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UNIVERSITI TEKNOLOGI MALAYSIA

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UNDERGRADUATE ACADEMIC GUIDEBOOK

FACULTY OF BUILT ENVIRONMENT
AND SURVEYING

UNDERGRADUATE ACADEMIC GUIDEBOOK

Academic Year 2026/2027

Faculty of Built Environment and Surveying
Universiti Teknologi Malaysia

builtsurvey.utm.my

Every effort has been made to include updated information in this guidebook at time of printing. The faculty reserves the right to amend any information from time to time as deemed necessary.

This guidebook contains brief information on the programmes offered by the faculty. Detailed information on academic matters can be obtained from the following documents:

- Buku Peraturan Mahasiswa
- Universities and University Colleges Act 1971 Universiti Teknologi Malaysia (Discipline of Students) Rules 1999
- UTM Academic Rules of Graduate Studies 2020
- Postgraduate Research Procedure (ProPS 06)

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TABLE OF CONTENTS

01	FOREWORD BY THE DEAN	7
02	INTRODUCTION	
	UNIVERSITI TEKNOLOGI MALAYSIA	10
	FACULTY OF BUILT ENVIRONMENT AND SURVEYING	14
03	EXECUTIVE COMMITTEE MEMBER	14
04	UNDERGRADUATE PROGRAMMES	15
05	BACHELOR OF SCIENCE IN ARCHITECTURE WITH HONOURS	16
	PROGRAMME EDUCATIONAL OBJECTIVES	17
	PROGRAMME LEARNING OUTCOMES	17
	CLASSIFICATION OF COURSES	18
	LIST OF COURSES ACCORDING TO SEMESTER (MATRICULATION/STPM)	19
	SYLLABUS SYNOPSES	22
06	BACHELOR OF LANDSCAPE ARCHITECTURE WITH HONOURS	29
	PROGRAMME EDUCATIONAL OBJECTIVES	29
	PROGRAMME LEARNING OUTCOMES	30
	CLASSIFICATION OF COURSES	31
	LIST OF COURSES ACCORDING TO SEMESTER (MATRICULATION/STPM)	32
	SYLLABUS SYNOPSES	34
07	BACHELOR OF QUANTITY SURVEYING WITH HONOURS	42
	PROGRAMME EDUCATIONAL OBJECTIVES	43
	PROGRAMME LEARNING OUTCOMES	43
	CLASSIFICATION OF COURSES	44
	LIST OF COURSES ACCORDING TO SEMESTER (MATRICULATION/STPM)	45
	SYLLABUS SYNOPSES	48

08	BACHELOR OF SCIENCE IN CONSTRUCTION WITH HONOURS	59
	PROGRAMME EDUCATIONAL OBJECTIVES	60
	PROGRAMME LEARNING OUTCOMES	60
	CLASSIFICATION OF COURSES	62
	LIST OF COURSES ACCORDING TO SEMESTER (MATRICULATION/STPM)	63
	SYLLABUS SYNOPSES	65
09	BACHELOR OF URBAN AND REGIONAL PLANNING WITH HONOURS	77
	PROGRAMME EDUCATIONAL OBJECTIVES	78
	PROGRAMME LEARNING OUTCOMES	78
	CLASSIFICATION OF COURSES	79
	LIST OF COURSES ACCORDING TO SEMESTER (MATRICULATION/STPM)	80
	SYLLABUS SYNOPSES	83
10	BACHELOR OF SCIENCE IN GEOINFORMATICS WITH HONOURS	97
	PROGRAMME EDUCATIONAL OBJECTIVES	98
	PROGRAMME LEARNING OUTCOMES	98
	CLASSIFICATION OF COURSES	101
	LIST OF COURSES ACCORDING TO SEMESTER (MATRICULATION/STPM)	101
	SYLLABUS SYNOPSES	104
11	BACHELOR OF GEOMATICS ENGINEERING WITH HONOURS	118
	PROGRAMME EDUCATIONAL OBJECTIVES	119
	PROGRAMME LEARNING OUTCOMES	119
	CLASSIFICATION OF COURSES	121
	LIST OF COURSES ACCORDING TO SEMESTER (MATRICULATION/STPM)	121
	SYLLABUS SYNOPSES	124
12	BACHELOR OF SCIENCE IN LAND ADMINISTRATION AND DEVELOPMENT WITH HONOURS	135
	PROGRAMME EDUCATIONAL OBJECTIVES	136
	PROGRAMME LEARNING OUTCOMES	136
	CLASSIFICATION OF COURSES	138
	LIST OF COURSES ACCORDING TO SEMESTER (MATRICULATION/STPM)	138
	SYLLABUS SYNOPSES	140

13	BACHELOR OF REAL ESTATE WITH HONOURS	151
	PROGRAMME EDUCATIONAL OBJECTIVES	152
	PROGRAMME LEARNING OUTCOMES	152
	CLASSIFICATION OF COURSES	154
	LIST OF COURSES ACCORDING TO SEMESTER (MATRICULATION/STPM)	154
	SYLLABUS SYNOPSES	157
14	UTM PROFESIONAL SKILLS CERTIFICATE (UTM PSC)	167
15	GENERAL COURSES	169
16	ACADEMIC ADVISING	170
17	ACADEMIC YEAR	171
18	GRADING AND POINT VALUE SYSTEM	172
	Grading System	
	Academic Standing	
	GPA/CGPA Computation	

UNIVERSITI TEKNOLOGI MALAYSIA

The University's Philosophy, Vision, Mission and Motto

Philosophy

The divine law of Allah is the foundation of knowledge. In line with His Will, UTM strives with total commitment to attain excellence in science, technology and engineering for the well-being and prosperity of mankind

Vision

A Premier University Providing World-Class Education and Research

Mission

Develop Holistic Talents and Prosper Lives Through Knowledge and Innovative Technologies

Motto

In the Name of God for Mankind

Core Values

Integrity | Synergy | Excellence | Sustainability

FACULTY OF BUILT ENVIRONMENT AND SURVEYING

The Faculty's Vision, Mission, Theme, Values and Educational Philosophy

Vision

The faculty of choice for professional education in the built environment

Mission

We strive to develop professionals who are responsible towards shaping sustainable built environment through synergistic partnership with the industries, professional bodies and alumni

Theme

Fostering built environment professionals for a resilient tomorrow

Core Values

Resilient | Inclusive | Creative | Collaborative | Harmonious

Educational Philosophy

FABU shapes ethical stewards of the built environment by fostering a dynamic learning ecosystem grounded in UTM's tagline "Innovating Solutions" and FABU's core values, where students engage in experiential learning, embrace emerging technologies, and co-create sustainable, socially responsible solutions through real-world problem-solving and humanity.

FABU membentuk khalifah alam bina yang beretika melalui ekosistem pembelajaran dinamik yang berteraskan tagline UTM "Meninginovasi Penyelesaian" dan nilai teras FABU, di mana pelajar terlibat dalam pembelajaran berasaskan pengalaman, meneroka teknologi baharu, serta bersama-sama mereka solusi yang lestari dan bertanggungjawab sosial melalui penyelesaian masalah dunia sebenar dan kemanusiaan.

01 FOREWORD BY THE DEAN

Welcome to the Faculty of Built Environment and Surveying (FABU), Universiti Teknologi Malaysia (UTM).

It is my great pleasure to welcome you to FABU, a leading academic institution dedicated to excellence in education, research, innovation, and professional development in the fields of Built Environment and Surveying. This guidebook provides essential information to support your academic journey and introduces the diverse range of programmes offered by the Faculty. These include Architecture, Landscape Architecture, Urban and Regional Planning, Quantity Surveying, Construction, Land Administration and Development, Geomatic Engineering, Geoinformatics, and Real Estate.

FABU is committed to providing high-quality academic programmes that are relevant to professional practice and responsive to the evolving needs of society and industry. Our programmes are accredited by reputable national and international professional bodies, reflecting their academic quality, professional relevance, and industry recognition. The Faculty has also established strong partnerships with industry and professional organisations, creating valuable opportunities for students to gain practical experience, professional exposure, and enhanced career prospects. Our commitment to academic excellence and international recognition is further reflected in the Faculty's achievement of being ranked among the Top 50 globally in the QS World University Rankings by Subject.

At FABU, we recognise that academic excellence extends beyond the acquisition of knowledge. We strive to develop graduates who possess strong technical competencies, critical thinking abilities, creativity, communication skills, leadership qualities, and professional values. Our curriculum is therefore designed to integrate theoretical knowledge with practical learning and industry exposure, equipping students with the competencies required to navigate an increasingly dynamic and competitive professional environment. The achievements of our students, including the numerous awards received at UTM Convocation ceremonies, reflect the effectiveness of this holistic approach. Our strong Graduate Employability performance further demonstrates the quality and relevance of the education provided at FABU.

In an increasingly interconnected world, international exposure is an integral component of contemporary higher education. Students are encouraged to broaden their perspectives by engaging with diverse cultures, ideas, practices, and global challenges. UTM provides numerous opportunities for international learning and engagement through global outreach programmes, overseas internships, service-learning initiatives, student exchange programmes, and summer schools. I strongly encourage every FABU student to participate in at least one internationalisation programme during their studies. Such experiences can enrich their academic journey while strengthening their global competencies, intercultural understanding, confidence, and adaptability.

As a Research University, UTM places strong emphasis on research, innovation, and knowledge creation. In alignment with this aspiration, FABU continuously strengthens its academic and research ecosystem to cultivate students who are analytical, inquisitive, innovative, and capable of addressing complex challenges. Through research-informed teaching and experiential learning, students are encouraged to develop critical thinking and problem-solving skills while exploring new ideas and solutions. These competencies will not only enhance their undergraduate experience but also provide a strong foundation for those who aspire to pursue postgraduate education and advanced research.

I also encourage all students to make the most of the opportunities available beyond the classroom. Active participation in academic, co-curricular, leadership, professional, and community-based activities can significantly enrich your university experience. These engagements provide opportunities to develop teamwork, leadership, communication, interpersonal skills, and a strong sense of social responsibility. Equally important are integrity, professionalism, respect, and positive values, which are fundamental qualities of future professionals, leaders, and responsible citizens.

Your journey at FABU is more than an academic pursuit; it is an opportunity to discover your potential, build meaningful connections, develop professional competencies, and contribute to society. I encourage you to embrace every opportunity, challenge yourself to grow, and make full use of the resources, facilities, expertise, and support available within the Faculty.

Should you require further information or assistance, please visit the Faculty's website or consult your academic advisors, lecturers, or members of the Faculty's administrative team. We are committed to supporting you throughout your academic journey and ensuring that your experience at FABU is meaningful, enriching, and rewarding.

I wish you every success in your studies and future endeavours. May your journey at FABU equip you with the knowledge, skills, values, and experiences necessary to excel in your chosen profession and make a meaningful contribution to society, the nation, and the global community. I look forward to welcoming you as proud and distinguished alumni of FABU.

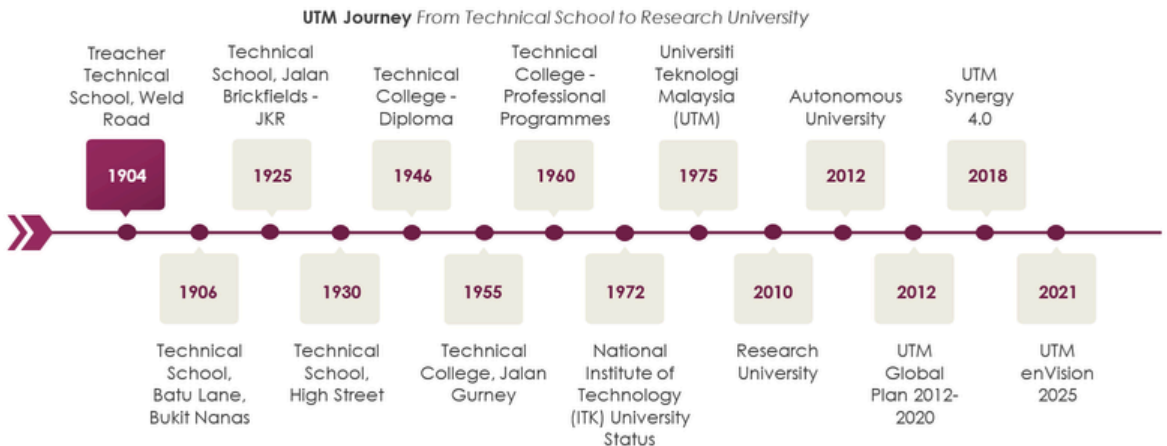
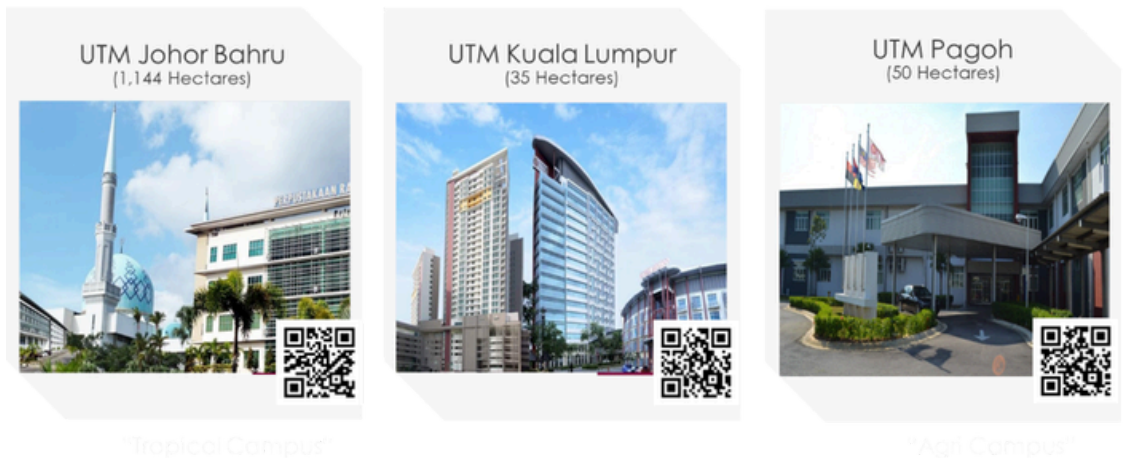
Dean
Professor Sr. Dr. Kherun Nita Ali
Faculty of Built Environment and Surveying



02 INTRODUCTION

UNIVERSITI TEKNOLOGI MALAYSIA

Universiti Teknologi Malaysia (UTM), a leading research university in engineering, science, and technology, is widely recognized for its excellence and leadership in these fields. As Malaysia's largest engineering-based university, UTM offers a diverse range of programmes across all levels of tertiary education. UTM operates three campuses: the city campus in Kuala Lumpur, the capital of Malaysia; the main tropical campus in Johor Bahru, located within Iskandar Malaysia—a dynamic economic corridor in the southern region of Peninsular Malaysia; and the Agri Campus in Pagoh, situated within the Pagoh Education Hub in northern Johor.



UTM STUDENTS & ALUMNI STATISTICS

STUDENTS	ALUMNI
 Total Students 37,629	 Alumni 257,377
 Undergraduate Students 24,100	 Local Alumni 243,039
 Master Students 3,782	 International Alumni 14,338
 PhD Students 4,458	 Countries 102
 International Students 5,289	

(Data as of March 2026)

FACULTY OF BUILT ENVIRONMENT AND SURVEYING

The Faculty of Built Environment and Surveying (FABU) was established in 2018 through the strategic merger of two faculties: the Faculty of Built Environment (FAB) and the Faculty of Geoinformation and Real Estate (FGHT). FABU currently offers 23 academic programmes, including 9 undergraduate programmes, 11 Master's programmes by coursework, 1 Master's programme by research, 1 Doctor of Philosophy (PhD) programme, and 1 Doctor of Professional Practice programme. These programmes cover six core disciplines within the built environment: Architecture, Landscape Architecture, Quantity Surveying, Geoinformation, Real Estate, and Urban and Regional Planning.

With the tagline "FABULOUS!", the Faculty of Built Environment and Surveying (FABU) combines academic excellence with strong industry engagement. This unique blend is driven by innovative educational programmes and robust partnerships with industry leaders and alumni.

FABU's strength lies in its dedicated community of 188 academic staff and 82 support personnel (PPP), all united in the pursuit of excellence and guided by five core values: Resilient | Inclusive | Creative | Collaborative | Harmonious. Committed to nurturing top-tier professionals, FABU aspires to be the preferred destination for high-quality education and to produce graduates of exceptional calibre.

Positioning at 25th QS Asia University Rankings 2026, 153rd QS World University Rankings 2026 and Top 50th QS World University Ranking by Subject 2026, showcasing excellence in Built Environment and Architecture. FABU also have strong academic reputation with significant research contributions and recognition from professional bodies.

	PROFESSIONAL BODY	ACCREDITED PROGRAM
	Board of Architects Malaysia/ Lembaga Arkitek Malaysia (LAM)	• Bachelor of Science in Architecture with Honours • Master of Architecture
	Board of Valuers, Appraisers, Estate Agents and Property Managers (BOVAEP) / Lembaga Penilai, Pentaksir, Ejen Harta Tanah dan Pengurus Harta (LPEPH)	• Bachelor of Real Estate with Honours • Bachelor of Science in Land Administration and Development with Honours
	Board of Quantity Surveyors Malaysia / Lembaga Juruukur Bahan Malaysia (BQSM)	• Bachelor of Quantity Surveying with Honours

	Land Surveyors Board Malaysia / Lembaga Jurukur Tanah (LJT)	• Bachelor of Geomatics Engineering with Honours
	Board of Town Planners Malaysia / Lembaga Perancang Bandar Malaysia (LPBM)	• Bachelor of Urban and Regional Planning with Honours
 Institute of Landscape Architects Malaysia (ILAM)	Institute of Landscape Architects Malaysia / Institut Landskap Arkitek Malaysia (ILAM)	• Bachelor of Landscape Architecture with Honours
	Malaysia Board of Technologists / Lembaga Teknologis Malaysia (MBOT)	• Bachelor of Science in Geoinformatics with Honours
	Malaysian Qualifications Agency (MQA) Self-Accreditation / Agensi Kelayakan Malaysia (MQA) Swaakreditasi	• Bachelor of Landscape Architecture with Honours • Bachelor of Science in Construction with Honours • All Postgraduate Program

03 EXECUTIVE COMMITTEE MEMBERS

Faculty of Built Environment and Surveying

Executive Committee Members 2026



04 UNDERGRADUATE PROGRAMMES

The undergraduate programmes at the faculty consist of the following:

BACHELOR OF SCIENCE IN ARCHITECTURE WITH HONOURS /

SARJANA MUDA SAINS SENIBINA DENGAN KEPUJIAN

BACHELOR OF LANDSCAPE ARCHITECTURE WITH HONOURS /

SARJANA MUDA SENIBINA LANDSKAP DENGAN KEPUJIAN

BACHELOR OF QUANTITY SURVEYING WITH HONOURS /

SARJANA MUDA UKUR BAHAN DENGAN KEPUJIAN

BACHELOR OF SCIENCE IN CONSTRUCTION WITH HONOURS /

SARJANA MUDA SAINS PEMBINAAN DENGAN KEPUJIAN

BACHELOR OF URBAN AND REGIONAL PLANNING WITH HONOURS /

SARJANA MUDA PERANCANGAN BANDAR DAN WILAYAH DENGAN KEPUJIAN

BACHELOR OF SCIENCE IN GEOINFORMATICS WITH HONOURS /

SARJANA MUDA SAINS GEOINFORMATIK DENGAN KEPUJIAN

BACHELOR OF GEOMATICS ENGINEERING WITH HONOURS /

SARJANA MUDA KEJURUTERAAN GEOMATIK DENGAN KEPUJIAN

BACHELOR OF SCIENCE IN LAND ADMINISTRATION AND DEVELOPMENT WITH HONOURS /

SARJANA MUDA SAINS PENTADBIRAN DAN PEMBANGUNAN TANAH DENGAN KEPUJIAN

BACHELOR OF REAL ESTATE WITH HONOURS /

SARJANA MUDA HARTA TANAH DENGAN KEPUJIAN

Following are the details of each programme including the syllabus.

**** With Honours for 2020/2021 session onward**

05 BACHELOR OF SCIENCE IN ARCHITECTURE WITH HONOURS

INTRODUCTION

Architecture is the art and science of building. Its activities encompass the design, development and planning of the built environment as well as managing the construction process. Architects play a key role in creating buildings and habitats that serve as integrated solutions to issues and contexts as diverse as design, research, practice, construction, socio-culture, human behaviour, history, and the environment. An architect's design could extend from working places and simple individual living, to communal and urban living of the society. Such a role demands highly professional and ethical individuals in creating a better built environment. The Bachelor of Science in Architecture with Honours programme at UTM is designed to produce individuals that can fulfil this role.

The Bachelor of Science in Architecture with Honours Programme is a professional degree that is equivalent to the professional qualification of the Board of Architects Malaysia Part I (LAM Part I), which is the first part of a two-tier architecture programme. The programme emphasises on architectural design skills based on studio projects and complementary courses. Competent skills and knowledge addressed with the programme, contribute to the development of architecture within the National framework, for sustainable development. The continuation of the Board of Architects Malaysia Part II is addressed in the Master of Architecture programme.

NAME OF AWARD

Bachelor of Science in Architecture with Honours [BSc.Arch.Hons.]

PHILOSOPHY

The Divine words are the foundation for knowledge in architecture. Humanity and the built environment are the beneficiaries of architectural excellence. UTM's Architecture Program strives with holistic conviction to acquire excellence in architectural design through creative knowledge and technology for the propagation and advancement of a caring and sustainable built environment.

AIM

The aim of the programme is to train and produce qualified professional architects (LAM Part I) with a degree in Bachelor of Science in Architecture with Honours. The program provides essential knowledge and skills in the core areas of design, communication, technology, environment, culture and practice; while committed to develop students' creative, innovative and versatile qualities with the essential generic skills and ethics required.

PROGRAMME EDUCATIONAL OBJECTIVES

The Bachelor of Science in Architecture with Honours programme shall produce Assistant Architects who are:

- PEO1 Knowledgeable and technically competent in line with the professional qualification of Board of Architects Malaysia Part I.
- PEO2 Professionally ethical, aware and responsive to the values of humanity and sustainability.
- PEO3 Competitive, effectively communicative and contributive to working teams.

PROGRAMME LEARNING OUTCOMES

At the end of this programme, students will be able to:

- PLO1 KNOWLEDGE AND UNDERSTANDING [KW] Specify and articulate knowledge in relation to architecture.
- PLO2 COGNITIVE SKILLS [CG] Identify, analyze and integrate architectural knowledge from various sources in producing potential solutions.
- PLO3 PRACTICAL SKILLS [PS] Produce feasible solutions with consideration of appropriate design approach, process using effective architectural presentation.
- PLO4 INTERPERSONAL SKILLS [IPS] Capable of working in a team and negotiate responsibly, adapting in various working environments and time conditions.
- PLO5 COMMUNICATION SKILLS [CS] Convey ideas and explain architectural solutions clearly and appropriately in verbal and written form to a given audience.
- PLO6 DIGITAL SKILLS [DS] Adopt and operate a broad range of digital tools for knowledge sourcing, information processing and formulating potential solutions.
- PLO7 NUMERACY SKILLS [NS] Comply to values set in architectural standards, regulations, guidelines, parameters and universal conventions.
- PLO8 LEADERSHIP, AUTONOMY & RESPONSIBILITY [LAR] Demonstrating ability to lead and manage cooperatively towards fulfilling pre-determined goals through effective decision making and capacity-building.
- PLO9 PERSONAL SKILLS [PRS] Adapt to the changing environments, engage in continuous learning, employing new knowledge and skills to address new challenges in the context of professional development.
- PLO10 ENTREPRENEURIAL SKILLS [ENT] Exhibit entrepreneurial skills in architectural or related creative endeavours.
- PLO11 ETHICS AND PROFESSIONALISM SKILLS [ETS] Interpret collective responsibilities of architects in general and codes of architectural ethics particularly within the framework of accountability of architecture towards humanity.

PROGRAMME ACCREDITATION

The Bachelor of Science in Architecture With Honours programme at Universiti Teknologi Malaysia (UTM) is recognised by the Board of Architects Malaysia (Lembaga Arkitek Malaysia, LAM). UTM's architecture programme holds a distinguished position as one of the earliest architecture programmes in the country to receive recognition from LAM.

The architecture education pathway at UTM comprises a three-year Bachelor of Science in Architecture programme, accredited as LAM Part I, followed by a two-year Master of Architecture programme, accredited as LAM Part II.

Graduates who successfully complete both the Bachelor of Science in Architecture with Honours and Master of Architecture programmes, and subsequently obtain a minimum of two years of relevant practical experience, are eligible to sit for the LAM Part III Professional Examination. Successful completion of this examination enables graduates to fulfil the requirements for registration as Professional Architects in Malaysia.

CAREER PROSPECTS

Graduates from this program are competent to work in both public and private sectors as architectural officer, assistant architect, building designer, project supervisor, design consultant and other architectural design-based interests.

MODE AND DURATION OF STUDY

Mode of Study : Full-time

Minimum Duration : 3 years

Maximum Duration : 4.5 years

CLASSIFICATION OF COURSES

Courses offered under this programme are based on the classification scheme shown in the table below:

Classification	Course Group	Credits	Total credit hours	Percentage
1. Programme Core	A. Design	49	68	57
	B. Research & Communication	5		
	C. Technology & Environment	6		
	D. Cultural Context	5		
	E. Practice & Management	3		
2. Elective Courses	EA, EB, EC, ED + Free Elective Courses	36	36	30
3. General Courses	F. General Courses	16	16	13
Total credit hours to graduate			120	100

AWARD REQUIREMENTS

To be eligible to graduate from this programme, students must complete a total of 120 credit hours or more, accumulated from courses set according to the classification scheme shown, with a minimum CGPA of 2.0.

