REQUIREMENTS
The course covers the Building Control regulations, permits, CD shelters, TOP and CSC applications via the Corenet e-submission system. It also includes Technical Department codes and requirements of FSSD, ENV, PUB, LTA, NParks, HDB, JTC, SLA, IDA, CAAS, MPA, MHA, NHB, MINDEF, MOE and MOM.

DLW917 BASIC BUSINESS LAW
This course introduces students to Singapore business law and is aimed at students without law background and not pursuing a programme in law. Students will gain an appreciation of the legal issues which they will encounter in the real world when they enter the workforce. It will cover the basic concepts of law and Singapore's legal system including business entities, company law, the law of contract, commercial law, construction law, property law, torts in business and international business transactions.

DBS205 BUILDING SERVICES
This course covers the working principles and components of various types of building services including plumbing, sanitary, fire protection,

air-conditioning and mechanical ventilation, electrical, photovoltaic and vertical transportation systems, as well as basic acoustics. Students will also learn how to check drawings for basic inter-disciplinary coordination.

DPC419 PROCUREMENT MANAGEMENT
This course teaches students the techniques and strategies in procuring the supplies, services and works required in the design, construction, management, operation and maintenance of facilities. Based on documents commonly used in the industry and good industry practices, students will be taught on how to manage the procurement process and resulting contracts.

DDG816 3DCAD
This course teaches students how to create photo-realistic 3D models, through the study of forms and material simulations and rendering, as well as animation for effective presentation and communication of design ideas.

DPQ612 MANAGEMENT SYSTEMS FOR CONSTRUCTION
This course covers the concepts of productivity, problem-solving skills, housekeeping, quality management (ISO 9001), quality control circles and BCA's Construction Quality Assessment System (CONQUAS) for structural and architectural works. Students will learn about the auditing process, as well as the Environmental Management System (ISO 14001), Occupational Health and Safety Management System (OSHAS 18001) and the Buildability Design Appraisal System.

DPD879 MANAGEMENT SKILLS A
DPD880 MANAGEMENT SKILLS B
This course equips students with human resource skills and knowledge vital for future supervisors and managers. Students will also learn about negotiation skills, business finance and work ethics to prepare them for success in the workplace.

DAR138 ARCHITECTURAL DESIGN 3
The course will focus on case studies of existing commercial buildings and MICE facilities. Students will need to apply all that they have learnt to prepare a new BIM project on a mixed development (commercial/hospitality) for authority submission.

DAR146 GREEN BUILDING & UNIVERSAL DESIGN
This course introduces the Singapore Green Building Master Plan, Green Mark requirements with particular emphasis on passive sustainable design, and case studies of green building projects. It also covers the principles of Universal Design (UD) for the built environment, and students will learn to analyse and improve existing facilities, incorporating UD seamlessly into building projects.

DAR143 ARCHITECTURAL DETAILING 3
The course covers the various types of building materials, finishes and components, specifications, installation, maintenance considerations and good industry practices for the building envelope - roofing, claddings, water-proofing systems and external works.

DAR147 DESIGN FOR PRODUCTIVITY
This course provides an overview of an Architect's office organised workflow from project planning, documentation processes, Quality procedures from design to final handover. It also introduces current building trends and advances in construction technologies such as Prefabricated Bathroom Units, Precast Prefinished Volumetric Construction, the use of Cross Laminated Timber, and computation of Buildability scores for productivity and sustainability in the built environment.

DBI843 BIM CUSTOMISATION
This course teaches students how to deploy, setup and customize BIM systems so that it is able to fit into various company business processes, needs, and standards. They will learn how to create new controls to provide more flexibility and speed when performing modelling, as well as extract data for processing. It will teach students how to customise BIM to align with government and international standards.

DPR712 PROJECT MANAGEMENT
This course covers the fundamental concepts of project management. It includes project scope, time, cost, risk, quality, safety, human resources management, communications and management of externalities. They will learn the importance of site organization and management, and ways to set up an effective and efficient site. Students will also learn how to use Microsoft Project programme for planning and scheduling.

DBI874 BIM DESIGN & COORDINATION
This course focuses on the use of BIM for effective project coordination during the design stage. Students will learn various approaches of using BIM for conceptual design and visualization, design development

COURSE SYNOPSIS

and submission. Project coordination processes on model integration, clash detection, model detailing and updates, quantity takeoffs and cost estimation at the design stage will be also covered.

DBI842 SUSTAINABLE BUILDING WITH BIM

This course introduces sustainable building practices and standards. Modelling techniques will be taught for energy and lighting simulation and to analyze the results against sustainable building standards.

DCM862 TECHNICAL COMMUNICATIONS

This course teaches students the use of effective words and techniques in writing technical reports, academic reports, minutes of meetings and memorandums. Students will learn how to use effective visual aids and master the skills to plan and deliver powerful presentations. They will also be taught how to write impactful Curriculum Vitae for their coming job interviews.

DFP912/927 INDUSTRIAL ATTACHMENT/ FINAL YEAR PROJECT

This programme provides students with opportunities for work attachment to local industry companies where they can gain real working experiences and exposure to industry practices beyond the structured curriculum.

FURTHER STUDIES

Graduates of the Diploma in Architecture (Technology) may choose to further their studies at this university:

- UNIVERSITY OF NEWCASTLE, AUSTRALIA
  Bachelor of Construction Management (Building)
  Note: More universities will be updated later.

Diploma in **CONSTRUCTION ENGINEERING**

As we move towards a knowledge-based economy, the industry must restructure itself to ensure that those who work on the construction sites are highly productive, safe and have high standards. These high standards will translate to a stronger demand for knowledge-based skilled workforce in the near future, making the Diploma in Construction Engineering a premium qualification for those aspiring to be successful builders in this new millennium.

The Diploma in Construction Engineering provides graduates with a head-start for their career in the construction industry. This qualification is acceptable for registration as a Resident Technical Officer under the Building Control Act.

PROGRAMME OBJECTIVES

The Diploma in Construction Engineering programme aims to equip students with the skills and knowledge to:

- Keep abreast of the current construction technologies in the industry;
- Perform and supervise construction works on site effectively;
- Plan and schedule construction works effectively to achieve high productivity and minimise delay;
- Perform designs for steel, reinforced concrete, precast and prestressed concrete structures;
- Manage the safety aspects of construction; and
- Apply supervisory, managerial and financial know-how for business.

CAREER PROSPECTS

Graduates can look forward to a fulfilling career as knowledge-based Resident Technical Officers, specialist supervisors or sub-contractors who possess the appropriate practical skills and technical knowledge needed to supervise construction workers directly in the new economy. Graduates will be able to perform the following job roles:

- Resident Technical Officer
- Assistant Project Engineer
- Assistant Design Engineer
- Site Engineer
- Sales Executive

ENTRY REQUIREMENTS

3 GCE 'O' LEVELS
a) English Language (EL1) - Grade 1 to 7;
b) Mathematics Grade - 1 to 6; and
c) Any relevant subject - Grade 1 to 6; or
ITE Higher NITEC or GCE 'N' levels and NITEC with a minimum GPA of 2.75 in a relevant discipline.

Students who have attempted GCE 'O' levels but do not meet the specified grade in English or Mathematics may apply to BCA Academy to take an English or Mathematics test for the Academy to assess their eligibility for admission.

Candidates with other academic qualifications and related experiences may be considered for admission on a case-by-case basis.

All new intake students are required to own a notebook with the following recommended specification and software:

- Intel Core Processor
- 8 GB RAM
- 64-bit Windows Operating System
- Microsoft Office
- Anti-virus software

ADDITIONAL QUALIFICATIONS AWARDED

Upon successful completion of the programme, graduates will also be awarded the following additional qualification:

- Certificate of Successful Completion in Internal Audit (QEHS) on Quality Management (ISO 9001), Environment Management Systems (ISO 14001) & Occupational Health and Safety Management Systems (OHSAS 18001)

PROGRAMME STRUCTURE

YEAR 1

DCS012 Construction Materials
DCS017 Reinforced Concrete Construction
DCS023 Structural Mechanics
DPE244 Construction Equipments
DDG812 Technical Drawings
DMT904 Mathematics 1
DMT905 Mathematics 2
DPD877 Life Skills A
DPD878 Life Skills B
DLW917 Basic Business Law

YEAR 2

DLS015 Surveying
DCS018 Reinforced Concrete Design 1
DCS024 Structural Analysis
DPQ612 Management Systems for Construction
DPQ614 Building Construction Supervisors Safety Course
DPQ713 Formwork Safety Course for Supervisors
DBE009 Building Measurement
DPC419 Procurement Management
DPR712 Project Management
DBI875 BIM for Structure
DMT906 Mathematics 3

YEAR 3

DCS010 Advanced Concrete Technology
DCS011 Construction Technology
DCS019 Reinforced Concrete Design 2
DCS020 Geotechnical Engineering
DCS022 Steel Design and Construction
DCS041 Structural Appraisal and Repair
DPT251 Precast Design and Construction
DPT252 Prestressed Design and Construction
DCM862 Technical Communications
DPH908 Physics
DFP911 Final Year Project
DFP912 Industrial Attachment

COURSE SYNOPSIS

DCS012 CONSTRUCTION MATERIALS

This course covers various materials, properties of concrete, batching and mixing of concrete, testing of concrete, types of concrete admixture, finishing and curing of concrete, types of timber available in the region and the methods of seasoning, treatment, and preservation of timber, characteristics of iron-carbon alloys, engineering properties of steel and its manufacturing and forming process, steel in civil engineering applications, properties of bituminous materials, polymers, the use of green materials in building and civil engineering works.

DCS017 REINFORCED CONCRETE CONSTRUCTION

This course covers the construction of small and large panel system formwork, metal formwork, timber formwork for the construction of column, wall, beam and slab, Code of Practice for formwork (CP 23: 2000), cutting, bending and fixing of steel reinforcement, anchorage and lapping of reinforcement bars, interpretation of reinforcement drawings, types of batching plants, transport, delivery, placing and compaction of concrete for horizontal and vertical structures, curing of concrete, types of waterproofing systems and good industry practices for waterproofing systems used in roof and internal wet areas.

DCS023 STRUCTURAL MECHANICS

This course covers the equilibrium of rigid structures, pin-jointed frame structures, analysis of shearing forces and bending moments, direct stress, bending stress, combined bending, direct stress, shear stress and deflection in structural elements.

DPE244 CONSTRUCTION EQUIPMENTS

The course introduces students to various construction equipment, working principles, maintenance and safety aspects, effective and efficient selection and deployment of equipment on site.

DDG812 TECHNICAL DRAWINGS

This course covers the fundamental knowledge and skills required for interpreting construction drawings and specifications. Topics include services, architectural and reinforced concrete drawings. Students will also be introduced to the essential points in writing good specifications for building works.

DMT904 MATHEMATICS 1

This course covers topics including algebra, factors and factoring, quadratic equations, functions, graphs, trigonometry identities and equations, right triangles

and vectors, linear equation, differentiation, exponents, logarithms, complex numbers.

DMT905 MATHEMATICS 2

This course covers topics including integration, matrices, analytic geometry and quadratic system, series & binomial formula, infinite series and statistics.

DPD877 LIFE SKILLS A & DPD878 LIFE SKILLS B

This course aims to equip students with skills and techniques that could help them set personal goals in their lives, develop a healthy self esteem and project a positive and professional image. They will also learn to manage basic personal finance prudently and acquire critical thinking and problem-solving skills. The course is covered over two semester (Life Skills A in Semester 1 and Life Skills B in Semester 2).

DLW917 BASIC BUSINESS LAW

This course introduces students to Singapore business law and is aimed at students without law background and not pursuing a programme in law. Students will gain an appreciation of the legal issues which they will encounter in the real world when they enter the workforce. It will cover the basic concepts of law and Singapore's legal system including business entities, company law, the law of contract, commercial law, construction law, property law, torts in business and international business transactions.

DLS015 SURVEYING

This course covers levelling and setting out work - level and compute heights using digital level, measure horizontal angles, zenith angles, slope distance and electronic tacheometry using electronic theodolites, interpret the features of site plans, measure scaled distances from plans and identify details of building plans.

DCS018 REINFORCED CONCRETE DESIGN 1

This course provides students with an overview of the design code used in Singapore, limit state design principles, properties of reinforced concrete, analysis of the structure, analysis of the section, shear and anchorage bond, design of reinforced concrete beams, slabs, columns and footings.

DCS024 STRUCTURAL ANALYSIS

This course covers the analysis of determinate and indeterminate structures for axially loaded member, torsion, column buckling, moment distribution method, slope deflection method, moment area method, integration method and virtual work method.

DPQ612 MANAGEMENT SYSTEMS FOR CONSTRUCTION

This course will cover the concepts of productivity, problem-solving skills, housekeeping, quality management (ISO 9001) and quality control circles and construction quality management (Structural and architectural). Students will go on site visits to familiarise themselves with the CONQUAS Standard (Structural), interpreting of ISO standards for the construction industry and the auditing process. Students will also be taught to understand Environment Management Systems (ISO 14001), Occupational Health and Safety Management Systems (OHSAS 18001) and the Buildability Design Appraisal System (BDAS).

DPQ614 BUILDING CONSTRUCTION SUPERVISORS SAFETY COURSE

This course introduces students to industrial accidents and their prevention, the duties and roles of safety supervisors, salient features of BOWEC regulations and self-regulatory measures. Factories Act and Regulations, safety in work site, accident investigation, safety planning and layout for development, fire prevention and control on construction sites. Candidates are to attend the BCSS course & attain the certificate within the 3-year diploma duration.

DPQ713 FORMWORK SAFETY COURSE FOR SUPERVISORS

This course will teach students the fundamentals of falsework and formwork construction, roles and responsibilities of supervisors, reading of formwork/falsework construction/ design drawings, construction strength of materials and shoring, inspection of formwork and falsework, prevailing law and Code of Practice, site communication and supervisory skills, risk assessment for formwork and falsework construction. Case studies will be used.

DBE009 BUILDING MEASUREMENT

This course will teach students how to interpret structural, architectural and building services project drawings, apply basic building construction technology and building services for taking-off quantities with standard method of measurement.

DPC419 PROCUREMENT MANAGEMENT

This course introduces the various procurement methods in the construction industry: traditional, design and build, management procurement and collaborative procurement such as partnering and public private partnership. It also covers the differences in private versus public sector procurement practices,

basic risk management methods for different projects and client profiles, and the different tendering methods used. The students will also be taught the contract administration stages of the procurement process, as well as the concept of green procurement in setting evaluation criteria during the procurement process.

DPR712 PROJECT MANAGEMENT

This course covers the fundamental concepts of project management. Students will be introduced the management of project scope, time, cost, quality, effective site organization, human resources, risk, communication, documentation and handing over. Students will also understand the role of IT and learn how to use Microsoft Project software to do project planning and scheduling.

DBI 875 BIM FOR STRUCTURE

This course introduces Building Information Modelling (BIM) concepts and terminology. Students will also learn how to create BIM Structural models using components such as structural beams, columns, floors and walls as well as reinforcement bars. Students will also learn how to import Architectural models and monitor changes.

DCS010 ADVANCED CONCRETE TECHNOLOGY

The course provides students with knowledge of different types of concrete used in construction, application of admixture for concrete production and its delivery in hot weather.

DCS011 CONSTRUCTION TECHNOLOGY

This course provides students with a better appreciation on the methods and technologies used for the construction of bridges such as incremental launching, span by span and balance cantilever. Topic on construction of tunnel using traditional, new Austrian methods and tunnel boring machine as well as various structural systems used in the construction of tall building and methods for underpinning works are also included in this course. This course also provides an insight to the topic on sustainable construction and the methods to improve productivity on site.

DCS019 REINFORCED CONCRETE DESIGN 2

This course covers an overview of BS6399: loading for buildings, identify and determine relevant loads for design purposes and an overview of CP65: Part 1: 1999, design objectives, requirements for design and detailing of reinforced concrete, materials, specifications and design of flat plate systems, use of shear studs for drop panels and deflection check for slab and also design of reinforced concrete core walls, retaining walls, pile caps and raft foundations. Students will also learn hands-on session with design software.

DCS020 GEOTECHNICAL ENGINEERING

This course covers soil investigation, geotechnical instrumentations, type of soils and their characteristics, seepage in soil, shear strength of soil, test procedures to determine soil properties, coefficient of permeability and shear strength, lateral earth pressure and stability of earth retaining structures, excavation, control of ground water, different types of shallow and piled foundation, pile testing, construction of pile caps, computation of excavation quantities, temporary shoring works with timber or sheet piles, construction of contiguous bored piles and retaining walls, bearing capacity and settlement of foundation and ground improvement.

DCS022 STEEL DESIGN AND CONSTRUCTION

This course covers the usage of structural steel in the construction industry; the design of a complete structural steel works including steel beam design, steel stanchion design and connection design. It also covers the preparation and fabrication of structural steelwork and their connections, the erection process of steel frames and equipment involved, types of fire and corrosion protection system and will also be given an introduction to composite steel construction.

DCS041 STRUCTURAL APPRAISAL AND REPAIR

This course covers the statutory requirements for structural inspection as set out in the Building Regulations Act and the challenges and problems faced during repair and retrofitting works. It also covers structural inspection using different types of destructive and non-destructive tests, different types of defect, methods to repair and strengthen concrete, steel and post tensioned concrete slabs, beams and columns.

DPT251 PRECAST DESIGN AND CONSTRUCTION

The course covers the various types of precast systems, advantages and limitation of application of precast systems structural stability, connection designs, fasterners and their application, relevant code of practices, methods of manufacture, production methods, storage and transportation requirements, etc. It also covers quality assurance and control in precast yards, co-ordination between design and production, site administration,

COURSE SYNOPSIS

scheduling and co-ordination between design and production team, setting out for precast installation, handling, storage, stacking requirements for columns, hollow core slabs, prestressed plank, precast beams, etc, the sequence of erection for precast members and building construction. It will also cover the design concepts of precast reinforced concrete components, connections and illustrations on design of precast concrete buildings.

DPT252 PRESTRESSED DESIGN AND CONSTRUCTION

The course covers the application of prestressed concrete, principle of prestressing, materials for prestressed concrete, prestressing system, usage of prestressed concrete in buildings, pre and post-tensioning system, equipment and procedures, methods of anchoring for post-tensioning, understanding of post-tensioned prestressed concrete construction drawings (e.g. profile, layout, etc). It also covers problems associated with prestressed concrete, erection and safety of prestressed components encountered in post-tensioning, concepts of post-tensioning, concepts of prestressed concrete design, loss of prestress, design of post-tensioned beams and slabs with constant or variable eccentricity and load balancing design technique.

DCM862 TECHNICAL COMMUNICATIONS

This course teaches students the use of effective words and techniques in writing technical reports, academic reports, minutes of meetings and memorandums. Students will also learn how to use effective visual aids and master the skills involved to plan and deliver powerful presentations. Lastly, they will be prepared on how to write their CV for their coming job interviews.

DMT906 MATHEMATICS 3

This elective course provides students with further knowledge in mathematics to handle engineering problems encountered in their course of study. Among the topics covered is integration leading to inverse trigonometric and logarithmic functions, methods of integration, Simpson's Rule, partial differentiation, differential equations and Laplace transforms. This course is a continuation of Engineering Mathematics 2.

DPH908 PHYSICS

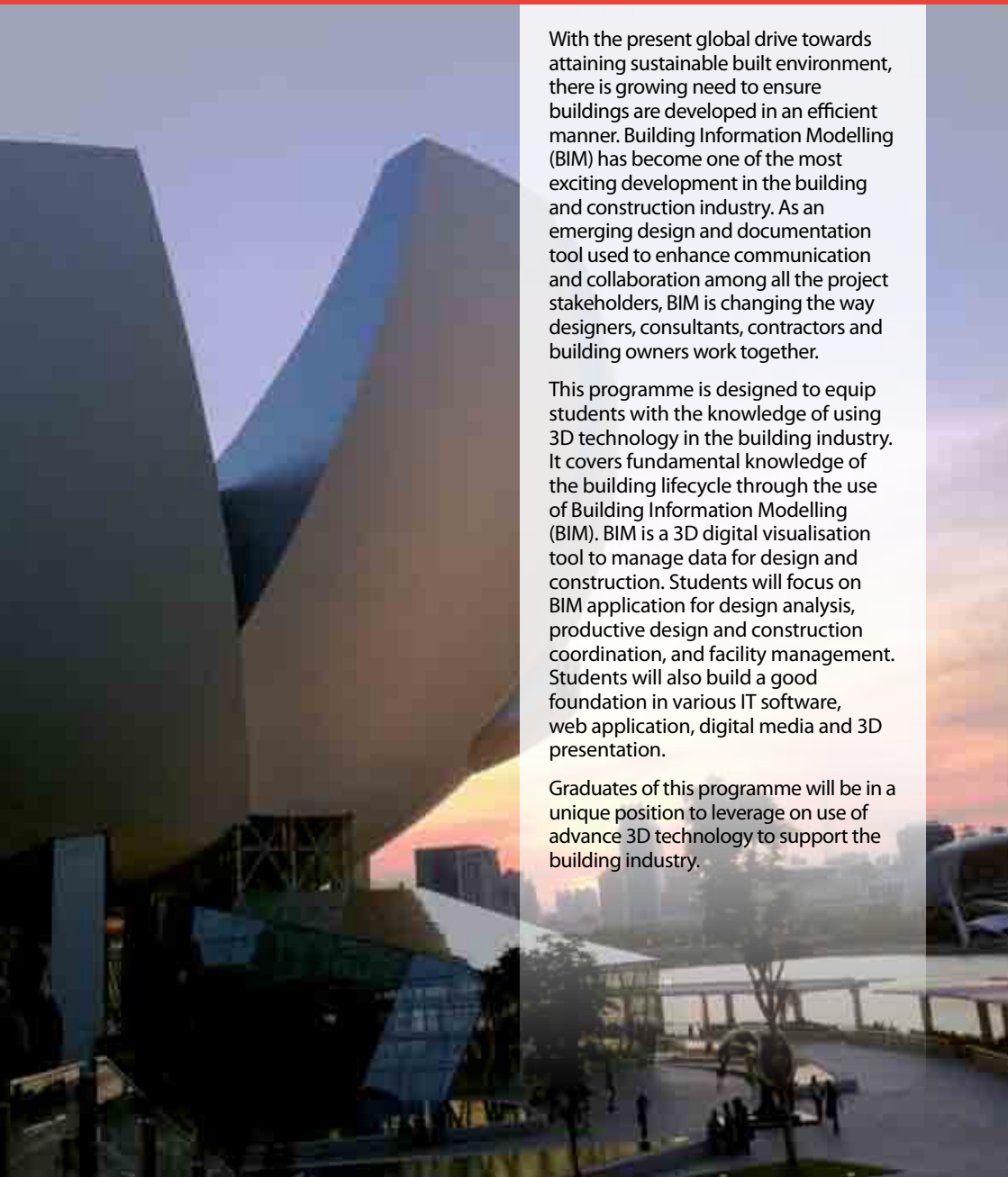
This elective course provides students with knowledge in physics to handle engineering problems encountered in their course of study. The students will be able to determine external forces in two dimensions; describe linear, rotational and relative motion; apply Newton's law, law of thermodynamics and fluids, solve problems involving forces, work and energy using the knowledge of kinematics and kinetics, basic concept of electric and magnetic fields, electric potential, electromotive force, work and energy, properties of basic electrical circuits.

FURTHER STUDIES

Graduates of the Diploma in Construction Engineering may choose to further their studies at these universities:

- NANYANG TECHNOLOGICAL UNIVERSITY, SINGAPORE
  Bachelor of Engineering (Civil Engineering)
- UNIVERSITY OF ADELAIDE, AUSTRALIA
  Bachelor of Engineering (Civil & Structural)
  Bachelor of Engineering (Civil & Environmental)
- JAMES COOK UNIVERSITY, AUSTRALIA
  Bachelor of Engineering (Civil)
- UNIVERSITY OF NEWCASTLE, AUSTRALIA
  Bachelor of Construction Management
- QUEENSLAND UNIVERSITY OF TECHNOLOGY, AUSTRALIA
  Bachelor of Applied Science (Construction Management / Quantity Surveying)
- RMIT UNIVERSITY, AUSTRALIA
  Bachelor of Civil Engineering
  Bachelor of Applied Science in Construction Management (BCM)
- UNIVERSITY OF SOUTH AUSTRALIA, AUSTRALIA
  Bachelor of Construction Management & Economics
- UNIVERSITY OF WOLLONGONG, AUSTRALIA
  Bachelor of Engineering (Civil)
  Bachelor of Engineering (Civil & Environmental)
- UNIVERSITY OF TECHNOLOGY, SYDNEY
  Bachelor of Construction Project Management

Diploma in **CONSTRUCTION INFORMATION TECHNOLOGY**



With the present global drive towards attaining sustainable built environment, there is growing need to ensure buildings are developed in an efficient manner. Building Information Modelling (BIM) has become one of the most exciting development in the building and construction industry. As an emerging design and documentation tool used to enhance communication and collaboration among all the project stakeholders, BIM is changing the way designers, consultants, contractors and building owners work together.

This programme is designed to equip students with the knowledge of using 3D technology in the building industry. It covers fundamental knowledge of the building lifecycle through the use of Building Information Modelling (BIM). BIM is a 3D digital visualisation tool to manage data for design and construction. Students will focus on BIM application for design analysis, productive design and construction coordination, and facility management. Students will also build a good foundation in various IT software, web application, digital media and 3D presentation.

Graduates of this programme will be in a unique position to leverage on use of advance 3D technology to support the building industry.

PROGRAMME OBJECTIVES

The Diploma in Construction Information Technology (DCIT) is a 3-year full-time programme that aims to equip students with the following capabilities and attributes:

- Develop building drawings and documentation conforming to industry standards and practices through the use of Building Information Modelling (BIM);
- Analyse design of building by integrating various building services and applying productive design and construction coordination through BIM solution; and
- Manage data integrity from design to construction and facility management. Students will undertake a Final Year Project or undergo Industrial Attachment in the third year of study to put their skills into practice and gain experiences before their graduation.

CAREER PROSPECTS

Upon graduation, graduates of this diploma can look forward to rewarding career opportunities like Project Coordinator in Building Information Modelling (BIM), Building Information Modeller, BIM Specialist.

ENTRY REQUIREMENTS

3 GCE 'O' LEVELS
a) English Language (EL1) - Grade 1 to 7;
b) Mathematics - Grade 1 to 6; and
c) Any relevant subject - Grade 1 to 6; or
ITE Higher NITEC or GCE 'N' levels and NITEC with a minimum GPA of 2.75 in a relevant discipline.

Students who have attempted GCE 'O' levels but do not meet the specified grade in English or Mathematics may apply to BCA Academy to take an English or Mathematics test for the Academy to assess their eligibility for admission.

Candidates with other academic qualifications and related experiences may be considered for admission on a case-by-case basis.

All new intake students are required to own a notebook with the following recommended specification and software:

- Intel Core i5-2300 quad core processor (2.8GHz, 6MB cache) or better; OR equivalent of AMD processor.
- 12 GB RAM or more
- 5 GB free HDD space
- Windows 7 64-bit Home Premium edition or better; Windows Vista 64-bit (SP2 or later)
- Microsoft Office
- Anti-virus software

PROGRAMME STRUCTURE

YEAR 1

DCS046 Building Materials
DCS049 Building Technology
DDG812 Technical Drawings
DMT904 Mathematics 1
DDG808 CAD 2
DDG858 CAD
DBS205 Building Services
DPD877 Life Skills A
DPD878 Life Skills B
DLW917 Basic Business Law
DAR132 Building Design 1A
DAR133 Building Design 1B
DIT835 Digital Media Presentation
DIT852 Information and Communication Technology

YEAR 2

DCS011 Construction Technology
DBE009 Building Measurement
DPC419 Procurement Management
DCE420 Cost Management
DGB617 Green Building Technology
DPR712 Project Management
DPD879 Management Skills A
DPD880 Management Skills B
DAR134 Building Design 2A
DAR135 Building Design 2B
DIT883 Database Management
DIT827 Software Engineering and Web Application
DBI859 BIM for Architecture
DBI864 BIM for M & E

YEAR 3

DDG816 3D CAD
DCM862 Technical Communications
DEM523 Building Envelope
DAR131 Building Regulations
DBI842 Sustainable Building with BIM
DBI843 BIM Customisation
DBI863 Advance BIM for Architecture
DBI872 BIM Construction & Coordination
DBI873 BIM for Facilities Management
DBI874 BIM Design & Coordination
DFP911 Final Year Project
DFP912 Industrial Attachment

COURSE SYNOPSIS

DCS046 BUILDING MATERIALS

Students will learn the basics of core materials used in building and civil engineering works and the typical finishes and components used in different types of building.

DCS049 BUILDING TECHNOLOGY

This course provides students with an overview of the building construction methods and process. Students will be introduced to building construction system through the study of building elements such as foundation, floors, walls, roofs, staircases and ramps, doors and windows as well as surface finishes. The topic also covers basic site analysis and preparation works prior to the commencement of building construction works.

DDG812 TECHNICAL DRAWINGS

Students will be taught to apply SS CP 83 and use of 2D and 3D documentation tools to create and produce drawings of reinforced concrete and structural steel building elements.

DMT904 MATHEMATICS 1

This course covers topics including algebra, factors and factoring, quadratic equations, functions, graphs, trigonometry identities and equations, right triangles and vectors, linear equation, differentiation, exponents, logarithms, complex numbers.

DDG808 CAD 2

Students will be taught how to use computer aided design program to produce 3D models for presentation and visualisation. Students should be able to generate 3D models using 3D commands to demonstrate effective rendering and animation.

DDG858 CAD

Students will be taught how to use computer aided design/drafting program to produce drawings for construction and detailing. Students should be able to generate architectural plans using 2D commands and drawing tools.

DBS205 BUILDING SERVICES

This course covers the working principles and components of various types of building services including plumbing, sanitary, fire protection, air-conditioning and mechanical ventilation and electrical services. Students will also learn how to interpret the drawings for such building services.

DPD877 LIFE SKILLS A & DPD878 LIFE SKILLS B

This course aims to equip students with skills and techniques that could help them set personal goals in their lives, develop a healthy self esteem and project a positive and professional image. They will also learn to manage basic personal finance prudently and acquire critical thinking and problem-solving skills. The course is covered over two semester (Life

COURSE SYNOPSIS

Skills A in Semester 1 and Life Skills B in Semester 2).

DLW917 BASIC BUSINESS LAW

This course introduces students to Singapore business law and is aimed at students without law background and not pursuing a programme in law. Students will gain an appreciation of the legal issues which they will encounter in the real world when they enter the workforce. It will cover the basic concepts of law and Singapore's legal system including business entities, company law, the law of contract, commercial law, construction law, property law, torts in business and international business transactions.

DAR132 BUILDING DESIGN 1A

The course facilitates students to apply and integrate their knowledge and skills in building technology on a built environment design project. Students have to develop design strategies, document their design process in a journal and prepare documentation of drawings for the purpose of design presentation.

DAR133 BUILDING DESIGN 1B

The course facilitates students to apply and integrate their knowledge and skills in building services on a built environment design project. Students have to study various MEP services, develop design strategies, document their design process in a journal and prepare documentation of drawings for the purpose of design presentation.

DIT835 DIGITAL MEDIA PRESENTATION

In this course, students will be exposed to the Rich Internet Application (RIA). Students will learn about the RIA structure, RIA animation techniques and motion graphics, and storyboarding. Basic coding to generate dynamic design and interactive navigation elements will be discussed as well.

DIT852 INFORMATION AND COMMUNICATION TECHNOLOGY

Students will learn a broad understanding of hardware and software components and concepts of information technologies implemented in the facilities management industry. Concepts of computing systems, operating systems, networking, information processing, communication, the internet, system development as well as awareness in IT trends, security, crime and ethics will be covered.

DCS011 CONSTRUCTION TECHNOLOGY

This course provides students with a better appreciation on the methods and technologies used for the construction of bridges such as incremental launching, span by span and balance cantilever. Topic on construction of tunnel using traditional, new Austrian methods and tunnel boring machine as well as various structural systems used in the construction of tall building and methods for underpinning works are also included in this course This course also provides an insight to the topic on sustainable construction and the methods to improve productivity on site.

DBE009 BUILDING MEASUREMENT

This course will teach students how to interpret structural, architectural and building services project drawings, apply basic building construction technology and building services for taking off quantities with standard method of measurement.

DPC419 PROCUREMENT MANAGEMENT

This course introduces the various procurement methods in the construction industry: traditional, design and build, management procurement and collaborative procurement such as partnering and public private partnership. It also covers the differences in private versus public sector procurement practices, basic risk management methods for different projects and client profiles, and the different tendering methods used. The students will also be taught the contract administration stages of the procurement process, as well as the concept of green procurement in setting evaluation criteria during the procurement process.

DCE420 COST MANAGEMENT

This course teaches students the techniques in establishing the cost of supplies, services and works required in the design, construction, management, operation and maintenance of the built environment.

DGB617 GREEN BUILDING TECHNOLOGY

This course covers the principles of major green building design including water harvesting systems, waste management systems, renewable energy systems and energy efficient systems.

DPR712 PROJECT MANAGEMENT

This course introduces the various procurement methods in the construction industry: traditional, design and build, management procurement and collaborative procurement such as partnering and public private partnership. It also covers the differences in private versus public sector procurement practices, basic risk management methods for different projects and client profiles, and the different tendering methods used. The students will also be taught the contract administration stages of the procurement process, as well as

the concept of green procurement in setting evaluation criteria during the procurement process.

DPD879 MANAGEMENT SKILLS A & DPD880 MANAGEMENT SKILLS B
This course equips students with human resource skills and knowledge vital for future supervisors and managers. Students will also learn about negotiation skills, business finance and work ethics to prepare them for success in the workplace. This course is covered over two semesters (Management Skills A in Semester 1 and Management Skills B in Semester 2).

DAR134 BUILDING DESIGN 2A
The course facilitates students to apply and integrate their knowledge and skills on a small scale project from design formulation to design development in context and with reference to local code of practices. Students have to develop design strategies, document their design process in a journal and prepare documentation of drawings for the purpose of design presentation, and detailing of a residential development.

DAR135 BUILDING DESIGN 2B
The course facilitates students to apply and integrate their knowledge and skills on a commercial project from design formulation to design development in context and with reference to local code of practices. Students have to develop design strategies, document their design process in a journal and prepare documentation of drawings for the purpose of design presentation, and detailing of a medium-rise commercial development.

DIT826 DATABASE MANAGEMENT
Students will adopt a practical approach to understanding the importance of database technologies in managing today's massive amounts of data handled by the Facilities Manager. Students will learn the techniques of designing and creating databases as well as strategies to maintain the currency, accuracy and security of the data within these databases. Students will also be able to identify the different components of a relational database system and make use of the various object-oriented modelling techniques with a particular focus on developing Internet-based applications within the facilities management domain. Students will be able to gain an in-depth understanding of key database topics such as database architectures, logical and physical design of relational databases, use of SQL in data definition, retrieval and manipulation, administration, backup and distributed databases.

DIT827 SOFTWARE ENGINEERING AND WEB APPLICATION
Students will learn about the details of the software development life cycle and will use the tools available to manage a software project together with quality and configuration management issues. In conjunction with knowledge from the Database Management System course, students will also use their skills and knowledge to manage and develop a fictitious facilities management related project. This facilities management related project is designed to simulate real world requirements from getting users' requirements, analysis of data collected, design, recommendation, presentation, demonstration and implementation.