LIST OF COURSES ACCORDING TO SEMESTER (MATRICULATION/STPM)

Year 1 [Semester 1]

Courses	Course Group	Prerequisite	Credit	Total Credit
SBEA1118 Design 1	A		8	17
SBEA1212 Basic Architectural Communication	B		2	
SBEA1512 Introduction to Architectural History	D		2	
SBEA1223 Basic Architectural Computing	B		3	
ULRS1122 Aspirasi Negara Bangsa (Local Students Only)	F		2	
ULRS1132 Citra Malaysia (International Students Only)	F		2	

Year 1 [Semester 2]

Courses	Course Group	Prerequisite	Credit	Total Credit
SBEA1128 Design 2	A	SBEA1118	8	18
SBEA2523 Theory of Design	D		3	
SBEA1313 Structure and Construction 1	C		3	
UHLB1112 English Communication Skills (For 3.5 and below only)	F		HL	
ULRS1042 Falsafah dan Cabaran Semasa (Local Students Only)	F		2	
UHLM1012 Bahasa Melayu Komunikasi 2 (International Student Only)	F		2	
ULRF2XX2 Kursus Pembelajaran Servis & Penglibatan Komuniti	F		2	

Year 1 [Semester 3] *Short Semester

Courses	Course Group	Prerequisite	Credit	Total Credit
SBEA1913 Elective D (Construction Practice)	ED		3	6
SBEA1923 Elective D (Outreach Program)	ED		3	

Year 2 [Semester 1]

Courses	Course Group	Prerequisite	Credit	Total Credit
SBEA2138 Design 3	A	SBEA1128	8	18
SBEA2713 Elective B (Environmental Science and Sustainability)	EB		3	
SBEA3843 Elective C (Architecture & Human Behaviour)	EC		3	
UHLB2122 Professional Communication Skills 1	F	UHLB1112	2	
XXXX0000 Free Elective 1 (From other faculties- 2 or 3 credits depending on availability, will affect on total credit hours).	Free Elective		2	

Year 2 [Semester 2]

Courses	Course Group	Prerequisite	Credit	Total Credit
SBEA2148 Design 4	A	SBEA2138	8	18
SBEA2323 Building Services	C		3	
SBEA2723 Elective B (Structure and Construction 2)	EB		3	
SBEA2812 Elective C (Theory of Modern Architecture)	EC		2	
ULRS1032 Kursus Integriti dan Anti Rasuah	F		2	

Year 2 [Semester 3] *Short Semester

Courses	Course Group	Prerequisite	Credit	Total Credit
SBEA2823 Elective C (Heritage Studies)	EC		3	6
SBEA2933 Elective D (Measured Drawing)	ED		3	

Year 3 [Semester 1]

Courses	Course Group	Prerequisite	Credit	Total Credit
SBEA3158 Design 5	A	SBEA2148	8	18
SBEA3623 Elective A (CAD & BIM)	EA		3	
SBEA3853 Elective C (Architectural Heritage & Conservation)	EC		3	
ULRS3032 Keusahawanan dan Inovasi	F		2	
XXXX0000 Free Elective 2 (From other faculties- 2 or 3 credits depends on availability, will affect on total credit hours).	Free Elective		2	

Year 3 [Semester 2]

Courses	Course Group	Prerequisite	Credit	Total Credit
SBEA3169 Design 6	A	SBEA3158	9	19
SBEA3413 Architectural Management & Practice	E		3	
SBEA3733 Elective B (Building Integration and Performance)	EB		3	
UHLXXX2 Elective Foreign Language	F	UHLB2122	2	
UHLB3132 Kemahiran Komunikasi Profesional 2	F		2	

LIST OF ELECTIVE COURSES

Courses	Course Group	Prerequisite	Credit
ELECTIVE GROUP A (EA)			
1. SBEA3613 Digital Visualization	EA	–	3
2. SBEA3623 CAD & BIM	EA	–	3
<i>Choose one (1) from this group (*Refer to Study Plan for course availability)</i>			
Courses	Course Group	Prerequisite	Credit
ELECTIVE GROUP B (EB)			
1. SBEA2713 Environmental Science & Sustainability	EB	–	3
2. SBEA2723 Structure and Construction 2	EB	–	3
3. SBEA3733 Building Integration Performance	EB	–	3
4. SBEA3743 Energy Conscious Design	EB	–	3
<i>Choose three (3) from this group</i>			
ELECTIVES GROUP C (EC)			
1. SBEA2812 Theory of Modern Architecture	EC	–	2
2. SBEA2823 Heritage Studies	EC	–	3
3. SBEA3833 Architectural Theory and Criticism	EC	–	3
4. SBEA3843 Architecture and Human Behaviour	EC	–	3
5. SBEA3853 Architectural Heritage and Conservation	EC	–	3
<i>Choose one (3) from this group (*Refer to Study Plan for course availability)</i>			
ELECTIVES GROUP D (ED)			
1. SBEA1913 Construction Practice	ED	–	3
2. SBEA1923 Outreach	ED	–	3
3. SBEA2933 Measured Drawing	ED	–	3
<i>Choose one (3) from this group (*Refer to Study Plan for course availability)</i>			

Total credit of Elective EA + EB + EC + ED = 29

// SYLLABUS SYNOPSES

Syllabus synopses listed under this section covers only the core and elective courses offered in this programme. Syllabus synopses for university courses are listed in the University General Courses section.

SBEA1118 DESIGN 1

Design 1 is a foundational studio course introducing fundamental theories of design elements, principles, and architectural design thinking. Through progressive, project-driven studio exercises, students develop skills in creative idea generation, 2D and 3D composition, spatial organization, and systematic design processes. The course emphasizes observation, critical thinking, and the application of human–environment relationships, ergonomics, anthropometrics, scale, and proportion in design decisions. Learning is supported through hands-on exploration, iterative development, critiques, and collaborative learning. Upon completion, students will be able to apply fundamental design principles, analyze spatial and human-scale relationships, and synthesize coherent architectural design proposals.

SBEA1128 DESIGN 2 (PRE-REQUISITE SBEA1118 DESIGN 1)

Design 2 introduces more comprehensive architectural design tasks through the advanced application of design theory, elements, and principles. Students respond to user and client requirements, site context, spatial programming, environmental considerations, and basic building construction and structural systems. Through projects including Shelter, Building Appraisal, and An Artist Retreat, students develop critical thinking, creativity, and design skills while integrating form making, site planning, precedent studies, construction technology, and user needs. The course emphasizes systematic design processes, enabling students to imagine, analyse, and synthesise solutions. Collaborative teamwork further develops collective design processes and outcomes.

SBEA2138 DESIGN 3 (PRE-REQUISITE SBEA1128 DESIGN 2)

SBEA2138 Design 3 is an intermediate studio course that develops students' sensitivity to architecture within cultural, social, and environmental contexts, emphasizing space-making and place-making. Through projects on Public Interface – Entrance Gate Design and Cultural Community Design, students explore heritage, contextual architecture, cultural narratives, site analysis, and architectural detailing. The course integrates environmental, cultural, and user considerations through a project-driven studio approach involving contextual analysis, iterative design development, scale modelling, and critiques. Upon completion, students will be able to analyze contextual factors and synthesize culturally responsive architectural proposals that balance function, meaning, and spatial quality.

SBEA2148 DESIGN 4 (PRE-REQUISITE SBEA2138 DESIGN 3)

SBEA2148 Design 4 focuses on Environmentally Responsive Design, developing students as 'Translator' designers who integrate ecological principles into architectural practice. The course introduces green architecture, sustainable environments, and bioclimatic theory, with emphasis on passive strategies such as daylighting, natural ventilation, and energy efficiency. Through three phases—Generative Form Making (P1), Site Analysis (T1), and Individual Design Project (P2)—students explore environmental potentials, assess climatic conditions, and develop climate-responsive architectural proposals. Upon completion, students will be able to critically assess environmental factors and integrate sustainable strategies into resilient and responsible architectural solutions.

SBEA3158 DESIGN 5 (PRE-REQUISITE SBEA2148 DESIGN 4)

This advanced studio course adopts an exploratory and pragmatic approach to architectural design, emphasizing the integration of multiple parameters and constraints into coherent and feasible solutions. Students develop project briefs supported by case studies, site analysis, and data collection, integrating SDGs, stakeholder requirements, UBL and regulations, contextual, economic, policy, technological, and construction considerations. Through an intensive, problem-driven studio approach, students undertake independent inquiry, iterative development, technical integration, and structured critiques. Upon completion, students will be able to analyze complex parameters and synthesize contextual, regulatory, technical, and stakeholder requirements into feasible, compliant, and professionally resolved architectural proposals.

SBEA3169 DESIGN 6 (PRE-REQUISITE SBEA3158 DESIGN 5)

This course is the final capstone studio of the B.Sc. Architecture (Hons.) programme, culminating in a Design Mini-Thesis (Projek Sarjana Muda). Students formulate their own project brief and develop a medium-scale, multifunctional building complex responding to site, stakeholder, contextual, regulatory, technological, and sustainability considerations. The course emphasizes analytical and innovative design thinking, site planning, spatial organization, structural integration, architectural language, and professional communication. Through independent research, supervision, critiques, and iterative reviews, students synthesize complex parameters into coherent, feasible, and buildable architectural proposals supported by a comprehensive thesis report.

SBEA1212 BASIC ARCHITECTURAL COMMUNICATION

This foundational course introduces communication skills essential to architectural practice, covering graphic, verbal, and portfolio presentation. Students develop freehand drawing, sketching, rendering, architectural draughtsmanship, orthographic drawing, and verbal presentation skills. The course also guides students in compiling coherent architectural portfolios. Through demonstrations, hands-on exercises, studio tasks, and presentation sessions, students progressively strengthen their communication competence. Upon completion, students will be able to apply fundamental graphic techniques, produce architectural drawings according to established conventions, communicate design ideas effectively, and compile professional architectural portfolios demonstrating clear and structured visual and verbal communication.

SBEA1223 BASIC ARCHITECTURAL COMPUTING

This foundational course introduces architectural computing and develops essential skills in using digital tools for architectural design and documentation. It covers three main areas: desktop publishing, 2D architectural drafting, and 3D modelling. Through hands-on, exercise-based learning, students explore multiple software platforms, their functions, strengths, and appropriate applications. Learning progresses from basic operations to integrated drawing and documentation tasks. Upon completion, students will be able to demonstrate basic competency in architectural software, produce drawings according to standard conventions and formats, and select appropriate digital tools for specific architectural tasks.

SBEA2933 MEASURED DRAWING

Historic buildings are valuable assets that reflect architectural design, craftsmanship, culture, history, and environmental factors. Their significant features highlight the importance of preservation, reuse, and documentation. In response to the loss of historic buildings in Malaysia, the UTM Architecture Programme has conducted measured drawing of historic buildings since 1975. This research-based and practice-oriented course integrates seminars, fieldwork, and studio work, incorporating technologies such as laser scanning, 3D modelling, photogrammetry, and LiDAR. Students work in groups to document selected significant buildings based on historical and typological value, producing comprehensive architectural drawings and documentation under supervision.

SBEA3623 CAD & BIM

This course introduces Building Information Modelling (BIM) and computer-aided design (CADD) software for producing comprehensive architectural working drawings according to established conventions and formats. Students develop proficiency in creating higher-quality 2D and 3D technical drawings, presentations, and integrating relevant audio-visual applications. Assessment focuses on their ability to integrate diverse information into cohesive architectural presentations and effectively apply digital tools. By the end of the course, students will be able to produce architectural drawings using CADD and BIM software in accordance with professional drawing conventions.

SBEA3613 DIGITAL VISUALIZATION

The aim of the course is to enable students to apply a variety of software. The course also introduces more advanced scenarios for students to deal with in relation to producing more effective usage of the software prescribed and better CAD presentation. Students are assessed in their ability to integrate the use of various software in order to produce more comprehensive presentation. Further assessment includes the ability to employ 2D and 3D visual applications appropriately in conjunction with the use of relevant audio and video technology.

SBEA1313 STRUCTURE AND CONSTRUCTION 1

This course introduces conventional building structures and construction methods, focusing on timber, steel, concrete, masonry, and composite materials. Students develop fundamental knowledge of material properties, applications, and building component configurations for short-span architectural projects of 3–6 metres and single- to double-storey buildings. Lectures cover construction theory and basic structural principles through two modules: Building Construction and Building Structure. The course provides essential technical knowledge to support students in developing structurally sound and constructible architectural designs.

SBEA1913 CONSTRUCTION PRACTICE

This course provides fundamental knowledge of modern construction principles, methods, and management, covering site organization, construction technology, health and safety, quality control, and sustainability. Through practical assignments, students explore construction practices at different scales, from 1:1 applications to scaled construction detail models. The Site Visit Report develops skills in site observation, documentation, measurement, analysis, and report writing through sketches, photographs, and interviews. Construction Detailing enables students to demonstrate knowledge, creativity, and innovation through the development of a selected building construction component and scale model.

SBEA2723 STRUCTURE AND CONSTRUCTION 2

Structure and Construction II advances students' understanding of integrating architectural design with innovative structural systems and construction techniques. The course explores advanced systems including exoskeletons, spaceframes, tensile structures, and steel and composite frameworks, alongside high-performance materials such as engineered timber, RCC, and steel. Students develop knowledge of load behaviour, graphical analysis, structural optimization, and design efficiency. Through application in complex architectural contexts, students develop a critical approach to selecting and integrating appropriate structural and construction methods to support innovative and efficient architectural design.

SBEA2713 ENVIRONMENTAL SCIENCE AND SUSTAINABILITY

This course introduces climate, weather, and environmental physics in relation to climate-responsive building design. Students explore sun path, solar heat gain, humidity, airflow, natural lighting, and acoustics, with emphasis on passive climatic strategies, thermal comfort, and energy efficiency. The course examines traditional climatic solutions and their adaptation to contemporary sustainable architecture. Through lectures, applied exercises, environmental measurements, and basic experiments, students develop practical understanding of building performance. Upon completion, students will be able to analyze environmental factors, apply environmental physics principles, and evaluate strategies for thermal comfort and energy-efficient design.

SBEA2323 BUILDING SERVICES

This course introduces building science and technology, focusing on integrating essential building services within small- to medium-complexity buildings. Students explore water supply, drainage, sanitary systems, electrical distribution, mechanical ventilation and air conditioning, fire-fighting systems, and vertical circulation, including lifts and escalators. Emphasis is placed on compliance with UBBL and Malaysian Standards. Through lectures, case studies, and project-driven integration exercises, students develop the ability to evaluate and synthesize technical systems into coherent architectural designs that enhance building performance while maintaining spatial and aesthetic integrity.

SBEA3743 ENERGY CONSCIOUS DESIGN

The course gives emphasis on human comfort and energy saving concept and criteria in architecture and building design. The scope of the architecture solutions may be passive or mechanical that illustrates climatic understanding and the use of appropriate technological solutions in architecture design with particular emphasis on tropical climate.

SBEA3733 BUILDING INTEGRATION AND PERFORMANCE

This intermediate course introduces the integration of architectural design with building systems to achieve safe, comfortable, energy-efficient, and sustainable built environments. It covers building climatology, performance evaluation, environmental technologies such as HVAC and lighting, intelligent building management systems, sustainable construction, and economic evaluation. Students examine the integration of technical systems with building form, spatial planning, façades, and structural systems. Through lectures, tutorials, case studies, and project-based activities integrated with design studio, students develop the ability to analyze building performance and apply integrated strategies to produce efficient and sustainable architectural solutions.

SBEA1512 INTRODUCTION TO ARCHITECTURAL HISTORY

This foundational course introduces the history and evolution of architecture, exploring significant civilisations, architectural styles, construction techniques, cultural contexts, and design philosophies from early settlements to major historical eras. Students examine the characteristics and significance of architectural works within their social, political, and technological settings, while understanding factors influencing architectural transformation. Through lectures, visual analyses, readings, and guided discussions, students develop critical interpretation skills. Upon completion, students will be able to identify and analyze architectural styles, evaluate historical and cultural influences, and apply historical knowledge to inform contextually responsive design thinking.

SBEA2523 THEORY OF DESIGN

Design is viewed as the core discipline of architectural practice. The course is an introduction to various essential knowledge and method, strategies of design applicable within the architectural and urban field. It will cover the process and related parameters such as processes, methods and knowledge on various issues like design creativity, problem solving, planning, space, form and place making, behaviour, culture and sustainability.

SBEA2812 THEORY OF MODERN ARCHITECTURE

This intermediate course explores the development of modern architectural movements from the nineteenth to twentieth century, examining their theoretical, cultural, technological, and socio-political foundations. Students study major modernist movements, influential architects, architectural typologies, and the impact of industrialization and technological innovation on architectural thought. Selected Malaysian case studies illustrate the interpretation and adaptation of modern architectural ideas within the local context. Through lectures, readings, case studies, and critical discussions, students develop the ability to analyze modern architectural movements, evaluate their influencing factors, and relate architectural theories to the Malaysian context.

SBEA2823 HERITAGE STUDIES

This course introduces the importance of written and visual documentation in understanding the historical significance, function, and architectural value of historic buildings and sites. The Heritage Study course provides students with knowledge of heritage conservation principles through theoretical lectures, measured drawing, case studies, and fieldwork. Students examine the cultural and architectural values of heritage buildings and challenges related to their documentation and preservation. Upon completion, students will be able to understand heritage significance and produce comprehensive reports and visual documentation of historic buildings.

SBEA3833 ARCHITECTURAL THEORY AND CRITICISM

The course relates to the appraisal and critiques of modern and contemporary theories and discourses emanating as critical responses to architectural developments of the early 20th century to the present day. The main objective of this course is to be able to develop evidence-based critique in verbal and written form based on established philosophical and theoretical frameworks. Students are further encouraged to expound fundamental and critical theories of architecture through case studies by local and foreign architects and to also take examples of students' own studio design works. The aim is to expound on the themes, positions, and values represented in those works and to critically outline their theoretical tendencies and prevalent discourses.

SBEA3843 ARCHITECTURE AND HUMAN BEHAVIOUR

Architecture and Human Behaviour is a research-based course exploring the dynamic relationship between the built environment and human behaviour. Students examine how architectural design influences psychological, social, cultural, and behavioural responses, including the effects of spatial arrangements, materials, lighting, and environmental factors on human perception and well-being. The course integrates environmental psychology with designer- and user-based interactions, including designer-stakeholder relationships. Through systematic inquiry techniques and research-based approaches, students develop the ability to apply knowledge of human behaviour to architectural design processes and decision-making.

BEA3853 ARCHITECTURAL HERITAGE AND CONSERVATION

This course introduces key concepts, principles, and practices in architectural heritage conservation, providing theoretical and practical understanding within Malaysian and international contexts. Topics include architectural and cultural heritage, international and local conservation charters, ratifications, legislation and regulations, UNESCO World Heritage sites, and contemporary interventions in Malaysian heritage settings. Through lectures, case studies, and critical discussions, students analyse selected heritage projects and evaluate appropriate conservation approaches and compliance with relevant frameworks. Upon completion, students will be able to apply conservation principles, evaluate preservation methods, interpret legal and international requirements, and develop basic heritage protection and management strategies.

SBEA1923 OUTREACH PROGRAM

This student-led programme enhances architectural education through practical, community-oriented and experiential learning activities, including exhibitions, competitions, conferences, seminars, community outreach, student exchanges, academic visits, service learning, knowledge transfer, and expeditions. Students independently manage operational and logistical aspects, developing organizational and teamwork skills. The programme emphasizes scholarly and professional attitudes, communication, leadership, and community engagement. Through collaborative activities and structured assessment, students develop generic and professional competencies while applying architectural knowledge in diverse real-world contexts, preparing them for meaningful contributions to the architectural profession and wider community.

SBEA3413 ARCHITECTURAL PRACTICE AND MANAGEMENT

This advanced course introduces architectural management and professional practice within the Malaysian construction industry, focusing on the legal, regulatory, and professional frameworks governing architectural practice. Topics include LAM and PAM registration, office establishment, consultant appointments, professional fees, basic architectural services, the Architects Act, UBBL, and local authority requirements. Through lectures and integration with SBEA3169 Design 6, students examine professional workflows from schematic design to project completion. Upon completion, students will be able to evaluate stakeholder interfaces, manage statutory and professional obligations, and apply contract documentation and project implementation strategies in architectural practice.

06 BACHELOR OF LANDSCAPE ARCHITECTURE WITH HONOURS

INTRODUCTION

The programme was designed and implemented in 1993 and was inspired by the core understanding of Man as the steward of the Earth and based on the design and built philosophy. It aims to produce professionals who are competent and technically knowledgeable, critical and creative in problem-solving on issues pertaining to aspects of heritage, tropical, urban and natural resources.

Landscape architecture combines both art and science. It is a profession that involves the design, planning and management of exterior spaces using land and water elements to create outdoor spaces which are practical and aesthetically pleasant. A landscape architect's work adds value and provides a comfortable outdoor environment in residential areas, work areas and play spaces. Landscape architecture is a discipline that covers a diverse scope of work ranging from the design of exterior landscapes within urban, rural, communal, ecological and regional areas to interior spaces. Landscape architects serve not only as designers but also to create landscapes that respond to human habitation in diverse cultural and ecological contexts.

NAME OF AWARD

Bachelor of Landscape Architecture with Honours [B.LArch (Hons)]

PHILOSOPHY

The philosophy is primarily based on the landscape architectural design and built pedagogy, which is in parallel with the needs and aspirations of the industry, society and the nation.

AIM

To educate and produce graduates in landscape architecture who are able to plan, design and manage landscape works.

PROGRAMME EDUCATIONAL OBJECTIVES

The Bachelor of Landscape Architecture with Honours programme is designed to produce graduates who will be:

- PEO1 Competent in solving design and project-related problems logically, creatively and analytically based on knowledge and ideas.
- PEO2 Demonstrate proficiency in communication skills and other relevant soft skills.
- PEO3 Competent in analysing a landscaped community and integrating the related natural and biological systems in a sustainable manner as societal responsibilities.
- PEO4 Meets the landscape environment's challenges with professional integrity and ethics and acquiring lifelong learning and entrepreneurship skills.

PROGRAMME LEARNING OUTCOMES

The intended learning outcomes of the Bachelor of Landscape Architecture with Honours programme are:

- PLO1 Describe the theoretical, philosophical, and practical dimensions of landscape architectural planning and design in relation to culture, technology, and environmental aspects.
- PLO2 Apply landscape architectural knowledge in landscape design.
- PLO3 Demonstrate professional commitment and competence in the practice of landscape architecture in compliance with the code of work ethics and personality.
- PLO4 Perform the challenges of working in an organisation or group with interactive communication, good relationships, networking and social skills.
- PLO5 Demonstrates the ability to communicate effectively with many definable facets of landscape design via visual, verbal, as well as information and communication technology (ICT).
- PLO6 Illustrate the ability to use and handle information technology for landscape architectural works.
- PLO7 Display-wise decisions by critically evaluating and prioritising tasks according to relevance and importance.
- PLO8 Demonstrate leadership, responsibility and teamwork skills through the process of aligning and managing the challenges of working in an organisation or group.
- PLO9 Act independently with limited resources and uncertain situations to acquire landscape architectural knowledge.
- PLO10 Practice with the right mindset to undertake landscape entrepreneurial and management challenges.
- PLO11 Demonstrates traits of an individual willing to address the borderless global issues and explore the different social, cultural, political, and institutional backgrounds

PROGRAMME ACCREDITATION

The Bachelor of Landscape Architecture with Honours programme is recognised by the Institute of Landscape Architects Malaysia (ILAM) and the Malaysian Public Service Department (JPA). The programme is accredited by the Malaysian Qualifications Agency (MQA) and is listed in the Malaysian Qualifications Register (MQR). Graduates of the Bachelor of Landscape Architecture with Honours programme at UTM are eligible to register as Graduate Members of the Institute of Landscape Architects Malaysia (ILAM).

CAREER PROSPECTS

Graduates of the programme may pursue careers in a wide range of multidisciplinary fields, particularly in the following sectors:

1. Landscape architects
2. Research officers at research institutions, universities and industries
3. Academicians at universities, polytechnics and colleges
4. Government Officers in local authorities and relevant government agencies
5. Graphic illustrators and designers
6. Nursery operators
7. Landscape contractors
8. Landscape managers

MODE AND DURATION OF STUDY

Mode of Study : Full-time

Minimum Duration : 4 years

Maximum Duration : 6 years

CLASSIFICATION OF COURSES

Courses offered under this program are based on the classification scheme shown in the table below:

Classification	Course Group	Credits	Total credit hours	Percentage
1. Programme Core	A. Design	47	74	58
	B. Integrated Technology	14		
	C. Man & Environment	13		
2. Elective Courses	D. Elective Courses	37	37	29
3. General Courses	E. General Courses	16	16	13
Total credit hours to graduate			127	100

AWARD REQUIREMENTS

To graduate, students must achieve a total of not less than 127 credit hours accumulated from courses that are set according to the classification scheme shown in the Classification of Courses section, with a minimum CGPA of 2.0.

LIST OF COURSES ACCORDING TO SEMESTER (MATRICULATION/STPM)

Semester 1

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEZ1404 Basic Design 1	A		4	17
2. SBEZ1893 Horticulture, Nursery & Ornamental Plant Materials	C		3	
3. SBEZ1662 Landscape Ecology	D		2	
4. SBEZ1642 Design Communication	D		2	
5. SBEZ1652 Introduction to Landscape Architecture	D		2	
6. ULRS1122 Malaysian Nation-State Aspiration*	E		2*	
7. ULRS1132 Malaysian Citra**	E		2**	
8. ULRS1042 Philosophy and Current Challenges*	E		2*	
9. UHLM1012 Malay Language for Communication 2 **	E		2**	

Note: *ULRS1122 & ULRS1042 is for local students only.

**ULRS1132 & UHLM1012 is for international students only.

Semester 2

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEZ1494 Basic Design 2	A	SBEZ1404	4	16*
2. SBEZ1883 Basic Landscape Construction	B		3	
3. SBEZ1813 Site Planning	D		3	
4. SBEZ1822 Digital Landscape Representation	D		2	
5. UHLB1112 English Communication Skills (HW)*	D		(HL)	
6. ULRS1032 Integrity and Anti Corruption	E		2	
7. ULRF2XX2 Service Learning & Community Engagement Courses	E		2	

Note: *UHLB1112 is compulsory only for students with MUET Band 1,2, 3 and 3.5. HW: Compulsory Hadir Wajib Course.

Semester 3

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEZ2505 Community Landscape and Park Design	A	SBEZ1494	5	18
2. SBEZ2903 Planting Design & Technology 1	B		3	
3. SBEZ2833 History of Landscape and Architecture	D		3	
4. SBEZ2692 Park and Recreational Planning	D		2	
5. UHLB2122 Professional Communication Skills 1	E	UHLB1112	2	
6. xxxx***3 Free Elective*	E		3	

Note: *Free elective courses to be advised by academic advisor (Free Elective Courses offered across faculty)

Semester 4

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEZ2435 Urban Landscape Design	A	SBEZ2505	5	15
2. SBEZ2602 Heritage Landscape & Conservation	C		2	
3. SBEZ2612 Professional Practice 1	C		2	
4. SBEZ2722 Resource Planning & Management	D		2	
5. UHLB3132 Professional Communication Skills 2	E	UHLB2122	2	
6. UHLx1112 Elective Foreign Language	E		2	

Semester 5

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEZ3445 Landscape Resource Planning	A	SBEZ2435	5	17
2. SBEZ3512 Advanced Landscape Construction 1	B		2	
3. SBEZ3913 Planting Design & Technology 2	B	SBEZ2903	3	
4. SBEZ3622 Professional Practice 2	C	SBEZ2612	2	
5. SBEZ3843 GIS For Landscape Application	D		3	
6. ULRS3032 Entrepreneurship & Innovations	E		2	

Semester 6

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEZ3458 Industrial Training 1 (HW)	A	SBEZ3445	8	12
2. SBEZ3464 Industrial Training 2	A	SBEZ3445	4	

Note: HW: Compulsory Hadir Wajib Course.

Semester 7

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEZ4516 Design Thesis 1	A	SBEZ3458 SBEZ3464	6	15
2. SBEZ2642 Environmental Psychology & Socio-Culture	C		2	
3. SBEZ4852 Landscape Research	D		2	
4. SBEZ4922 Professional Mobility	D		2	
5. SBEZ4863 Event Management	D		3	

Note: * Free elective courses to be advised by academic advisor (Free Elective Courses offered across faculty)

Semester 8

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEZ4526 Design Thesis 2	A	SBEZ4516	6	17
2. SBEZ4523 Advanced Landscape Construction 2	B	SBEZ3512	3	
3. SBEZ4632 Professional Practice 3	C	SBEZ3622	2	
4. SBEZ4873 Specifications and Cost Studies	D		3	
5. SBEZ2933 Landscape Exploration	D		3	

CLASSIFICATION OF COURSES

Course Code	Course Name
1. SBEZ1642	Design Communication
2. SBEZ1652	Introduction to Landscape Architecture
3. SBEZ1662	Landscape Ecology
4. SBEZ1813	Site Planning
5. SBEZ1822	Digital Landscape Representation
6. SBEZ2833	History of Landscape and Architecture
7. SBEZ2692	Park & Recreational Planning
8. SBEZ2722	Resource Planning & Management
9. SBEZ2933	Landscape Exploration
10. SBEZ3843	GIS For Landscape Application
11. SBEZ4852	Landscape Research
12. SBEZ4863	Event Management
13. SBEZ4922	Professional Mobility
14. SBEZ4873	Specifications and Cost Studies
15. XXXXxxx3*	Free Elective

Note: Students must complete a total of 37 credits of elective courses.