DBI859 BIM FOR ARCHITECTURE
This course covers the concepts and terminologies for Building Information Modelling (BIM). Technical details such as BIM modelling requirements, BIM discipline views and modelling methods will be covered. Students will be able to apply the knowledge of BIM to generate 3D building models for architectural design.

DBI864 BIM FOR M&E
In this course, students will be exposed to Building Information Modelling (BIM) for the design and modelling of Mechanical, Electrical and Plumbing (MEP) systems for buildings. Students will be taught how to use the architectural and structural models to generate report which they will use to design and model the MEP for buildings.

DDG816 3D CAD
Students will be taught to create photo-realistic 3D modelling and animation, such as walk-through, for effective presentation & communication.

DCM862 TECHNICAL COMMUNICATIONS
This course teaches students the use of effective words and techniques in writing technical reports, academic reports, minutes of meetings and memorandums. Students will also learn how to use effective visual aids and master the skills involved to plan and deliver powerful presentations. Lastly, they will be prepared on how to write their CV for their coming job interviews.

DEM523 BUILDING ENVELOPE
This course covers topics on the fundamentals of building envelope and the subsystems which affect the performance of building envelope. Students will be able to compute the Envelope Thermal Transfer Value (ETTV) and discuss the significance of ETTV on efficient building design.

COURSE SYNOPSIS

DAR131 BUILDING REGULATIONS
This course introduces students to various regulatory requirements, building regulations and building control system. It develops competency in students to prepare and complete statutory documents for the purpose of statutory submissions.

DBI842 SUSTAINABLE BUILDING WITH BIM
This course introduces sustainable building practices and standards. It covers the background and the purpose of a sustainable building design, as well as how it affects the design for the various disciplines in the building industry. This course includes some of the modelling techniques used for simulation and how the results are analyzed against a sustainable building standard. Students will apply the calculation learnt to BIM in order to perform simulation and analysis.

DBI843 BIM CUSTOMISATION
This course teaches students how to deploy, setup and customize BIM systems so that it is able to fit into various company business processes, needs, and standards. Students will learn how it can help a company using a BIM system to customise it to fit into and support their processes. They will learn how to create new controls, provide more flexibility and speed when performing modelling, as well as extract data to other system for processing. It will teach students how to customise a BIM so that it conforms to the government and international standards. Students will also learn how to adapt a BIM system so as to support some of different processes. Students will also be taught how to use write programs using API of a BIM system to perform more advance customisation.

DBI863 ADVANCE BIM FOR ARCHITECTURE
This course is an intermediate course in the Revit Architecture. The objective of this course is to enable students who have the basic knowledge of Revit to increase their productivity through the advanced design development tools. Students will learn to work on and complete a unique project of the built environment. The course will cover file linking (CAD and/or Revit), creating and using In-Place family, loading and modifying family components, and material creation and editing. Students will also learn how to present the building model using model rendering and walkthrough technique.

DBI872 BIM CONSTRUCTION & COORDINATION
This course will teach students how BIM can be utilized in the construction stage. The potential applications include BIM for precasting and prefabrication, BIM-based construction project scheduling (4D BIM), as well as BIM-based quantity takeoff and cost estimating (5D BIM). Topics on such BIM applications during the construction phase for site planning, procurement and construction visualization and coordination will be covered in this module.

DBI873 BIM FOR FACILITIES MANAGEMENT
Significant benefits can be harvested from BIM models throughout the lifecycle of a building including facility management (FM). This module introduces the concept and information requirements for BIM applications in FM, the approach as well as BIM based FM software. Topics on what BIM means for facility managers, how to link existing FM system to BIM models and build facility data inventories would be discussed. Other topics include managing facility information graphically and evaluating building operation data based on BIM models.

DBI874 BIM DESIGN & COORDINATION
This BIM module focuses on the use of BIM for more effective project coordination during the design stage. Students will learn the approaches of using BIM for conceptual design and visualization, design development and submission. Project coordination processes on model integration, clash detection, model detailing and updates, quantity takeoff and cost estimating at the design stage will be also covered. Students will have BIM Lab sessions for hands on experience on BIM model navigation, integration, and clash detection.

FURTHER STUDIES
Graduate of the Diploma in Construction Information Technology may choose to further their studies at the following university:

- UNIVERSITY OF TECHNOLOGY, SYDNEY
  Bachelor of Construction Project Management
- UNIVERSITY OF NEWCASTLE, AUSTRALIA
  Bachelor of Construction Management

Diploma in **DESIGN** (Interior & Landscape)

With globalisation and enhanced quality of lives, people have increasingly higher expectations for more refined living in our urban environment. Be it the home, the school, office, shopping malls or recreational facilities, there is a rising need for creative interior and landscape designers to aesthetically fit out the environments to best suit the informed and sophisticated tastes of the occupants. Furthermore, in land-scarce Singapore, effective space planning and the integration of the natural environment is essential to optimise limited available space for the purpose of improving the quality of lives.

PROGRAMME OBJECTIVES

Diploma in Design (Interior & Landscape) is a 3-year full-time Diploma programme. It covers the theories and practical applications of interior design and landscaping with emphasis on the essential skills required to creatively explore and visually communicate conceptual ideas and design solutions. Students are guided from basic drafting and free-hand sketching through to computer-aided draughting and presentation.

Students are trained to creatively integrate design with construction technology and to present design schemes at studio sessions progressively throughout the course, culminating in final design project submissions. This programme is also structured to develop analytical and creative thinking skills in students as well as to equip them with knowledge on management and supervisory skills in order to meet the demands of today's business environment.

Students also undergo an industrial attachment programme to put their skills into practice and gain experience before they graduate.

CAREER PROSPECTS

Upon successful completion of the programme, graduates have the potential to become the new generation of specialists in the niche area of sustainability development. Graduates will be able to perform the following job roles:

- CAD/Technical Specialist
- Interior Designer
- Landscape Designer

ENTRY REQUIREMENTS

3 GCE 'O' LEVELS
a) English language - Grade 1 to 7;
b) Art or Design & Technology - Grade 1 to 6; and
c) A relevant subject - Grade 1 to 6; or
ITE Higher NITEC or GCE 'N' levels and NITEC with minimum GPA of 2.75 in a relevant discipline.

Students who have attempted GCE 'O' levels but do not meet the specified grade in English and/or Art or Design & Technology may apply to BCA Academy to take an English and/or Design test for the Academy to assess their eligibility for admission.

Candidates with other academic qualifications and related experiences may be considered for admission on a case-by-case basis.

All new intake students are required to own a notebook with the following recommended specification and software:

- Intel Core Processor
- 8 GB RAM
- 64-bit Windows Operating System
- Microsoft Office
- Anti-virus software

PROGRAMME STRUCTURE

YEAR 1

DCS049 Building Technology
DID101 Design and Creative Methods
DID104 Design Studio 1
DID106 Evolution of Interior Design
DID107 Interior Construction I
DID110 Scenography
DDG807 CAD 1
DDG808 CAD 2
DDG810 Drawing Presentations
DPD877 Life Skills A
DPD878 Life Skills B
DLW917 Basic Business Law
DIT835 Digital Media Presentation

YEAR 2

DPQ612 Management Systems for Construction
DID108 Interior Construction 2
DLA116 Landscape Technology
DLA121 Planting Design & Management
DID125 Design Studio 2 - Residential
DID126 Design Studio 2 - Office
DLA129 Landscape Design 1
DBS205 Building Services
DPC419 Procurement Management
DPR712 Project Management
DBU706 Elements of Business
DPD879 Management Skills A
DPD880 Management Skills B
DBI859 BIM for Architecture

YEAR 3

DLA122 Landscape Site Planning
DLA124 Skyrise Greenery
DLA120 Landscape Styles
DID127 Design Studio 3 - Retail
DID128 Design Studio 3 - Leisure
DLA130 Landscape Design 2
DDG816 3D CAD
DCM862 Technical Communications
DAR131 Building Regulations
DBI863 Advance BIM for Architecture
DFP911 Final Year Project
DFP912 Industrial Attachment

COURSE SYNOPSIS

DCS049 BUILDING TECHNOLOGY

This course provides students with an overview of the building construction methods and process. Students will be introduced to building construction system through the study of building elements such as foundation, floors, walls, roofs, staircases and ramps, doors and windows as well as surface finishes. The topic also covers basic site analysis and preparation works prior to the commencement of building construction works.

DID101 DESIGN & CREATIVE METHODS

This course introduces the concepts of creative thinking, the techniques and tools for problem solving and conceptualization of ideas, to the synthesis and evaluation stages of the design process. Students will also learn basic photographic and image editing techniques to capture and present their ideas creatively.

DID104 DESIGN STUDIO 1

This course introduces the design vocabulary to satisfy the functional, aesthetic and behavioural needs of users. An understanding of the principles of design is fundamental to creating forms and spaces to ensure that the appropriate relationship is achieved between the users and the spatial enclosure.

DID106 EVOLUTION OF INTERIOR DESIGN

This course provides an overview of how cultural, social, environmental, and technological factors may influence design styles over time. An understanding of how design has evolved over time serves as an important base for the generation of new ideas for the present.

DID107 INTERIOR CONSTRUCTION 1

This course covers the various types of ceilings, wall and floor finishes, as well as their characteristics, properties and installation methods.

DID110 SCENOGRAPHY

This course covers the concepts and principles of colour psychology, building graphics and signage, art/artifacts and lighting systems for interiors.

DDG807 CAD 1

The course covers the use computer aided design/drafting program to produce simple 2D drawings for presentation, construction drawings and detailing. Learners will be introduced on the CA D standard in generating construction drawings.

DDG808 CAD 2

The course covers the use of 3D modelling computer aided design/ drafting commands to produce 3D sketch models for presentation.

DDG810 DRAWING PRESENTATIONS

Students will be taught how to

create meaningful visuals in two and three-dimensional forms with the use of different drawing media and techniques.

DPD877 LIFE SKILLS A & DPD878 LIFE SKILLS B

This course aims to equip students with skills and techniques that could help them set personal goals in their lives, develop a healthy self esteem and project a positive and professional image. They will also learn to manage basic personal finance prudently and acquire critical thinking and problem-solving skills. The course is covered over two semester (Life Skills A in Semester 1 and Life Skills B in Semester 2).

DLW917 BASIC BUSINESS LAW

This course introduces students to Singapore business law and is aimed at students without law background and not pursuing a programme in law. Students will gain an appreciation of the legal issues which they will encounter in the real world when they enter the workforce. It will cover the basic concepts of law and Singapore's legal system including business entities, company law, the law of contract, commercial law, construction law, property law, torts in business and international business transactions.

DIT835 DIGITAL MEDIA PRESENTATION

In this course, students will be exposed to the Rich Internet Application (RIA). Students will learn about the RIA structure, RIA animation techniques and motion graphics, and storyboarding. Basic coding to generate dynamic design and interactive navigation elements will be discussed as well. This course also covers the main principles and techniques of digital video capturing, editing and compression. Students will be taught how to use the features of non-linear editing to make precise cuts between scenes, add filters, manipulate tempo and produce a finished commercials video file.

DPQ612 MANAGEMENT SYSTEMS FOR CONSTRUCTION

This course will cover the concepts of productivity, problem-solving skills, housekeeping, quality management (ISO 9001) and quality control circles and construction quality management (Structural and architectural). Students will go on site visits to familiarise themselves with the CONQUAS Standard (Structural), interpreting of ISO standards for the construction industry and the auditing process. Students will also be taught to understand Environment Management Systems (ISO 14001), Occupational Health and Safety Management Systems (OHSAS 18001) and the Buildability Design Appraisal System (BDAS).

DID108 INTERIOR CONSTRUCTION 2

This course covers the various types of furniture and fitment, doors and windows, staircase finishes as well as universal design guidelines for interiors.

DLA116 LANDSCAPE TECHNOLOGY

This course covers the types of materials, finishes and fixtures for landscaping works, landscape facilities, construction methods and maintenance considerations. Students will be introduced to the features of Green Mark Parks and universal design in the landscape.

DLA121 PLANTING DESIGN AND MANAGEMENT

This course will cover the various approaches to planting design, from the dynamic characters of plants and plant communities, the development of a plant palette which supports the design philosophy, to managing plant growth.

DID125 DESIGN STUDIO 2 – RESIDENTIAL

This course covers the different types of and the design criteria for residential interior spaces to meet the functional, aesthetic and behavioural needs of the users.

DID126 DESIGN STUDIO 2 – OFFICE

This course covers the various types of office interiors and the design criteria to meet the functional, aesthetic and behavioural needs of the users.

DLA129 LANDSCAPE DESIGN 1

This course will allow students to carry out landscape planning and design for small gardens and interiorscapes in various settings.

DBS205 BUILDING SERVICES

This course covers the working principles and components of various types of building services including plumbing, sanitary, fire protection, airconditioning and mechanical ventilation and electrical services. Students will also learn how to interpret the drawings for such building services.

DPC419 PROCUREMENT MANAGEMENT

This course introduces the various procurement methods in the construction industry: traditional, design and build, management procurement and collaborative procurement such as partnering and public private partnership. It also covers the differences in private versus public sector procurement practices, basic risk management methods for different projects and client profiles, and the different tendering methods used. The students will also be taught

the contract administration stages of the procurement process, as well as the concept of green procurement in setting evaluation criteria during the procurement process.

DPR712 PROJECT MANAGEMENT
This course covers the fundamental concepts of project management, identifying the broad project management knowledge. Students introduced the management of project scope, time, cost, risk, quality, safety, human resources, communications and management of externalities. They will learn the importance of site organization and management, and ways to set up an effective and efficient site. Students will also understand the role of IT and learn how to use Microsoft Project software to do project planning and scheduling.

DBU706 ELEMENTS OF BUSINESS
This course equips students with knowledge on how to start a business, to distinguish between businessman and entrepreneurs, to perform micro-economic analysis and break-even analysis.

DPD879 MANAGEMENT SKILLS A & DPD880 MANAGEMENT SKILLS A
This course equips students with human resource skills and knowledge vital for future supervisors and managers. Students will also learn about negotiation skills, business finance and work ethics to prepare them for success in the workplace. This course is covered over two semesters (Management Skills A in Semester 1 and Management Skills B in Semester 2).

DBI859 BIM FOR ARCHITECTURE
Students should be able to apply the knowledge of Building Information Modelling, generate 3D models using BIM and prepare documentation for further.

DLA122 LANDSCAPE SITE PLANNING
This course introduces students to landform design site planning and implementation. In addition, the choice of plants, planting and management techniques for urban sites and large tracts of land are studied.

DLA124 SKYRISE GREENERY
This course covers the design and construction of waterscapes, roof gardens and vertical greenery with emphasis and consideration of drainage, water management, external lighting and relevant local codes.

DLA120 LANDSCAPE STYLES
This course imparts the concepts and principles of garden and landscape design from early developed civilizations to current trends. They will gain an appreciation of the use of design techniques, based on functional and aesthetic characteristics of materials; the organization of landscape elements, outdoor spaces and human activities, to create that 'spirit of the place'.

DID127 DESIGN STUDIO 3 – RETAIL
This course covers the design concepts and requirements of retail planning, the different types of shop units, ancillary spaces and fitting out.

DID128 DESIGN STUDIO 3 – LEISURE
This course covers the design concepts and fitting out of the entertainment and hospitality facilities. It also includes the meeting, incentive, convention and exhibition (MICE) industry.

DLA130 LANDSCAPE DESIGN 2
This course will cover the design of medium sized gardens and parks that incorporate universal design principles as well as the Green Mark for Parks criteria in their design.

DDG816 3D CAD
This course teaches students how to create photo-realistic 3D models, via form studies & material simulations and rendering, as well as animation for effective presentation and communication of design ideas.

DCM862 TECHNICAL COMMUNICATIONS
This course teaches students the use of effective words and techniques in writing technical reports, academic reports, minutes of meetings and memorandums. Students will also learn how to use effective visual aids and master the skills involved to plan and deliver powerful presentations.

DAR131 BUILDING REGULATIONS
This course introduces students to various regulatory requirements, building regulations and building control system. It develops competency in students to prepare and complete statutory documents for the purpose of statutory submissions.

DBI863 ADVANCE BIM FOR ARCHITECTURE
This course is an intermediate course in the Revit Architecture. The objective of this course is to enable students who have the basic knowledge of Revit to increase their productivity through the advanced design development tools. Students will learn to work on and complete a unique project of the built environment. The course will cover file linking (CAD and/or Revit), creating and using In-Place family, loading and modifying family components, and material creation and editing. Students will also learn how to present the building model using model rendering and walkthrough technique.

COURSE SYNOPSIS

FURTHER STUDIES

Graduates of the Diploma in Design (Interior & Landscape) may choose to further their studies at these universities:

- CURTIN UNIVERSITY OF TECHNOLOGY, AUSTRALIA
  Bachelor of Arts (Interior Architecture)
- UNIVERSITY OF SOUTH AUSTRALI A, AUSTRALIA
  Bachelor of Interior Architecture
- UNIVERSITY OF TECHNOLOGY, SYDNEY
  Bachelor of Construction Project Management
- UNIVERSITY OF NEWCASTLE, AUSTRALIA
  Bachelor of Construction Management

Diploma in **ELECTRICAL ENGINEERING AND CLEAN ENERGY**

The Diploma in Electrical Engineering and Clean Energy (DEECE) is designed to equip you with the fundamentals of electrical engineering and the necessary skill sets to meet the challenges of the fast emerging clean energy industry. Singapore's aspiration to be a global clean energy hub has three key planks:

- **Promote wider adoption of clean energy among businesses**
- **Develop and test new clean energy technology**
- **Market clean energy products and services overseas**

By 2030, 80% of Singapore's buildings will be green. Singapore will continue to invest in the clean technology industry that will help green urban cities. This will contribute some $3.4 billion to Singapore's GDP and create 18,000 jobs by 2015.

You will acquire a solid foundation and practical skills in electrical engineering and renewable energy. You will also be equipped with other soft skills like management, accounting and communication, and core competencies in power distribution system design, industrial system control and energy management. Armed with this diploma, you can look forward to exciting and rewarding careers as clean energy technologists, facility management executives, or work in energy specialist firms as consultants or designers. You can also become an entrepreneur to tap on the growing potential of the clean energy industry.

PROGRAMME OBJECTIVES

The Diploma in Electrical Engineering and Clean Energy is a 3-year full-time programme that aims to equip students with the fundamental knowledge and specialised skills necessary to assist engineers and managers in:

- Designing, operating and maintaining of electrical services for buildings;
- Performing and supervising effectively the various electrical works on-site;
- Performing energy auditing works;
- Designing and commissioning grid-tied and stand-alone photovoltaic systems; and
- Conserving and optimising energy usage in buildings.

Students will undergo industrial attachment during the second semester in the third year of study, to put their skills into practice and gain experience before their graduation.

CAREER PROSPECTS

Graduates will be able to perform the following job roles:

- Assistant Engineer
- Clean Energy Technologist
- Clean Energy Designer
- Facility Management Executive
- Clean Energy Consultant
- Site Supervisor

ENTRY REQUIREMENTS

3 GCE 'O' LEVELS
a) English language - Grade 1 to 7;
b) Mathematics - Grade 1 to 6; and
c) A relevant subject - Grade 1 to 6; or
ITE Higher NITEC or GCE 'N' levels and NITEC with minimum GPA of 2.75 in a relevant discipline.

Students who have attempted GCE 'O' levels but do not meet the specified grade in English or Mathematics may apply to BCA Academy to take an English or Mathematics test for the Academy to assess their eligibility for admission.

Candidates with other academic qualifications and related experiences may be considered for admission on a case-by-case basis.

All new intake students are required to own a notebook with the following recommended specification and software:

- Intel Core Processor
- 8 GB RAM
- 64-bit Windows Operating System
- Microsoft Office
- Anti-virus software

ADDITIONAL QUALIFICATIONS AWARDED

Upon successful completion of the programme, graduates will also be awarded the following additional qualifications:

- Singapore Certified Energy Manager (Associate)*
- Certificate of Successful Completion in Internal Audit (QEHS) on Quality Management (ISO 9001), Environment Management Systems (ISO 14001) & Occupational Health and Safety Management Systems (OHSAS 18001)
- Certificate of Successful Completion in Green Mark Manager Course

* *Students are required to register themselves as members of the Institute of Engineers Singapore (IES) before they are issued the Singapore Certified Energy Manager or SCEM (Associate) certificate.*

PROGRAMME STRUCTURE

YEAR 1

DCS049 Building Technology
DDG812 Technical Drawings
DMT904 Mathematics 1
DMT905 Mathematics 2
DDG858 CAD
DGB273 Clean Energy Technology
DEE274 Electric Circuit Analysis 1
DEE275 Introduction to Electrical Power Systems
DEE837 Analogue Electronics
DCS028 Basic Engineering Mechanics
DPD877 Life Skills A
DPD878 Life Skills B
DIT821 Computer Programming
DEE276 Digital Electronics

YEAR 2

DPQ612 Management Systems for Construction
DPE223 Instrumentation & Control
DEE224 Electrical Power Distribution & Installation
DEE277 Electric Circuit Analysis 2
DEE278 Electrical Machines
DEE282 Power Electronics
DGB515 Renewable Energy Conversion & Storage systems
DAG516 ACMV Fundamentals
DGB617 Green Building Technology
DPR712 Project Management
DBU706 Elements of Business
DPD879 Management Skills A
DPD880 Management Skills B
DLW917 Basic Business Law
DIT845 Embedded Systems
DEM523 Building Envelope
DMT906 Mathematics 3

YEAR 3

DGB280 Design and Operation of PV Systems
DEE281 Modern Power Systems
DGB518 Renewable Energy Integration
DEM283 Green Mark Manager
DCM862 Technical Communications
DEM519 Energy Management & Economics
DEM520 Energy Audit & Measurements
DAC521 Management of ACMV
DME522 Motor Driven Systems
DBI864 BIM for M&E
DEE524 Lighting Systems
NEM272 Integrated Building Management Systems
DPH908 Physics
DFP911 Final Year Project
DFP912 Industrial Attachment

COURSE SYNOPSIS

DCS049 BUILDING TECHNOLOGY

This course provides students with an overview of the building construction methods and process. Students will be introduced to building construction system through the study of building elements such as foundation, floors, walls, roofs, staircases and ramps, doors and windows as well as surface finishes. The topic also covers basic site analysis and preparation works prior to the commencement of building construction works.

DDG812 TECHNICAL DRAWINGS

This course equips students with fundamental skill and knowledge of interpreting architectural and structural drawings. Students will learn the various technical symbols, abbreviations, scales, line-types used for drawing representation. They will be taught the techniques of drawing orthographic and isometric projection, construct the sectional view, plan view and elevation view, interpret architectural and structural drawings of building works.

DMT904 MATHEMATICS 1

This course covers topics including algebra, factors and factoring, quadratic equations, functions, graphs, trigonometry identities and equations, right triangles and vectors, linear equation, differentiation, exponents, logarithms, and complex numbers.

DMT905 MATHEMATICS 2

This course covers topics including integration, matrices, analytic geometry and quadratic system, series & binomial formula, infinite series, inequalities & linear programming and statistics.

DDG858 CAD

Students will be taught how to use computer aided design/drafting program to produce drawings for construction and detailing. Students should be able to generate architectural plans using 2D commands and drawing tools.

DGB273 CLEAN ENERGY TECHNOLOGY

This course provides working knowledge of the fundamental principles of renewable energy and associated technologies. It introduces various renewable energy resources (solar energy, nuclear energy, wind energy, hydropower, biomass, fuel cell etc.), the advantages & disadvantages of each energy resource as well as the characteristics of the various renewable energy technologies. Consideration is also given to engineering, economics, social, environment and political factors that determine implementation and sustainability. An introduction to carbon foot print trading and calculation is included.

DEE274 ELECTRIC CIRCUIT ANALYSIS 1

This course provides students with a

good foundation in electronics and electrical engineering study. It covers the characteristics of basic electronic circuit elements (resistor, capacitor and inductor), DC power supply, and laws & rules used in DC circuits, such as KVL, KCL, VDR, CDR, Nodal Analysis and Mesh Analysis. Network analysis theorems such as Thevenin theorem, Norton theorem and Superposition theorem will also be studied.

DEE275 INTRODUCTION TO ELECTRICAL POWER SYSTEMS

This course introduces the process of electricity generation, transmission, distribution and conversion. It also covers an overview of the electricity market/industry, the relevant local standards relating to electrical installations (CP5:1998), earthing (SS 551: 2009) and lightning protection (CP33: 1996). Students will also be familiarised themselves with the current local authorities'/vendors' submission requirements and procedures.

DEE837 ANALOGUE ELECTRONICS

This module starts with introducing the fundamental concepts of analogue electronic devices and circuits, leading to circuits involving diodes, BJT and MOSFET devices, small-signal, differential and multistage amplifiers. Students are also taught how to analyze frequency response and the use of Operational Amplifiers in circuits.

DCS028 BASIC ENGINEERING MECHANICS

This course provides the foundation for progression to mechanical services related course in the later years of study. Areas of study include forces, moments, couples, frameworks, motion in one-dimension, vectors, kinematics, the laws of motion, static equilibrium and other applications of Newton's laws.

DPD877 LIFE SKILLS A & DPD878 LIFE SKILLS B

This course aims to equip students with skills and techniques that could help them set personal goals in their lives, develop a healthy self esteem and project a positive and professional image. They will also learn to manage basic personal finance prudently and acquire critical thinking and problem-solving skills. The course is covered over two semester (Life Skills A in Semester 1 and Life Skills B in Semester 2).

DIT821 COMPUTER PROGRAMMING

The basic concepts of programming are taught using the C language. Students will have a lot of opportunities in writing software programme which will allow them to gain experience and confidence. This course includes the C foundation, input and output, flow control, loops, reading from data source and arrays. Students will learn how to apply their knowledge and skills to solve simple problems.

DEE831 DIGITAL ELECTRONICS

This course introduces binary logic and the various gates, such as OR, AND, NOR. It will cover truth tables, Boolean algebra as well as encoder and decoders. It will also include various electronics circuits, sequential and synchronous logic, as well as memory and storage. On top of that, it will include digital to analogue converters and vice versa. Students will also be introduced to the different components in microprocessors and understand how they work with one another.

DPQ612 MANAGEMENT SYSTEMS FOR CONSTRUCTION

This course will cover the concepts of productivity, environmental, safety, health management and quality, problem-solving skills, housekeeping, quality management (ISO 9001), quality control circles and construction quality management (structural and architectural). It also covers CONQUAS Standard (structural), ISO standards for construction industry and the auditing process, Environment Management Systems (ISO 14001), occupational health and safety management systems (OHSAS 18001), Buildability Design Appraisal System (BDAS)and some of the applicable legal requirements on environmental, safety and health.

DPE223 INSTRUMENTATION & CONTROL

This course covers the principles and application of direct digital control of industrial and building services. Starting with types of instruments and sensors, students will be taught theory of control systems and different controller modes, analysis of system performance and stability, leading to modern control applications such as Programmable Logic Control (PLC) and SCADA.

DEE224 ELECTRICAL POWER DISTRIBUTION AND INSTALLATION

In this course, students will gain basic knowledge in the design of electrical power distribution systems. Topics include construction, working principles and selection of power distribution equipments, such as power transformer, switchgear, switchboard, capacitor bank, emergency power supply; principles of lighting & final circuits; calculation used to select protective devices (fuses and circuit breakers) and estimate power & earthing cable sizes (based on CP5), as well as basic wiring & cable support systems. Protection against electric shock and short circuit along with the earthing systems (such as TT and TNS) will be covered. The new cable colour code for electrical installations will also be highlighted.

DEE277 ELECTRIC CIRCUIT ANALYSIS 2

This course covers electrical signals such as the sine wave with its mathematical representation and calculations of voltage, current, energy, AC powers (real, reactive, apparent) in AC circuit analysis Students will be taught power factor, resonance, complex impedance and transient response in first-order RC, RL and RCL circuits. Three phase circuits, concepts of power triangle and power factor correction will also be covered.

DEE278 ELECTRICAL MACHINES

This course introduces construction and working principles of some common electrical machines such as DC motor, induction motors, synchronous generators and stepper motors. Students will also learn basic concepts of electric

drive systems. Emphasis is given on system analysis and application. Topics include three-phase system, four quadrants operation, DC machine control, variable frequency operation of induction and synchronous machines.

DEE282 POWER ELECTRONICS

This course first provides students with elementary concepts in analogue electronic devices and circuits which cover the device characteristics, operating principles and common applications of diodes, transistors and operational amplifiers. Then the principles of operation and analysis of power electronic converters in energy conversion, utility applications and power supplies are covered. Examples of these conversion circuits include AC to DC converters, DC to DC converters, DC to AC converters, and AC power controllers.

DGB515 RENEWABLE ENERGY CONVERSION AND STORAGE SYSTEMS

This course introduces the different energy conversion processes in renewable energy systems such as in the wind electric conversion systems, photovoltaic systems (PV) and systems utilizing biomass in various forms, including fuel cells. Energy storage systems such as the flywheel energy storage, thermal energy storage, super capacitors and rechargeable batteries will be covered. Students are also taught fundamental concepts of distributed generation technology, its working principle and benefits.

DAG516 ACMV FUNDAMENTALS

This course prepares students for the SCEM (Associate) requirements. Students will be taught the fundamental working principles of the airconditioning and mechanical ventilation (ACM V) systems. Coverage will include the working principles and types of common ACMV systems, functions of components of the systems, psychrometry and load estimation.

DGB617 GREEN BUILDING TECHNOLOGY

This course covers the principles of major green building design including water harvesting systems, waste management systems, renewable energy systems and energy efficient systems.

DPR712 PROJECT MANAGEMENT

This course covers the fundamental concepts of project management, identifying the broad project management knowledge. Students introduced the management of project scope, time, cost, risk, quality, safety, human resources, communications and management of externalities. They will learn the importance of site organization and management, and ways to set up an effective and efficient site. Students will also understand the role of IT and learn how to use Microsoft Project software to do project planning and scheduling.

DBU706 ELEMENTS OF BUSINESS

This course equips students with knowledge on how to start a business. Students will have had the opportunity to distinguish between businessman entrepreneurs; perform economic analysis and break-even analysis. Students will also learn to appreciate the basics of starting a simple technopreneur business and identify the issues and challenges of start-ups.

DPD879 MANAGEMENT SKILLS A & DPD880 MANAGEMENT SKILLS B

This course equips students with human resource skills and knowledge vital for future supervisors and managers. Students will also learn about negotiation skills, business finance and work ethics to prepare them for success in the workplace. This course is covered over two semesters (Management Skills A in Semester 1 and Management Skills B in Semester 2).

DLW917 BASIC BUSINESS LAW

This course introduces students to Singapore business law and is aimed at students without law background and not pursuing a programme in law. Students will gain an appreciation of the legal issues which they will encounter in the real world when they enter the workforce. It will cover the basic concepts of law and Singapore's legal system including business entities, company law, the law of contract, commercial law, construction law, property law, torts in business and international business transactions.

DIT845 EMBEDDED SYSTEMS

This course introduces students to the concepts and components involved in Embedded Systems. It teaches the different types of device drivers and interrupts handling. It also teaches concepts related to embedded operating systems, which includes process management, scheduling, memory management, and I/O management. It also includes networking, error handling and debugging. Students will be taught how to write embedded software and device drivers. They will be given many opportunities to practice writing the software to ensure they gain enough experience and confidence in this area.

DEM523 BUILDING ENVELOPE

This course covers topics on the fundamentals of building envelope and the subsystems which affect the performance of building envelope. Students will be able to compute the Envelope Thermal Transfer Value (ETTV) and discuss the significance of ETTV on efficient building design.

DGB280 DESIGN AND OPERATION OF PV SYSTEMS

This is an in-depth clean energy course which covers aspects of planning, installation, maintenance and monitoring of safe and quality PV systems. Emphasis will be placed on BIPV system. Design considerations such as site analysis, system sizing, component selection and specification as well as quality management and troubleshooting during operation will be highlighted.

DEE281 MODERN POWER SYSTEMS

This course gives students an overview of modern power systems. It reviews the basic concepts used in power

COURSE SYNOPSIS

system analysis, such as phasors, complex power, three phase systems and per-unit methodology. It also covers topics such as co-gen, microgrid, Distributed Generation (DG), Tri-gen, network operation with embedded generators and power quality issues.

DGB518 RENEWABLE ENERGY INTEGRATION

This course provides the fundamental knowledge on the operation principles of various clean energy systems, focusing on integrating clean energy technologies, distributed generation, energy storage, thermally activated technologies, and demand response into the electrical distribution and transmission system. Interconnection requirements (such as DC injection, harmonics, etc) will be discussed.

DEM283 GREEN MARK MANAGER

This course covers the scoring criteria for the Singapore's Green Mark standard. Students will apply what they learn to propose building design so as to achieve certain Green Mark standards.

DCM862 TECHNICAL COMMUNICATIONS

This course teaches students the use of effective words and techniques in writing technical reports, academic reports, minutes of meetings and memorandums. Students will also learn how to use effective visual aids and master the skills involved to plan and deliver powerful presentations. Lastly, they will be prepared on how to write their CV for their coming job interviews.

DEM519 ENERGY MANAGEMENT & ECONOMICS

This course will equip students with the knowledge to devise an energy management program and perform financial analysis to evaluate the economic benefits of energy conservation options.

DEM520 ENERGY AUDIT & MEASUREMENTS

This course covers the steps involved in the various levels of energy audit from walk-through audit to detailed energy audit; and to assess the energy performance of a building.

DAC521 MANAGEMENT OF ACMV

This course will equip students with the knowledge to explain the function and operations of Air Conditioning and Mechanical Ventilation (ACMV) systems, discuss the relationship between ACMV and Indoor Air Quality (IAQ), and suggest the energy saving potential of ACMV systems.

DME522 MOTOR DRIVEN SYSTEMS

This course will equip students with the knowledge on different types of motor driven systems and its applications. The students would be able to calculate the motor efficiency and describe the variable speed control techniques used for optimizing the operations.

DBI864 BIM FOR M&E

In this course, students will be exposed to Building Information Modelling (BIM) for the design and modelling of Mechanical, Electrical and Plumbing (MEP) systems for buildings. Students will be taught how to use the architectural and structural models to generate report which they will use to design and model the MEP for buildings.

DEE524 LIGHTING SYSTEMS

This course introduces students the factors that affect lighting system performance. Students will be able to apply basic principles to design energy efficient lighting systems for specific building types. Students will also be able to analyse factors which could reduce the lighting energy consumption.

NEM272 INTEGRATED BUILDING MANAGEMENT SYSTEMS

This course introduces the working principles, design and implementation of various sensors, transducers and actuators used in a building automation system. Coverage will include the different types of controls used in building automation systems; and how the sensors and actuators are interfaced with the controllers to manage intelligent Building Systems and Green building designs.

DMT906 MATHEMATICS 3

This elective course provides students with further knowledge in mathematics to handle engineering problems encountered in their course of study. Among the topics covered is integration leading to inverse trigonometric and logarithmic functions, methods of integration, Simpson's Rule, partial differentiation, differential equations and Laplace transforms. This course is a continuation of Engineering Mathematics 2.

DPH908 PHYSICS

This elective course provides students with knowledge in physics to handle engineering problems encountered in their course of study. The students will be able to determine external forces in two dimensions; describe linear, rotational and relative motion; apply Newton's law, law of thermodynamics and fluids, solve problems involving forces, work and energy using the knowledge of kinematics and kinetics, basic concept of electric and magnetic fields, electric potential, electromotive force, work and energy, properties of basic electrical circuits.