*Free elective courses to be advised by the academic advisor

(Free Elective Courses offered across faculty)

SYLLABUS SYNOPSES

The following syllabus synopses address only the core and elective courses offered in this programme. Syllabus synopses for university general courses are listed in the University General Courses section. Students are encouraged to take courses offered in other programmes as free elective courses. However, students are advised to consult the programme coordinators before enrolling for any of these elective courses.

SBEZ1494 BASIC DESIGN 2 (PREREQUISITE: SBEZ1404)

The studio course emphasizes the importance of considering people's needs and aligning them with the physical environment to create a sustainable human community. Its goal is to equip landscape architecture students with knowledge of community planning and design, empowering them to confidently plan and design public spaces for communities.

SBEZ1893 HORTICULTURE, NURSERY & ORNAMENTAL PLANT MATERIALS

The course provides students with an in-depth understanding of various aspects of plant life. The course covers topics such as the classification and attributes of plants, their propagation, and the soil characteristics that promote optimal growth. Students will also learn about establishing and managing nurseries.

SBEZ1642 DESIGN COMMUNICATION

The course teaches students manual methods for improving their design communication skills in landscape architecture. The course covers aspects that are related to the basics of communication skills i.e.; visual and verbal communication which integrates the usage of relevant graphics design such as lettering, symbols, lines, texture and elements. In addition, the freehand drawings such as sketching and perspectives, colour and technique will be taught in the class.. This provides students with a solid understanding of the topic and the ability to apply the acquired skills in a structured and effective manner.

SBEZ1652 INTRODUCTION TO LANDSCAPE ARCHITECTURE

The course introduces landscape architecture as an essential discipline for exploring interactions between natural and built elements, aimed at developing a holistic understanding of the core relationships between humans and their environment. The course examines landscape architecture as a creative and interdisciplinary field that mediates nature and culture, forming a critical nexus between science and art. Key topics include environmental components, sustainable design paradigms, and the ethical planning of outdoor environments.

SBEZ1662 LANDSCAPE ECOLOGY

The course provides an understanding of the links or relationships of living organisms with natural resources and forces and how organisms interact with their environment at many levels. In addition, it allows students to understand the influence of Man on the Earth, which leads to future progress or decline of the natural environment. It differentiates the natural functioning of organisms and how man has dramatically altered the ecosystem.

SBEZ1813 SITE PLANNING

The course trains students to undertake a systematic and scientific study of a development site before detailed development planning and design are to commence. It includes the elements of site inventory and investigation; quantitative and qualitative approaches to site analysis and planning; preparation of composite plans for site suitability analysis; formulation of design rationales; and generation of design concepts. Assessment of the site covers the physical, biological, socio-cultural and environmental elements of site planning.

SBEZ1822 DIGITAL LANDSCAPE REPRESENTATION

The course introduces students to various digital techniques and methods in landscape architectural visualization. This course covers the exposure towards virtual environments in 2D and 3D that are being used in landscape architecture practice. It also introduces specific digital concepts and tools that can assist and is applicable at various stages of design processes. This can bridge the gap between analogue and digital tools in producing more accurate, efficient, communicative and professional presentations. This course takes on a tutorial- based approach where students will be using various software such as AutoCAD, Adobe Photoshop, Sketch-Up alongside the exposure of different rendering softwares. Besides that, Artificial Intelligence is also integrated as the advanced tool to assist in the designing process.

SBEZ1883 BASIC LANDSCAPE CONSTRUCTION

The course provides students with fundamental knowledge of landscape construction principles, materials, and techniques. It focuses on understanding how landscape designs are translated into functional and buildable outdoor spaces. Students are introduced to a variety of construction materials, including timber, bamboo, concrete, metal, polymers, geotextiles, and glass. Key topics include foundations, walls, retaining structures, paving systems, and the preparation of technical construction drawings for landscape elements and structural details. Through hands-on workshops and collaborative activities, students participate in a design-and-build project that develops practical construction skills, teamwork, and problem-solving abilities. The course also emphasises environmental responsibility and the selection of sustainable construction materials.

SBEZ2505 COMMUNITY LANDSCAPE AND PARK DESIGN (PREREQUISITE: SBEZ1494)

The studio course emphasizes Theory and practices in ecological landscape and park design encompass physical, environmental, economic, and social factors such as housing, economic development, social capital, citizen participation, social welfare, public safety, education, the environment, and other aspects of community life. Ecologically based park planning and design practices in different community segments will be taught. Critical analysis of design and planning concepts for Natural Area Open Space (NAOS) and Residential Open Space (ROS) will be undertaken to explore how community landscape and park planning and design can address sustainability challenges and contemporary societal issues.

SBEZ2435 URBAN LANDSCAPE DESIGN (PREREQUISITE: SBEZ2505)

The studio course emphasises the aspects and theories of urban landscape design. It deals with the functions of urban spaces, their relationship and visual impact to the urban context, private or public spaces, and indoor or outdoor spaces. It requires a creative and intuitive approach, with the application of scientific principles together with technical knowledge to be formulated into guidelines for creating urban spaces suitable for places to live, work and play. It also involves aspects such as the economic, social and cultural factors of the people in creating a conducive and safe environment.

SBEZ2903 PLANTING DESIGN & TECHNOLOGY 1

The course provides a basic understanding of planting design in order to develop cultural sensitivity in the design of landscapes. It focuses on local ethnobotanical plants which are identified, evaluated and chosen in designated spaces according to their function, aesthetic qualities and intrinsic values. The discussion focuses on the influence of cultural and religious/belief factors in the selection of plants, and their application in landscape design in order to develop students' critical and analytical minds.

SBEZ2692 PARK AND RECREATIONAL PLANNING

The course serves as an introduction to the theory of park planning and design. It covers the theoretical aspects of planning and park design, including historical development, principles, concepts, philosophies, beliefs, perceptions, needs, and site potential. The course also emphasizes the comprehension of planning and park design theories and current issues awareness.

SBEZ2833 HISTORY OF LANDSCAPE AND ARCHITECTURE

The course offers a thorough understanding of the landscape architecture and architecture of the past and how they relate to the present. It covers gardens and buildings that are historical, traditional, and classical in character. Initially, the course focuses on various traditional schools of thought and practices that address environmental, social, and philosophical premises, as well as artistic expressions related to architecture and landscape.

SBEZ2602 HERITAGE LANDSCAPE & CONSERVATION

The course deals with an appreciation of the philosophy of conservation and the historic environment, and garden and landscape history including literary and artistic associations. It then addresses the four general types of cultural landscapes worldwide, not mutually exclusive, all of which require management: urban landscapes, designed landscapes, vernacular landscapes, and relic landscapes including World Heritage Sites.

SBEZ2612 PROFESSIONAL PRACTICE 1

The course serves as an introduction to landscape professional practice. As part of the “Man and the Environment” group of the curriculum, the course introduces and exposes the standards of professional practice to students, as well as the roles and responsibilities of the landscape architect, and the management and organization of the practice.

SBEZ2722 RESOURCE PLANNING & MANAGEMENT

The course focuses on landscape resource planning and management. The course focuses on the natural and cultural aspects of landscape resources. It emphasizes on the management and planning of landscape resources including soil, geology, water, flora and fauna, land use, land ownership, history, socio-economy, climate, infrastructure and visual quality. The course also introduces Geographical Information Systems (GIS) integrated with resource analysis techniques to generate ideas for landscape planning.

SBEZ2642 ENVIRONMENTAL PSYCHOLOGY & SOCIO-CULTURE

The course explores the nature and nuances of interrelationships between people and their surroundings by examining an array of critical issues in environmental psychology. Here, the environment is broadly defined to include not only our physical surroundings (both natural and built), but also the larger, socio-cultural and political milieu in which we live. Starting with foundational theories on place attachment and place identity, the course covers classic issues that help inform urban ecological design, such as relationships to nature, landscape preferences, personal space, territoriality, and crowding.

SBEZ2933 LANDSCAPE EXPLORATION

The course consists of two components: Competition and Expedition.

- Competition addresses the need for a non-academic way of teaching and learning. It provides the opportunity for students to test their ability to compete and win design or landscape architectural competitions, individually or in a group.
- Expedition focuses on the development of interpersonal and team-building skills to achieve a common goal, which is in the form of an expedition. The expedition or event can manifest either solely as outdoor activities such as mountain hiking, island hopping, jungle trekking, cycling, rafting, kayaking and cave exploration, or it can be integrated as part of a larger program, such as volunteering and campaigning.

SBEZ3445 LANDSCAPE RESOURCE PLANNING

The studio course focuses on the natural and cultural aspects of landscape resources. It emphasizes on the management and planning aspects of landscape resources including soil, geology, water, flora and fauna, land use, land ownership, history, socio-economy, climate, infrastructure and visual quality.

SBEZ3512 ADVANCED LANDSCAPE CONSTRUCTION 1

The course develops students' knowledge and skills in landscape grading and drainage design. The course focuses on contour interpretation, site grading principles, earthwork calculations, drainage systems, and site level design to create functional, safe, and sustainable landscapes. Students learn to prepare grading plans, spot levels, sections, and drainage layouts using professional drawing standards, enabling them to transform design concepts into practical and buildable landscape solutions.

SBEZ3913 PLANTING DESIGN & TECHNOLOGY 2 (PREREQUISITE: SBEZ2903)

The course focuses on the role of plants as living components and design elements in the landscape. Students explore planting design principles and practices, including spatial definition, sense of place, and plant selection based on environmental and ecological considerations. These principles are applied across a range of settings, including residential, urban, institutional, industrial, historic, social, and ecological landscapes. Through lectures, active learning, and project-based activities, students develop the ability to prepare planting plans, construction drawings, and well-justified planting design proposals.

SBEZ3622 PROFESSIONAL PRACTICE 2 (PREREQUISITE: SBEZ2612)

The course is designed as a continuation of Professional Practice I with a focus on the overall aspects of contract administration for landscaping works. This subject exposes students to an understanding of the construction industry as a whole. It explains the role of the parties involved, particularly the landscape architect, in the construction industry; and the processes involved in the project management of a construction project. Students are exposed to the field services of a landscape architect as a project manager, other than being the designer. This subject touches on issues related to ethics and professional conduct.

SBEZ3843 GIS FOR LANDSCAPE APPLICATION

The course aims to extend knowledge on landscape resource management. The subject is designed to develop an understanding of the Landscape Planning Process and skills in surveying, analysing and evaluating data using appropriate methods. The course concentrates on the understanding of technical tools (software and process) to support the decision-making process in landscape resource management.

SBEZ3458 INDUSTRIAL TRAINING 1 (PREREQUISITE: SBEZ3445)

The course titled Industrial Training 1 spans eight (8) credit hours and offers students valuable hands-on experience in the field of landscape architecture. Through a combination of engaging projects, fieldwork, and the creation of landscape plans for various sectors, students can attain a thorough grasp of the subject matter and its real-world applications. Upon completing this course, students can expect to possess a comprehensive understanding of landscape architecture and its practical implications across diverse sectors.

SBEZ3464 INDUSTRIAL TRAINING 2 (PREREQUISITE: SBEZ3445)

The course titled Industrial Training 2 requires students to produce a technical report reflecting their experience and knowledge gained during involvement in various development projects and problem-solving activities, field work (such as inventory, analyse data and design), and landscape development plan (e.g., residential, institutional, industrial, business, recreation and tourism). After completing the report, students should be able to present information and express ideas clearly, effectively and confidently.

SBEZ4516 DESIGN THESIS 1

The studio course provides students with an opportunity to demonstrate their knowledge, understanding, and skills in Landscape Architecture through the development of an individual design thesis. With guidance from the lecturer, students select a topic and site of interest and undertake extensive research to investigate the identified issues. The design thesis progresses from problem identification and statement development through the analysis of relevant case studies and references, culminating in the development of design guidelines, strategies, or theoretical approaches to address the identified issues.

SBEZ4526 DESIGN THESIS 2

The studio course provides students with an opportunity to demonstrate their ability to integrate and apply diverse knowledge, understanding, and skills in Landscape Architecture through a comprehensive design project. The course emphasizes the development of appropriate, sensitive, creative, and context-responsive environmental design solutions. Through the integration of research, analysis, design development, and professional design processes, students demonstrate their ability to formulate comprehensive and effective landscape architectural solutions to complex environmental and societal issues.

SBEZ4523 ADVANCED LANDSCAPE CONSTRUCTION 2 (PREREQUISITE: SBEZ3512)

The course intends to impart knowledge and skills on the requirements of technical construction documentation and techniques during design, working drawings, and construction stages in the design process. This course emphasises advanced technical knowledge, focusing on theoretical as well as construction know-how of pools and fountains, outdoor lighting and irrigation.

SBEZ4922 PROFESSIONAL MOBILITY

The course provides an exceptional opportunity for students to broaden their horizons by gaining enriching experiences and knowledge beyond what is available through their local culture and university curriculum. This short-term design exposure is co-organized with external organizations, enabling students to explore new and diverse learning environments. The course offers a unique chance to expand horizons, develop new skills, and gain valuable insights into different cultures and ways of thinking.

SBEZ4863 EVENT MANAGEMENT

The course gives students the chance to learn how to organize a seminar or related activities and build professional relationships. The main goal of the course is to improve students' understanding of the systematic process of seminar organization, including the ability to gather critical resources and make informed decisions. The course also emphasises developing generic skills through collaborative teamwork and effective communication with external parties.

SBEZ4852 LANDSCAPE RESEARCH

The course introduces research methods that support evidence-based landscape design. Students learn to identify research problems, review literature, collect and analyse data, and develop well-supported design arguments. The course strengthens critical thinking and research skills while preparing students to integrate research findings into innovative, informed, and defensible landscape design solutions.

SBEZ4852 LANDSCAPE RESEARCH

The course introduces research methods that support evidence-based landscape design. Students learn to identify research problems, review literature, collect and analyse data, and develop well-supported design arguments. The course strengthens critical thinking and research skills while preparing students to integrate research findings into innovative, informed, and defensible landscape design solutions.

SBEZ4632 PROFESSIONAL PRACTICE 3 (PREREQUISITE: SBEZ3622)

The course introduces the principles of landscape management, maintenance, and asset stewardship in professional practice. Students learn how landscape projects are managed throughout their operational life cycle, including the planning and management of manpower, finance, materials, equipment, and facilities. Through case studies and practical examples, the course develops an understanding of sustainable landscape operations, performance evaluation, and the professional responsibilities of landscape architects in managing landscape assets.

SBEZ4873 SPECIFICATIONS AND COST STUDIES

The course is an integrated course that develops students' competency in landscape project cost estimation, material selection, and technical specification writing. The course bridges design development with practical implementation by equipping students with the knowledge and skills required to prepare industry-compliant documentation. Emphasis is placed on translating conceptual landscape proposals into workable construction frameworks aligned with professional standards and current industry practices.

07 BACHELOR OF QUANTITY SURVEYING WITH HONOURS

INTRODUCTION

Undertaking a project development requires a significant investment of both time and money, and clients rightfully expect their investment to generate value. To deliver value for money, a project must be managed efficiently in terms of time, cost, and quality. Achieving these objectives requires technical expertise, professional competency, economic evaluation, effective cost management, and the selection of appropriate construction procurement methods with efficient and effective contract management. The role of a quantity surveyor, with their education, training, and experience, is crucial in managing construction costs, project procurement, contract administration, and providing advice on development economics and contractual matters.

This program is designed to provide graduates with the right skills and knowledge to operate within the existing framework of the Quantity Surveying discipline, the construction industry, and related fields. In addition to technical skills and knowledge, graduates will also be stimulated to adopt a professional and ethical approach that fosters personal development, self-respect, and career aspirations.

NAME OF AWARD

Bachelor of Quantity Surveying with Honours [B QS (Hons)]

PHILOSOPHY

The programme is designed to provide a solid academic base and professional expertise in the discipline of Quantity Surveying whilst at the same time developing the students' knowledge, intellectual and analytical capability, creativity and problem-solving ability. It also addresses the generic skills and capabilities necessary to compete in the employment market.

AIM

The aim of the programme is to produce Quantity Surveying graduates who are creative, innovative and versatile with a sound knowledge in construction cost management, administration of tender and construction contracts, and quantification and documentation of construction works; as well as meeting the needs of the nation and able to compete globally.

PROGRAMME EDUCATIONAL OBJECTIVES

Bachelor of Quantity Surveying with Honours has 5 programme educational objectives:

- PEO1 To provide graduates with a solid foundation in management and technical knowledge, skills and capabilities in the field of Quantity Surveying.
- PEO2 To produce graduates who are effective problem solvers, knowledgeable in applying logical, critical and creative thinking to a range of problems.
- PEO3 To provide graduates with a broad knowledge, leadership and managerial skills, which are necessary for the effective delivery of construction projects.
- PEO4 To produce graduates capable of executing their responsibilities with professionalism and capable of lifelong learning in the pursuit of personal development and betterment of society.
- PEO5 To provide graduates with basic communication skills, lead effectively and be able to work collaboratively in a multidisciplinary team.

PROGRAMME LEARNING OUTCOMES

The intended learning outcomes of the Bachelor of Quantity Surveying programme are:

- PLO1 Combine the advanced concept and knowledge on the theoretical and practice of quantity surveying.
- PLO2 Appraise critical and complex information, concept, and theories to resolve issues in the quantity surveying practice.
- PLO3 Solve issues in quantity surveying practice through a wide range of latest technical approaches, skills and ideas.
- PLO4 Adhere to the role as a team member and to work collaboratively in various environments ethically and professionally.
- PLO5 Communicate effectively using appropriate methods to specialist and non-specialist audiences.
- PLO6 Demonstrate digital literacy skills through a broad range of information, media and related technology applications.
- PLO7 Apply numerical and graphical data through statistical tools in work and research related applications.
- PLO8 Display leadership, autonomy and responsibility in managing duties within the organisation and to stakeholders.
- PLO9 Engage in self-directed life-long learning initiatives to ensure self-advancement in professional development.
- PLO10 Integrate entrepreneurial knowledge with technical skills to identify opportunities in projects.
- PLO11 Perform professional responsibilities in accordance with stipulated legal, ethical and codes of practice.

PROGRAMME ACCREDITATION

The Bachelor of Quantity Surveying with Honours programme is accredited by the Board of Quantity Surveyors Malaysia (BQSM), Malaysian Qualification Agency (MQA) and recognised by the Public Service Department (JPA). Graduates of this programme are eligible to register with the BQSM through various categories of registrations starting as Provisional Quantity Surveyors (PVQS), and later as Professional Quantity Surveyors (PQS) and Consultant Quantity Surveyors.

CAREER PROSPECTS

Graduates of the programme will be able to practice in the following capacity in both public and private sectors:

1. Quantity Surveyors
2. Construction Contract Managers
3. Construction Project Managers and other equal and relevant posts in the construction industry

MODE AND DURATION OF STUDY

Mode of Study : Full-time
 Minimum/ Maximum Duration : 4 years / 6 years

CLASSIFICATION OF COURSES

Courses offered under this programme are based on the classification scheme shown in the table below:

Classification	Course Group	Credits	Total credit hours	Percentage
1. Programme Core	A. Construction Technology & Services	17	88	69
	B. Measurement & Documentation	18		
	C. Professional Practice	18		
	D. Construction Economics	11		
	E. Legal & Contractual Studies	6		
	F. Construction Science & ICT	4		
	G. Management	6		
	H. Research & Development	8		
2. Elective Courses	I. Elective Courses	23	23	18
3. General Courses	J. General Courses	16	16	13
Total credit hours to graduate			127	100

AWARD REQUIREMENTS

To be eligible to graduate from this programme, students must achieve a total of not less than 127 credit hours accumulated from courses that are set according to the classification scheme shown in the Classification of Courses section, with a minimum CGPA of 2.0 and fulfil other requirements stated in the UTM Academic Regulation.

LIST OF COURSES ACCORDING TO SEMESTER (MATRICULATION/STPM)

Semester 1

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEQ1113 Construction Technology I	A		3	14*
2. SBEQ1152 Draughtsmanship			2	
3. SBEQ1343 Introduction to Quantity Surveying	C		3	
4. SBEQ1412 Principles of Economics	D		2	
5. SBEQ1612 Introduction to Information Technology	F		2	
6. ULRS1122 Appreciation of Ethics and Civilisations (for Local)	J		2	
7. ULRS 1132 Citra Malaysia (International)			2	

Semester 2

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEQ1123 Construction Technology II	A		3	19
2. SBEQ1132 Construction Materials			2	
3. SBEQ1182 Building Services I			2	
4. SBEQ1283 Introduction to Construction Measurement	B		3	
5. SBEQ1513 Principles of Law, Contract & Tort	E		3	
6. UHLB1112 English Communication Skills*	J		HL	
7. ULRF 2XX2 Co-Curriculum Service Learning (compulsory)			2	
8. UHLM1012 Malay Language for Communication 2 (for International)			2	
9. ULRS 1022 Philosophy and Current Issues (for Local)			2	

Note: *UHLB1112 detail refers to UTM.J.08.06/14.10/1/3/2 Jld 3 (15) dated 27th September 2022. HW compulsory audit course.

Semester 3

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEQ2162 Building Services II	A		2	18
2. SBEQ2273 Construction Measurement I	B	SBEQ1283	3	
3. SBEQ2432 Building Economics	D		2	
4. SBEQ2622 Principles of Structures	F		2	
5. SBEQ2632 Engineering Survey			2	
6. SBEQ2722 Financial Management	G		2	
7. Free Elective	J		3	
8. UHLB2122 Academic Communication Skills (compulsory)		UHLB1112	2	

Semester 4

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEQ2263 Construction Measurement II	B	SBEQ2273	3	18
2. SBEQ2423 Cost Estimating	D		3	
3. SBEQ2892 Introduction to Statistics			2	
4. SBEQ2523 Construction Contract	E		3	
5. SBEQ2712 Principle of Management	G		2	
6. SBEQ3173 Civil Engineering Construction	A		3	
7. ULRS3032 Entrepreneurship and Innovation (Local & International)	J		2	

Semester 5

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEQ3333 Professional Practice & Procedures	C		3	17
2. SBEQ3442 Cost Planning & Control	D		2	
3. SBEQ3732 Project Management	G		2	
4. SBEQ3742 Facilities Management ¹	I			
5. SBEQ3532 Construction Procurement & Dispute Resolution ¹			2	
6. SBEQ2642 IT Applications in Built Environment ¹			2	
7. UHLX1112 Elective Foreign Language (compulsory)	J		2	
8. UHLB3132 Professional Communication Skills (compulsory)		ULHB2122	2	
9. ULRS3032 Entrepreneurship and Innovation			2	

Note: ¹Elective courses to be offered, choose 4 credits. Elective courses will be advised by the Programme Coordinator.

Semester 6

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEQ3328 Industrial Training (HW) ¹	C	SBEQ3333	8	12
2. SBEQ3314 Industrial Training Reports	C	SBEQ3333	4	

Note: ¹ HW: Compulsory Audit Course

Semester 7

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEQ4223 Project Documentation	B	SBEQ1283 SBEQ2273 SBEQ2263	3	16
2. SBEQ4253 Construction Measurement (Mechanical and Electrical Works)	B		3	
3. SBEQ4452 Development Economics	D		2	
4. SBEQ4882 Undergraduate Project I	H		2	
5. SBEQ4542 Land Law ¹	I		2	
6. SBEQ4652 Construction Information Technology ¹			2	
7. SBEQ4772 Sustainable Construction ¹			2	
8. SBEQ4762 Commercial Management ¹				

Note: ¹ Elective courses to be offered, choose 6 credits. Elective courses will be advised by the Programme Coordinator.

Semester 8

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEQ4283 Project Evaluation & Development	B	SBEQ4452	3	15
2. SBEQ4874 Undergraduate Project II	H	SBEQ4882	4	
3. SBEQ4242 Construction Measurement (Civil Engineering Work) ¹	I		2	
4. SBEQ4232 Construction Measurement (Specialised Construction) ¹			2	
5. SBEQ4552 International Contracting ¹			2	
6. SBEQ4752 Value Management ¹			2	
7. SBEQ4662 Intelligent Construction ¹				

Note: ¹ Elective courses to be offered, choose 8 credits. Elective courses will be advised by the Programme Coordinator.

SYLLABUS SYNOPSES

The syllabus synopsis below covers only the core and elective courses offered in this programme. Syllabus synopses for the university general courses are listed in the University General Courses section.

SBEQ1113 CONSTRUCTION TECHNOLOGY I

The aim of this course is to develop an understanding of construction technology. Students will learn to become familiar with common construction components and processes. This course covers preliminary works, temporary works, plants and equipment, excavation works, foundations, ground floor, frame structure, floor slabs, steps, and staircases. The course will provide students with construction knowledge to be applied in other courses such as estimating, measurement, construction planning and services. The course also provides the environment to develop students' communication skills and the ability to work effectively as a team member to achieve mutual objectives.

SBEQ1182 BUILDING SERVICES I

The aim of this course is to provide knowledge and understanding of the building environment and the need for the various building services systems. This course covers common building services systems and equipment within a building. It is intended to enable students to be conversant with the building services engineering and provide them with building services knowledge to be applied in other courses such as estimating, measurement and construction planning. The course also provides the platform to develop students' communication skills and the ability to work effectively as a team member to achieve mutual objectives.

SBEQ1132 CONSTRUCTION MATERIALS

The overall aim of this course is to introduce students to the properties and behaviour of common materials used in construction and the method of drafting specifications. It is intended to enable students to be conversant with the building materials and typical methods of specification writing. This course will cover the details on construction materials including classification, sources, manufacturing process, tests involved and evaluation on appropriateness of construction materials. It includes aspects of concrete technology and soil mechanics. The course also provides the environment to develop students' ability to communicate work effectively as a team member to achieve mutual objectives.

SBEQ1343 INTRODUCTION TO QUANTITY SURVEYING

This course introduces students to the overall quantity surveying programme and the programme outcomes the roles of quantity surveyors at pre and post contract stages, professional ethics, the nature of the construction industry, and the roles and responsibilities of the various professionals involved in the construction team. The course also highlights the relevant professional boards and institutions related to the quantity surveying practice, pre-contract processes that include project development procedures, tendering, documentation, procurement system and contract documents; and works related to post contract administration. This course also covers quantity surveying practices based on standard forms of contract currently applicable in Malaysian construction industry with more emphasis to the PWD and PAM Standard Form of Contract. The course also provides the platform to develop students' communication skills.

SBEQ1412 PRINCIPLES OF ECONOMICS

This course provides students with basic understanding on the economic principles and its application to the construction industry. It consists of basic micro and macroeconomic principles, demand & supply, market structure, national income, money and banking, fiscal policy and budget, business cycle and economic growth. The course also provides the environment to develop students' communication skills and the ability to work effectively as a team member to achieve mutual objectives.