FURTHER STUDIES

Graduate of the Diploma in Electrical Engineering and Clean Energy may choose to further their studies at the following universities:

- UNIVERSITY OF TECHNOLOGY, SYDNEY
  Bachelor of Construction Project Management
- UNIVERSITY OF NEWCASTLE, AUSTRALIA
  Bachelor of Construction Management

Diploma in **FACILITIES MANAGEMENT**

Global concerns on environmental issues have resulted in a global movement towards sustainable environment and green buildings. Expertise and technical skills on the efficient and effective use of resources are required from facilities managers.

The Diploma in Facilities Management encompasses a wide range of technical and functional subjects from event planning and marketing and technical facilities management through to business continuity and green building technology.

PROGRAMME OBJECTIVES

The programme aims to equip students with the fundamental knowledge and specialised skills necessary to:

- Formulate and implement strategic facilities management and maintenance policies to achieve efficient resource utilisation;
- Create an environment that meets human physiological needs;
- Formulate and implement practices to achieve high level of environmental sustainability
- Plan, manage and market events; and
- Apply management and financial know-how of business to the industry.

Students will undergo industrial attachment programme to put their skills into practice and gain experience before graduation.

CAREER PROSPECTS

Graduates will be able to perform the following job roles:

- Assistant Facilities Manager
- Associate Energy Manager
- Technical Specialist
- Event Organiser
- Site Supervisor

Graduates of this programme will have an edge over other event organizers, as they will be equipped with the added technical knowledge of the operations and maintenance of building facilities.

ENTRY REQUIREMENTS

3 GCE 'O' LEVELS
a) English language - Grade 1 to 7;
b) Mathematics - Grade 1 to 6; and
c) A relevant subject - Grade 1 to 6; or
ITE Higher NITEC or GCE 'N' levels and NITEC with minimum GPA of 2.75 in a relevant discipline.

Students who have attempted GCE 'O' levels but do not meet the specified grade in English or Mathematics may apply to BCA Academy to take an English or Mathematics test for the Academy to assess their eligibility for admission.

Candidates with other academic qualifications and related experiences may be considered for admission on a case-by-case basis.

All new intake students are required to own a notebook with the following recommended specification and software:

- Intel Core Processor
- 8 GB RAM
- 64-bit Windows Operating System
- Microsoft Office
- Anti-virus software

ADDITIONAL QUALIFICATIONS AWARDED

Upon successful completion of the programme, graduates will also be awarded the following additional qualifications:

- Singapore Certified Energy Manager (Associate)*
- Certificate of Successful Completion in Fire Safety Manager Course
- Certificate of Successful Completion in Internal Audit (QEHS) on Quality Management (ISO 9001), Environment Management Systems (ISO 14001) & Occupational Health and Safety Management Systems (OHSAS 18001)

* *Students are required to register themselves as members of the Institute of Engineers Singapore (IES) before they are issued the Singapore Certified Energy Manager or SCEM (Associate) certificate.*

PROGRAMME STRUCTURE

YEAR 1

DCS046 Building Materials
DCS049 Building Technology
DDG812 Technical drawings
DLA119 Conservancy Practices
DME262 Mechanical Services
DFM425 Strategic Facilities Management
DMS510 Event Planning & Management
DPD877 Life Skills A
DPD878 Life Skills B
DST916 Statistics for Management
DLW917 Basic Business Law
DBI859 BIM for Architecture
DIT852 Information & Communication Technology

YEAR 2

DPQ612 Management Systems for Construction
DEE263 Electrical & Communication Services
DAR412 Environmental Ergonomics
DPC419 Procurement Management
DCE420 Cost Management
DMS511 Event Marketing & Customer Service
DAC516 ACMV Fundamentals
DGB617 Green Building Technology
DLW408 Facilities Management Law
DBU706 Elements of Business
DPD879 Management Skills A
DPD880 Management Skills B
DIT826 Database Management
DIT827 Software Engineering and Web Application

YEAR 3

DGB271 Green Building Operation
DFR413 Fire Safety Management
DFM424 Green Mark FM
DMS512 Event Service Management
DRM707 Risk Management & Business Continuity
DCM862 Technical Communications
DEM519 Energy Mgmt & Economics
DEM520 Energy Audit & Measurements
DAC521 Management of ACMV
DME522 Motor Driven Systems
DEM523 Building Envelope
DEE524 Lighting Systems
DBI873 BIM FM
DAR131 Building Regulations
DFP911 Final Year Project
DFP912 Industrial Attachment

COURSE SYNOPSIS

DCS046 BUILDING MATERIALS
Students will learn the basics of core materials used in building and civil engineering works and the typical finishes and components used in different types of building.

DCS049 BUILDING TECHNOLOGY
This course provides students with an overview of the building construction methods and process. Students will be introduced to building construction system through the study of building elements such as foundation, floors, walls, roofs, staircases and ramps, doors and windows as well as surface finishes. The topic also covers basic site analysis and preparation works prior to the commencement of building construction works.

DDG812 TECHNICAL DRAWINGS
This course covers fundamental knowledge and skill of interpreting construction drawings and specifications. Topics include technical, architectural and reinforced concrete drawings. Students will also be introduced essential points in writing good specifications for building works.

DLA119 CONSERVANCY PRACTICES
This course provides students with a broad understanding of conservancy practices which include landscaping, cleaning, waste management, pest control, water management, security, general building maintenance, janitorial services, green materials selection, asset condition assessment and survey methods.

DME262 MECHANICAL SERVICES
This course is designed to provide students with a fundamental understanding of mechanical building services with particular focus on their operation and maintenance. Building services covered includes plumbing (hot and cold water supply), swimming pool system, waste, sewerage and gas systems, fire protection system, lightning protection system, lifts and escalators, mechanical ventilation and airconditioning systems. Students will be taught the necessary trouble shooting techniques and use of basic tools and equipment for such purpose.

DFM425 STRATEGIC FACILITIES MANAGEMENT
Students will be given a broad understanding of how facilities management applies to organisations. The course will focus on the development and formulation of strategy for success in managing the built environment. They will learn how to use the critical success factors in formulating the strategy.

DMS510 EVENT PLANNING & MANAGEMENT
Students will be given a broad

understanding of the processes and practices relating to planning, managing and staging of events with the emphasis on event related operations at the facilities they are managing. Students will learn the importance of pre-event preparation, on-site management and post-event requirements while working within an over arching time frame.

DPD877 LIFE SKILLS A & DPD878 LIFE SKILLS B

This course aims to equip students with skills and techniques that could help them set personal goals in their lives, develop a healthy self esteem and project a positive and professional image. They will also learn to manage basic personal finance prudently and acquire critical thinking and problemsolving skills. The course is covered over two semester (Life Skills A in Semester 1 and Life Skills B in Semester 2).

DST916 STATISTICS FOR MANAGEMENT

This course is designed to provide students with an understanding of statistical concepts and techniques. Students will be taught to analyse data by applying statistics to generate information for decision making. Topics covered include data exploration and summary, descriptive statistics, probability distributions, sampling distributions, interval estimation, hypothesis testing, ANOVA, linear regression and correlation.

DLW917 BASIC BUSINESS LAW

This course introduces students to Singapore business law and is aimed at students without law background and not pursuing a programme in law. Students will gain an appreciation of the legal issues which they will encounter in the real world when they enter the workforce. It will cover the basic concepts of law and Singapore's legal system including business entities, company law, the law of contract, commercial law, construction law, property law, torts in business and international business transactions.

DBI 859 BIM FOR ARCHITECTURE

This course introduces Building Information Modelling (BIM) concepts and terminology. Students will also learn how to create BIM Architectural models using components such as floors, walls, ceiling, doors and windows.

DIT852 INFORMATION AND COMMUNICATION TECHNOLOGY

This course provides a broad understanding of hardware and software components used in the facilities management industry. It includes the concepts of computing systems, operating systems,networking, information processing, communication, internet and system development. A overview of the IT trends, security, crime and ethics will also be covered.

DPQ612 MANAGEMENT SYSTEMS FOR CONSTRUCTION

This course will cover the concepts of productivity, environmental, safety, health management and quality. problem-solving skills, housekeeping, quality management (ISO 9001) and quality control circles and construction quality management (structural and architectural). It also covers CO NQUAS Standard (structural), ISO standards for construction industry and the auditing process, Environment Management Systems (ISO 14001), occupational health and safety management systems (OHSAS 18001), Buildability Design Appraisal System (BDAS) and some of the applicable legal requirements on environmental, safety and health.

DEE263 ELECTRICAL & COMMUNICATION SERVICES

Students will learn electrical building services including the LT and HT electrical system, lighting, building automation system, generator, security and surveillance system, DECAM , EBOPS, UPS, local data, voice and video cabling, leased lines, satellite communication devices, audio and video equipment for events. Students will be taught the selection, setting up and operation of audio, video and other equipment typically required in different types of event. Students will also be taught to describe working principles and proper installation, operation and maintenance methods.

DAR412 ENVIRONMENTAL ERGONOMICS

Students are taught that environmental factors within a facility play an important role in ensuring comfort and efficiency in task performance for its users and visitors. High indoor temperature, poor air circulation, high humidity, disturbing noise levels, inadequate or too bright lighting, foul smelling rooms, highly reflective work surface etc are factors that could occur in cases of bad planning. Students will be taught the methods of identifying, measurement and prevention but in cases of bad planning, possible solutions to the problems.

DPC419 PROCUREMENT MANAGEMENT

This course introduces the various procurement methods in the construction industry: traditional, design and build, management procurement and collaborative procurement such as partnering and public private partnership. It also covers the differences in private versus public sector procurement practices, basic risk management methods for different projects and client profiles, and the different tendering methods used. The students will also be taught the contract administration stages of the procurement process, as well as the concept of green procurement in setting evaluation criteria during the procurement process.

DCE420 COST MANAGEMENT

This course teaches students the

techniques and strategies in procuring the supplies, services and works required in the design, construction, management, operation and maintenance of facilities. Based on documents commonly used in the industry and good industry practices, students will be taught on how to manage the procurement process and resulting contracts.

DMS511 EVENT MARKETING & CUSTOMER SERVICE

Students will be taught how to design and develop marketing strategies and plans to capture marketing insights and understand their prospective clients' needs and wants. Once the prospective clients have become customers, this course builds on maintaining the relationship with the aim of gaining their loyalty and continuing business with the organisation. In the marketing management course, students will be taught environment and market analysis which include market segmentation, positioning, customer satisfaction and value creation as the basis for successful market development as well as the marketing mix management of the 4 "Ps". In the customer relationship management (CRM) course, students will be taught the different aspects of analytical and operational CRM, their interrelationship and formulation of strategies. Finally, through the CRM approach, students will be given a broad understanding of how the 2 courses can be integrated into a sound customer focused strategy.

DAC516 ACMV FUNDAMENTALS

This course prepares students for the SCEM (Associate) requirements. Students will be taught the fundamental working principles of the air-conditioning and mechanical ventilation (ACM V) systems. Coverage will include the working principles and types of common ACM V systems, functions of components of the systems, psychrometry and load estimation.

DGB617 GREEN BUILDING TECHNOLOGY

This course covers the principles of major green building design including water harvesting systems, waste management systems, renewable energy systems and energy efficient systems.

DLW408 FACILITIES MANAGEMENT LAW

This course introduces students to Property Law, Property Management and law of tort. It will also cover contracts and mediation and relevant laws for events.

DBU706 ELEMENTS OF BUSINESS

This course equips students with knowledge on how to start a business. Students will have had the opportunity to distinguish between businessman entrepreneurs; perform economic analysis and breakeven analysis. Students will also learn to appreciate the basics of starting a simple technopreneur business and identify the issues and challenges of start-ups.

DPD879 MANAGEMENT SKILLS A & DPD880 MANAGEMENT SKILLS B

This course equips students with human resource skills and knowledge vital for future supervisors and managers. Students will learn about supervisory, negotiation skills, ethics and accounting skills to prepare them for success in the workplace. This course covered over two semesters (Management Skills A in Semester 1 and Management Skills B in Semester 2).

DIT826 DATABASE MANAGEMENT

This course adopt a practical approach to understanding the importance of database technologies in managing data. Students will learn the different components in a relational database system. They will also learn the techniques of designing, creating as well as strategies to maintain the currency, accuracy and security of the data within these databases.

DIT827 SOFTWARE ENGINEERING & WEB APPLICATION

Students will learn about the details of the software development life cycle and will use the tools available to manage a software project together with quality and configuration management issues. In conjunction with knowledge from the Database Management System course, students will also use their skills and knowledge to manage and develop a fictitious facilities management related project. This facilities management related project is designed to simulate real world requirements from getting users' requirements, analysis of data collected, design, recommendation, presentation, demonstration and implementation.

DGB271 GREEN BUILDING OPERATION

Students will learn about the operations and maintenance of green building systems which include solar thermal and photovoltaic, displacement ventilation, wind turbine, thermal storage and district cooling, co-ten and tri-gen, rainwater harvesting, vertical greenery and pneumatic waste collection systems.

DFR413 FIRE SAFETY MANAGEMENT

Students will be taught various fire safety requirements and measures to enable them to undertake the role of a Fire Safety Manager. Topics covered include fire protection systems and maintenance, fundamentals of fire safety design, basic fireman-ship case studies and practical sessions.

DFM424 GREEN MARK FM

This course introduces the Singapore's Green Mark (Facilities35 Management) initiatives and covers in details the scoring criteria for the Singapore's Green Mark Manager (Facilities Management) standard.

COURSE SYNOPSIS

DMS512 EVENT SERVICE MANAGEMENT
Students will be given a broad understanding of the sales process and successful account management within the events industry. Students are taught the alignment and integration of marketing and sales as well as incorporating different sales technique into their selling strategy for both the event and the facilities they manage. Students will gain insights to prospecting and generating successive sales from a customer, building relationships and evaluating the performance of the sales function.

DRM707 RISK MANAGEMENT & BUSINESS CONTINUITY
This course teaches students the structured approach in managing and dealing with uncertainties that threaten the function and operation of the facilities management organisation, its clients' businesses and any event being planned. Topics covered include contingency planning and process, project initiation and management, conducting a business impact analysis, selecting a recovery strategy, developing recovery plans, exercising and maintaining the plan and devising a Disaster Recovery Plan.

DCM862 TECHNICAL COMMUNICATIONS
This course teaches students the use of effective words and techniques in writing technical reports, academic reports, minutes of meetings and memorandums. Students will also learn how to use effective visual aids and master the skills involved to plan and deliver powerful presentations. Lastly, they will be prepared on how to write their CV for their coming job interviews.

DEM519 ENERGY MANAGEMENT & ECONOMICS
This course will equip students with the knowledge to devise an energy management program and perform financial analysis to evaluate the economic benefits of energy conservation options.

DEM520 ENERGY AUDIT & MEASUREMENTS
This course covers the steps involved in the various levels of energy audit from walkthrough audit to detailed energy audit; and to assess the energy performance of a building.

DAC521 MANAGEMENT OF ACMV
This course covers the working principles of air-conditioning systems, strategies to save energy in the operation of such systems, and means improve air quality of the indoor environment.

DME522 MOTOR DRIVEN SYSTEMS
This course will equip students with the knowledge on different types of motor driven systems and its applications. The students would be able to calculate the motor efficiency and describe the variable speed control techniques used for optimizing the operations.

DEM523 BUILDING ENVELOPE
This course covers topics on the fundamentals of building envelope and the subsystems which affect the performance of building envelope. Students will be able to compute the Envelope Thermal Transfer Value (ETTV) and discuss the significance of ETTV on efficient building design.

DEE524 LIGHTING SYSTEMS
This course introduces students the factors that affect lighting system performance. Students will be able to apply basic principles to design energy efficient lighting systems for specific building types. Students will also be able to analyse factors which could reduce the lighting energy consumption.

DBI873 BIM FM
Significant benefits can be harvested from BIM models throughout the lifecycle of a building including facility management (FM). This module introduces the concept and information requirements for BIM applications in FM, the approach as well as BIM-based FM software. Topics on what BIM means for facility managers, how to link existing FM system to BIM models and build facility data inventories would be discussed. Other topics include managing facility information graphically and evaluating building operation data based on BIM models.

DAR131 BUILDING REGULATIONS
This course introduces students to various regulatory requirements, building regulations and building control system. It develops competency in students to prepare and complete statutory documents for the purpose of statutory submissions.

FURTHER STUDIES
Graduates of the Diploma in Facilities Management may choose to further their studies at these universities:

- CURTIN UNIVERSITY OF TECHNOLOGY, AUSTRALIA
  Bachelor of Applied Science (Construction Management and Economics)
- UNIVERSITY OF TECHNOLOGY, SYDNEY
  Bachelor of Construction Project Management
- UNIVERSITY OF NEWCASTLE, AUSTRALIA
  Bachelor of Construction Management

Diploma in **MECHANICAL ENGINEERING** (Green Building Technology)

The active push for Singapore buildings to be green has generated a strong demand for a new "green collar" workforce. This has created an urgent need for associate professionals with the knowledge and skills to apply the latest knowledge in green building technology (GBT) and mechanical services to design, maintain and manage green buildings.

The Diploma in Mechanical Engineering (Green Building Technology) builds on the core of a mechanical engineering programme with an emphasis on GBT. GBT increases the efficiency in the use of building resources such as energy, water and building materials while reducing the impact they have on human health and the environment.

PROGRAMME OBJECTIVES

The programme aims to train students in the design and construction of energy-efficient M&E (mechanical & electrical) building services. In the first two years of study, a strong technical foundation will be laid while courses in GBT will be built upon in the third year.

Students will be equipped with fundamental knowledge and specialised skills that enable them to:

- Supervise M&E works effectively
- Contribute to an organisation's execution of environmental and quality programmes;
- Contribute to the design, fabrication, modification and commissioning of green facilities;
- Contribute in the operation and management of services related to green facilities;
- Keep abreast of M&E green building technologies in the industry; and
- Apply management and financial know-how of business to the industry.

Students will undergo an industrial attachment programme to put their skills into practice and gain experience before graduation.

CAREER PROSPECTS

Upon successful completion of the programme, graduates have the potential to become the new generation of specialists in the niche area of sustainability development. Graduates will be able to perform the following job roles:

- Assistant Engineer
- Site Supervisor
- Technical Specialist
- Associate Energy Manager
- Assistant Facilities Manager

ENTRY REQUIREMENTS

3 GCE 'O' LEVELS
a) English language- Grade 1 to 7;
b) Mathematics - Grade 1 to 6; and
c) A relevant subject - Grade 1 to 6; or
ITE Higher NITEC or GCE 'N' levels and NITEC with a minimum GPA of 2.75 in a relevant discipline.

Students who have attempted GCE 'O' levels but do not meet the specified grade in English or Mathematics may apply to BCA Academy to take an English or Mathematics test for the Academy to assess their eligibility for admission.

Candidates with other academic qualifications and related experiences may be considered for admission on a case-by-case basis.

All new intake students are required to own a notebook with the following recommended specification and software:

- Intel Core Processor
- 8 GB RAM
- 64-bit Windows Operating System
- Microsoft Office
- Anti-virus software

ADDITIONAL QUALIFICATIONS AWARDED

Upon successful completion of the programme, graduates will also be awarded the following additional qualifications:

- Singapore Certified Energy Manager (Associate)*
- Certificate of Successful Completion in Green Mark Manager Course
- Certificate of Successful Completion in Fire Safety Manager Course
- Certificate of Successful Completion in Gas Technology Course

* *Students are required to register themselves as members of the Institute of Engineers Singapore (IES) before they are issued the Singapore Certified Energy Manager or SCEM (Associate) certificate.*

PROGRAMME STRUCTURE

YEAR 1

DCS028 Basic Engineering Mechanics
DDG858 CAD
DEE219 Electrical Technology & Machines
DLW917 Basic Business Law
DME209 Fluid Mechanics
DME220 Thermodynamics
DPD877 Life Skills A
DPD878 Life Skills B
DPS226 Plumbing Technology
DCS049 Building Technology
PDG812 Technical Drawings
PMT904 Mathematics 1
PMT905 Mathematics 2

YEAR 2

DAC221 ACMV Technology 1
DBI864 BIM for M&E
DCE420 Cost Management
DCS058 Advanced Engineering Mechanics
DEE224 Electrical Power Distribution & Installation
DFR225 Fire Technology
DGB284 Clean Energy Fundamentals
DGB617 Green Building Technology
DIT821 Computer Programming
DME227 Lift Technology
DPC419 Procurement Management
DPD879 Management Skills A
DPD880 Management Skills B
DPE223 Instrumentation & Controls
DPR712 Project Management
PMT906 Mathematics 3

YEAR 3

DAC222 ACMV Technology 2
DCM862 Technical Communications
DCS029 Strength of Materials
DEE524 Lighting Systems
DEM283 Green Mark Manager
DEM519 Energy Management & Economics
DEM520 Energy Audit & Measurements
DEM616 Passive Design Strategies & Energy Modelling
DFM423 Facilities Management & Operations
DFR413 Fire Safety Management
DME522 Motor Driven Systems
DME526 Gas Technology
DPH908 Physics
DFP911 Final Year Project
DFP912 Industrial Attachment

COURSE SYNOPSIS

DCS028 BASIC ENGINEERING MECHANICS

This course provides the foundation for progression to mechanical services related course in the later years of study. Areas of study include forces, moments, couples, frameworks, motion in one-dimension, vectors, kinematics, the laws of motion, static equilibrium and other applications of Newton's laws.

DDG858 CAD

Students will be taught how to use computer aided design/drafting program to produce drawings for construction and detailing. Students should be able to generate architectural plans using 2D commands and drawing tools.

DCS049 BUILDING TECHNOLOGY

This course provides students with an overview of the building construction methods and process. Students will be introduced to building construction system through the study of building elements such as foundation, floors, walls, roofs, staircases and ramps, doors and windows as well as surface finishes. The topic also covers basic site analysis and preparation works prior to the commencement of building construction works.

PDG812 TECHNICAL DRAWINGS

This course equips students with fundamental skill and knowledge of interpreting architectural and structural drawings. Students will learn the various technical symbols, abbreviations, scales, line-types used for drawing representation. They will be taught the techniques of drawing orthographic and isometric projection, construct the sectional view, plan view and elevation view, interpret architectural and structural drawings of building works.

PMT904 MATHEMATICS 1

This course covers topics including algebra, factors and factoring, quadratic equations, functions, graphs, trigonometry identities and equations, right triangles and vectors, linear equation, differentiation, exponents, logarithms, and complex numbers.

PMT905 MATHEMATICS 2

This course covers topics including integration, matrices, analytic geometry and quadratic system, series & binomial formula, infinite series, inequalities & linear programming and statistics.

DEE219 ELECTRICAL TECHNOLOGY & MACHINES

This course imparts students with the technical knowledge in the proper selection, application and maintenance of transformers and electrical machines used in buildings and industry. It covers topics on the fundamental principles of DC circuits, AC circuits, analogue electronics, digital electronics, transformers, DC machines and AC machines.

COURSE SYNOPSIS

DME209 FLUID MECHANICS
This course covers basic principles and concepts of fluid mechanics. Topics include fluid properties, pressure measurement, hydrostatic force, buoyancy and Bernoulli's theory and pump selection. Students will also be introduced to the application of Bernoulli's equation on flow measurement and piping system design.

DME220 THERMODYNAMICS
This course introduces the basic principles and engineering applications of thermodynamics to students. Major topics include thermodynamic systems and processes, thermodynamic properties, steam tables, ideal gas equations, heat and work transfers, zeroth, first and second Laws of Thermodynamics, concepts of reversibility and energy reservoirs, heat engines, heat pumps and refrigeration cycles, Carnot and vapour compression cycles, refrigeration, heat transfer and simple psychrometry.

DPS226 PLUMBING TECHNOLOGY
This course enables students to carry out system design for water supply, sanitary and gas systems in buildings. Topics include the selection and sizing of tanks, pipes and pumps for water supply systems; drainlines, stacks and inspection chambers for sanitary systems; and the design criteria for gas supply systems.

DPD877 LIFE SKILLS A & DPD878 LIFE SKILLS B
This course aims to equip students with skills and techniques that could help them set personal goals in their lives, develop a healthy self esteem and project a positive and professional image. They will also learn to manage basic personal finance prudently and acquire critical thinking and problem-solving skills. The course is covered over two semester (Life Skills A in Semester 1 and Life Skills B in Semester 2).

DLW917 BASIC BUSINESS LAW
This course introduces students to Singapore business law and is aimed at students without law background and not pursuing a programme in law. Students will gain an appreciation of the legal issues which they will encounter in the real world when they enter the workforce. It will cover the basic concepts of law and Singapore's legal system including business entities, company law, the law of contract, commercial law, construction law, property law, torts in business and international business transactions.

DPE223 INSTRUMENTATION & CONTROL
This course covers the principles and application of direct digital control of industrial and building services. Starting with types of instruments and sensors, students will be taught theory of control systems and different controller modes, analysis of system performance and stability, leading to modern control applications such as Programmable Logic Control (PLC) and SCA DA.

DEE224 ELECTRICAL POWER DISTRIBUTION AND INSTALLATION
In this course, students will gain basic knowledge in the design of electrical power distribution systems. Topics include construction, working principles and selection of power distribution equipments, such as power transformer, switchgear, switchboard, capacitor bank, emergency power supply; principles of lighting & final circuits; calculation used to select protective devices (fuses and circuit breakers) and estimate power & earthing cable sizes (based on CP5), as well as basic wiring & cable support systems. Protection against electric shock and short circuit along with the earthing systems (such as TT and TNS) will be covered. The new cable colour code for electrical installations will also be highlighted.

DME227 LIFT TECHNOLOGY
This course provides students with the fundamental knowledge on the design, operation, installation and maintenance of lifts and escalators for residential, commercial and industrial buildings. Upon completion of the course, students would have developed basic understanding on design concepts, working principles, key components and installation methods.

DGB284 CLEAN ENERGY FUNDA MENTALS
This course provides working knowledge of the fundamental principles of solar energy and wind energy. An introduction to carbon foot print trading and calculation is included.

DCS058 ADVANCED ENGINEERING MECHANICS
This course is a continuation of basic engineering mechanics. The areas of study include kinetics, stress and strain, bending moments and torsion. It also provides a short recollection of what had been learnt in basic engineering mechanics.

DAC221 ACMV TECHNOLOGY 1
This course covers the concepts and principles in the design of building air-conditioning systems. Topics include psychrometry, types and components of air-conditioning systems, estimation of cooling load and sizing of ducting systems. Students will also be introduced to the principles of good indoor environmental quality design.

DFR225 FIRE TECHNOLOGY
This course covers both active and passive fire protection systems in buildings. In passive fire protection, compartmentation, means of escape and its protection are covered. In active fire protection, the various mechanical and electrical fire protection systems, e.g. fire alarm, fire

extinguishers, wet/dry risers, sprinkler systems are covered. This course also provides students with the technical knowledge and problem solving skills to face the many challenges encountered by professionals involved in the design, installations and maintenance of fire protection systems in buildings.

DPC419 PROCUREMENT MANAGEMENT
This course introduces the various procurement methods in the construction industry: traditional, design and build, management procurement and collaborative procurement such as partnering and public private partnership. It also covers the differences in private versus public sector procurement practices, basic risk management methods for different projects and client profiles, and the different tendering methods used. The students will also be taught the contract administration stages of the procurement process, as well as the concept of green procurement in setting evaluation criteria during the procurement process.

DCE420 COST MANAGEMENT
This course teaches students the techniques in establishing the cost of supplies, services and works required in the design, construction, management, operation and maintenance of the built environment.

DGB617 GREEN BUILDING TECHNOLOGY
This course covers the principles of major green building design including water harvesting systems, waste management systems, renewable energy systems and energy efficient systems.

DPR712 PROJECT MANAGEMENT
This course covers the fundamental concepts of project management. Students will be introduced the management of project scope, time, cost, quality, effective site organization, human resources, risk,communication, documentation and handing over. Students will also understand the role of IT and learn how to use Microsoft Project software to do project planning and scheduling.

DPD879 MANAGEMENT SKILLS A & DPD880 MANAGEMENT SKILLS B
This course aims to equip students with skills and techniques that could help them set personal goals in their lives, develop a healthy self esteem and project a positive and professional image. They will also learn to manage basic personal finance prudently and acquire critical thinking and problem-solving skills. The course is covered over two semester (Life Skills A in Semester 1 and Life Skills B in Semester 2).

DIT821 COMPUTER PROGRAMMING
The basic concepts of programming are taught using the C language. Students will have a lot of opportunities in writing software programme which will allow them to gain experience and confidence. This course includes the C foundation, input and output, flow control, loops, reading from data source and arrays. Students will learn how to apply their knowledge and skills to solve simple problems.

DBI864 BIM FOR M&E
In this course, students will be exposed to Building Information Modelling (BIM) for the design and modelling of Mechanical, Electrical and Plumbing (MEP) systems for buildings. Students will be taught how to use the architectural and structural models to generate report which they will use to design and model the MEP for buildings.

DCS029 STRENGTH OF MATERIALS
This course covers the concept of Hooke's Law, the relationship of stress and strain. It enables students to indentify different type of stresses and strains, and their applications. The course also includes bending moment and drawing of Mohr's stress and strain circles to find measured stress and strain.

DAC222 ACMV TECHNOLOGY 2
This course covers the concepts and principles in the design and selection of building airconditioning and ventilation systems. Topics include mechanical ventilation system, system selection, envelope thermal transfer value (ETTV), indoor air quality, and operation of energy efficient system. Students will also be introduced to the principles of good indoor air quality control and operation of energy efficient system.

DEM283 GREEN MARK MANAGER
This course covers the scoring criteria for the Singapore's Green Mark standard. Students will apply what they learn to propose building design so as to achieve certain Green Mark standards.

FA413 FIRE SAFETY MANAGEMENT
Students will be taught various fire safety requirements and measures to enable them to undertake the role of a Fire Safety Manager. Topics covered include fire protection systems and maintenance, fundamentals of fire safety design, basic firemanship case studies and practical sessions.

DFM423 FACILITIES MANAGEMENT & OPERATIONS
This course provides students with a broad understanding of how facilities management applies to organisations and facilities of all kinds focusing in particular on the development of the strategic aspects.

DME526 GAS TECHNOLOGY
This course teaches the principles, design, specifications, codes,

COURSE SYNOPSIS

operation and maintenance of piped gas systems. Students will also be taught the practical on gas appliance installations and gas pipe fittings to prepare them for the work of a gas worker.

DEM616 PASSIVE DESIGN STRATEGIES & ENERGY MODELLING
This course introduces students to the environmental, thermal and energy analysis simulation software which are useful tools in building design. Passive design strategies which could reduce the energy consumption of buildings are also covered in this course.

DCM862 TECHNICAL COMMUNICATIONS
This course teaches students the use of effective words and techniques in writing technical reports, academic reports, minutes of meetings and memorandums. Students will also learn how to use effective visual aids and master the skills involved to plan and deliver powerful presentations. Lastly, they will be prepared on how to write their CV for their coming job interviews.

DEM519 ENERGY MANAGEMENT & ECONOMICS
This course will equip students with the knowledge to devise an energy management program and perform financial analysis to evaluate the economic benefits of energy conservation options.

DEM520 ENERGY AUDIT & MEASUREMENTS
This course covers the steps involved in the various levels of energy audit from walk-through audit to detailed energy audit; and to assess the energy performance of a building.

DME522 MOTOR DRIVEN SYSTEMS
This course will equip students with the knowledge on different types of motor driven systems and its applications. The students would be able to calculate the motor efficiency and describe the variable speed control techniques used for optimizing the operations.

DEE524 LIGHTING SYSTEMS
This course introduces students the factors that affect lighting system performance. Students will be able to apply basic principles to design energy efficient lighting systems for specific building types. Students will also be able to analyse factors which could reduce the lighting energy consumption.

PMT906 MATHEMATICS 3
This elective course provides sudents with further knowledge in mathematics to handle engineering problems encountered in their course of study. Among the topics covered is integration leading to inverse trigonometric and logarithmic functions, methods of integration, Simpson's Rule, partial differentiation, differential equations and Laplace transforms. This course is a continuation of Engineering Mathematics 2.

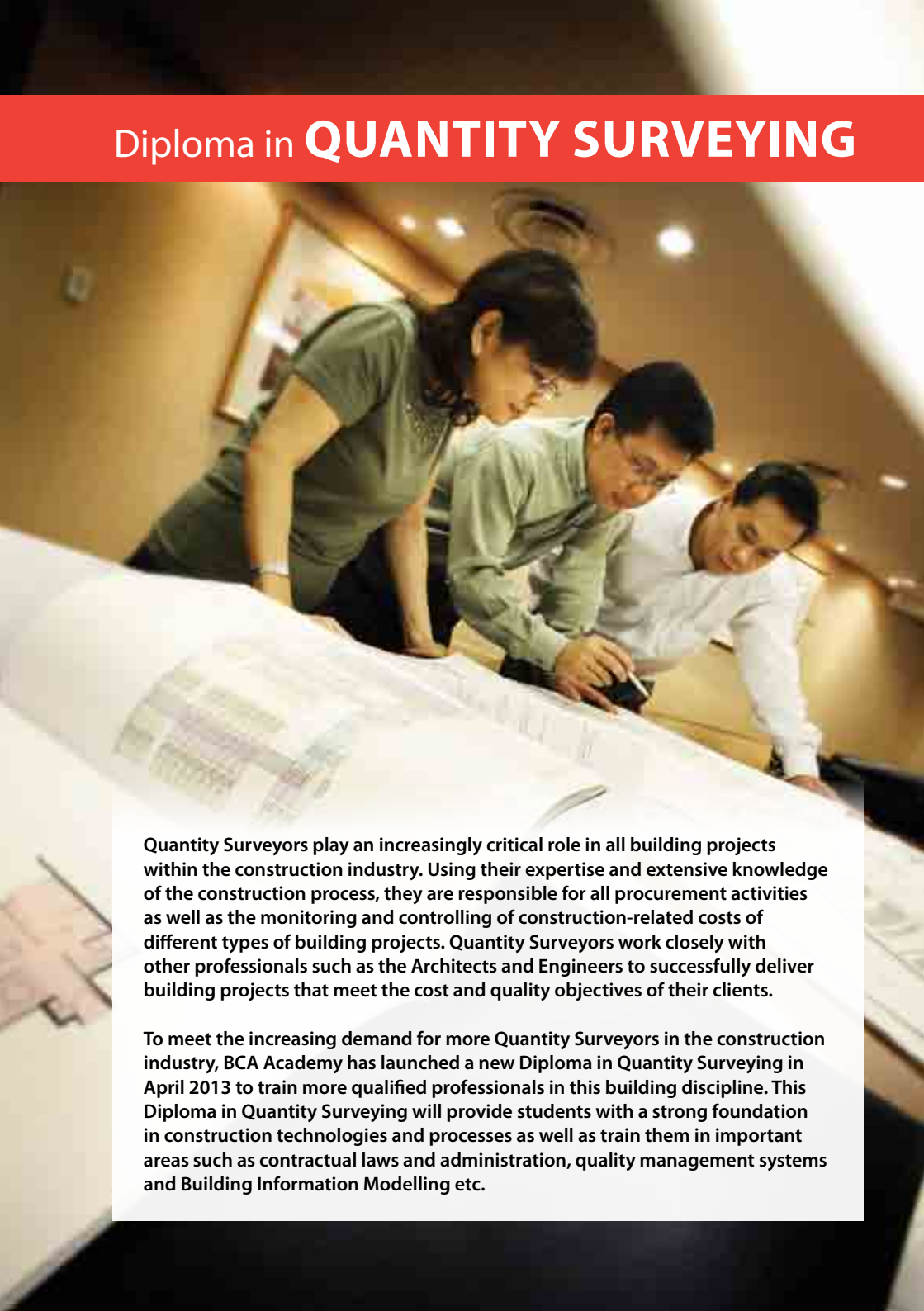
CE908 PHYSICS
This elective course provides students with knowledge in physics to handle engineering problems encountered in their course of study. The students will be able to determine external forces in two dimensions; describe linear, rotational and relative motion; apply Newton's law, law of thermodynamics and fluids, solve problems involving forces, work and energy using the knowledge of kinematics and kinetics, basic concept of electric and magnetic fields, electric potential, electromotive force, work and energy, properties of basic electrical circuits.