SBEQ1123 CONSTRUCTION TECHNOLOGY II

The aim of this course is to develop further understanding of the construction technology. Students will learn to become familiar with common construction components and processes. This course covers wall and partition, roof, doors and windows, finishes, built in fitment, external works, landscape works, doors and windows, finishes, IBS, temporary works, pre-stressed concrete, basement, demolition, renovation, and repair works. The course will provide students with construction knowledge to be applied in other courses such as estimating, measurement, construction planning and services. The course also provides the environment to develop students' communication skills and the ability to work effectively as a team member to achieve mutual objective.

SBEQ1152 DRAUGHTSMANSHIP

The course is designed to provide students with the knowledge and skills to interpret and prepare construction drawings. The topics include the fundamentals of technical drawing, including drawing and dimensioning practices, orthographic projections, isometric drawing and sketching, auxiliary and sectional views, and computer-aided drafting (CAD). At the end of the course, students will demonstrate their ability to interpret, explain, quantify and use working drawing. The course also provides the platform for students to develop their ability to communicate construction information visually and graphically.

SBEQ1283 INTRODUCTION TO CONSTRUCTION MEASUREMENT

The aim of the course is to equip the students with the knowledge and skills of measurement and quantification of building works to complement the needs of the profession. This course introduces the concept and principles of measurement and quantification of building works and its relationship with costing and preparation of tender and contract documents. The course focuses on the application of the principles of measurement and an introduction to quantification of simple building works. The course also provides the environment to develop students' communication skills.

SBEQ1513 PRINCIPLES OF LAW, CONTRACT & TORT

The aim of this course is to provide students with the basic principles of law. The objectives are: to introduce the main principles of the Malaysian legal system, to elucidate certain specified principles of the law of tort, agency and sale of goods relevant to construction works and to instil good understanding of the principles of the law of contract. This course is divided into five parts namely: The Malaysian legal system, law of tort, contract, agency and sale of goods. The course also provides the environment to develop students' ability to communicate ideas clearly and logically in spoken and written forms.

SBEQ1612 INTRODUCTION TO INFORMATION TECHNOLOGY

This course is designed to provide an introduction to word processing, spreadsheets, databases and presentation software. It also provides students with experience in using the relevant software and helps them develop skills in the use of the software for various tasks. The course also enables students to develop their own word processing documents, spreadsheet and database.

SBEQ2162 BUILDING SERVICES II

The aim of this course is to provide knowledge and understanding of the various building and infrastructure services. This course covers the common building and infrastructure services system and equipment. It is intended to enable students to be conversant with the building and infrastructure services engineering and provide students with the knowledge to be applied in other courses such as estimating, measurement and construction planning. The course also provides the platform to develop students' communication skills and the ability to work effectively as a team member to achieve mutual objectives.

SBEQ2273 CONSTRUCTION MEASUREMENT I (PREREQUISITE: SBEQ1283)

The aim of the course is to equip students with the knowledge and skills of measurement and quantification of building works to complement the needs of the profession. This course further develops the knowledge, understanding and the skill of measurement of construction works according to the SMM for Building Works for the purpose of preparation of bills of quantities and estimating. The course will focus on the application of the principles of measurement and quantification of low-rise building works.

SBEQ2432 BUILDING ECONOMICS

The aim of this course is to develop students' knowledge and understanding of the philosophy and concept of building economics in relation to costing and price analysis. The course covers general aspects of building economics and factors influencing construction costs, different types of cost information such as cost data, cost model and cost index. This course covers all aspects of cost management during pre-construction and construction stages of project development. The course also provides the environment to develop students' communication skills and the ability to work effectively as a team member to achieve common goals.

SBEQ2622 PRINCIPLES OF STRUCTURES

This course is intended to encourage an appreciation of the structure of buildings and develop concepts of structural action, leading to an ability to model, analyse and design common elements and structural frames. The focus of this course is on understanding the forces in structures and the behaviour of some structural materials. Students will come to understand the forces which are created in the building framework and the structural elements, and be able to safely design simple structural units.

SBEQ2632 ENGINEERING SURVEY

This course aims to introduce the concept and practical skills of land surveying in building construction projects. This course introduces students to the concept and practical skills of land surveying in building construction projects. It emphasises on the layout and control of buildings, use and care of surveying instruments, directions, angles, surveying calculations, errors and computations of areas and volumes. At the end of the course, students will demonstrate their ability to set out building structures, earthwork and drainage works. The students should also be familiar with the methods of controlling the vertical alignment of buildings. The course also provides the platform to develop students' ability to work effectively as a team member to achieve mutual objectives.

SBEQ2722 FINANCIAL MANAGEMENT

This course introduces students to the basics of financial management. It covers book keeping, balance sheets, profit and loss account, cash flow and funds flow, business control, measure of profitability, control of working capital, and control of fixed assets: costs, volumes, pricing and profit decision, budgets and sources of capital. The course also provides the platform to develop students' written communication skills and the ability to work effectively as a team member to achieve mutual objectives.

SBEQ2263 CONSTRUCTION MEASUREMENT II (PREREQUISITE: SBEQ2273)

The aim of the course is to equip students with the knowledge and skills of measurement and quantification of construction works to complement the needs of the profession. This course will further develop the knowledge, understanding and skills of measurement of construction works according to SMM for Building Works for the purpose of preparation of bills of quantities and estimating. The course will focus on the application of the principles of measurement and quantification of construction works in high rise, large and more complex structures. The course also provides the platform to develop students' ability to communicate effectively in the written form.

SBEQ2423 COST ESTIMATING

The aim of this course is to develop students' knowledge and understanding on the principles, techniques and systematic procedures of preparing cost estimates and building up rates. This course is designed to provide students with the knowledge and skills in preparing cost estimates for simple buildings and basic civil engineering works based on various methods and techniques and to build up rates. By identifying the factors that influence the cost, students will be able to determine the appropriate cost data and its sources to be applied in the estimates while enhancing the accuracy and reliability of these methods and techniques. The course also provides the platform to develop students' communication skills, the ability to work effectively as a team member to achieve mutual objectives, and to seek information from various sources.

SBEQ2523 CONSTRUCTION CONTRACT

The aim of this course is to introduce to the students the important clauses in construction contract. The objectives are: to explain to the students the principles and the implications of the main terms of construction contract, and to highlight the roles, duties and liabilities of the parties involved in the construction contracts. The main standard forms of contract referred to in this course are those currently used locally and internationally. The course also provides the platform to develop students' communication skills and the ability to work effectively as a team member to achieve mutual objectives.

SBEQ2712 PRINCIPLES OF MANAGEMENT

This course provides knowledge and develops understanding of the principles of management including the current changes and developments. It emphasises on the elements of organisation, decision making, planning, leadership and motivation. It serves as a platform to develop students' skills and competencies in management. The course also provides the environment to develop student's ability to create good relationships, interact with colleague and work effectively with other people to achieve mutual objectives.

SBEQ2892 INTRODUCTION TO STATISTICS

The aim of this course is to provide students with an understanding of the mathematical methods and analysis techniques. Basic statistical concepts and methods are presented in a manner that emphasizes on the principles of data collection and analysis. Much of the course will be devoted to discussions of how statistics is commonly used and applied correctly in the research.

SBEQ3173 CIVIL ENGINEERING CONSTRUCTION

The aim of this course is to develop an understanding of civil engineering structures and special constructions. The course provides students with skills to allow for the evaluation of a range of technologies towards the adoption of an appropriate design decision and knowledge of the centrality of technological decision making in the context of the wider construction process. The course also provides the platform to develop students' communication skills and the ability to work effectively as a team member to achieve mutual objectives.

SBEQ3333 PROFESSIONAL PRACTICE & PROCEDURES

This course introduces students to the process and procedures at pre and post contract stage and develop their knowledge and understanding of the terms and conditions contained in standard forms of construction contract. It further enhances students' skills, competencies, and ethical and professional values in interpreting the terms and conditions into administrative processes and procedures of quantity surveyor practice. The course consists of three main parts: part one relates to pre-contract processes that include tender evaluation and contractual preparation; part two covers works related to post contract administration; part three covers professional ethics and quantity surveyors, quantity surveying firms, appointment of consultants and current issues in the construction industry and quantity surveying practices.

SBEQ3442 COST PLANNING & CONTROL

The aim of this course is to develop students' knowledge and understanding on the concepts and techniques of cost planning and control and their application in construction project development. This course is designed to provide students with the knowledge and skills in planning and controlling costs at various stages of project development. By outlining the costs, students will be able to check and take necessary remedial action to comply with set targets, taking into consideration other external factors that might influence the probable costs. The concept of life cycle costing will also be introduced in order to enhance the techniques of cost planning and control. The course also provides the platform to develop students' communication skills and the ability to seek information from various sources.

SBEQ3732 PROJECT MANAGEMENT

This course prepares students with a comprehensive introduction to construction management techniques and tools. It not only aims to provide students with construction management concepts and skills, it also encourages students to put these concepts and skills into practice. Through the course, students are expected to improve their skills to manage their study and personal lives. In addition, students will be equipped with management competence and understanding of managerial ethics for their future career. The course also provides the platform to develop students' leadership skills and the ability to work effectively as a team member to achieve mutual objectives.

SBEQ3742 FACILITIES MANAGEMENT

This course introduces students to the various building components to understand the various basic systems and functions of building components and their integration with the building system and the concept of facilities management and its application in various organisations in the construction industry. It covers the history, concept and principles of facilities management, the stages in undertaking facilities management, and financial, monitoring and controlling of facilities management. At the end of the course, students should be able to describe the concept and principles of facilities management and apply the knowledge of facilities management to the practice in the construction industry. The course also provides the platform to develop students' communication skills and the ability to work effectively as a team member to achieve mutual objectives.

SBEQ3532 CONSTRUCTION PROCUREMENT & DISPUTE RESOLUTION

This course is designed to provide students with the knowledge and understanding about the concept of the various construction project delivery systems and dispute resolution that are adopted in the construction industry. In terms of construction project delivery system, the students would be exposed to the traditional, turnkey, design and build, PFI, PPP and relationship-based delivery methods such as partnering and alliance used in Malaysia and other countries. The emphasis would be on the legal and strategic aspects of the various delivery systems against the background of the project requirements, clients' needs, risk allocation and current construction practices. In terms of dispute resolution methods, exposure would be given to the various methods of dispute resolution that are being utilised in the construction industry as alternatives to litigation which include adjudication, mediation, dispute review board and arbitration. The course also examines the process, procedures, relevant clauses and the legal implications in the various methods used to resolve disputes.

SBEQ2642 INFORMATION TECHNOLOGY APPLICATIONS IN BUILT ENVIRONMENT

This course is designed to enable students to create business applications with simple programming or scripting language. This course provides problem solving and computer programming skills for students with no prior experience in the area of programming. Students will be using coding language i.e. Python, Visual Basic, Java and object-oriented computer programming language to learn the fundamentals of computer programming including how to write, compile and execute programs.

SBEQ3328 INDUSTRIAL TRAINING (PREREQUISITE: SBEQ3333) [HW COMPULSORY AUDIT COURSE]

This course exposes the students to pre and post-contract practice and procedures of quantity surveying practices. Students will be attached to quantity surveying firms and government departments for a period of 24 weeks. At the end of the industrial training, students should be able to demonstrate the application of techniques, skills and tools in quantity surveying practices professionally and ethically and identify quantity surveying working procedures. Students should also be able to function effectively in a team, seek information and acquire contemporary knowledge, present information and express ideas clearly, effectively and confidently.

SBEQ3314 INDUSTRIAL TRAINING REPORTS (PREREQUISITE: SBEQ3333)

This course requires students to produce a report on the industrial training carried out by them. The report will cover tasks undertaken and experiences gained by the students during their period of training at the respective firms or departments. After completing the report, students should be able to present information and express ideas clearly, effectively and confidently.

SBEQ4223 PROJECT DOCUMENTATION (PREREQUISITE: SBEQ1283, SBEQ2273, SBEQ2263)

The aim of the course is to expose students to real practice in the preparation of tender documents. This course further provides students with exposure and experience in the process of preparation of a complete Tender Document for a specified construction project based on the current practice, together with the priced tender document and project planning and financial control. The course will focus on the application of the principles of measurement and quantification of construction works in the preparation of a complete tender document for residential and medium rise commercial building. The course also provides the platform to develop students' communication and leadership skills, and the ability to work effectively as a team member to achieve mutual objective.

SBEQ4253 CONSTRUCTION MEASUREMENT (MECHANICAL & ELECTRICAL WORKS)

The aim of the course is to equip students with the knowledge and skills of measurement and quantification of building works to complement the need of the profession. This course will further develop the knowledge, understanding and the skills of measurement of mechanical and electrical (M&E) works according to SMM for Building Works, for the purpose of preparing the bills of quantities and estimating. The course will focus on the application of the principles of measurement and quantification of mechanical and electrical (M&E) installation commonly found in buildings.

SBEQ4452 DEVELOPMENT ECONOMICS

This course provides knowledge and understanding on the concept, elements and components of project development economics. It covers the relationship between the construction industry, property market and economic development, aspects of property development, investment appraisal and sources and types of development finance. At the end of the course, students should be able to describe the relationship between the construction industry, property market and the economy, property development process, identify the factors to be taken into consideration in development appraisals for different types of property, development control, prepare simple development appraisals using the residual and cash flow methods and identify the different types and sources of development finance. The course also provides the platform to develop students' communication skills.

SBEQ4882 UNDERGRADUATE PROJECT I

This course is designed to provide the knowledge and skills for students to undertake research work. It covers the process and techniques of research, research design, identification of research areas and the preparation of a research proposal. At the end of the course, students should be able to identify issues, problems and areas of research, identify relevant data and information required for the research, develop data collection techniques, design research processes and prepare research proposals. Students should be able to seek information from a variety of sources, be open to new ideas and have the capacity for self-directed learning, look for alternative ideas and solutions, present information and express ideas clearly, effectively and confidently; and act ethically with integrity and social responsibility.

SBEQ4542 LAND LAW

This course provides students with the understanding and knowledge of the concepts and legal principles relating to land tenure and administration in Malaysia. It focuses on the concept and principles of land law, the compulsory acquisition of land by the government; the relationship between landlord and tenant; strata titles; as well as principles and procedures of conveyancing. The course also provides the platform to develop students' communication skills, and the ability to work effectively as a team member to achieve mutual objectives.

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SBEQ4652 CONSTRUCTION INFORMATION TECHNOLOGY

This course will enhance students' knowledge and understanding of information technology applications in the construction industry. The emphasis of the course is to enable students to understand the importance of information and communication technology in the construction industry. This course covers the use of information and communication technology in the construction industry, its development and its strategic implementation.

SBEQ4772 SUSTAINABLE CONSTRUCTION

This course explores the primary interface between the technologies of sustainable and high technology buildings. It deals with current environmental and legislative issues with regard to the technological design and specification of contemporary and innovative buildings. In addition, students will examine the wider local and international perspectives on the concept of sustainable development and natural resource management. Site study visits will be undertaken to local sustainable and high technology buildings in occupation and under construction. The course also provides the platform to develop students' communication skills.

SBEQ4762 COMMERCIAL MANAGEMENT

The aim of this course is to develop students' knowledge and understanding on the principles of commercial management from inception to completion, from the construction organisations' perspective. This course is designed to provide students with knowledge and skills related to financial and contractual issues to maximise the profitability of a project. Topics covered include commercial management in project-oriented organization, developing business networks and managing clients, cost evaluation, invoicing and management of cash flow, and teamwork and partnering. The course also provides the platform to develop students' communication skills and the ability to seek information from various sources.

SBEQ4283 PROJECT EVALUATION AND DEVELOPMENT (PREREQUISITE: SBEQ4452)

The ultimate aim of this course is to develop students' awareness and understanding of the problems associated with the management of building projects from inception through to commissioning, handover and beyond. This course provides a premise for students to integrate and apply the other related courses studied in previous semesters. Students will have the opportunity to explore problems of managing temporary organisations whose members are professionals in differing fields with differing objectives and perspectives on one project. Students should be able to seek information from a variety of sources, be open to new ideas and have the capacity for self-directed learning, look for alternative ideas and solutions, present information and express ideas clearly, effectively and confidently, and act ethically with integrity and social responsibility.

SBEQ4874 UNDERGRADUATE PROJECT II (PREREQUISITE: SBEQ4882)

This course is a continuation of Undergraduate Project I (SBEQ 4882) and requires students to undertake a dissertation project based on the research proposal that was prepared in SBEQ4882. At the end of the course, students should be able to undertake literature review, identify data and information relevant to the research and its sources, collect data and information using appropriate data collection techniques, analyse and synthesise data, report findings, conclusion draw from the research undertaken and prepare a clear systematic dissertation report. Students should be able to seek information from a variety of sources, open to new ideas and have the capacity for self-directed learning to look for alternative ideas and solutions, present information and express ideas clearly, effectively and confidently; and act ethically with integrity.

SBEQ4242 CONSTRUCTION MEASUREMENT (CIVIL ENGINEERING WORKS)

The aim of the course is to equip students with the knowledge and skills of measurement and quantification of civil engineering works to complement the needs of the profession. This course further provides the knowledge, understanding and the skill of measurement of civil engineering works according to the Malaysian Civil Engineering Standard Method of Measurement (CESMM) for the purpose of preparation of bills of quantities and estimating. The course focuses on the application of the principles of measurement and quantification of infrastructure and civil engineering works.

SBEQ4232 CONSTRUCTION MEASUREMENT (SPECIALISED CONSTRUCTION)

The aim of the course is to equip the students with the knowledge and skill of measurement and quantification of specialised engineering works to complement the needs of the profession. This course further provides the knowledge, understanding and the skill of measurement of specialised engineering works according to the Malaysian Civil Engineering Standard Method of Measurement (MyCESMM) for the purpose of preparation of bills of quantities and estimating. The course focuses on the application of the principles of measurement and quantification of infrastructure and specialised engineering works.

SBEQ4552 INTERNATIONAL CONTRACTING

This course is designed to provide the knowledge and understanding for students on the legal principles in relation to international contracting. The scope of this course encompasses an overview of the unique problems faced by firms engaging in international activities; the importance of understanding the foreign economic, social, political, cultural and legal environment; joint ventures, international dimensions of management, marketing and accounting, international financial management; international standard forms of contract; recent problems of the international economic system; dispute resolution and contracting risk analysis. The course also provides the platform to develop students' communication skills.

SBEQ4752 VALUE MANAGEMENT

This course introduces students to the concept of value management and its application in the construction industry. It covers the history of value management, the concept and principles of value management, the concept of cost and significant items, the stages in undertaking value management, and the application of the function analysis system technique. At the end of the course, students should be able to describe the concept and principles of value management and apply the knowledge of value management to the practice in the construction industry. The students should also be able to function effectively in a team, communicate effectively and demonstrate leadership skills.

SBEQ4662 INTELLIGENT CONSTRUCTION

This course is designed to provide students with the knowledge and skills in adopting process and technology innovation in the various stages of project development. Topics covered include artificial intelligence techniques and tools, GIS, wireless technology, knowledge work system and smart and green buildings. The concept of electronic site measurement will also be introduced in order to enhance the process of site valuation and measurement of changes in construction. The course also provides the platform to develop students' communication skills and the ability to seek information from various sources.

08 BACHELOR OF SCIENCE IN CONSTRUCTION WITH HONOURS

INTRODUCTION

Modern construction projects are renowned for their intricacy in design and swiftness in execution, demanding a substantial allocation of resources including materials, labour, machinery, and finances. These projects often unfold in an environment of resource scarcity and grapple with the uncertainties related to resource availability. Delays in construction work can lead to escalating costs, given the intricate time-cost dynamics inherent to each project. Consequently, the imperative of effective planning and management within the construction sector cannot be overstated.

The Bachelor of Science in Construction with Honours curriculum has been meticulously crafted to furnish students with a robust academic foundation and professional acumen in the realm of construction management. It is uniquely positioned to address both the current challenges and the evolving demands of the construction industry. To thrive in this industry, students must cultivate a profound comprehension of the technical facets of construction, while concurrently applying cutting-edge construction management practices and tools. The program underscores the importance of grasping construction technology, construction management methodologies, and production management processes. Furthermore, it equips students with the essential generic skills and competencies that empower them to excel in a competitive employment landscape.

This comprehensive program integrates a blend of engineering technology, construction techniques, and management principles, all strategically designed to prepare graduates for leadership roles in the construction industry. Beyond academic knowledge, it nurtures a professional and ethical mindset among students, fostering their personal growth, self-esteem, and career aspirations. Graduates emerge not only as adept professionals but also as well-rounded individuals ready to make a lasting impact in the world of construction management.

NAME OF AWARD

Bachelor of Science in Construction with Honours [B.Sc. in Const. (Hons)]

PHILOSOPHY

The philosophy of the Bachelor of Science in Construction program is centred on equipping students with a comprehensive education in construction technology and management. This holistic approach is aimed at empowering our students to emerge as proficient professionals capable of assuming vital roles in the construction industry, including project management, project planning, and even entrepreneurship as construction contractors. Our overarching goal is to cultivate individuals who can effectively address and contribute to the evolving needs of our nation's construction sector. Through a blend of academic coursework and hands-on practical experiences, we prepare our students to play a pivotal role in fulfilling the demands and aspirations of our country's construction landscape.

AIM

To produce professional construction project managers, project planners or construction contractors who are able to plan, manage, supervise construction projects responsibly and efficiently for society and the creator.

PROGRAMME EDUCATIONAL OBJECTIVES

Bachelor of Science in Construction with Honours has 5 programme educational objectives:

- PEO1 To provide graduates with a solid foundation in management and technical knowledge, skills and capabilities in the field of construction.
- PEO2 To produce graduates who are effective problem solvers, knowledgeable in applying logical, critical and creative thinking to a range of problems.
- PEO3 To provide graduates with a broad knowledge, leadership and managerial skills which are necessary for the effective delivery of construction projects.
- PEO4 To produce graduates who are capable of executing their responsibilities with professionalism and capable of lifelong learning in the pursuit of personal development and betterment of society.
- PEO5 To provide graduates with basic communication skills, lead effectively and be able to work collaboratively in a multidisciplinary team.

PROGRAMME LEARNING OUTCOMES

The intended learning outcomes of the Bachelor of Science in Construction programme are:

- PLO1 Comprehend the fundamental concept and knowledge in principles and practice of construction management, construction technology and other related areas.
- PLO2 Appraise information, concept, and theories to resolve issues in the practice of construction management, construction technology and other related areas.
- PLO3 Select appropriate methods and procedures to solve practical matters through a range of forefront technical approaches, skills and ideas.

- PLO4 Adhere to the role as a team member and to work collaboratively in various environments ethically and professionally.
- PLO5 Communicate effectively with others at all levels including management, multidisciplinary teams, and diverse individuals.
- PLO6 Demonstrate digital literacy skills through a broad range of information, media and related technology applications.
- PLO7 Apply numerical and graphical data through statistical tools in work and research related applications.
- PLO8 Display leadership, autonomy and responsibility in managing duties within a broad organization.
- PLO9 Engage in self-directed life-long learning initiatives to ensure self-advancement in professional development.
- PLO10 Integrate entrepreneurial knowledge with technical skills to identify opportunities in projects.
- PLO11 Perform professional responsibilities in accordance with stipulated legal, ethical and codes of practice.

PROGRAMME ACCREDITATION

The Bachelor of Science in Construction with Honours is recognised by the Public Services Department and Malaysian Qualification Agency (MQA). Graduates from this programme are eligible to register with the Malaysian Board of Technologist (MBOT), Chartered Institute of Building (CIOB) and Board of Quantity Surveyors Malaysia (BQSM) through various categories of registrations such as Graduate Technologist, CIOB student membership and Chartered Membership (MCIOB) for graduate students and Quantity Surveyor Technologists (QST) after fulfilling required conditions. To enhance graduates' career development, they are eligible to apply as Certified Construction Manager (CCM) and Certified Construction Project Manager (CCPM) training skills by the Construction Industry Development Board (CIDB) after a certain period working in the construction industry.

CAREER PROSPECTS

Graduates of the programme can work as:

1. Construction Project Managers
2. Construction Manager
3. Construction Project Planners
4. Project Engineer
5. Site Engineer
6. Construction Site Superintendents
7. Construction Health and Safety Officers; and other comparable and relevant posts in the construction industry

MODE AND DURATION OF STUDY

Mode of Study : Full-time
 Minimum Duration : 4 years
 Maximum Duration : 6 years

CLASSIFICATION OF COURSES

Courses offered under this programme are based on the classification scheme shown in the table below:

Classification	Course Group	Credits	Total credit hours	Percentage
1. Programme Core	A. Construction Technology & Services	15	76	60
	B. Measurement & Documentation	6		
	C. Professional Practices	17		
	D. Economics & Finance	8		
	E. Legal & Contractual Studies	6		
	F. Construction Science	8		
	G. Management	8		
	H. Information & Communications Technology (ICT)	2		
	I. Research & Development	6		
2. Elective Courses	J. Elective Courses	35	36	27
3. General Courses	K. General Courses	16	16	13
Total credit hours to graduate			120	100

AWARD REQUIREMENTS

To be eligible to graduate from this programme, students must achieve a total of not less than 127 credit hours accumulated from courses that are set according to the classification scheme shown in the Classification of Courses section, with a minimum CGPA of 2.0.

LIST OF COURSES ACCORDING TO SEMESTER (MATRICULATION/STPM)

Semester 1

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEC1113 Construction Technology I	A		3	15
2. SBEC1312 Introduction to Built Environment	C		2	
3. SBEC1132 Draughtsmanship	A		2	
4. SBEC1412 Principles of Economics	D		2	
5. SBEC1862 Introduction to Information Technology	H		2	
6. ULRS1122 Malaysian Nation-State Aspiration (Local)	K		2	
7. ULRS1042 Philosophy and Current Challenges (Local)			2	
8. UHLM1012 Malay Language for Communication 2 (International)			2	
9. ULRS1132 Malaysia Citra (International)			2	

Semester 2

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEC1123 Construction Technology II	A		3	15
2. SBEC1253 Introduction to Construction Measurement	B		3	
3. SBEC1152 Building Services I	A		2	
4. SBEC1513 Principles of Law, Contract & Tort	E		3	
5. SBEC1192 Construction Materials ¹	J		2	
6. SBEC1712 Facilities Management ¹			2	
7. UHLB1112 English Communication Skills ²	K		HL	
8. ULRF2XX2 Service Learning and Community Engagement Courses			2	

Note: ¹ Elective courses to be offered, choose 2 credits. Elective courses will be advised by the Programme Coordinator.

² Compulsory for MUET Band 3.5 and below (HW) : Compulsory Audit Course

Semester 3

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEC2223 Construction Measurement I	B	SBEC1253	3	18
2. SBEC2162 Building Services II	A		2	
3. SBEC2612 Principles of Structures	F		2	
4. SBEC2662 Engineering Survey	J		2	
5. SBEC2532 Land Law ¹			2	
6. SBEC2732 Financial Management			2	
7. SBEC2742 Construction Safety ¹			2	
8. XXXXXX3 Free Elective ¹	K		3	
9. UHLB2122 Professional Communication Skills		ULHB1112	2	

Note: ¹ Elective courses to be offered, choose 6 credits. Elective courses will be advised by the Programme Coordinator.