FURTHER STUDIES

Graduates of the Diploma in Mechanical Engineering (Green Building Technology) may choose to further their studies at the following universities:

- NANYANG TECHNOLOGICAL UNIVERSITY, SINGAPORE
  Bachelor of Engineering (Mechanical Engineering)
- UNIVERSITY OF ADELAIDE, AUSTRALIA
  Bachelor of Engineering (Architectural Engineering)
  Bachelor of Engineering (Mechanical)
- UNIVERSITY OF TECHNOLOGY, SYDNEY
  Bachelor of Construction Project Management
- UNIVERSITY OF NEWCASTLE, AUSTRALIA
  Bachelor of Construction Management

Diploma in **QUANTITY SURVEYING**



Quantity Surveyors play an increasingly critical role in all building projects within the construction industry. Using their expertise and extensive knowledge of the construction process, they are responsible for all procurement activities as well as the monitoring and controlling of construction-related costs of different types of building projects. Quantity Surveyors work closely with other professionals such as the Architects and Engineers to successfully deliver building projects that meet the cost and quality objectives of their clients.

To meet the increasing demand for more Quantity Surveyors in the construction industry, BCA Academy has launched a new Diploma in Quantity Surveying in April 2013 to train more qualified professionals in this building discipline. This Diploma in Quantity Surveying will provide students with a strong foundation in construction technologies and processes as well as train them in important areas such as contractual laws and administration, quality management systems and Building Information Modelling etc.

PROGRAMME OBJECTIVES

The diploma in Quantity Surveying is a 3-year full-time programme comprising diploma core competency courses, measurement and contracts courses, business and management courses, information technology courses and life skills courses. It aims to equip students to with the following capabilities and attributes:

- Knowledge on building technology and various methods of construction;
- Ability to read and understand drawings and specifications;
- Ability to perform accurate quantity taking off and compile Bills of Quantities;
- Knowledge on various forms of Conditions of Contract;
- Basic knowledge on law with emphasis on building law;
- Soft skills to develop good Emotional Quotient (EQ) in managing relationship;
- Training to inculcate professionalism and good work ethics; and
- Basic knowledge in computer drafting and BIM.

CAREER PROSPECTS

Upon graduation, graduates of this diploma can look forward to rewarding career opportunities like Quantity Surveyor, Project Coordinator in Building Information Modelling (BIM), Site Supervisor, Project Manager.

ENTRY REQUIREMENTS

3 GCE 'O' LEVELS
a) English Language (EL1) - Grade 1 to 7;
b) Mathematics - Grade 1 to 6; and
c) Any relevant subject - Grade 1 to 6; or
ITE Higher NITEC or GCE 'N' levels and NITEC with a minimum GPA of 2.75 in a relevant discipline.

Students who have attempted GCE 'O' levels but do not meet the specified grade in English or Mathematics may apply to BCA Academy to take an English or Mathematics test for the Academy to assess their eligibility for admission.

Candidates with other academic qualifications and related experiences may be considered for admission on a case-by-case basis.

All new intake students are required to own a notebook with the following recommended specification and software:

- Intel Core Processor
- 8 GB RAM
- 64-bit Windows Operating System
- Microsoft Office
- Anti-virus software

ACCREDITION

BCA Academy's Diploma in Quantity Surveying is recognised by RICS Asia Education Standards Board.

PROGRAMME STRUCTURE

YEAR 1

DCS049 Building Technology
DCS012 Construction Materials
DBU706 Elements of Business
DEC824 Economics
DDG858 CAD
DPD877 Life Skills A
DPD878 Life Skills B
DPE244 Construction Equipment
DCS017 Reinforced Concrete Construction
DLW917 Basic Business Law
DIT852 Information & Communication Technology
NLS030 Introduction to Surveying
DDG812 Technical Drawing
DST916 Statistics for Management

YEAR 2

DBE009 Building Measurement
DPQ612 Management Systems for Construction
DLW925 Construction Law
DIT883 Database Management
DST916 Statistics for Management
DPT250 Precast & Prestressed Concrete Design and Construction
DPR712 Project Management
DPD879 Management Skills A
DPD880 Management Skills B
DCE420 Cost Management
DPC419 Procurement Management
DME262 Mechanical Services
DCS025 Introduction to Steel Construction
DBU706 Elements of Business
DBI859 BIM for Architecture
DCS011 Construction Technology

YEAR 3

DBE060 Advanced Building Measurement
DCT426 Contract Administration
DEC427 Building Economics
DCS041 Structural Appraisal & Repair
DCM862 Technical Communications
DVE307 Value Engineering & Management
DEE263 Electrical & Communication Services
DBI885 BIM for QS
DFP911 Final Year Project
DFP912 Industrial Attachment

COURSE SYNOPSIS

DCS049 BUILDING TECHNOLOGY

This course provides students with an overview of the building construction methods and process. Students will be introduced to building construction system through the study of building elements such as foundation, floors, walls, roofs, staircases and ramps, doors and windows as well as surface finishes. The topic also covers basic site analysis and preparation works prior to the commencement of building construction works.

DCS012 CONSTRUCTION MATERIALS

This course covers various materials, properties of concrete, batching and mixing of concrete, testing of concrete, concrete admixture, finishing and curing of concrete, types of timber available in the region, types of seasoning, treatment, usage and methods of preservation, characteristics of iron-carbon alloys, engineering properties of steel, manufacturing and forming process, steel in civil engineering applications, properties of bituminous materials, polymers, the use of green materials in building and civil engineering works etc. There will be practical laboratory sessions on properties of common construction materials.

DDG812 TECHNICAL DRAWING

This course equips students with fundamental skill and knowledge of interpreting architectural and structural drawings. Students will learn the various technical symbols, abbreviations, scales, line-types used for drawing representation. They will be taught the techniques of drawing orthographic and isometric projection, construct the sectional view, plan view and elevation view, interpret architectural and structural drawings of building works.

DST916 STATISTICS FOR MANAGEMENT

This course is designed to provide students with an understanding of statistical concepts and techniques. Students will be taught to analyse data by applying statistics to generate information for decision making. Topics covered include data exploration and summary, descriptive statistics, probability distributions, sampling distributions, interval estimation, hypothesis testing, ANOVA, linear regression and correlation.

DPD877 LIFE SKILLS A & DPD878 LIFE SKILLS B

This course aims to equip students with skills and techniques that could help them set personal goals in their lives, develop a healthy self-esteem and project a positive and professional image. They will also learn to manage basic personal finance prudently and acquire critical thinking and problem-solving skills. This course is covered over two semesters.

COURSE SYNOPSIS

DPE244 CONSTRUCTION EQUIPMENT
The course introduces students to various construction equipment, working principles, maintenance and safety aspects, effective and efficient selection and deployment of equipment on site.

DCS017 REINFORCED CONCRETE CONSTRUCTION
This course will cover the construction of small and large panel system formwork, metal formwork, timber formwork construction for column, wall, beam, slab and staircase, Code of Practice for formwork (CP 23: 2000), form of schedule, cutting, bending and fixing of steel reinforcement, anchorage and lapping of reinforcement bars, interpretation of reinforcement drawings, batching plant, transporting, delivery, placing and compaction of concrete for horizontal and vertical structures, curing of concrete, types of waterproofing systems and good industry practices for waterproofing systems to roof and internal wet areas. Students will have workshop-based training in reinforcement and formwork construction.

DLW917 BASIC BUSINESS LAW
This course introduces students to Singapore business law and is aimed at students without law background and not pursuing a programme in law. Students will gain an appreciation of the legal issues which they will encounter in the real world when they enter the workforce. It will cover the basic concepts of law and Singapore's legal system including business entities, company law, the law of contract, commercial law, construction law, property law, torts in business and international business transactions.

DIT852 INFORMATION & COMMUNICATION TECHNOLOGY
Students will learn a board understanding of hardware and software components and concepts of information technologies implemented in the facilities management industry. Concepts of communication, the internet, system development as well as awareness in IT trends, security, crime and ethics will be covered.

DBE009 BUILDING MEASUREMENT
This course will teach students how to interpret structural, architectural and building services project drawings, apply basic building construction technology and building services for taking-off quantities with standard method of measurement.

DPQ612 MANAGEMENT SYSTEMS FOR CONSTRUCTION
The course will cover the concepts of productivity, problem-solving skills, housekeeping, quality management (ISO 9001) and quality control circles and construction quality management (structural and architectural). Students will go on site visits to familiarise with the CONQUAS Standard (structural), interpreting of ISO standards for the construction industry and the auditing process. Students will also be taught to understand Environmental Management Systems (ISO 14001), Occupational Health and Safety Management Systems (OHSAS 18001) and the Buildability Design Appraisal System (BDAS).

DLW925 CONSTRUCTION LAW
This course teaches students the various legal relationships between different parties in the construction industry in Singapore. It will cover legal issues relevant to procurement, contract administration, termination, insolvency, professional negligence and concurrent liability.

DIT883 DATABASE MANAGEMENT
Students will adopt a practical approach to understanding the importance of database technologies in managing today's massive amounts of data handled by the Quantity Surveyor. Students will learn the techniques of designing and creating databases as well as strategies to maintain the currency, accuracy and security of the data within these databases. Students will also be able to identify the different components of a relational database system and make use of the various object-oriented modelling techniques with a particular focus on developing Internet-based applications within the facilities management domain. Students will be able to gain an in-depth understanding of key database topics such as database architectures, logical and physical design of relational databases, use of SQL in data definition, retrieval and manipulation, administration, backup and distributed databases.

DPR712 PROJECT MANAGEMENT
This course covers the fundamental concepts of project management, identifying the broad project management knowledge. Students introduced the management of project scope, time, cost, risk, quality, safety, human resources, communications and management of externalities. They will learn the importance of site organization and management, and ways to set up an effective and efficient site. Students will also understand the role of IT and learn how to use Microsoft Project software to do project planning and scheduling.

DPD879 MANAGEMENT SKILLS A & DPD880 MANAGEMENT SKILLS B
This course equips students with human resource skills and knowledge vital for future supervisors and managers. Students will also learn about negotiation skills, business finance and work ethics to prepare them for success in the workplace. This course is covered over two semesters (Management Skills A in Semester 1 and Management Skills B in Semester 2).

DBU706 ELEMENTS OF BUSINESS
This course equips students with knowledge on how to start a business, to distinguish between businessman and entrepreneurs, to perform micro-economic analyses and breakeven analysis.

DCE420 COST MANAGEMENT
This course teaches students the techniques in establishing the cost of supplies, services and works required in the design, construction, management, operation and maintenance of the built environment.

DPC419 PROCUREMENT MANAGEMENT
This course introduces the various procurement methods in the construction industry: traditional, design and build, management procurement and collaborative procurement such as partnering and public private partnership. It also covers the differences in private versus public sector procurement practices, basic risk management methods for different projects and client profiles, and the different tendering methods used. The students will also be taught the contract administration stages of the procurement process, as well as the concept of green procurement in setting evaluation criteria during the procurement process.

DME262 MECHANICAL SERVICES
This course is designed to provide students with a fundamental understanding of mechanical building services with particular focus on their operation and maintenance. Building services covered includes plumbing (hot and cold water supply), swimming pool system, waste, sewerage and gas systems, fire protection system, lightning protection system, lifts and escalators, mechanical ventilation and air-conditioning systems. Students will be taught the necessary trouble shooting techniques and use of basic tools and equipment for such purpose.

DEE263 ELECTRICAL & COMMUNICATION SERVICES
Students will learn electrical building services including the LT and HT electrical system, lighting, building automation system, generator, security and surveillance system, DECAM, EBOPS, UPS, local data, voice and video cabling, leased lines, satellite communication devices, audio and video equipment for events. Students will be taught the selection, setting up and operation of audio, video and other equipment typically required in different types of event. Students will also be taught to describe working principles and proper installation, operation and maintenance methods.

DDG858 CAD
Students will be taught how to use computer aided design/drafting program to produce drawings for construction and detailing. Students should be able to generate architecture and structure plans using 2D commands and drawing tools.

DBE060 ADVANCED BUILDING MEASUREMENT
This course is the advanced level of Building Measurement which develops the students' skills in the measurement of items for specialist building works such as fluid flow systems, specialist and civil engineering construction works and building services. Topics also include the measurement of deep excavation, substructures, underpinning, structures, additions and alterations and complex building forms. Students will also be introduced with IT software which can help for e-measurement.

DCT426 CONTRACT ADMINISTRATION
This course is the advanced level of Procurement Management which covers in depth the fundamental principles of administering construction contracts. Major topics are procurement contract models, valuation of work done based on the Security of Payment Act, valuation of variations and financial control of projects.

DEC427 BUILDING ECONOMICS
This course is the advanced level of Cost Management which covers different techniques for the estimating of items of the work to be undertaken on projects, and tendering. Major topics are quantitative techniques in cost analysis, cost planning, approximate estimating and tendering procedures. The principles governing the pricing of items and building up rates for items of work are also covered.

DCS041 STRUCTURAL APPRAISAL & REPAIR
Students will learn the statutory requirements as set out in the Building Regulations Act 1989, visual and detailed inspection of building elements for various types of defect, types of semi-destructive and non-destructive tests used in structural appraisal and collection & analysis of data. They will also learn about cracking and fracture, types of repair materials, repair methods for various types of minor and major structural defects, types of retrofitting techniques, strengthening of existing columns and beams and understanding of site problems and their recommended solutions. Students will also do technical case studies of retrofitting projects.

DCM862 TECHNICAL COMMUNICATIONS
This course teaches students the use if effective words and techniques in writing technical reports, academic reports, minutes of meetings and memorandums. Students will also learn how to use effective visual aids and master the skills involved to plan and deliver powerful presentations. Lastly, they will be prepared on how to write their CV for their coming job interviews.

DCS011 CONSTRUCTION TECHNOLOGY
This course provides students with a better appreciation on the methods and

technologies used for the construction of bridges such as incremental launching, span by span and balance cantilever. Topic on construction of tunnel using traditional, new Austrian methods and tunnel boring machines as well as various structural systems used in the construction of tall building and methods for underpinning works are also included in this course. This course also provides an insight to the topic on sustainable construction and the methods to improve productivity on site.

DBI885 BIM FOR QS

This course introduces Building Information Modelling (BIM) concepts and terminology. Students will learn to interpret a complete BIM model with Structural, Architectural and M & E components in order to extract the quantity information. Students will understand the nature and potential of BIM as a new format for exchanging digital and spatial information in project so that design changes can be reflected and priced rapidly for decision making.

DST909 INTRODUCTORY STATISTICS FOR MANAGEMENT

This course is designed to provide students with an understanding of statistical concepts and techniques. Students will be taught to analyse data by applying statistics to generate information for decision making.

NLS030 INTRODUCTION TO SURVEYING

This course covers levelling and setting out work - level and compute heights using digital level, measure horizontal angles, zenith angles, slope distance and electronic tacheometry using electronic theodolites, interpret the features of site plans, measure scaled distances from plans and identify details of building plans.

DEC824 ECONOMICS

This course is designed to provide students with a broad understanding of microeconomics and macroeconomics theories and principles with adequate knowledge of economic theory for the critical analysis, logical reasoning and problem solving skills towards social policy formulation and individual decision making. Topics covered include market and equilibrium price formation, theory of consumer choice, price elasticity of demand, productivity and production, market structure, price and output determination, market structure, resource allocation and economic efficiency.

DPT250 PRECAST & PRESTRESSED CONCRETE DESIGN AND CONSTRUCTION

The course covers the various types of precast systems, advantages and limitation of application of precast systems structural stability, connection designs, fasterners and their application, relevant code of practices, methods of manufacture, production methods, storage and transportation requirements, etc. It also covers quality assurance and control in precast yards, co-ordination between design and production, site administration, scheduling and co-ordination between design and production team, setting out for precast installation , handling, storage, stacking requirements for columns, hollow core slabs, prestressed plank, precast beams, etc, the sequence of erection for precast members and building construction. It will also cover the design concepts of precast reinforced concrete components, connections and illustrations on design of precast concrete buildings.

DCS025 INTRODUCTION TO STEEL CONSTRUCTION

This course covers the usage of structural steel in the construction industry. Students will be taught to understand the preparation and fabrication of structural steelwork and their connections, the erection process of steel frames and equipment involved, types of fire and corrosion protection system and will also be given an introduction to composite steel construction.

DBI859 BIM FOR ARCHITECTURE

This course covers the concepts and terminologies for Building Information Modeling (BIM). Technical details such as BIM discipline views and modeling methods will be covered. Students will be able to apply the knowledge of BIM to generate 3B building models for architectural design.

DVE307 VALUE ENGINEERING & MANAGEMENT

This course teaches students the fundamental principles, concepts, processes and methodologies of value engineering and management, and they are can be applied over the life-cycle of a building project within our construction industry. This course will provide students with hands-on opportunities to apply key value engineering methodologies to real-life projects and case studies.

** Information indicated in the prospectus is subject to changes.*

FURTHER STUDIES

Graduate of the Diploma in Quantity Surveying may choose to further their studies at the following universities:

- QUEENSLAND UNIVERSITY OF TECHNOLOGY, AUSTRALIA
  Bachelor of Applied Science (Construction Management)
  Bachelor of Applied Science (Quantity Surveying)
- SIM UNIVERSITY, SINGAPORE
  Bachelor of Building and Project Management
- UNIVERSITY OF NEWCASTLE, AUSTRALIA
  Bachelor of Construction Management

ADMISSION DETAILS

To be eligible for consideration for admission to the various programmes in the Academy, applicants must satisfy the minimum academic entry requirements for the programmes shown in the table below.