Semester 4

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEC2463 Cost Studies	D		3	18
2. SBEC2523 Construction Contract & Procedures	E	SBEC1253	3	
3. SBEC2722 Principles of Management	G		2	
4. SBEC2233 Construction Measurement II ¹	J		3	
5. SBEC2542 Construction Procurement & Dispute Resolution ¹			2	
6. SBEC2912 Introduction to Statistics ¹			2	
7. SBEC3173 Civil Engineering Construction	A		3	
8. ULRS1032 Integrity and Anti-Corruption	K		2	

Note: ¹ Elective courses to be offered, choose 5 credits. Elective courses will be advised by the Programme Coordinator.

² Elective courses to be offered by Co-Curriculum Service Learning Centre

Semester 5

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEC3433 Estimating & Tendering	D		3	17
2. SBEC3633 Planning & Scheduling	F		3	
3. SBEC3753 Construction Project Management	G		3	
4. SBEC3852 Information Technology Applications in Built Environment	J		2	
5. UHLX1112 Foreign Language Elective	K		2	
6. ULRS3032 Entrepreneurship and Innovation			2	
7. UHLB3132 Professional Communication Skills 2		ULHB2122	2	

Semester 6

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEC3328 Industrial Training (HW) ¹	C		8	12
2. SBEC3334 Industrial Training Reports	C		4	

Note: ¹ HW : Compulsory Audit Course.

Semester 7

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEC4643 Construction Plant and Temporary Works	F		3	17
2. SBEC4763 Construction Site Management	G		3	
3. SBEC4932 Undergraduate Project I	I		2	
4. SBEC4653 Construction Technology & Design ¹	J		3	
5. SBEC3552 Construction and Development Law ¹			2	
6. SBEC4182 Sustainable Construction ¹			2	
7. SBEC4772 Commercial Management ¹			2	
8. SBEC4832 Construction Information Technology ¹			2	

Note: ¹ Elective courses to be offered, choose 9 credits. Elective courses will be advised by the Programme Coordinator.

Semester 8

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEC4343 Project Planning and Implementation	C	SBEC3633 SBEC3753	3	15
2. SBEC4944 Undergraduate Project II	I	SBEC4932	4	
3. SBEC4242 Construction Measurement (Civil Engineering Works) ¹	J		2	
4. SBEC4442 Development Economics			2	
5. SBEC4452 Value Management ¹			2	
6. SBEC4562 International Contracting			2	
7. SBEC4842 Intelligent Construction			2	

Note: ¹ Elective courses to be offered, choose 8 credits. Elective courses will be advised by the Programme Coordinator.

SYLLABUS SYNOPSES

The syllabus synopsis below covers only the core and elective courses offered in this programme. Syllabus synopses for general courses are listed in the General Courses section. Students are encouraged to take courses offered in other programmes as free elective courses. However, students are advised to consult the programme coordinator before enrolling into any of these elective courses.

SBEC1113 CONSTRUCTION TECHNOLOGY I

The aim of this course is to develop an understanding of construction technology. Students will learn to become familiar with common construction components and processes. This course covers preliminary works, temporary works, plants and equipment, excavation works, foundations, ground floor, frame structure, floor slabs, steps, and staircases. The course will provide students with construction knowledge to be applied in other courses such as estimating, measurement, construction planning and services. The course also provides the environment to develop students' communication skills and the ability to work effectively as a team member to achieve mutual objectives.

SBEC1312 INTRODUCTION TO BUILT ENVIRONMENT

This course is designed to introduce students to both the structure and the procedures of the construction industry. Topics will include an overview of the construction industry and the industry's impact on the economy, the structure of the construction industry, the organisations within construction, the members of the construction team, the basics of the construction process and the major procedure of the construction industry. It also includes an introduction to construction industry careers and a preview of the construction degree curriculum. The course also provides the environment to develop students' ability to work effectively as a team member to achieve mutual objectives.

SBEC1132 DRAUGHTSMANSHIP

The course is designed to provide students with the knowledge and skills to interpret and prepare construction drawings. The topics will include the fundamentals of technical drawing, including drawing and dimensioning practices, orthographic projections, isometric drawing and sketching, auxiliary and sectional views, and computer-aided drafting (CAD). At the end of the course, students will demonstrate their ability to interpret, explain, quantify and use working drawings. The course also provides the platform for students to develop their ability to communicate construction information visually and graphically.

SBEC1412 PRINCIPLES OF ECONOMICS

This course provides students with the basic understanding of economic principles and its application to the construction industry. It consists of basic micro and macroeconomic principles, demand & supply, market structure, national income, money and banking, fiscal policy and budget, business cycle and economic growth. The course also provides the environment to develop students' communication skills and ability to work effectively as a team member to achieve mutual objectives.

SBEC1862 INTRODUCTION TO INFORMATION TECHNOLOGY

This course is designed as an introduction to word processing, spreadsheet, database and presentation software. It also provides students with experience in using relevant software and helps them develop skills in the use of the software for various tasks. The course also enables students to develop their own word processing documents, spreadsheet and database.

SBEC1123 CONSTRUCTION TECHNOLOGY II

The aim of this course is to develop further understanding of construction technology. Students will learn to become familiar with common construction components and processes. This course covers wall and partition, roof, doors and windows, finishes, built in fitment, external works, landscape works, doors and windows, finishes, IBS, temporary works, pre-stressed concrete, basement, demolition, renovation, and repair works. The course will provide students with construction knowledge to be applied in other courses such as estimating, measurement, construction planning and services. The course also provides the environment to develop students' communication skills and the ability to work effectively as a team member to achieve mutual objectives.

SBEC1253 INTRODUCTION TO CONSTRUCTION MEASUREMENT

The aim of the course is to equip students with the knowledge and skills of measurement and quantification of building works to complement the needs of the profession. This course introduces the concept and principles of measurement and quantification of building works and its relationship with costing and preparation of tender and contract documents. The course will focus on the application of the principles of measurement and introduction to quantification of simple building works. The course also provides the environment to develop students' communication skills.

SBEC1152 BUILDING SERVICES I

The aim of this course is to provide knowledge and understanding of the building environment and the need for the various building services systems. This course covers the common building service systems and equipment within a building. It is intended to enable students to be conversant with the building services engineering and provide students with building services knowledge to be applied in other courses such as estimating, measurement and construction planning. The course also provides the platform to develop students' communication skills and the ability to work effectively as a team member to achieve mutual objectives.

SBEC1513 PRINCIPLES OF LAW, CONTRACT & TORT

The aim of this course is to provide students with basic principles of law. The objectives are to introduce the main principles of the Malaysian legal system, to elucidate certain specified principles of the law of tort, agency and sale of goods relevant to construction works and to instil good understanding of the principles of law of contract. This course is divided into five parts namely. The Malaysian legal system, law of tort, contract, agency and sale of goods. The course also provides the environment to develop students' ability to express ideas clearly and logically in spoken and written forms.

SBEC2223 CONSTRUCTION MEASUREMENT I (PREREQUISITE: SBEC 1213)

The aim of the course is to equip students with the knowledge and skills of measurement and quantification of building works to complement the needs of the profession. This course will further develop the knowledge, understanding and the skill of measurement of construction works according to SMM for Building Works for the purpose of preparation of bills of quantities and estimating. The course focuses on the application of the principles of measurement and quantification of low-rise building works.

SBEC2162 BUILDING SERVICES II

The aim of this course is to provide knowledge and understanding of the various building and infrastructure services. This course covers the common building and infrastructure services system and equipment. It is intended to enable students to be conversant with the building and infrastructure services engineering and provide students with the knowledge to be applied in other courses such as estimating, measurement and construction planning. The course also provides the platform to develop students' communication skills and the ability to work effectively as a member to achieve mutual objectives.

SBEC2612 PRINCIPLES OF STRUCTURES

This course is intended to encourage an appreciation of the structure of buildings and develop concepts of structural action, leading to an ability to model, analyse and design common elements and structural frames. The focus of this course is on understanding the forces in structures and the behaviour of some structural materials. Students will come to understand the forces which are created in the building framework and the structural elements, and be able to safely design simple structural units.

SBEC2722 PRINCIPLES OF MANAGEMENT

This course provides knowledge and develops the understanding of the principles of management including the current changes and developments. It emphasises on the elements of organisation, decision making, planning, leadership and motivation. It also serves as a platform to develop students' skills and competencies in management. The course also provides the environment to develop students' ability to create good relationships, interact with colleagues and work effectively with other people to achieve mutual objectives.

SBEC2463 COST STUDIES

The course covers general aspects of building economics and factors influencing construction costs, types of cost information such as cost data, cost model, cost index, cost analysis, and the principles of design economics in construction projects. At the end of the course, students should be able to describe the various stages of the construction process, identify the factors that determine and influence construction costs, identify relevant cost information in the estimation of construction costs, and understand the cost implications of design variable, construction methods, local authority regulations, and site conditions etc. The course also provides the environment to develop students' communication skills and the ability to work effectively as a team member to achieve mutual objectives.

SBEC2523 CONSTRUCTION CONTRACT & PROCEDURES (PREREQUISITE: SBEC 1513)

The aim of this course is to introduce to the students the important clauses in construction contracts. The objectives are: one; to explain to the students the principles and the implications of the main terms of construction contract, and to highlight the roles, duties and liabilities of the parties involved in the construction contracts. The main standard forms of contract referred to in this course are those currently used locally and internationally. The course also provides the platform to develop students' communication skills and the ability to work effectively as a team member to achieve mutual objectives.

SBEC3173 CIVIL ENGINEERING CONSTRUCTION

The aim of this course is to develop an understanding of civil engineering structures and special constructions. The course will provide students with skills to allow for the evaluation of a range of technologies towards the adoption of an appropriate design decision and knowledge of the centrality of technological decision making in the context of the wider construction process. The course also provides the platform to develop students' communication skills and the ability to work effectively as a team member to achieve mutual objectives.

SBEC3433 ESTIMATING & TENDERING

The aim of this course is to develop students' knowledge and understanding on the principles, techniques and systematic procedures of preparing cost estimates and building up rates. This course is designed to provide students with the knowledge and skills in preparing cost estimates for simple building works based on the various methods and techniques and to build up rates. By identifying the factors that influence cost, students will be able to determine the appropriate cost data and its sources to be applied in the estimates while enhancing the accuracy and reliability of these methods and techniques. The course also provides the platform to develop students' communication skills, the ability to work effectively as a team member to achieve mutual objectives, and to seek information from various sources.

SBEC3633 PLANNING & SCHEDULING

This course enables students to develop an understanding and critical appreciation of the theory and practice of planning, scheduling, and reporting for a project through the use of bar charts and critical path methodology. The course provides students with a thorough understanding of project planning and scheduling principles in the construction industry. It introduces various planning and control techniques in an integrated planning and control system. It helps students develop understanding of time, cost, and resource management principles as well as an overview of advanced project planning concepts. This course also provides the environment to develop students' ability to work effectively as a team member to achieve mutual objectives, and to seek information from various sources.

SBEC3753 CONSTRUCTION PROJECT MANAGEMENT

The course emphasises on the theoretical and practical aspects of the management of the construction projects such as houses, office buildings, shopping complexes etc. It is a course designed to allow students to learn, understand and further develop their knowledge in the theory and practice of construction management. It includes the theoretical and practical aspects of material, labour, plant, sub-contractor, time, cost, quality and risk management. The course also goes into detail about the process of construction, the construction team and organisation and the management elements of planning, organising, coordinating, and controlling. The course also emphasises on the preparation of various types of work programmes.

SBEC3328 INDUSTRIAL TRAINING (HW COMPULSORY AUDIT COURSE)

This course aims to provide students with industry experience and to consolidate the theoretical content from the course by exposing students to real construction industry scenarios practices and procedures. Students will be placed at construction firms or government departments. At the end of the industrial training, students should be able to use the techniques, skills and tools learnt. Students should be able to function effectively in a team, seek information and acquire contemporary knowledge, present information and express ideas clearly, effectively and confidently, listen actively and respond to ideas of other people, recognise and respect the attitudes, actions and beliefs of others.

SBEC3334 INDUSTRIAL TRAINING REPORTS

This course requires the students to produce a report on the industrial training carried out. The report covers tasks undertaken and experiences gained by students during the period of training at the respective firms or departments. After completing the report, students should be able to present information and express ideas clearly, effectively and confidently.

SBEC4643 CONSTRUCTION PLANT & TEMPORARY WORKS

This course provides working knowledge on construction plants and temporary structures. Topics include an introduction to principles and techniques for selecting and managing construction equipment, review and evaluation of the types of earthmoving and other construction equipment, including estimating and analysis of production, ownership and operating costs. Studies of temporary structures used to support construction operations such as formwork, scaffolding systems, shoring systems, cofferdam, underpinning, slurry walls and construction dewatering systems are also covered. Upon successful completion of this course, students will develop a working knowledge of common construction plants and equipment and their management imperatives and techniques. Students should understand the different types of temporary structures used to support construction and to identify alternative solutions for temporary structure designs.

SBEC4763 CONSTRUCTION SITE MANAGEMENT

This course provides students with knowledge, understanding and skills of site management based on best practices. It covers the elements of site analysis, site planning and layout, organising resources, site communication and information, site meeting and housekeeping. This course also covers the aspects of site procedures, method of construction techniques, law, rules and regulations.

SBEC4932 UNDERGRADUATE PROJECT I

This course is designed to provide the knowledge and skills to undertake research work. It covers the process and techniques of research, research design, identification of research areas and the preparation of research proposals. At the end of the course, students should be able to identify issues, problems and areas of research, identify relevant data and information required for the research, develop data collection techniques, design a research process and prepare a research proposal. Students should be able to seek information from a variety of sources, be open to new ideas and have the capacity for self-directed learning, to look for alternative ideas and solutions, present information and express ideas clearly, effectively and confidently, and act ethically with integrity and social responsibility.

SBEC4343 PROJECT PLANNING & IMPLEMENTATION (PREREQUISITE: SBEC 3633 & SBEC 3753)

The ultimate aim of this course is to develop students' awareness and understanding of the problems associated with the management of building projects from inception through to commissioning, handover and beyond. In so doing, the students are expected to understand the concept of project management as a truly integrated approach to the process of building. This course provides a premise for students to integrate and apply other related disciplines studied in the previous years to the PED projects. At the same time, they will have the opportunity to explore problems of managing temporary organisations whose members are professionals in differing fields with differing objectives and perspectives.

SBEC4944 UNDERGRADUATE PROJECT II (PREREQUISITE: SBEC 4932)

This course is a continuation of Research Method (SBQ 4712) and requires students to undertake a dissertation project based on the research proposal prepared in Research Method. At the end of the course, students should be able to undertake a literature review, identify data and information relevant to the research and its source, collect data and information, use the appropriate data collection techniques, analyse and synthesise data, draw findings from the research undertaken and prepare a clear and systematic dissertation report. Students should be able to seek information from a variety of sources, be open to new ideas and have the capacity for self-directed learning to look for alternative ideas and solutions, present information and express ideas clearly, effectively and confidently and act ethically with integrity.

SBEC1192 CONSTRUCTION MATERIALS

The overall aim of this course is to introduce students to the properties and behaviour of common materials used in the construction and methods of drafting specification. It is intended to enable students to be conversant with building materials and typical methods of specification writing. This course covers the details on construction materials including classification, sources, manufacturing processes, tests involved and evaluation on appropriateness of construction materials. It includes aspects of concrete technology and soil mechanics. The course also provides the environment to develop students' ability to communicate work effectively as a team member to achieve mutual objectives.

SBEC1712 FACILITIES MANAGEMENT

This course introduces students to various building components, understanding various basic systems and functions of building components and their integration with the building system, concept of facilities management and its application in various organisations in the construction industry. It covers the history, concept and principles of facilities management, the stages in undertaking facilities management, and financial, monitoring and controlling of facilities management. At the end of the course, the students should be able to describe the concept and principles of facilities management and apply the knowledge of facilities management to the practice in the construction industry. The course also provides the platform to develop students' communication skills and the ability to work effectively as a team member to achieve mutual objectives.

SBEC2532 LAND LAW

This course provides the students with the understanding and knowledge of the concepts and legal principles relating to land tenure and administration in Malaysia. It focuses on the concept and principles of land law, the compulsory acquisition of land by the government, the relationship between landlord and tenant, strata title, principles and procedures of conveyancing. The course also provides the platform to develop students' communication skills and the ability to work effectively as a team member to achieve mutual objectives.

SBEC2732 FINANCIAL MANAGEMENT

This course introduces students to the basics of financial management. It covers bookkeeping, balance sheet, profit and loss account, cash flow and funds flow, business control, measure of profitability, control of working capital, and control of fixed assets: costs, volumes, pricing and profit decision, budgets and sources of capital. The course also provides the platform to develop students' written communication skills and the ability to work effectively as a team member to achieve mutual objectives.

SBEC2742 CONSTRUCTION SAFETY

This course addresses issues, concepts, legislation and practices pertinent for effective construction health and safety management. It serves to develop a critical understanding of the requirements and practice of construction safety management. The course also provides a platform to develop students' communication skills and the ability to work effectively as a team member to achieve mutual objectives.

SBEC2233 CONSTRUCTION MEASUREMENT II

The aim of the course is to equip students with the knowledge and skills of measurement and quantification of construction works to complement the needs of the profession. This course further develops the knowledge, understanding and skills of measurement of construction works according to SMM for Building Works for the purpose of preparation of bills of quantities and estimating. The course focuses on the application of the principles of measurement and quantification of construction works in high rise, large and more complex structures. The course also provides the platform to develop students' ability to communicate effectively in written form.

SBEC2542 CONSTRUCTION PROCUREMENT & DISPUTE RESOLUTION

This course is designed to provide students with knowledge and understanding on the concept of the various construction project delivery systems and dispute resolution that are adopted in the construction industry. In terms of construction project delivery systems, the students will be exposed to the traditional, turnkey, design and build, PFI, PPP and relationship-based delivery methods such as partnering and alliance used in Malaysia and other countries. The emphasis is on the legal and strategic aspects of the various delivery systems against the background of the project requirements, clients' needs, risk allocation and current construction practices. In terms of the dispute resolution methods, exposure is given to the various methods of dispute resolution that are being utilised in the construction industry as alternatives to litigation which include adjudication, mediation, dispute review board and arbitration. The course also examines the process, procedures, relevant clauses and legal implications in the various methods used to resolve disputes.

SBEC2662 ENGINEERING SURVEY

This course aims to introduce the concept and practical skills of land surveying in building construction projects. This course introduces students to the concept and practical skills of land surveying in building construction projects. It emphasises on the layout and control of buildings, use and care of surveying instruments, directions, angles, surveying calculations, errors and computations of areas and volumes. At the end of the course, students will demonstrate the ability to set out building structures, earthwork and drainage works. Students should be familiar with the methods of controlling the vertical alignment of buildings. The course also provides the platform to develop students' ability to work effectively as a team member to achieve mutual objectives.

SBEC2912 INTRODUCTION TO STATISTICS

The aim of this course is to provide students with an understanding of mathematical methods and analysis techniques. Basic statistical concepts and methods are presented in a manner that emphasizes understanding of the principles of data collection and analysis. Much of the course is devoted to discussions of how statistics is commonly used and applied correctly in the research.

SBEC3552 CONSTRUCTION & DEVELOPMENT LAW

The aim of this course is to provide knowledge on laws relating to the requirements, procedural aspects, rights and liabilities which have to be complied within the construction and development processes. This course introduces the law relating to construction, property and land development. To students it provides them with a general understanding of the laws and develops students' ability to apply the legal principles in construction and development law.

SBEC3852 INFORMATION TECHNOLOGY APPLICATIONS IN BUILT ENVIRONMENT

This course is designed to enable students to create business applications with simple programming or scripting language. This course provides problem solving and computer programming skills for students with no prior experience in the area of programming. Students will be using coding language i.e. Python, Visual Basic, Java and object-oriented computer programming language to learn the fundamentals of computer programming including how to write, compile and execute programs.

Free Elective

Relevant free elective courses will be offered to meet the curriculum needs in accordance to the latest industry trends.

SBEC4242 CONSTRUCTION MEASUREMENT (CIVIL ENGINEERING WORKS)

The aim of the course is to equip students with the knowledge and skills of measurement and quantification of civil engineering works to complement the needs of the profession. This course further provides the knowledge, understanding and skills of measurement of civil engineering works according to the Malaysian Civil Engineering Standard Method of Measurement (MyCESMM) for the purpose of preparation of bills of quantities and estimating. The course focuses on the application of the principles of measurement and quantification of infrastructure and civil engineering works.

SBEC4653 CONSTRUCTION TECHNOLOGY & DESIGN (PREREQUISITE: SBEC2612)

This course is intended to consolidate the knowledge gained in Principles of Structure and to extend this knowledge to the design and construction of multi-storey building structural systems. Emphasis is placed on the fundamentals of structural design and drafting, covering applications in reinforced concrete and steel construction. It also introduces students to the fundamentals of geotechnical engineering, which is essential in appreciating the relation and implications of soil properties to foundation choices and designs. Appropriate codes and specifications, methods for selecting structural elements and foundations are studied and practiced. The relationship of structural framing and foundation plans, details and shop drawings to specific learning topics are also covered. The course provides the platform to develop students' communication skills and the ability to work effectively as a team member to achieve mutual objectives.

SBEC4442 DEVELOPMENT ECONOMICS

This course provides knowledge and understanding on the concept, elements and components of project development economics. It covers the relationship between the construction industry, property market and economic development, aspects of property development, investment appraisal and sources and types of development finance. At the end of the course, students should be able to describe the relationship between the construction industry, property market and the economy and the property development process, identify the factors to be taken into consideration in development appraisal for different types of property and development control; prepare simple development appraisals using the residual and cash flow methods, and identify the different types and sources of development finance. The course also provides the platform to develop students' communication skills.

SBEC4772 COMMERCIAL MANAGEMENT

The aim of this course is to develop students' knowledge and understanding on the principles of commercial management from inception to completion from the construction organisations' perspective. This course is designed to provide students with knowledge and skills related to financial and contractual issues to maximise the profitability of a project. Topics covered include commercial management in project-oriented organizations, developing business networks and managing clients, cost evaluation, invoicing and management of cash flow, and teamwork and partnering. The course also provides the platform to develop students' communication skills and the ability to seek information from various sources.

SBEC4182 SUSTAINABLE CONSTRUCTION

This course explores the primary interface between sustainable technologies and high technology buildings. It deals with current environmental and legislative issues with regard to technological design and specification of contemporary and innovative buildings. In addition, students will examine the wider local and international perspectives on the concept of sustainable developments and natural resource management. Site study visits will be undertaken to local sustainable and high technology buildings under occupation and under construction. The course also provides the platform to develop students' communication skills.

SBEC4452 VALUE MANAGEMENT

This course introduces students to the concept of value management and its application in the construction industry. It covers the history of value management, the concept and principles of value management, the concept of cost and significant items, the stages in undertaking value management, and the application of function analysis system technique. At the end of the course, students should be able to describe the concept and principles of value management and apply the knowledge of value management to the practice in the construction industry. Students should be able to function and communicate effectively in a team and demonstrate leadership skills.

SBEC4562 INTERNATIONAL CONTRACTING

This course is designed to provide knowledge and understanding for students regarding the legal principles in relation to international contracting. The scope of this course encompasses an overview of the unique problems faced by firms engaging in international activities; the importance of understanding foreign economic, social, political, cultural and legal environments; joint ventures, international dimensions of management, marketing and accounting, international financial management; international standard forms of contract; recent problems of the international economic system; dispute resolution and contracting risk analysis. The course also provides the platform to develop students' communication skills.

SBEC4832 CONSTRUCTION INFORMATION TECHNOLOGY

This course enhances student's knowledge and understanding of information technology applications in the construction industry. The emphasis of the course is to enable students to understand the importance of information and communication technology in the construction industry. This course covers the use of information and communication technology in the construction industry, its development and its strategic implementation.

SBEC4842 INTELLIGENT CONSTRUCTION

This course is designed to provide students with the knowledge and skills in adopting process and technology innovation in the various stages of project development. Topics covered include artificial intelligence techniques and tools, GIS, wireless technology, knowledge work system and smart and green buildings. The concept of electronic site measurement is also introduced in order to enhance the process of site valuation and measurement of the changes in construction. The course also provides the platform to develop students' communication skills and the ability to seek information from various sources.

09 BACHELOR OF URBAN AND REGIONAL PLANNING WITH HONOURS

INTRODUCTION

Urban and Regional Planning is a professional discipline concerned with the planning, design, management and governance of urban, rural and regional environments. It integrates spatial, social, economic, environmental and institutional dimensions to guide sustainable development, improve quality of life, and respond to contemporary urban challenges. At the local level, planners contribute to the preparation of neighbourhood, township, local and special area plans, as well as development control, urban design, community planning and infrastructure coordination. At the regional and national levels, planners are involved in strategic spatial planning, growth management, environmental stewardship, economic development, mobility planning and policy formulation. Through these roles, planners help balance development needs with environmental protection, social equity, cultural values and long-term public interest. The Bachelor of Urban and Regional Planning with Honours programme at UTM is designed to produce graduates with strong theoretical grounding, technical competency, design capability, analytical thinking and professional ethics. The programme emphasises studio-based learning, spatial analysis, planning law and governance, community engagement, development planning, digital planning tools and research-based problem solving. Through an integrated curriculum, students are equipped with the knowledge and skills required to become competent, adaptive and responsible planning professionals capable of addressing urban and regional development challenges in Malaysia and beyond.

NAME OF AWARD

Bachelor of Urban and Regional Planning with Honours [B.URP (Hons)]

PHILOSOPHY

B.URP (Hons) is a studio-based programme with emphases on design for people, critical and creative thinking, digital and interpersonal communication skills and problem-based learning projects which equip students to become professional town planners with the ability to approach problems from multiple perspectives. The programme is designed to graduate future urban planners with knowledge and skills on the aspects of development, environment, information technology, infrastructure, project management as well as institution and law to understand and face the challenges associated with cities and urban development in Malaysia, ASEAN, Asia and the world.

AIM

The programme aims to produce competent graduates equipped with essential knowledge and skills for a professional career in urban and regional planning and various related fields.

PROGRAMME EDUCATIONAL OBJECTIVES

The Bachelor of Urban and Regional Planning has 5 programme educational objectives:

- PEO1 Graduates possess a range of learning experiences in acquiring relevant theories, methodologies, techniques and skills to develop a capacity for creative thinking and problem solving in urban and regional planning.
- PEO2 Graduates value and practice a culture of continuous learning, adaptability and innovativeness in the urban and regional planning profession in an economically, socio-culturally and technologically dynamic world.
- PEO3 Graduates with basic knowledge and generic skills to venture into diverse career opportunities in the field of urban and regional planning and beyond, locally and globally.
- PEO4 Graduates demonstrate awareness and sensitivity about the roles of urban and regional planning in achieving socioeconomically and culturally responsive, economically feasible sustainable development.
- PEO5 Graduates exhibit high professional ethics in practising urban and regional planning in compliance with planning legislation and professional requirements of the Board of Town Planners Malaysia.

PROGRAMME LEARNING OUTCOMES

The intended learning outcomes of the Bachelor of Urban and Regional Planning programme are:

- PLO1 Articulate and discuss in a coherent manner philosophies, theories, concepts, approaches and principles in urban and regional planning and related fields.
- PLO2 Apply knowledge and skills appropriately towards holistically addressing urban and regional planning issues in diverse contexts.
- PLO3 Deftly conduct surveys, perform analyses and evaluate alternative planning proposals using appropriate techniques, tools and state-of-the-art technologies in sync with current institutional and professional practices.
- PLO4 Work together with different people in diverse learning and working communities as well as other groups locally and internationally.
- PLO5 Effectively and convincingly communicate planning ideas, rationales and propositions through written, visual and oral presentations to different audiences.
- PLO6 Apply a broad range of information, digital and mobile technologies to support urban and regional planning works covering data collection or mining, analysis, design and display.
- PLO7 Critically analyse and interpret numeric or quantitative data for synthesising planning issues and systematically formulating and evaluating alternative solutions to identify planning issues.
- PLO8 Effectively lead, collaborate with and empower team members, build consensus, accommodate and celebrate differences within a team towards accomplishing collective goals in planning and related fields.

- PLO9 Consistently demonstrates appreciation of broader socio-political, economic and cultural issues at the local, national and regional levels.
- PLO10 Adeptly recognise and innovatively act upon emerging opportunities in planning projects, taking into account potential risks and economic feasibility in resolving issues in urban and regional planning.
- PLO11 Apply high ethical and moral values, professionalism and accountability in performing duties and tasks that have bearing on the interests and wellbeing of the society and the environment, in keeping with the key global agenda on sustainable development.

PROGRAMME ACCREDITATION

The Bachelor of Urban and Regional Planning with Honours Programme is accredited by the Board of Town Planners Malaysia Accreditation Council (LPBM) and recognised by the Public Service Department of Malaysia (JPA).

CAREER PROSPECTS

Graduates of the Bachelor of Urban and Regional Planning with Honours are equipped to pursue careers in the public, private, non-governmental and international sectors. They may serve as town planners, planning officers, development planning officers or policy officers in federal, state and local government agencies, including PLANMalaysia, local authorities, regional development authorities and statutory bodies. In the private sector, graduates may work with planning consultancies, property developers, environmental firms, infrastructure and project management companies, and multidisciplinary built environment practices. They may also contribute to NGOs, research institutions, universities, think tanks and international organisations in areas such as community planning, heritage conservation, environmental advocacy, urban policy and sustainable development.

MODE AND DURATION OF STUDY

Mode of Study : Full-time

Minimum Duration : 4 years

Maximum Duration : 6 years

CLASSIFICATION OF COURSES

Courses offered under this programme are based on the classification scheme shown in the table below:

Classification	Course Group	Credits	Total credit hours	Percentage
1. Programme Core	A. Studio	30	96	74
	B. Principal Courses	54		
	C. Industrial Training	12		
2. Elective Courses	D. Elective Courses *	18	18	14
3. General Courses	F. General Courses	16	16	12
Total credit hours to graduate			130	100

Note: *The programme elective course is only 15 credits. Add 3 credits for a free elective (Cross Faculty).

AWARD REQUIREMENTS

To be eligible to graduate from this programme, students must complete a total of 130 credit hours or more, accumulated from courses set according to the classification scheme shown in the Classification of Courses section, with a minimum CGPA of 2.0.

LIST OF COURSES ACCORDING TO SEMESTER (MATRICULATION/STPM)

Semester 1

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEW1215 Studio 1: Experiencing Cities and Human Settlements	A		5	15
2. SBEW1413 Land Use, Climate Change and Sustainability	B		2	
3. SBEW1422 Urbanisation and History of Planning	B		3	
4. SBEW1613 Quantitative Techniques for Planning	B		3	
5. ULRS1122 Malaysian Nation-State Aspiration (Local)	E		2	
6. ULRS1132 Malaysian Citra (International)	E		2	
7. ULRS1012 Malay Language for Communication 2 (International)	E		2	
8. UHLB1112 English Communication Skills*	E		HL	

Note: *The total sum of credit hours may differ for MUET with band 3.5 and below – HL.

Semester 2

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEW1225 Studio 2: Site Planning and Layout Design	A	SBEW1215	5	18
2. SBEW1623 Green Infrastructure & Utilities for Planning	B		3	
3. SBEW1713 Geospatial Analysis in Planning	B		3	
4. SBEW1723 Traffic Engineering	B		3	
5. ULRS1042 Philosophy and Current Challenges (Local)	E		2	
6. UHLM1012 Malay Language for Communication 2 (International)	E		2	
7. ULRF2XX2 Service Learning and Community Engagement Courses (Local & International)	E		2	

Note: *SBEW1225 prerequisite with SBEW1215.

Semester 3

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEW2235 Studio 3: Urban Place Making	A	SBEW1225*	5	15
2. SBEW2633 Planning Methods and Techniques	B		3	
3. SBEW2733 Urban Mobility	B		3	
4. SBEW2432 Planning System and Practice	B		3	
5. UHLB2122 Professional Communication Skills 1 (Local & International)	E		2	

Note: *SBEW2235 prerequisite with SBEW1225.

Semester 4

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEW2245 Studio 4: Development Plan	A	SBEW2235*	5	18
2. SBEW2513 Urban Design and Sustainable Urbanism	B		3	
3. SBEW2312 Community Planning and Housing	B		2	
4. SBEW2443 Regional and Rural Planning	B		3	
5. ULRS1032 Integrity and Anti-Corruption (Local & International)	E		2	
6. BE Free Elective (Cross Faculty)**	E		3	

Note: *SBEW2245 prerequisite with SBEW2235 & **Free elective offered by other faculties.

Semester 5

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEW3255 Studio 5: Special Action Plan	A	SBEW2245*	5	19
2. SBEW3453 Planning Legislation	B		3	
3. SBEW3552 Environment, Sustainability and Planning	B		2	
4. SBEWXxx3 Elective 1**	B		3	
5. ULRS3032 Entrepreneurship and Innovation	E		2	
6. UHLB3132 Professional Communication Skills 2 (Local & Int.)	E	ULHB2122***	2	
7. UHLX1122 Foreign Language Communication Elective (Local & Int.)	E		2	

Note:

*SBEW3255 prerequisite with SBEW2245

**Please refer to the Elective Course Groupings section. Elective courses to be offered will be advised by the Programme Coordinator.

***UHLB3132 prerequisite with UHLB2122

Semester 6

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEW3818 Industrial Training (HW)*	C	SBEW3255**	8	12
2. SBEW3844 Industrial Training Report	C		4	

Note:

*HW-Compulsory Audit Course

**SBEW3818 prerequisite with SBEW3255

Semester 7

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEW4265 Studio 6: Project Planning & Feasibility	A	SBEW3255*	5	17
2. SBEW4322 Urban Economics and Finance	B		2	
3. SBEW4272 Undergraduate Project 1 (PSM 1)	B		2	
4. SBEW4332 Social Inclusion and Planning	B		2	
5. SBEWXxx3 Elective 2**	D		3	
6. SBEWXxx3 Elective 3**	D		3	

Note:

* SBEW4265 prerequisite with SBEW3255

**Please refer to the Elective Course Groupings section. Elective courses to be offered will be advised by the Programme Coordinator.

Semester 8

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEW4284 Undergraduate Project 2 (PSM 2)	B	SBEW4272*	4	16
2. SBEW4293 Planning Conference	B		3	
3. SBEW4463 Planning Theory	B		3	
4. SBEWXxx3 Elective 4**	D		3	
5. SBEWXxx3 Elective 5**	D		3	

Note:

* SBEW4284 prerequisite with SBEW4272

**Please refer to the Elective Course Groupings section. Elective courses to be offered will be advised by the Programme Coordinator.

ELECTIVE COURSE GROUPINGS

Following are the recommended groupings of elective courses* according to specialisation:

Specialisation	Elective Courses
Urban Design	SBEW3113 Critical and Creative Thinking in Planning SBEW4153 Urban Design Framework SBEW4193 Urban Regeneration and Conservation
Tourism Planning	SBEW3163 Tourism Resource Management SBEW4163 Case Studies in Tourism Planning SBEW4173 Tourism Destination Planning
Low Carbon Society	SBEW3143 Climate Change and Cities SBEW4133 Low Carbon Society SBEW4143 Emergent Technologies and Urban Change
GIS Technology	SBEW3183 Spatial Analysis and Modelling** SBEW3193 Geospatial Application
Transportation Planning	SBEW3133 Case Studies in Public Transport SBEW4183 Traffic Impact Assessment
Rural Planning and Development	SBEW3123 Rural Settlement SBEW3173 Rural Economic Development SBEW4123 Rural Community and Culture
Impact Assessments	SBEW3153 Social Impact Assessment SBEW4113 Environmental Impact Assessment

// SYLLABUS SYNOPSES

The syllabus synopses below cover only the core and elective courses offered in this programme. Syllabus synopses for university general courses are listed in the University General Courses section. Students are encouraged to take courses offered in other programmes as free elective courses. However, students are advised to consult the programme coordinators before enrolling for any of these elective courses.

SBEW1215 STUDIO 1: EXPERIENCE CITIES AND HUMAN SETTLEMENTS

This course aims at instilling new urban planning students with the awareness of fundamental human-environment relationship, and the problems of our present-day built environment, in terms of urban liveability and sustainability that lead to the basic appreciation of, and passion for, good urban planning and design. The studio focuses on training students in excelling their various skills of perceiving and appraising the built environment and the society that constantly shapes and uses it. This studio also enhances students' ability to communicate their opinions effectively and enables them to evaluate the built environment in visual (graphics such as freehand sketching and perspective drawing) and verbal modes. In view of the importance of computer-aided design and digital media in the current planning practice, the studio also provides students with basic training in AutoCAD and Sketch-Up.

SBEW1613 QUANTITATIVE TECHNIQUES FOR PLANNING

In a diverse society, understanding population characteristics as well as their preferences and opinions is extremely important for urban planners to guide planning decisions. In this course, students will learn how to sample the population and to extract data/responses from these selected samples using systematic procedures. Data and responses obtained are then converted into meaningful information using statistical techniques. At the end of this course, students will be able to make informed urban planning decisions based on the statistical analysis performed on the sampling data.

SBEW1413 LAND USE, CLIMATE CHANGE AND SUSTAINABILITY

With the increasing concerns on land use sustainability and climate change, this course emphasises current issues with regard to land use and the effects of climate change and sustainability on future land use planning. Therefore, the course aims to provide students with understanding and knowledge on land use and climate change and future implications for society and resource use in the context of sustainable development. At the end of the course, students will be able to discuss theories, concepts and principles of urban growth and planning of urban land uses; apply land use planning control tools; and propose land use patterns that are in line with mitigation of and adaptation to climate change.

SBEW1422 URBANISATION AND HISTORY OF PLANNING

Knowledge of the history of urban planning and the process of human settlement and urbanisation gives crucial exposure to students regarding the profession of urban and regional planning. In this course, students will understand how the process of early settlement evolves into current modern cities. This will include the understanding of the planning concepts and approaches based on certain phenomena and issues in Europe, Asia and America, and including the Malaysian context. At the end of this course, students will be able to make informed decisions about the process of the early settlement and urbanisation and the selected planning concepts and approaches.

SBEW1225 STUDIO 2: SITE PLANNING AND LAYOUT DESIGN (PREREQUISITE: SBEW1215)

This studio introduces students to the theory, basic principles, technical requirements and practice of site planning for the development process. The module explores key concepts, ideas and standards that shape approaches to site planning and layout design. It is designed to develop students' skills in concept plan preparation by referring to the related and existing planning guidelines, standards and other basic principles in order to achieve an ideal and sustainable layout design. Students will learn how to develop proposed design solutions for sites in ways that harmoniously and responsibly respond to the surrounding context. At the end, students should be able to prepare a layout design of a neighbourhood/township in an urban site with considerations on the planning guidelines and standard and explain the design ideas graphically and verbally.

SBEW1623 GREEN INFRASTRUCTURE AND UTILITIES FOR PLANNING

Understanding the principles of planning and design as well as the benefits of green infrastructure is important for urban planners to solve urban and climatic challenges in cities. In this course, students will learn to identify the shortcomings from the current infrastructure provision and understand the need to change to green infrastructure. This course provides an understanding of the green infrastructure elements and the required methods of green infrastructure provisions in an urban context. At the end of this course, students will be able to forecast the needs of green infrastructure and utility provision at the local level, such as the preparation of layout design proposals with considerations on the related guidelines.

SBEW1713 GEOSPATIAL ANALYSIS IN PLANNING

Geographic Information Systems (GIS), one of the forms of geospatial technology, is a rapidly evolving technology, involving the study of spatial (geographic) location of features on the Earth's surface and the relationships between them. As the work of urban planners fundamentally involves the study of location and spatial relationships, today's employers increasingly expect graduates of urban planning programmes to possess a working knowledge of GIS. The course is offered to give students exposure to the fundamental concepts related to geospatial analysis, which are Geographic Information Systems, Global Positioning Systems, Cartography and Remote Sensing. It stresses the learning of ESRI ArcGIS software. Students will be involved in the basic GIS data development, using a hands-on approach. It will concentrate on how urban planners typically use GIS as a tool for analysis, data mining and display of quantitative data in order to solve urban planning problems. At the end of the course, students will possess the fundamental GIS skills valued by today's employers.

SBEW1723 TRAFFIC ENGINEERING

In complex cities, achieving a safe and efficient movement of people, goods and roadways is important for planners to guide planning decisions. This course aims to impart the knowledge of traffic analysis, use of speed-flow-density relationships, computation of road and intersection capacity, parking and traffic calming management methods. At the end of this course, the students must be able to use relevant equipment and approved methods to collect and analyse traffic data for meaningful information.

SBEW2235 STUDIO 3: URBAN PLACE MAKING (PREREQUISITE: SBEW1225)

The Urban Place Making studio focuses on the student's ability and skills in the gathering, analysis and synthesis of data. Students will need to prepare appropriate survey instruments as well as analysis and synthesis techniques. These processes are crucial in determining the validity of a study before they can design a proposal on how to improve and enhance the existing ambience of a city area. The scope of study will cover the socio-economic and physical aspects – street layouts, transportation facilities, physical images, existence of undesirable elements and policy aspects. At the end of this course, based on findings from the survey stage, students should be able to propose a solution for the poorly-utilised or unused land or space, traffic congestion etc., in order to ensure residents and visitors can effectively use the limited space in cities without compromising their safety and comfort.

SBEW2733 URBAN MOBILITY

Sustainable urban mobility planning aims to create a sustainable urban transport system by satisfying the mobility needs of people and businesses, today and tomorrow. Planners need to integrate the planning approach with surrounding land uses and all transport modes in order to make a sustainable urban transportation system. This course equips students' knowledge on land use and transportation relationships, transport demand and supply management techniques and models. At the end of this course students will be able to make sound planning decisions from analysis of transport demand and supply models.

SBEW2633 PLANNING METHODS AND TECHNIQUES

Planners need structured techniques and analytical rigour to examine problems and guide planning decisions. This course provides a comprehensive understanding of key analytical techniques frequently used by urban and regional planners. In this course, students will learn the main techniques used for analysing population, economic growth and land use changes. At the end of this course, students will be able to develop their analytical skills in using computer software to make informed planning decisions based on the analysis performed.

SBEW2432 PLANNING SYSTEM AND PRACTICE

Human settlements are inherently complex systems; thus, the planning of such settlements is essentially a system by itself. As such, it is vital that URP undergraduates are aware of the concept of 'system', its manifestation in cities, and its implications on the planning practice and process. This course aims to introduce to second year URP undergraduates the planning system in general and with specific reference to Malaysia; various components of the planning system and process; and key public, private and civil institutions that play specific roles within the planning system. The course begins with understanding the concept of 'system', approaching cities as systems, and conceptualising planning as a system. This is followed by a discussion on the main components of the planning system that comprises development planning, planning control, enforcement and other “balancing” mechanisms; and a discussion and case studies of various public, private and civil institutions that jointly operationalise the planning system in Malaysia. The Planning System and Practice course provides students with an overview of the setup and working of urban and regional planning and complements the Studio Course.

SBEW2245 STUDIO 4: DEVELOPMENT PLAN (PREREQUISITE: SBEW2235)

The exercise is aimed at studying the existing statutory plan under ACT 172 for multiple-level types of developments, with the intention to understand different components of an urban and regional development, in terms of the inter-linkages of various sectors. This will be enhanced by the exercise on formulating visions and goals for the regional, state and district study as a whole and the sectors in detail. This will be done through the collection of secondary data and a field visit to the study area. The fieldwork also covers the aspects of public participation, taking into account consultation with stakeholders.

SBEW2513 URBAN DESIGN AND SUSTAINABLE URBANISM

The New Urban Agenda specifically highlights urban planning and design as a cornerstone to the production of “well-planned and designed urban areas which add to the quality of life”. The Royal Town Planning Institute’s New Vision for Planning emphasises on the “delivery of sustainable communities, settlements and places” through action-oriented activities of mediating space and dealing with the unique needs and characteristics of places. These point to the indispensable role of urban design in creating more sustainable and liveable cities and delivering sustainable urbanism. The course therefore aims to impart to URP students urban design knowledge and skills that are indispensable but largely missing in current planning practice. It covers a critical discussion on the current state of unsustainable urbanism and missing links in current planning practice; the scope of urban design and its relationship with various built environment professional practices; key concepts and principles in urban design; perception and visual assessment techniques of ‘image of the city’ and ‘townscape analysis’; ‘responsive environments’, PSPL (public space public life) and place-making approaches to designing good cities; urban morphology and figure ground techniques for urban framework analysis; urban conservation and regeneration approaches to sustainable urbanism; and emerging concepts such as the New Urbanism, smart growth and low carbon society (LCS). The course will conclude with a discussion on the future of urbanism and urban design.

SBEW2312 COMMUNITY PLANNING AND HOUSING

Community planning and housing are fundamental issues impacting people's wellbeing and quality of life. Urban decay, lack of affordable housing, the loss of population and jobs, and the mounting costs of public services threaten our cities and regions. In this course, students will learn various approaches to community engagement, empowerment, homeownership and sustainable housing through lectures and case studies. At the end of this course, students will be able to make various informed community planning and housing decisions based on case studies and in-class activities.

SBEW2443 REGIONAL AND RURAL PLANNING

Understanding the issues related to regional and rural planning such as rapid rural land use change, urban sprawl, inefficient facilities and amenity provision is essential, so that planners can identify the strategic solutions for them. In this course, students will learn the theory and practices of regional and rural planning, as well as the evolution of regional and rural planning in Malaysia for different regions and identify the contributing factors. At the end of this course, students will be able to analyse the regional and rural planning and development approach, strategy and program in Malaysia, using basic techniques for the methods of regional analysis.

SBEW3522 ENVIRONMENT, SUSTAINABILITY AND PLANNING

This course aims to develop fundamental knowledge of the concepts and mechanisms of environment and sustainability, and in connection with the planning process and the eventual goal of sustainable urban development. Students are expected to appreciate the basic functions of natural ecosystems and built environments and the interdependence between ecosystems and human development activities, the impacts of land development on ecosystems, and the harmonious balance between the natural and built environments. An appropriate environmental planning and management tool or technique to adapt the existing and future planning and development towards sustainable development will also be introduced to the student. Student-centred learning that focuses on the development of critical thinking is delivered through current issues and a real-world-based approach. The learning process emphasises active-blended learning, which predominates over the teaching system. The course also stimulates critical thinking of students through the evaluation of the application of environmental planning tools by employing case studies in a series of assignments. An online quiz and a forum are also offered to students in order to create an ever-ready alertness. This is to comply with the blended learning approach. A mini project that aims to motivate students' critical thinking and problem-solving ability in addressing the dilemma of environmental protection and urban development is also given.

SBEW3255 STUDIO 5: SPECIAL ACTION PLAN (PREREQUISITE: SBEW2245)

This studio exercise focuses on the preparation of a subject plan. With the increasing numbers of generation revitalisation or rehabilitation projects in the country, this studio provides students the opportunity to understand and experience the process to implement the project. The subject plan will be identified based on suggestions by any local authority or related agencies for improvement, redevelopment, beautification and conservation of the area. The studio requires students to conduct projects such as Tourism Master Plan, Coastal Area Tourism Plan, Development of TOD project, Urban Conservation Project, Transportation Master Plan, Pedestrian and Cycling Master Plan. These are the potential projects that can be introduced in this studio.

SBEW3453 PLANNING LEGISLATION

Under rapid urbanisation, land and urban governance via understanding the legal institutions and frameworks for development planning and control are essential. In this course, students will learn the historical background of urban planning law and the components of the Planning Act, and relate other laws that are relevant to urban and regional planning, such as the National Land Code 1965, the Street, Drainage and Building Act 1974, the Local Government Act 1976, and the Environmental Quality Act 1974. At the end of this course, students will be able to understand clearly the institutional rights and duties, which help them make better, informed decisions with respect to the land and urban planning and development context.

SBEW3818 INDUSTRIAL TRAINING

The aim of the Industrial Attachment is to expose students to real working environments and develop the necessary skills for the job market. The Industrial Attachment is orientated towards developing the skills, knowledge and attitudes needed to be a professional planner. The objective is to strengthen the understanding of the theoretical principles, technical and design skills through practical experience. Students will be placed at agencies of their choice for a maximum of twenty (20) weeks. At the end of the training, students will have to submit an industrial attachment report. Both the agency supervisor and a visiting supervisor will assess the students. Students have to pass the assessments of both supervisors as a condition for completion of the course.

SBEW 3824 INDUSTRIAL TRAINING REPORT

An industrial training report and reflection essay has to be prepared by each student at the end of their industrial training. The report will contain background on the agency and their range of services; summaries of each task undertaken by the students during the training; comments on lessons learnt and experiences gained. Students are also required to prepare a self-reflection essay of their time with the agency. The report will be graded, and students need to obtain a pass as a condition for the completion of industrial training.

SBEW4265 STUDIO 6: PROJECT PLANNING AND FEASIBILITY (PREREQUISITE: SBEW3255)

The studio project is designed to equip town URP students with the knowledge and ability to deal with property development of a large township. The exercise is comprehensive, covering land matters, statutory requirements, policies and procedures, site appraisals, site design, appraisal on property market trends and preparing submission documents for Planning Approvals.

SBEW4272 UNDERGRADUATE PROJECT 1

The course is designed to equip students with basic knowledge of concepts, principles and techniques used in a research, vis-à-vis the formulation of a research problem, literature search and review, formulation of research design and methodology, determination of samples, data collection, data processing, data analysis and interpretation, norms and style of academic writing, and the presentation and defence of research. In the first semester, the course will require students to prepare and present the Undergraduate Project 1 storyboard and proposal, to prepare Chapter 1 and Chapter 2 of their dissertation, and lastly to design the research instruments.

SBEW4322 URBAN ECONOMICS AND FINANCE

Urban economics puts economics and geography together, exploring the geographical or location choices of utility-maximising households and profit-maximising firms. Urban economics also identifies inefficiencies in location choices and examines alternative public policies to promote efficient choices. In this course, students will learn basic economic theories and concepts. These are followed by discussions on location theory, spatial implications of development policies, the development process and land development. The final part covers development costing and aspects of project appraisal. At the end of this course, students will be able to understand the economic and social forces that have influenced the way in which modern urban settlements have grown and developed. Students can also analyse existing urban land usage and see it as part of a diverse and ongoing evolutionary process.

SBEW4332 SOCIAL INCLUSION AND PLANNING

The course serves as an introduction to the main theme of social impact studies. The aim of the course is to help students think more concretely about various research related to sociological topics and issues, especially when concerned with global and international issues. Students shall broaden their knowledge of the theories of social change through an introduction to different analytical perspectives on the study of social change. An important underlying theme is the effect of economic and social restructuring on patterns of urban spatial change and social inequality in cities. Besides that, the course will also focus on conceptualisations of development and social change and on themes such as the relationship between growth and poverty, globalisation and processes of marginalisation. The course will also include presentations of relevant empirical material from research within development studies.

SBEW4284 UNDERGRADUATE PROJECT 2

This course is a continuation of Undergraduate Project 1. It requires students to revisit Chapters 1, 2, and the research instrument(s), and make the necessary corrections/amendments, based on feedback from the respective supervisors during the first semester. Students will then proceed with their data collection, data analysis, project findings and conclusion, adhering to the norms and style of academic writing for the research/project. There will be two (2) workshops related to the research/project management and writing of abstracts during the course. Students will present and defend their project to a selected panel at the end of the course. By the end of the course, it is envisaged that students should be able to undertake a study scientifically and complete the study within a stipulated time satisfactorily.

SBEW4293 PLANNING CONFERENCE

Towards producing versatile, knowledgeable, entrepreneurial and eloquent URP graduates who are able to contribute positively to the planning profession, the professional organisation and running of a national-level planning conference will be made a partial requirement for the granting of the B.URP degree. The course is designed in conjunction with the Bachelor Project and Elective courses to provide a platform for students to share with the academia and industry important results and findings of their research projects. The course comprises two main components: 1) collaborative planning, organisation and running of an annual conference; 2) submission, presentation and publication of planning research articles, posters or planning practice notes at the conference. The first component covers the creative setting of the main conference theme and sub-themes; effective publicity to other universities and the industry; innovative sourcing of partners and sponsors; and proper arrangements of all necessary logistics that are common to professionally managed conferences. The second component requires students to co-author and present their research results and findings in the form of 4 to 6-page planning research articles, posters or planning practice notes that are of academic journal publication standard. Selected planning research articles and practice notes will be published in the conference proceeding.

SBEW4463 PLANNING THEORY

Knowledge of several urban planning theories is crucial for students to understand the appropriate theory to be applied based on certain circumstances. This course provides a critical assessment of core urban planning theories. It covers the typology, evolution of planning theories and critical assessment of selected planning theories and their application in planning practice. The theories include the principles that have been practised in different countries, including in the Malaysian context. At the end of this course, students should be able to differentiate between the various principles of urban planning theories that can be applied in the planning system.

Elective Courses

SBEW3153 SOCIAL IMPACT ASSESSMENT

The course serves as an introduction to the main theme of the social impact studies. Social Impact Assessment (SIA) at the project level functions as a planning tool and an important step towards ensuring that development-related decisions and outcomes take appropriate account of social impacts on communities and individuals. This is in line with the aspiration of the government in striving to be people-centric in the process of decision-making. Furthermore, the legal mandate for SIA has also been reflected under section 21A (1A) of the Town and Country Planning Act 1976 (Act 172), stating the need to include social implications in the submission of the Development Proposal Report. The importance of SIA has been extended to becoming a stand-alone study for infrastructure projects such as rail, road, industry and airport. This course gives the opportunity for students to venture into SIA studies as part of the physical development project.

SBEW4113 ENVIRONMENTAL IMPACT ASSESSMENT

Environmental Impact Assessment (EIA) is an important tool for public and private development and planning decisions for creating sustainable developments. In this course, students will learn EIA theories, methods, regulations, and its historical process. Students will also learn to assess impacts at different scales and design, implement, and monitor mitigation measures. At the end of this course, students will be able to critically evaluate complex environmental issues and assist in the development of Environmental Impact Statements (EIA's) and the preparation, maintenance and implementation of Environmental Management Systems (EMS) in accordance with relevant environmental legislation and international standards.