Applicants with academic qualifications from outside Singapore may also apply if their qualifications satisfy the minimum academic entry requirements. (More details are given in subsequent sections)

Applicants whose qualifications are not stated below or who do not satisfy the minimum academic entry requirements may enquire with the school directly. CCA points cannot be used to meet the minimum entry requirements, though they may be taken into consideration during application.

PRE-DIPLOMA FOUNDATION PROGRAMME

FOR LOCAL STUDENTS

LEVEL	REQUIREMENTS	GRADE
GCE 'N' level (Academic)	English Language (EL1) Mathematics Science Two other subjects	1 – 5
GCE 'O' level	English Language (EL1) Mathematics One other subject	1 – 8 1 – 7 1 – 8

COURSE FEES

NATIONALITY	FEES PER YEAR* (inclusive of GST)
Singapore Citizens	S$353.10
Singapore Permanent Residents	S$2,300.50
International Students	S$9,900.00

** Fees stated are for 2015 intake and may be adjusted in future years.*

FOR INTERNATIONAL STUDENTS

COUNTRY	LEVEL (SUBJECT)	GRADE
People's Republic of China	Completed Year 12 of Senior Middle School	Completed and passed English, Mathermatics, Science and 2 relevant subjects
Myanmar	Completed Year 10 of the Basic Education High School	

SPONSORSHIP FOR SINGAPORE CITIZENS

Singapore Citizens will be eligible to apply for the BCA-Industry Built Environment Diploma Sponsorship Programme upon being successfully admitted into the FP.

When a student receives the diploma sponsorship for 1-year FP studies, he will also be sponsored for the subsequent three (3) years diploma programme. The annual allowance is S$7,000 per person with 1-year bond for every year of sponsorship. There is a minimum 2-year bond with sponsoring firm.

**Sec 4N(A) students who obtained good results (ELMAB3 raw aggregate score of 10 points or lower at GCE 'N'-Level examinations) are eligible to apply for the BCA-Industry Built Environment sponsorship programme. This sponsorship will continue for the student during his three years diploma study at BCA Academy. Terms and conditions apply.*

SUBMISSION OF APPLICATION

Interested applicants can apply once the GCE 'N' level result is released in December. Application form can be downloaded at www.bcaa.edu.sg/FP.aspx

DIPLOMA PROGRAMME

FOR STUDENTS WITH GCE 'O' LEVEL

DIPLOMA IN:	MINIMUM ENTRY REQUIREMENTS	GRADE
Construction Engineering Electrical Engineering and Clean Energy Facilities Management Mechanical Engineering (Green Building Technology) Quantity Surveying	English Language (EL1) Mathematics and One relevant subject: • Physical Science • Integrated Science • Combined Science • Chemistry • Science (Physics, Biology) • Science (Physics, Chemistry) • Electricity & Electronics • Science (Physics, Chemistry, Biology) • Additional Combined Science • Physics • Biology • Science (Chemistry, Biology) • Design & Technology	1 – 7 1 – 6 1 – 6
Construction Information Technology	English Language (EL1) Mathematics, and One relevant subject: • Physical Science • Integrated Science • Combined Science • Science (Physics, Biology) • Design & Technology • Science (Physics, Chemistry, Biology) • Additional Combined Science • Physics • Science (Physics, Chemistry) • Electricity & Electronics	1 – 7 1 – 6 1 – 6
Architecture (Technology) Design (Interior and Landscape)	English Language (EL1) Art or Design & Technology, and One relevant subject	1 – 7 1 – 6 1 – 6

Those who have attempted the GCE "O" levels but do not meet the specified grade in English or Mathematics, may take an English or Mathematics test conducted by BCA Academy to enable the Academy to assess their enrolment eligibility. Candidates with other academic qualification and experience may be considered for admission on a case by case basis.

FOR STUDENTS FROM THE INSTITUTE OF TECHNICAL EDUCATION, SINGAPORE

DIPLOMA IN:	MINIMUM ENTRY REQUIREMENTS
Architecture (Technology)	Higher NITEC in a relevant discipline GCE 'N' levels and NITEC in a relevant discipline with a minimum GPA of 2.75
Construction Information Technology	
Construction Engineering	
Design (Interior and Landscape)	
Electrical Engineering and Clean Energy	
Facilities Management	
Mechanical Engineering (Green Building Technology)	
Quantity Surveying	

Higher NITEC applicants with GPA of 3.0 or higher may be granted course exemptions for relevant courses on a case-to-case basis and may complete the diploma programme in less than 3 years.

NATIONAL SERVICE DEFERMENT

If you are liable for National Service (NS) in Singapore, please submit an application form indicating clearly your enlistment date. Should you be offered a place in the Academy, your National Service may be deferred until you have completed your Diploma[1].

[1]Applicants are fully responsible for fulfilling their own National Service liabilities.

FOR HOLDERS OF OTHER QUALIFICATIONS

International students are required to complete 12 years of general education as set out in the table below. All other students will be assessed for a place in the Academy based on the equivalence of their qualifications to the GCE 'O' levels examination.

In addition, all international students without GCE 'O' levels, Higher NITEC or NITEC must also sit for admission screening tests for English and Mathematics or Drawing, depending on their chosen programme. Admission screening tests are conducted regularly in Singapore and in various countries.

Please refer to our website for further details of the location and dates of admission screening tests in your own country. All international students must apply with their passport or birth certificate, graduate certificate(s) and original transcripts from their schools.

ADMISSION SCREENING TEST IS **NOT REQUIRED** FOR THE FOLLOWING QUALIFICATIONS:

1. Candidates with the qualifications and meet the subject/grade from the tables below are NOT required to take our admission screening test.
2. Candidates with the qualifications but does not meet the subject/ grade for 1 or more subjects from the tables below are still required to take our admission screening test.
3. Applicants are required to complete the application form (together with a copy of their NRIC/ Passport + academic certificates) and submit to BCAA for approval.
4. Local (Singaporeans and PR) applicants may apply directly to BCAA. International applicants must apply through our approved student recruitment agents.

COUNTRY	LEVEL / QUALIFICATION	SUBJECT / GRADE
Brunei	Brunei GCE 'O' Levels	*Same as Candidates from Singapore GCE 'O' Levels
Malaysia	• Unified Examination Certificate (UEC)* • Unified Examination Certificate - Vocational (UECV)* • Sijil Pelajaran Malaysia (SPM)* • Sijil Pelajaran Malaysia Vokasional (SPMV)* • Sijil Tinggi Persekolahan Malaysia (STPM)*	**UEC** • English Language: Grade A1 - B6 • Any Mathematics Subject: Grade A1 - B6 • Any Relevant Subject: Grade A1 - B6 **UEC - Vocational** • English Language: Grade: A1 - B6 • Any Mathematics Subject: Grade: A1 - B6 • Any Engineering Relevant Subject: Grade: A1 - B6 **SPM / SPMV** • Bahasa Inggeris: Grade A+ - C • Any Mathematics Subject: Grade A+ - C • Any Relevant Subject: Grade A+ - C **STPM** • General Paper (English Medium): Grade: A - C Or, SPM Bahasa Inggeris: Grade: A+ - C • Any Mathematics Subject: Grade: A - C • Any Relevant Subject: Grade: A - C

OTHER QUALIFICATIONS	SUBJECT / GRADE
General Certificate of Secondary Education (GCSE)* International General Certificate of Secondary Education (IGCSE)*	**GCSE / IGCSE** • English: Grade: A - C • Mathematics: Grade: A - C • Any Relevant Science Subject: Grade: A - C
International Baccalaureate (IB) Diploma*	**IB Diploma** • English: 5 out of 7 • Mathematics: 5 out of 7 • Any Relevant Subject: 5 out of 7

ADMISSION SCREENING TEST IS **REQUIRED** FOR THE FOLLOWING QUALIFICATIONS:

1. Candidates with the qualifications and meet the subject/grade from the tables below are required to take our admission screening test.
2. We have revised this criteria to include a wider range of qualifications. Any other qualifications can be considered on a case-by-case basis.
3. Applicants are required to complete the application form (together with a copy of their NRIC/ Passport + academic certificates) and submit to BCAA for approval.
4. Local (Singaporeans and PR) applicants may apply directly to BCAA.
5. International applicants must apply through our approved student recruitment agents. Agents will arrange for the applicants to sit for the admission screening test.
6. Candidates who pass the admission screening test will be offered the Diploma Programme. Candidates who do not pass the admission screening test may be offered the Foundation Programme.

COUNTRY	LEVEL / QUALIFICATION	SUBJECT / GRADE
China	Completed Year 3 of Senior Middle High School/ National College Entrance Examination (NCEE) (Gao Kao, 高考)	Completed and passed English, Mathematics and relevant subjects
India	Secondary School Certificate (Year 10) from the following Boards: • Indian Certificate of Secondary Examinations (ICSE) • Central Board of Secondary Education Examinations (CBSE) • Maharashtra Board • Kerala Board • Gujarat Board • Karnataka Board • Tamil Nadu Board Higher Secondary Certificate (Year12) from All Examination Boards.	Pass in English, Mathematics and at least 1 relevant subject

COUNTRY	LEVEL / QUALIFICATION	SUBJECT / GRADE
Indonesia	National Final Evaluation Examinations Ujian Akhir Nasional (UAN) • Sekolah Menengah Atas (SMA) • Sekolah Menengah Kejuruan (SMK) Sekolah Menengah Atas, SMA (Completed Year 11)	Pass in English, Mathematics and at least 1 relevant subject
Myanmar	Basic Education High School (BEHS)	
Philippines	High School Diploma	
Vietnam	Completed Year 12 High School Graduation Certificate of National Examination Completed Year 11 High School results	

FEES

DIPLOMA PROGRAMMES	FEES* (per academic year inclusive of GST)	
	Singapore Citizens /PR	International Students
Architecture (Technology)	S$4,500.00	S$9,900.00
Construction Information Technology	S$3,000.00	S$9,900.00
Construction Engineering	S$3,000.00	S$9,900.00
Design (Interior & Landscape)	S$4,300.00	S$9,900.00
Electrical Engineering & Clean Energy	S$3,000.00	S$9,900.00
Facilities Management	S$3,000.00	S$9,900.00
Mechanical Engineering (Green Building Technology)	S$3,000.00	S$9,900.00
Quantity Surveying	S$3,000.00	S$9,900.00

** Fees may be adjusted in future years.*

OTHERS	FEES (per academic year inclusive of GST)	
	Singapore Citizens /PR	International Students
Miscellaneous Fee	S$34.00 per year	S$34.00 per year
English Preparatory Course*	Not Applicable	S$892.50 per year

Amounts shown are subject to change from year to year. All fees quoted throughout this prospectus are in Singapore Dollars. They are correct at the time of printing this prospectus. They are inclusive of Goods & Services Tax (GST) of 7% which is the prevailing GST at the time of printing this prospectus. The exact fees payable, will be shown in the offer letter sent to all students.

* International students must attend the English Preparatory Course which takes place during the semester immediately prior to the commencement of the diploma programme. The course is compulsory for all international students, except international students who have one of the following certificates:
1) International English Language Testing System (IELTS) with an overall band score minimum of 5.5, OR
2) Test of English as a Foreign Language (TOEFL) with a minimum score of 550

SUBMISSION OF APPLICATION

Interested applicants please refer to http://www.bcaa.edu.sg/AdmissionRequirements.aspx

BCA-INDUSTRY BUILT ENVIRONMENT DIPLOMA SCHOLARSHIP/SPONSORSHIP

These Scholarships & Sponsorships provide attractive financial incentives of minimum S$7,000 per year. They are open to students with outstanding academic results and performance in co-curricular activities.
(For more information, please refer to http://www.buildingcareers.sg/builtenvironmentscholarship_diploma.aspx)

BURSARY

Singaporeans who satisfy income eligibility requirements may apply for BCA Academy bursaries.
Please contact BCA Academy for further details.

FURTHER STUDIES*

BCA Academy graduates may choose to further their studies at the following universities:

NANYANG TECHNOLOGICAL UNIVERSITY, SINGAPORE
Bachelor of Engineering (Civil Engineering)
Bachelor of Engineering (Mechanical Engineering)

UNIVERSITY OF NEWCASTLE, AUSTRALIA
Bachelor of Construction Management (Building)

UNIVERSITY OF ADELAIDE, AUSTRALIA
Bachelor of Engineering (Architecture Engineering)
Bachelor of Engineering (Mechanical)
Bachelor of Engineering (Civil & Structural)
Bachelor of Engineering (Civil & Environmental)

UNIVERSITY OF WOLLONGONG, AUSTRALIA
Bachelor of Engineering (Civil)
Bachelor of Engineering (Civil and Engineering)

QUEENSLAND UNIVERSITY OF TECHNOLOGY, AUSTRALIA
Bachelor of Applied Science (Construction Management)
Bachelor of Applied Science (Quantity Surveying)

SIM UNIVERSITY, SINGAPORE
Bachelor of Building and Project Management
Bachelor of Science in Facilities and Events Management

UNIVERSITY OF SOUTH AUSTRALIA, AUSTRALIA
Bachelor of Construction Management and Economics
Bachelor of Interior Architecture

JAMES COOK UNIVERSITY, AUSTRALIA
Bachelor of Engineering (Civil)

RMIT UNIVERSITY, AUSTRALIA
Bachelor of Civil Engineering
Bachelor of Applied Science in Construction Management (BCM)

CURTIN UNIVERSITY OF TECHNOLOGY, AUSTRALIA
Bachelor of Arts (Interior Architecture)
Bachelor of Applied Science (Construction Management and Economics)

UNIVERSITY OF TECHNOLOGY, SYDNEY, AUSTRALIA
Bachelor of Construction Project Management

UNIVERSITY OF THE WEST OF ENGLAND BRISTOL, UNITED KINGDOM
Bachelor of Science (Hons) Construction Project Management
Bachelor of Science (Hons) Quantity Surveying and Commercial Management

NOTE:

i) Graduates of our diploma programmes enjoy advanced standing for admission to degree programmes in certain local and overseas universities.

ii) BCA diplomas are also recognised for admissions into universities other than those specifically mentioned. Students are advised to make enquiries with the universities and institutions directly on recognition of qualifications before making their choices.

** subject to changes.*

200 Braddell Road Singapore 579700 Tel: 6248 9999 Fax: 6258 0558

BCA ACADEMY

APPLICATION FORM

Full-time Diploma Programmes (please ✓ accordingly):

☐ **Local Student** ☐ **International Student**

Programme Applied: _____

Attached 2 passport size photograph

For Official Use	Yes	No
Meet Entry Requirement		
Meet Special Qualification		

Officer-in-charge's name/signature/date

1. PERSONAL PARTICULARS

Given Name (as in Passport / NRIC): (in BLOCK letters / underline surname)

NRIC / FIN No:

Preferred Name:

Date of Birth: (DD/MM/YYYY)

Chinese Characters: (if applicable)

IC Type: Pink / Blue (please circle) ***For Singaporeans / PR Only**

Gender: Male / Female (please circle)

Nationality:

Place of Birth:

Race:

Passport No.: (for foreign applicants)

Passport Expiry Date:

Religion:

Home Address:

Postal Code:

Email:

Home No.:

Alternative Email:

Mobile No.:

2. FOR INTERNATIONAL STUDENT ONLY

Guardian's Name:

Home No.:

Local Address:

Mobile No.:

Postal Code:

Agent's Name:

Office No.:

Local Address:

Mobile No.:

Postal Code:

3. PARENT DETAILS

Parent's Name:

Relationship:

Communication Medium: (all languages that are relevant)

Nationality:

Address:

Postal Code:

Country:

Home No.:

Religion:

Race:

Mobile No.:

Email:

Office No.:

Alternative Email:

Fax No.:

4. QUALIFICATIONS

Subject	Grade
English	
Mathematics	
Science / D&T / Art	
IELTS	
TOEFL	
Other (please specify)	
Other (please specify)	

Highest Qualification: _____

For oversea qualification, please state the name of examining board

Institution: _____

Year Passed: _____

Medium of Instruction: _____

Country: _____

Please enclose a copy of academic qualification together with the application.

5. SUBMISSION OF APPLICATION

Interested applicants can apply once the GCE 'O' level result is released in January. Submit following documents to apply for the Diploma Programmes:

- Completed application form (application form can be downloaded at http://www.bcaa.edu.sg/AdmissionRequirements.aspx)
- Certified true copy of GCE 'O' level transcript and certificate
- Certified true copy of Higher NITEC transcript and certificate
- A photocopy of Identification Card or Passport
- A photocopy of Identification Card or Passport of Guardian (only for international students)

All completed application form with supporting documents may be submitted by post/in person to: BCA Academy, 200 Braddell Road, Singapore 579700.

ATTENTION: School of Building and Development (Diploma Programme application)

NOTES:

1. Successful applicants of Diploma in Construction Information Technology are required to buy their own computers (notebooks).
   Successful applicants of all other Diploma Programmes are strongly encouraged to bring their own computers (notebooks) for class.
2. Please note that the particulars provided will be used solely for application consideration.

6. HOW DID YOU FIND OUT ABOUT BCA ACADEMY AND ITS DIPLOMA PROGRAMMES? (please ✓ accordingly)

☐ Friends

☐ Newspaper

☐ Website

☐ Others (please specify) _____

DECLARATION

I declare that the particulars given are true and correct to the best of my knowledge. I am aware that my application does not guarantee admission and agree to allow BCA to disclose to other government agencies and/or the Government any information relating to me/us in connection with, arising from or relating to this application, including but not limited to my/our personal particulars and my/our test results.

.....

Signature of Applicant / Date

FOR OFFICIAL USE

Application No.: _____ Official Receipt No.: _____

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