SBEW3113 CRITICAL AND CREATIVE THINKING IN PLANNING

Being both the art and science of creating more sustainable, liveable, competitive and resilient urban settlements, urban and regional planning demands the essential critical and creative thinking ability among town planners. Critical and creative thinking in planning is especially crucial for responding to the distinctive characteristics, dynamism and diverse contexts of cities. This course encourages students to actively explore and interpret the aspects, importance, principles and methods of critical and creative thinking, and develop skills in critically analysing planning issues of an urban area towards creatively identifying context-specific planning interventions. On completing the course, students will have developed and applied the skills to systematically analyse, synthesise and logically reason various planning issues, as well as generate, justify and objectively appraise responsive planning interventions.

SBEW4153 URBAN DESIGN FRAMEWORK

Urban Design Frameworks (UDF) provides a design process that shapes the built environment into great, liveable places, connections, and neighbourhoods over time. The aim of this course is to provide guidance for the preparation and use of UDF; it is a strategic planning tool that sets out an integrated design vision for better future developments of urban places. An appropriate design approach will unlock the urban designer's creativity and allow physical design outcomes to be given a higher profile in planning. It also allows ideas to be tested through design and reviewed for their potential synergies and impacts. UDF are important tools to assist planning authorities to develop local action plans and initiatives within a strategic context before being translated into real projects, policy, guidelines and initiatives. It should help to ensure that the designed built environment reflects the community's vision. This course will look into the practice of urban design, explores the physical, cultural, and experiential qualities – and future aspirations – of places, integrating the objectives of many stakeholders and the community at large.

SBEW4193 URBAN REGENERATION AND CONSERVATION

This course provides students with specialist knowledge on issues of urban conservation and regeneration. In order to provide a multi-disciplinary grounding in an area of growing significance for planning, tourism and urban policy, the course combines the historical study of an urban area and a conservation approach with an understanding of building architecture style, urban morphology, urban culture heritage and the principles of establishing a heritage value. This course is increasingly important as cities around the Southeast Asian region are facing the destruction of their historic urban fabric due to the rapid urbanisation process. The world seeks to simultaneously improve their economic competitiveness, ecological sustainability, social vitality and liveability while preserving and enhancing their historic, cultural characters and identity. Students will explore local current urban conservation issues and propose any potential design strategies for better conserving, regenerating, revitalising and/or other forms of intervention appropriate to the area and its context.

SBEW3163 TOURISM RESOURCE MANAGEMENT

The aim of the course is to provide students with an introduction and understanding of general principles and components of tourism planning and the tourism resources within it. The course discusses the relationship that exists among tourism, society, and the environment. The 'push' and 'pull' factors give the need to manage and plan a tourism destination, which is often less considered by town (or urban) and regional planners. This will enable students to appreciate and understand the concept of tourism development in either urban or rural areas, by applying inventory and evaluation techniques of tourism resources for development planning as well as the principles of sustainable tourism development.

SBEW4163 CASE STUDY IN TOURISM PLANNING

Development of tourism planning in the economic sector was seen as the catalyst for urban regeneration. Understanding their impacts and performances is critical for sustaining as well as boosting the local economy. This course presents an opportunity for students to analyse, design, and propose an alternative approach for tourism planning. Using appropriate techniques, students also need to evaluate the pros and cons of their proposed approach, considering various marketing, operational and implementation constraints. At the end of the course, students will be able to propose new and alternative ideas on more comprehensive tourism planning.

SBEW4173 TOURISM DESTINATION PLANNING

Tourism destination planning provides understanding on how to manage and plan tourism destinations to ensure their resilience and competitiveness. The course discusses tourism planning as a process that involves an interdisciplinary approach. It is aimed at creating vibrant, attractive, economically viable, socially responsible and environmentally sustainable tourism industries. The course also covers the understanding that tourism planning should also be integrated into the overall planning approach, system, process for the purpose of tourism analysis techniques and socio-cultural effects assessments. At the end of this course, students will be able to make informed decisions about the linkages of tourism with other sectors in boosting the local economy.

SBEW3123 RURAL SETTLEMENTS

Understanding the pattern of rural settlements and particular needs of the places where people live are very important for planners to provide direction for the physical development of a rural area. In this course, students will learn the issues and problems of rural settlements in Malaysia and how to differentiate the patterns and characteristics of rural settlements. This pattern can be identified on maps or using satellite images. At the end of this course, students will be able to analyse the characteristics of selected rural settlements in detail and to propose solutions for a well-planned physical development in the Malaysian rural settlements.

SBEW3173 RURAL ECONOMIC DEVELOPMENT

Understanding the process of economic transformation and how economic strategies were articulated in spatial planning is important for planners to support the economic growth in a rural region. In this course, students will learn about the analysis of trends and a step-by-step process on how to plan rural economic development at the local level. This course aims to equip students with a wide range of understanding of related theories, issues, strategies, and prospects of economic development in the rural area specifically in Malaysia. At the end of this course, students will be able to apply the process of rural economic development by conducting a focus group discussion and come out with the strategic planning process for a case study in a rural region.

SBEW4123 RURAL COMMUNITY AND CULTURE

Understanding the characteristics of the diverse rural communities, landscape and cultural traditions is important for planners to retain the communities' cultural heritage. In this course, students will learn the characteristics and principles of rural community planning and development in Malaysia. Students should be able to identify the issues, approaches, strategies and best practices of rural community development in Asian and non-Asian countries. At the end of this course, students will be able to analyse rural community issues and development programmes in Malaysia.

SBEW3183 SPATIAL ANALYSIS AND MODELLING

GIS functions relate primarily to a spatial inventory of features, and the GIS analysis functions seek to help in the understanding of the patterns and processes which lie beneath the features represented in a spatial database. Spatial analysis might help students and researchers to understand a process or distribution of features, or it might help an organization make better decisions based on a more thorough understanding of the data. The aim of this course is to provide exposure and training in using various methods of spatial analysis in the GIS environment. The course introduces spatial analysis tools and their modelling processes. It also allows students to familiarise themselves with the concept of spatial decision support systems and multi-criteria decision-making processes. In essence the course provides a basic understanding of the advanced application of GIS in planning and management.

SBEW3193 GEOSPATIAL APPLICATION

Geospatial application is an experiential course to provide students with the opportunity to apply GIS to real-world planning and management issues. This course integrates all the GIS skills and tools which have been learnt in the previous GIS course (Geospatial Analysis in Planning) and Spatial Analysis elective. Students will also design and customise their own project by utilising the ArcGIS Online for Organization platform. Students will work in a team as an organization to develop proposals, conduct survey/research, analyse and evaluate alternatives, make recommendations for possible solutions and publish their data and analysis in ArcGIS Online platform based on thematic problems. Students will also be exposed to app development and other related GIS software which could be used in preparing their project. At the end of this course, students will be able to organize their own GIS project and be equipped with advanced GIS skills to be applied in urban and regional planning or other related professions.

SBEW3133 CASE STUDY IN PUBLIC TRANSPORTATION

Development in public transport systems is being promoted to mitigate the urban transportation problems. Understanding the performance of public transport systems is critical for transport planners to meet the needs of commuters. This course presents an opportunity for students to analyse, design, and propose a new or an improved public transportation system. Using knowledge and skills attained from previous courses, students will also need to evaluate the feasibility of their proposed solutions considering various business and operational constraints. At the end of the course, students will be able to propose new and alternative ideas on public transportation systems and planning.

SBEW4183 TRAFFIC IMPACT ASSESSMENT (TIA)

In any new developments, the newly created trips will adversely affect the current traffic conditions on existing road networks. To mitigate these negative impacts, a systematic analysis must be performed on the proposed new development to ascertain the extent of the traffic problems created. In this course, the students will learn to conduct data collection, analyse various traffic analysis, produce a specific mitigation plan required in the traffic impact assessment process and finally, produce a Traffic Impact Assessment Report (TIA). At the end of this course, students also will be able to make decisions based on the results provided in the traffic analysis performed on selected areas.

SBEW3143 CLIMATE CHANGE AND CITIES

By 2050, more than 70% of the population – 6.4 billion people – is projected to live in urban areas. Cities consume a large proportion (between 60 to 80%) of the energy produced worldwide and account for a roughly equal share of global CO₂ emissions. Therefore, cities with high greenhouse gas (GHG) emissions are particularly vulnerable to unprecedented global climate change, where the quality of life and sustainability are severely compromised. The course begins with establishing an understanding on interconnections among urbanisation and the cities' sectorial energy consumption, anthropogenic GHG/carbon emissions, and climate hazards. With urban planning and governance systems serving as a fundamental emphasis, as well as espousing global transformative initiatives and countries' best practices, this elective course, ultimately, aims at exposing students to identifying and formulating potential city-level spatial and non-spatial strategies, mitigations and adaptations, and policy options, including low-carbon actions, in tackling and curbing local climate change.

SBEW4133 LOW CARBON SOCIETY

As our urbanised world increasingly grapples with various impacts of global climate change, LCS has become the "next big thing" in urban and regional planning. The course therefore hopes to instil awareness among would-be town planners of the vital role of urban and regional planning in creating low-carbon cities and regions. This optional course aims at exposing students to fundamental concepts, modelling approaches, and mitigative actions/measures of Low Carbon Society (LCS). Apart from identifying key carbon emitting sectors of a city/region, students will apply the Asia-Pacific Integrated Model (AIM) to obtain base year carbon emission levels as a benchmark and project target year carbon emission levels under the business-as-usual (BaU) and countermeasure (CM) scenarios for a selected city. At the end of this course, students will be able to offer advice on mitigative actions and policy options that will potentially contribute to transforming cities into LCS.

SBEW4143 EMERGENT TECHNOLOGIES AND URBAN CHANGE

The aim of this course is to provide exposure and knowledge of current and future emergent automation and data interchange used in the industry. This course equips students with a wide-ranging understanding of the state-of-the-art technology concepts, issues, strategies and prospects in relation to urban development of a 'Smart City'. The course examines the current and future technological trends and outlooks of urban economic needs, discusses the issues and prospects of implementing these technological trends in cities and appraises urban economic change and its impact on the community. Students will also be exposed to the implementation of these 'Smart Cities' and how this strategy can be articulated in spatial planning. Through this course, students are expected to improve their understand

10 BACHELOR OF SCIENCE IN GEOINFORMATICS WITH HONOURS

INTRODUCTION

The Bachelor of Science in Geoinformatics with Honours is an interdisciplinary programme that focuses on the science and technology of acquiring, processing, managing, analysing, modelling and communicating geospatial information to understand locations, patterns and relationships on the Earth. Geoinformatics integrates several fields, including geospatial science, surveying and mapping, Geographic Information Systems (GIS), remote sensing, photogrammetry, spatial statistics, geospatial databases, programming, artificial intelligence (AI), and machine learning for advanced spatial data analysis and prediction. The programme combines theoretical knowledge with practical skills through fieldwork, laboratory activities, project-based learning, industrial training and research, enabling students to develop competencies in geospatial data acquisition, processing, analysis, modelling and visualisation. The multidisciplinary nature of Geoinformatics provides graduates with the flexibility to apply geospatial technologies and AI-driven approaches across diverse fields, including urban and regional planning, land administration, environmental and natural resource management, forestry, agriculture, infrastructure and utilities, disaster and hazard management, transportation, public services, and social applications. Through this broad-based education, the programme prepares graduates to transform geospatial data into meaningful information, predictive insights and evidence-based solutions for effective planning, problem-solving and decision-making across government, industry, research and society.

NAME OF AWARD

Bachelor of Science in Geoinformatics with Honours [BSc Geoinformatics (Hons)]

PHILOSOPHY

The Bachelor's Degree in Geoinformatics combines theoretical knowledge and practical skills in the field of geospatial science, including Geographic Information Systems (GIS), remote sensing, and data analytics. With an emphasis on interdisciplinary learning, ethical responsibility, spatial and non-spatial data accuracy and integrity, as well as the adaptability to technological advancements, the program equips students to address real-world challenges in the geospatial domain. Through hands-on training, research, and industry collaboration, students develop critical thinking, innovation, and lifelong learning skills. This educational philosophy aims to shape students into competent, ethical, and forward-thinking professionals who are ready to contribute meaningfully to society, environmental sustainability, and the advancement of geospatial information technology at both national and international levels.

AIM

The programme, approved and recognized by the Ministry of Higher Education (MOHE) and the public Services Department (PSD), was first offered in the academic year of 1993/94. This programme is also being accredited by the Malaysian Board of Technologies (MBOT) since 2023.

The extract of the letter from the PSD [JPA(L)S.130/2/1 Jld.4(97)] in recognizing the programme is as follows:

“The Permanent Committee of Evaluation and Qualification Recognition (JTPPK) in its 79th meeting on July 2nd 2002 chaired by The Honourable Education Minister of Malaysia had recognized the degree of Bachelor of Science (Geoinformatics) of Universiti Teknologi Malaysia as equivalent to the Bachelor of Science with Honours from other local Higher Learning Institutions for any appointment to the Public Services, Malaysia”.

AIM

The aim of the programme is to produce knowledgeable graduates in geoinformation science, competent in handling diverse geospatial data to produce actionable information, as well as being ethical and able to contribute to the development of the country.

PROGRAMME EDUCATIONAL OBJECTIVES

The Programme Educational Objectives are as follows:

- PEO1 Knowledgeable, creative and innovative in solving geospatial related problems by benefiting information and communication technology.
- PEO2 Good interpersonal skills with continuous effort towards career advancement through good quality leadership, lifelong learning and business opportunities.
- PEO3 Demonstrate professionalism and uphold ethical values within organisation and society.

PROGRAMME LEARNING OUTCOMES

The intended learning outcomes of the Bachelor of Science in Geoinformatics with Honours programme are:

- PLO1 Ability to demonstrate knowledge in the geospatial field.
- PLO2 Ability to apply the knowledge in the form of theory and skill in the geospatial field.
- PLO3 Ability to manage and analyse related data and information for specific purposes in the Geospatial field.
- PLO4 Ability to adapt in different situations of Geospatial-based industrial needs.
- PLO5 Ability to communicate effectively delivering geospatial technical information
- PLO6 Ability to use related technology and software for geospatial information and application in a competent manner.

- PLO7 Ability to analyse numerical information for making accurate decisions and conclusions.
- PLO8 Ability to work in a multi- disciplinary team for nurturing leadership skills.
- PLO9 Ability to independently grasp the new development of the Geospatial field by adapting to the latest technology.
- PLO10 Ability to identify and apply business opportunities and entrepreneurial skill in geospatial-related projects.
- PLO11 Ability to act professionally and according to the correct ethical skills in dealing with current and global issues.

PROGRAMME ACCREDITATION

The Bachelor of Science in Geoinformatics with Honours is recognised by the Malaysian Qualification Agency (MQA) with MQR reference No.MQA/FA16053.

https://www2.mqa.gov.my/mqr/english/epapar_printAA.cfm?IdAkrKP=20057.

The programme is also accredited by the Malaysia Board of Technologists (MBOT). The extract of the letter from the Technology and Technical Accreditation Council (TTAC), MBOT in recognizing the programme is as follows:

“Pleased to be informed that MBOT has approved the application for Full Accreditation of the following program and has been certified to have met the accreditation assessment criteria of TTAC MBOT's professional program in accordance with the provisions of the Technologists and Technicians Act 2015 (Act 768) which qualifies graduates of this program to be registered as Qualified Technicians (QT)/Graduate Technologists (GT) under MBOT”.

The programme code accreditation is MBOT/FA/RB/O/O2/0001. The accreditation is applicable to cohorts graduating in 2023 until 2026.

CAREER PROSPECTS

Graduates of the programme may work as GIS professionals at various government and private organizations. Among the posts that can be held are:

1. Jurugeospatial (Gred J41 – Gred J54) – Government Public Sector
2. Geospatialist
3. GIS/Remote Sensing Manager
4. Geospatial Data Scientist
5. GIS Analyst
6. Geospatial Database Administrator
7. GIS Programmer/Application Developer
8. GIS/Remote Sensing Project Manager
9. GIS/Remote Sensing Project Consultant
10. Web Developer

Agencies that may require the service of these graduates include:

1. Government departments that are directly related to geospatial data management such as Department of Surveying and Mapping Malaysia (JUPEM) and Pusat Geospatial Negara (PGN).
2. Government departments that use geospatial information in their daily operation such as Forestry Department, Department of Agriculture, Public Works Department, Department of Environment, Department of Town and Regional Planning, Department of Mineral and Geosciences, and Civil Aviation Authority of Malaysia (DCA).
3. Private companies that use geospatial information in their daily operation such as Johor Plantation Group, Sime Darby, and etc.
4. Organizations that are involved in utility works among which include the Water Supply authority, Telekom Malaysia (TM), Tenaga Nasional Bhd (TNB) and Petroliaam Nasional (PETRONAS).
5. Organisations that are involved in road infrastructure such as PLUS, RoadCare and Prolintas.
6. Local Authorities and Municipalities (City Hall, City Council, Municipal Council and District Council).
7. Retail Companies such as AEON, Shopee, Tiktok, Grab
8. Private companies dealing with data acquisition and processing such as land surveying firms, software vendors and digital data providers.
9. Higher learning institution (UTM, UM, UKM, UPM, USM, UiTM, UMP, UMK and Polytechnic)
10. Other land-related agencies.

The service of GIS professionals is becoming more important as more demands for geospatial data handling are emerging due to the rapid growth of the country's development. The graduates of this programme can expect a very good future in their career and can always play their role in fulfilling such demands.

MODE AND DURATION OF STUDY

Mode of Study : Full-time

Minimum Duration : 4 years

Maximum Duration : 6 years

CLASSIFICATION OF COURSES

Courses offered under this programme are based on the classification scheme shown in the table below:

Classification	Course Group	Credits	Total credit hours	Percentage
1. Programme Core	A. Geoinformation Science	29	75	59
	B. Surveying and Mapping Science	17		
	C. Physics, Mathematics and Statistics	15		
	D. Computer Science and Information System	9		
	E. Management Science	5		
2. Elective Courses	F. Elective Courses	36	36	28
3. General Courses	G. General Courses	16	16	13
Total credit hours to graduate			127	100

AWARD REQUIREMENTS

To graduate, students must achieve a total of not less than 127 credit hours accumulated from courses that are set according to the classification scheme shown in the Classification of Courses section, with a minimum CGPA of 2.0.

LIST OF COURSES ACCORDING TO SEMESTER (MATRICULATION/STPM)

Semester 1

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEG1443 Principles of Geographic Information Science	A		3	14/16 **See Note ²
2. SBEG1333 Survey and Mapping I	B		3	
3. SBEG1773 Mathematic for Geoinformatics	C		3	
4. SBEG1363 Computer Programming I	D		3	
5. ULRS1122 Aspirasi Negara Bangsa ¹	G		2	
6. ULRS1132 Citra Malaysia ¹	G		2	
7. UHLB1112 English Communication Skills ²	G		2	

Note: ¹ ULRS1122 is compulsory for Local Student only, meanwhile course ULRS1132 is compulsory for International students only

Note: ² MUET Band 1, 2, 3 and 3.5 should register for course UHLB1112 (HL).

Note: ² The total credit for students who enrolled the course UHLB1112 is 16

Semester 2

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEG1373 Survey and Mapping II	B	SBEG1333	3	15
2. SBEG1473 Principles of Photogrammetry & Remote Sensing	B		3	
3. SBEG1483 Computer Programming II	D	SBEG1363	3	
4. SBEG1112 Geographic Studies	A		2	
5. ULRS1042 Falsafah dan Cabaran Semasa ¹	G		2	
6. UHLM1012 Malay Language for Communication 2 ¹	G		2	
7. ULRF2xx2 Kursus Pembelajaran Servis dan Penglibatan Komuniti	G		2	

Note: ¹ ULRS1042 is compulsory for Local Student only, meanwhile course UHLM1012 is compulsory for International students only

Semester 3

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEG2133 Statistics	C		3	17
2. SBEG2393 Applied Physics for Geoinformatics	C		3	
3. SBEG2463 Cartography	B	SBEG1333 SBEG1373	3	
4. SBEG2593 GPS Survey	B		3	
5. Free Elective	F		3	
6. UHLB2122 Professional Communication Skills 1	G		2	

Note: ¹ Elective courses to be offered by Co-Curriculum Service-Learning Centre (Interfaculty course offered by Faculty).

Note: ¹ Choose Free Elective either in Semester 3 or Semester 4

Semester 4

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEG2413 Introduction to Spatial Statistic	C	SBEG2133	3	13
2. SBEG2153 Geospatial Database	A		3	
3. SBEG2533 Digital Image Processing	A		3	
4. SBEG2492 GIS Training Camp I	A		2	
5. ULRS1032 Kursus Integriti dan Antirasuah	G		2	

Semester 5

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEG3542 GIS Training Camp II	A		2	18
2. SBEG3422 Cadastral Studies	B		2	
3. SBEG3513 Spatial Analysis	A	SBEG2413 SBEG1443	3	
4. SBEG3163 System Analysis and Design	D	SBEG1363 SBEG2153	3	
5. SBEG3343 Spatial Algorithms and Applications	C		3	
6. SBEG3643 Computer Programming III	F	SBEG1363 SBEG1483	3	
7. SBEG3573 Digital Photogrammetry	F		3	
8. ULRS3032 Entrepreneurship and Innovation	G		2	

Note: ¹ Elective courses to be offered, choose 3 credits (1 course). The elective course will be advised by the Programme Coordinator.

Semester 6

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEG3583 GIS Software System	F		3	16
2. SBEG3603 Visualisation & System Customisation for Geoinformation	F	SBEG1363 SBEG1483	3	
3. SBEG3553 GIS & Remote Sensing Application	F		3	
4. SBEG3703 Spatio Temporal GIS	F		3	
5. SBEG3453 Database Management System	F		3	
6. SBEG3663 Non-Imaging Remote Sensing	F		3	
7. UHLB3132 Professional Communication Skill 2	G		2	
8. UHLX1112 Elective Foreign Language	G		2	

Note: ¹Elective courses to be offered, choose 12 credits (4 courses). The elective courses will be advised by the Programme Coordinator.

Short Semester

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEG3685 Industrial Training ¹	A		5	5

Note: ¹ Practical & Seminar & Reporting (HW) (10-12 weeks)

Semester 7

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEG4543 GIS Project Management	E		3	16
2. SBEG4602 Undergraduate Project I	A		2	
3. SBEG3602 Institutional & Legal Aspect	E		2	
4. SBEG4643 Spatial Data Management	F	SBEG1443 SBEG3583	3	
5. SBEG4633 GIS For Resource Management	F		3	
6. SBEG4523 DTM For GIS	F		3	
7. SBEG4513 LiDAR Survey	F		3	

Note: ¹Elective courses to be offered, choose 9 credits (3 courses). Elective courses will be advised by the Programme Coordinator.

Semester 8

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEG4664 Undergraduate Project II	A	SBEG4602	4	13
2. SBEG4583 Web-based GIS ¹	F		3	
3. SBEG4563 Strategic Planning ¹	F		3	
4. SBEG4903 E Government ¹	F		3	
5. SBEG4913 GIS for Social Science ¹	F		3	

Note: ¹Elective courses to be offered, choose 9 credits (3 courses). Elective courses will be advised by the Programme Coordinator.

SYLLABUS SYNOPSES

The following syllabus synopses address only the core and elective courses offered in this programme. Syllabus synopses for general courses are listed in the General Courses section. Students are encouraged to take courses offered in other programmes as free elective courses. However, students are advised to consult the programme coordinator before enrolling for any of these elective courses.

Core Courses

SBEG1443 – PRINCIPLES OF GEOGRAPHIC INFORMATION SCIENCE

This course is designed to provide an understanding of theory and principles of geospatial information science and technology (GI S&T) and introducing basic skills in using Geographic Information System (GIS) softwares. The course is implementing the 21st century learning strategy by adopting teaching research nexus at the early introductory program (i.e. inquiry based learning approach) in topics that require students to relate spatial and geographic issues with solutions that GIS can offer.

SBEG1333 – SURVEY AND MAPPING I

This course introduces students to the fundamentals of surveying and mapping with emphasis on principles and procedures in surveying and mapping techniques. It covers the following main topics: introduction to surveying, basic procedures in surveying, introduction to reference systems, distance measurement, orientation and angle measurement, height measurement and computation of areas and volumes. Some field works will be carried out in the faculty area under the supervision of a lecturer. This also allows for progress to be monitored continuously, and some of the generic skills assessment can be undertaken.

SBEG1773 – MATHEMATICS FOR GEOINFORMATICS

This foundational course develops the mathematical toolkit required to handle and manage geospatial information systems (GIS). It assumes general high-school mathematics and builds the logical basis for geospatial computation. Core topics include formal logic and set theory as the basis of mathematical reasoning in GIS. You will study how logic underpins geospatial programming, using propositions, predicates, and inference to express and derive facts. The course also introduces discrete mathematics (relations, graphs, combinatorics) and essential elements of topology relevant to spatial data structures and operations. Practical connections are made to computer-based handling and processing of spatial data. Lectures and lab activities with an emphasis on problem solving and hands-on application to geospatial datasets. By the end of the course, students will be able to formalize geospatial problems using logic and set theoretic constructs, apply discrete mathematics and basic topological ideas to model spatial data, and design, implement, and evaluate reasoning steps in geospatial programming workflows. They will justify solutions using rigorous argumentation and assess their correctness in computational contexts.

SBEG1363 – COMPUTER PROGRAMMING I

This foundational course introduces the program development and core programming practices. It builds a base in algorithmic thinking and program structure. You'll cover logic modeling (e.g., flowcharts and pseudocode), top-down design and top-down programming, structured programming constructs, and systematic debugging procedures. Emphasis is placed on translating problem statements into modular algorithms and implementing them using an open-source programming language and IDE. Lecture-lab format with extensive hands-on programming exercises and structured written assignments, emphasizing problem-solving and iterative debugging. By the end of the course, students will be able to analyze requirements; design logic diagrams/pseudocode; implement, test, and debug structured programs; and document their solutions. They will evaluate program correctness and basic efficiency at an introductory level.

SBEG1373 – SURVEY AND MAPPING II

This intermediate-level core course in the Geoinformatics program builds upon foundational surveying knowledge to develop competencies in modern land surveying and mapping practices. This course emphasises on measurement techniques, data processing, mapping production, and practical applications in engineering and geospatial fields. The course covers electronic distance measurement, traversing, levelling and height determination, detailing and topographic surveying, route surveying, road design, projection and coordinate systems, surveying automation and mapping software, cadastral surveying, land administration, hydrographic surveying, GPS/GNSS surveying, remote sensing, and geospatial data integration. The T&L delivered through lectures, active and cooperative learning, and extensive hands-on fieldwork and practical sessions that emphasize problem solving, teamwork, and real-world survey operations. Upon completion, students will be able to analyze surveying problems, perform field data acquisition, compute and process measurements, produce accurate survey plans using appropriate techniques and tools, evaluate results, and communicate technical findings effectively while collaborating in surveying projects.

SBEG1473 – PRINCIPLES OF PHOTOGRAMMETRY & REMOTE SENSING

This course introduces the basic principles of photogrammetry and remote sensing to students, emphasizing on all the basic aspects of the remote sensing process, interaction of electromagnetic radiation with objects of interest on the earth surface and in the atmosphere, and platforms for acquisition of remotely sensed data. Students will learn about processing satellite remotely sensed data with different spectral, spatial and temporal resolutions in the laboratory work. At the end of the course, students will have knowledge on the basic principles of remote sensing and digital image processing, which is useful in the field of GIS, and remote sensing for deriving geospatial information from the remotely sensed data, serving as key input to the database updating for map production.

SBEG1483 – COMPUTER PROGRAMMING II

This course focuses on the principles and practices of object-oriented programming using the Python programming language while explicitly embedding Values-Based Education (VBE) principles such as integrity, ethical responsibility, inclusivity, and resilience. The course also integrates Education for Sustainable Development (ESD) by encouraging students to consider the social, environmental, and long-term impacts of software solutions. Through structured problem-solving and object-oriented design, students develop modular, reusable, and maintainable programs that reflect responsible and sustainable computing practices. The course covers Python programming fundamentals, problem-solving techniques, data structures, and core object-oriented programming concepts including classes, encapsulation, inheritance, and polymorphism. Topics such as functions, modules, file handling, string processing, and basic UML design are addressed with emphasis on ethical programming, data responsibility, sustainability, integrity, and long-term software maintainability, in line with ESD and VBE values. Upon completion of the course, students will be able to apply fundamental programming and object-oriented concepts using Python with integrity, ethical awareness, and professional responsibility. Students will design and implement object-oriented solutions using appropriate control structures, data structures, string processing, and basic data manipulation while demonstrating sustainability awareness, social responsibility, and global citizenship. In addition, students will demonstrate good programming practices, including code organization, documentation, maintainability, and creative solution development that aligns with sustainable development goals and moral values.

SBEG1112 – GEOGRAPHIC STUDIES

This is an elementary-level course that promotes understanding and appreciation of geographical knowledge related to GIS and remote sensing applications. The course introduces different components of geography covering both Physical and Human and relates how GIS and remote sensing as geographical tools can be used to help addressing geography-related matters/issues. The course covers topics on Introduction to geography (Physical and Human geography), Human impact on climate change that includes land use and land cover changes and urbanization (human geography). The impact of land use and land cover changes on the trend and spatial patterns of ecosystem services and biodiversity is also covered in the course. Other geographical topics such as hydrology, atmospheric composition and pollution, and climate change are also studied in this course. Finally, sustainable urban planning is also introduced in the course as a way to overcome geographical differences and other environmental problems that originated from the urbanization process. The course is delivered through a combination of lectures, in class activities and discussions, and service learning where the university campus itself becomes an active, real-world laboratory where students observe, measure, analyze, and improve geographical processes in action. Service elements involve the students to submit (i) Environmental improvement proposals, (ii) Evidence-based recommendations, and (iii) Spatial maps. This service learning approach emphasizes hands-on analysis, spatial thinking, and real-world problem-solving. At the end of the course, students will be able to acquire knowledge of Earth system science (physical geography) and the importance of space on earth for human activities (human geography), Apply geographical knowledge in solving geospatial related problems and Act professionally, ethically and sustainably on current and global environmental (geographical) issues.

SBEG2133 – STATISTICS

This course is intended as an introduction to spatial statistics and aims to provide students with the background necessary to investigate geographically represented data. There are numerous research questions involving spatial data, but in this course, focus is placed on methods that are relevant in the fields of public health, environmental science, and social science. The course covers descriptive statistics, probability distribution, statistical inference, comparative study, correlation and autocorrelation, spatial autocorrelation, simple and multiple regression.

SBEG2393 – APPLIED PHYSICS FOR GEOINFORMATICS

This course is designed to provide understanding, knowledge, and exposure on the applied physics principles utilized in geoinformation science and its related technologies. The scope of the course consists of several modules including; Electromagnetic wave and matter interactions; Radiative transfer equation for environmental scanning and Blackbody radiation and its application. Emphasis is given on the application of related physics in retrieving and recording the environmental & earth geographic information. Students will be exposed to the fundamentals of applied physics principles and their practical uses in respective geoinformatics applications.

SBEG2463 – CARTOGRAPHY

This course focuses on the principles of mapping (cartography) it includes the following : Understanding the reality, geography and environment, Translation and abstraction of reality to abstract in the form of maps, Understanding issues and problems relating to mapping and spatial data transformation reference and coordinate systems, the elements of maps and map usage; Understanding the principles and procedures of cartographic design on topographic and thematic maps with the principles of graphic communication, The concept of mapping globally, regionally and locally (Malaysia); Understanding the characteristics of output for effective information dissemination, Understanding the processes, activities and visualization effects through the medium of graphic communication, and The relationship between cartography and geographic information system (GIS) output.

SBEG2593 – GPS SURVEY

This course focuses on understanding the theory and principles of Global Positioning System (GPS). The topics covered include: Overview on Geodesy and GNSS; GPS Application, Mission and Planning; GPS Post- Processing (Static and Fast Static) and Differential Mode; Real-time Kinematic (RTK) and Virtual Reference Station; GPS/GIS Data Capture and Collection; Field and Office Procedures; Field Practice using RTK and Differential Techniques. This course also covers the design and planning of static networks and preparing for a GPS field survey.

SBEG2413 – INTRODUCTION TO SPATIAL STATISTICS

This course introduces statistical analysis of spatial data. The course provides a transition from conventional to spatial statistics which focusses on location and space. Several topics are introductory and intermediate such as spatial sampling, point statistics and areal statistics while advanced topics for instance spatial autocorrelation and geographical weighted regression would also be presented. Upon completion, students will be able to independently and collectively explain and perform the concept of spatial statistics.

SBEG2153 – GEOSPATIAL DATABASE

This course provides an introduction to geospatial database systems and the database approach for development and management of Geospatial data. It covers fundamental concepts such as database environments, data models, relational models, relational algebra, and Structured Query Language (SQL). The course also introduces database planning, analysis, and design techniques including entity–relationship (ER) modelling. In addition, the course focuses on the design and development of geospatial databases, integrating both spatial and non-spatial data. Students will learn how geospatial databases support spatial analysis and decision-making through GIS applications. Hybrid lectures will be delivered to facilitate student's understanding and knowledge of the topics covered in the course. To reinforce practical learning, laboratory sessions are arranged for the discussion and completion of assignments and projects. By the end of the course, students will be able to apply geospatial database techniques to develop and analyze geospatial databases and address related problems. Students will also demonstrate and present their competency in sustainable and ethical geospatial database development through projects and laboratory exercises, applying geospatial technologies with critical and strategic thinking.

SBEG2533 – DIGITAL IMAGE PROCESSING

This course is an introduction to digital image processing. It includes concepts of digital image sampling & image digitization, image storage, image file management & display system, Digital data of remote sensing, media format and header information sources; Image pre-processing: geometry correction, noise removal, radiometry correction, Image enhancement: linear and non-linear operations and image transformation, Image classification: supervised and unsupervised classifications; Output production and information processing; and Applications of Remote Sensing digital image processing to various applications.

SBEG2492 – GIS TRAINING CAMP I

This course enhances the geospatial data collection methods from previous data collections courses and provides some soft introduction towards frontiers of data collection methods. The course is directed at giving students an understanding of and experience with the theories and technical skills related to geospatial data collection methods, and to develop a geospatial database. Field work, laboratory exercises and projects will use real-world dataset. Through the experience, students should be able to work in a group on conducting spatial database development starting from data collection stages to database visualization and analysis.

SBEG3422 – CADASTRAL STUDIES

The course is designed to describe the fundamentals of marine cadastre and the needs of marine cadastre in the marine spatial planning, development and administration. The course is emphasized on the establishment of marine cadastre system and the new requirement for sustainable marine records. This course will provide the understanding of the current marine cadastre development in Malaysia and worldwide.

SBEG3513 – SPATIAL ANALYSIS

This course introduces the fundamental principles and methodologies of spatial analysis, with a particular focus on applications in Geographic Information Systems (GIS). It is an intermediate-level course designed to build both theoretical understanding and practical analytical skills. The course covers a wide range of spatial data analysis techniques, including data exploration, vector and raster analysis, terrain mapping and analysis, viewshed and watershed analysis, spatial interpolation, geocoding, and dynamic segmentation. Students will also learn advanced techniques such as least-cost path analysis, network analysis, and GIS models and modelling. Emphasis is placed on integrating these methods to address real-world spatial problems in environmental, urban, and planning contexts. The course employs a hands-on learning approach that combines lectures with extensive use of geospatial analysis software tools through individual assignments and group projects. By the end of the course, students will be able to design, perform, and critically evaluate a variety of spatial analyses using GIS tools. They will also be able to apply appropriate methodologies to solve complex spatial problems and communicate results effectively.

SBEG3163 – SYSTEM ANALYSIS AND DESIGN

This intermediate-level course equips students with the essential knowledge and practical skills for analyzing, designing, and developing information systems that support sustainable and ethical digital transformation. It focuses on integrating business needs with technological solutions through structured methods and value-based practices. Students will explore the full Systems Development Life Cycle (SDLC), from problem identification and requirements gathering to process modeling, evaluating alternative solutions, and designing effective system architectures. The course covers modern development approaches, including agile and traditional models, emphasizing their relevance in diverse project contexts. Students will apply system analysis tools and techniques such as use-case modeling, data flow diagrams, and entity-relationship modeling while addressing real-world considerations like usability, scalability, and sustainability. Attention is given to the soft skills of communication, teamwork, and ethical decision-making, which are essential for engaging stakeholders and managing change in organizations. The course employs a project-based and problem-solving learning approach supported by lectures, hands-on workshops, collaborative group projects, and consultation sessions, enabling students to connect theory with practical application. Upon completing the course, students will be able to analyze organizational problems, elicit and model system requirements, design sustainable and ethical system solutions, and communicate these effectively to stakeholders. They will develop critical thinking, teamwork, adaptability, and problem-solving skills, preparing them to contribute responsibly and innovatively to information system development projects.

SBEG3343 – SPATIAL ALGORITHMS AND APPLICATIONS

This foundational course develops the mathematical and computer science theory that underpins GIS implementations. It equips students to interpret GIS results rigorously and to tackle analyses that go beyond standard, off-the-shelf tools. Topics include core mathematical concepts for spatial reasoning, algorithmic thinking for GIS, and the basic theory needed to manipulate geographic data. Students are introduced to important GIS algorithms and the considerations for choosing and validating them. Coverage emphasizes how theory informs practical analysis and evaluation of outputs. The course combines lectures and guided labs with a collaborative group presentation that emphasizes problem solving and clear communication. By the end of the course, students will analyze and evaluate GIS outputs, select and justify appropriate algorithms, and design custom workflows when standard tools are insufficient. They will implement and document data manipulation steps and communicate findings effectively in a team setting.

SBEG3602 – INSTITUTIONAL & LEGAL ASPECT

This course introduces the institutional and legal aspects that may arise when geographic information science (GISc) are used in various geo-related applications, data management and policy making. The course will focus on these two areas; 1) the legal and critical issues related to the use of GISc to the respective application covering all the following elements including sharing of geodata & technologies, and standard of geodata for legal purpose, 2) Legal aspects of GISc itself.

SBEG3542 – GIS TRAINING CAMP II

This training camp offers an advanced, project-based learning experience where students immerse themselves in the application of GIS concepts, tools, and problem-solving approaches. It serves as a capstone-style course that integrates technical, analytical, and collaborative skills in real-world geospatial contexts. Students will engage in authentic tasks that involve assessing end-user requirements, designing feasible geospatial solutions, and integrating both GIS and applied GIS approaches. The camp emphasizes advanced use of GIS software, spatial database management, customized workflow design, and solution development across diverse dimensions including social, technological, and environmental considerations. The camp is delivered through intensive, problem-based and project-driven activities, with students working in teams to conceive, design, implement, and evaluate solutions under academic supervision. By the end of the camp, students will demonstrate advanced proficiency in GIS software and database management, apply system design practices to produce customized workflows, and deliver applied GIS solutions that address real-world needs while strengthening teamwork, critical thinking, and feasibility evaluation skills.

SBEG3685 – INDUSTRIAL TRAINING

Students will undergo industrial training with a duration of 10 to 12 weeks. During that time the students will be attached to the government or private agencies that are related to geoinformation jobs and works.

SBEG4543 – GIS PROJECT MANAGEMENT

The purpose of this course is to expose students to the factors involved in managing GIS projects. By completing this course, students should be able to apply their knowledge and skills on project management when they are working in real situations.

SBEG4602 – UNDERGRADUATE PROJECT I

This foundational course introduces students to the essential principles and practices of research in Geoinformatics, emphasizing the integration of sustainable development perspectives and ethical values in knowledge creation. It builds students' capacity to think critically and act responsibly as future professionals and researchers. The course covers the fundamentals of research design, including the formulation of research questions, systematic literature review, and selection of appropriate methodologies for geospatial research problems. Students will learn academic writing and proposal development skills, as well as effective strategies for communicating research findings through reports and oral presentations. Special emphasis is placed on project management for research, fostering responsible and efficient work planning and execution. Throughout the course, students will also reflect on the societal, environmental, and ethical dimensions of their research to ensure that their work supports sustainable solutions and community well-being. The course adopts a student-centered and value-based learning approach, combining lectures, collaborative workshops, case-based discussions, and project-driven activities. It emphasizes critical thinking, peer collaboration, and reflective learning to cultivate ESD competencies such as systems thinking, futures thinking, and values-based decision-making. Upon completing the course, students will be able to analyze research problems, design and communicate robust methodologies, and evaluate the sustainability and ethical implications of their research proposals. They will develop the skills, values, and confidence required to undertake supervised research with scholarly rigor, professional responsibility, and a strong commitment to conducting their final-year projects with integrity and in support of sustainable solutions.

BEG4664 – UNDERGRADUATE PROJECT II

This stage marks the transition from research planning to full-scale implementation. The foundational work established in Undergraduate Project 1 (PSM1) is put into practice, requiring the application of geoinformatics theories to resolve real-world geospatial challenges while prioritizing ethical data management and sustainable development goals. Focus moves away from theoretical research design toward the practical requirements of geospatial data acquisition, spatial analysis, and model troubleshooting. Technical outcomes are translated into critical discussions of results and a professionally structured final academic thesis. Preparation for the final oral defense (Viva Voce) remains a priority throughout the term. A guided professional approach is utilized, characterized by independent study supported by regular supervisor consultations and specialized hands-on workshops. A digital research portfolio allows for the professional curation of progress, feedback, and final research outputs in a format suitable for future professional use. Completion of this course indicates proficiency in spatial data handling, the ability to interpret results through a sustainability lens, and the communication skills required for a rigorous academic defense.

Elective Courses

SBEG3583 – GIS SOFTWARE SYSTEM

This course marks the transition from software theory to full-scale geospatial implementation. The foundational knowledge of GIS systems is put into practice, requiring the application of geoinformatics theories to resolve real-world geospatial challenges while prioritizing ethical data management and professional responsibility. Focus moves away from basic software use toward the practical requirements of GIS software architecture (front-end, back-end, and database integration), performance optimization, and custom scripting. Technical outcomes involve a comparative analysis of proprietary versus open-source platforms and the integration of emerging technologies like IoT and Machine Learning. A blended and project-based learning approach is utilized, characterized by independent study supported by hands-on lab workshops and community service projects. This allows for the professional curation of geospatial solutions for local stakeholders, ensuring technical proficiency is balanced with collaborative teamwork. Learning Completion of this course indicates proficiency in spatial software design, the ability to evaluate GIS solutions through a sustainability lens, and the digital skills required for professional geospatial automation.

SBEG3573 – DIGITAL PHOTOGRAMMETRY

This course is designed to provide a comprehensive understanding of conventional photogrammetry, digital photogrammetry (airborne and close-range), commercially available systems, methods of data acquisition, products, limitations, and related applications. Students will explore topics on the fundamentals of photogrammetry, data acquisition techniques, and data processing workflows. By the end of the course, students will also be exposed to various relevant applications of photogrammetry. Teaching methods include lectures, active learning, and project-based learning. Upon completion, students will be able to plan and execute photogrammetric projects to support relevant applications.

SBEG3643 – COMPUTER PROGRAMMING III

This is a foundational course in web programming designed to prepare students for modern front-end development with a focus on web-based geospatial applications. The course covers essential web technologies including HTML for semantic structuring, CSS for responsive design, and JavaScript for client-side interactivity. Students will work with structured data formats such as JSON and XML and develop skills in fetching and consuming APIs using asynchronous programming techniques. Emphasis is placed on system design best practices, secure coding standards, and cloud server management to support deployment, integration, and operations in real-world contexts. Teaching and learning are conducted through active learning and problem-based activities, combining lectures, coding labs, and project-driven exercises to foster applied problem solving and collaboration. By the end of the course, students will be able to design and develop interactive, secure, and maintainable web applications, apply system design best practices, integrate external data sources via APIs, and manage cloud-based deployments relevant to GIS and web development contexts.

SBEG3603 – VISUALIZATION & SYSTEM CUSTOMIZATION FOR GEOINFORMATION

This course introduces the fundamental concepts, technologies, and workflows required for modern web application development with emphasis on backend-driven geospatial systems and Application Programming Interface (API) integration. Students will learn how web and API-based applications are architected, implemented, and deployed in real-world environments, particularly for geoinformation applications. Students will develop competencies in HTML, CSS, JavaScript, and PHP, with emphasis on structured programming, flow control, and secure backend practices. The course covers relational and spatial database design using PostgreSQL/PostGIS, including spatial SQL for geospatial data management and querying. Students will design and implement RESTful APIs for client-server data exchange while applying system design best practices such as requirements analysis, workflow modelling, and database normalization. Practical work focuses on interactive geospatial visualization using Leaflet and MapLibre. Deployment activities utilize a pre-configured shared cloud VM, providing hands-on experience in web server setup, API deployment, database connectivity, and basic security hardening. The course is delivered through a combination of lectures, guided practical laboratories, and problem-based learning activities. Emphasis is placed on hands-on programming, API development, spatial data handling, and applied GIS problem-solving in realistic development scenarios. By the end of the course, students will be able to design and develop database-driven web applications, implement backend services and RESTful APIs using PHP with PostGIS-enabled databases, integrate interactive geospatial visualization using modern JavaScript mapping libraries, and deploy complete applications on cloud virtual machines. Students will demonstrate problem solving ability, technical competency, and collaborative skills aligned with professional geospatial and web development practice.

SBEG3553 – GIS & REMOTE SENSING APPLICATION

This is an intermediate-level course that introduces the applied use of Geographic Information Systems (GIS) and Remote Sensing in analyzing and solving real-world environmental and spatial problems. The course focuses on integrating geospatial theory with practical applications across multiple domains. The course covers applications of GIS and remote sensing in natural disasters, geohazards, urban planning, marine environments, and terrain analysis. Students explore spatial data acquisition, processing, analysis, and interpretation using geospatial software. Emphasis is placed on integrating remote sensing data with GIS for spatial modelling and decision support. Real-world datasets are used to demonstrate applied problem-solving workflows. The course is delivered through a combination of lectures, laboratory exercises, case studies, and a project-driven approach that emphasizes hands-on analysis, spatial thinking, and real-world problem solving. By the end of the course, students will be able to apply GIS and remote sensing techniques to analyze spatial problems and develop evidence-based solutions. They will demonstrate competency in spatial analysis, critical thinking, and independent project execution using geospatial tools.

SBEG3703 – SPATIO-TEMPORAL GIS

This elective course is designed to provide a bigger framework of spatio-temporal GIS in order to enhance the students knowledge in the context of Geographic Information. Students are also expected to explore several spatio-temporal applications and identify issues in regards to design, development and implementation of spatio-temporal GIS. This course is divided into three main topics, namely data modelling for spatio-temporal GIS, the data analytical of spatio-temporal GIS and visualization of spatio-temporal GIS. The course is delivered through a combination of lectures, laboratory exercises, case studies, and a project-driven approach that emphasizes hands-on analysis, spatial thinking, and real-world problem solving. By the end of this course, students should be able to demonstrate and show a greater improvement in spatial thinking skill in solving spatio-temporal GIS problems. Students will be given an independent/group project, test and exam that constitutes for the overall assessment of this course.

SBEG3453 – DATABASE MANAGEMENT SYSTEM

This course exposes students to the development of database management systems and provides a foundation for research in database systems. The course expands on what students have learned in Geospatial Database and introduces various advanced topics, including DBMS life cycle, database design, extended normalization, big data concepts, and the development of database systems using SQL and NoSQL software. The course requires both individual and group projects in which students implement a database application or explore a database-related issue. Hybrid lectures will be delivered to facilitate student's understanding and knowledge of the topics. covered in the course. To reinforce practical learning, laboratory sessions are arranged for the discussion and completion of assignments and projects. By the end of the course, students will be able to apply DBMS techniques to develop database system applications and solve related problems. Students will also be able to demonstrate and present their competency in sustainable management systems by integrating sustainability, ethics, professionalism, and an inquisitive mindset in solving SQL and NoSQL database system development and management problems.

SBEG3663 – NON-IMAGING REMOTE SENSING

Non-imaging remote sensing introduces active microwave sensor technologies that produce non-imaging data. Non-imaging sensors measure the radiation received from all points in the sensed target, integrate them, and report the result as electrical signal strength. The course is directed at giving students an understanding of and experience with the practical use of non-imaging remote sensing data and related software. Laboratories exercise, case studies and projects will use real-world datasets. It emphasizes the applications of nonimaging remote sensing data in solving real-world problems. Students are expected to gain an understanding of non-imaging remote sensing theory, and most importantly applications. Students are also expected to demonstrate abilities of spatial thinking, digital data processing, and be able to solve practical spatial problems utilizing a remote sensing methodology. An independent project constitutes a substantial portion of the final assessment.

SBEG4643 – SPATIAL DATA MANAGEMENT

This course is designed to provide students with an understanding of geospatial data and how, in practice, it is handled and managed. Among the topics covered throughout the course are:

- a. General problems with geospatial data handling and related issues
- b. Concepts and development of Spatial Data Infrastructure (SDI); Malaysian Centre For Geospatial Data Infrastructure (MaCGDI) as Malaysian National SDI
- c. Geospatial data standard, sharing/exchange & distribution (MS1759, feature and attribute coding, metadata, data catalogue, data security); MyGeoportal
- d. Geospatial data storage and transfer (sources, format, coordinate systems; conversion, compression)
- d. Raw vs Derived/Manipulated Data
- e. Data Quality/Integrity (dealing with errors and topology)
- f. Height/surface data handling (JUPEM's topographic data, GPS data, LiDAR data, geological data, interpolation, extrapolation, TIN, DEM)
- g. Subsurface Data (geological; underground utility)

SBEG4633 – GIS FOR RESOURCE MANAGEMENT

This course provides the students with the principles of resource management and conservation, besides examining contemporary problems and issues in resource and environment management. The principles and components of GIS are introduced to encourage the use of a database approach to store resource data that is to be converted into information useful for decision making and problem solving. Different aspects of the application of GIS and GIS analysis are highlighted as a means towards the efficient management of resources.

SBEG4523 – DTM FOR GIS

This course introduces the fundamental concepts and techniques of Digital Terrain Modelling (DTM) in the context of Geographic Information Systems (GIS). It is designed to provide students with both theoretical knowledge and practical skills for terrain data analysis and applications. Key topics include the definition and principles of DTM, data collection techniques, preprocessing and processing of terrain data, and practical applications in various fields. The course also explores emerging technologies in terrain modelling and introduces the integration of DTM with 3D city modelling. Through these topics, students will gain a comprehensive understanding of how terrain models support spatial analysis and decision-making. Teaching methods combine lectures, demonstrations, and hands-on exercises using open source software, supplemented by case studies and group projects. By the end of the course, students will be able to generate, process, and apply DTMs for different spatial applications. They will also be able to evaluate the role of DTM in advanced geospatial modelling, including its integration with 3D city models and emerging GIS technologies.

SBEG4513 – LIDAR SURVEY

The course is designed to provide a thorough understanding of the principles of LiDAR technology, including spaceborne, airborne, terrestrial, and mobile systems. Beyond technical mastery of data acquisition and processing across various applications like forestry and urban planning, the course emphasizes the core value of Professionalism. Students are expected to demonstrate competence and discipline by adhering to industry-standard procedures, ensuring the reliability of spatial data, and maintaining ethical practice in hazard management and topographical mapping. This focus ensures that students not only understand the limitations of LiDAR systems but also approach their application with the preparedness and professional conduct required in the geospatial industry.

SBEG4583 – WEB-BASED GIS

The aim of this course is to provide students with basic knowledge and understanding of the importance of Web GIS development. Throughout the course, students will be introduced to the process of developing Web GIS applications, including functional requirements, system architecture, and the use of web-based GIS programming tools. The main topics covered include Web GIS concepts, web mapping technologies, system design, map servers, free mapping APIs, spatial data handling, and the development of interactive web-based GIS applications. The learning approach combines lectures, hands-on practical sessions, project-based learning, and application development activities. Students are required to develop a Web GIS application using map servers or free mapping APIs to demonstrate their understanding of the course content. By the end of the course, students should be able to understand the principles of Web GIS development, identify suitable system requirements and architecture, and develop a functional Web GIS application using appropriate tools and technologies.

SBEG4563 – STRATEGIC PLANNING

This course introduces the fundamental Definition, importance, component, development, relationship of strategic planning and GIS focusing on both theoretical and practical aspects. Students will explore topics such as Management structure, types of management structure. Strategic planning process, strategic development, strategic implementation, evaluation and control. SWOT analysis. The course emphasizes on Critical success factors. Action plan, checking and correction. Teaching methods include interactive lectures, case analyses, and group projects. By the end of the course, students will be able to understand the success and failure of strategic planning.

SBEG4903 – E-GOVERNMENT

This course introduces the history of geographic information management and explains what the local authority's needs and requirements are, in order to be more successful with the help of GIS. Students will explore topics such as GIS Need Assessment, GIS system integration and GIS Application development. The course emphasizes the basic elements of GIS implementation in the local authority (organizational aspects, the importance of the organization to the success of GIS, the main users of GIS and their needs, the constraints, etc. Teaching methods include interactive lectures, case analyses, and group projects. By the end of the course, students will be able to explain the basic elements of GIS implementation in the local authority.

SBEG4913 – GIS FOR SOCIAL SCIENCE

This course covers the GIS application in social science. Earlier topics are theoretical in nature such as qualitative and mixed-mode GIS while later ones focused on the technical aspect of social science GIS. This provides a proper transition for GIS students to explore social science topics which are unfamiliar to them as a technical student. Upon completion, students will be able to compare and analyze GIS for solving social science problems. Students are also expected to be competent in interpreting social science data and transform it to be GIS-usable.

ELECTIVE COURSES

Course Code	Course Name (Year 3)	Credit
1. XXXXXXXX3	Free Elective	3
1. SBEG3643	Computer Programming III	3
2. SBEG3573	Digital Photogrammetry	3
3. SBEG3583	GIS Software System	3
4. SBEG3603	Visualisation & System Customisation for Geoinformation	3
5. SBEG3553	GIS & Remote Sensing Application	3
6. SBEG3703	Spatio Temporal GIS	3
7. SBEG3453	Database Management System	3
8. SBEG3663	Non-Imaging Remote Sensing	3

Course Code	Course Name (Year 4)	Credit
1. SBEG4643	Spatial Data Management	3
2. SBEG4633	GIS For Resource Management	3
3. SBEG4523	DTM For GIS	3
4. SBEG4513	LiDAR Survey	3
5. SBEG4583	Web-based GIS	3
6. SBEG4563	Strategic Planning	3
7. SBEG4903	E Government	3
8. SBEG4913	GIS for Social Science	3

11 BACHELOR OF GEOMATICS ENGINEERING WITH HONOURS

INTRODUCTION

Geomatics Engineering is an academic discipline that concerns acquisition, analysis, and interpretation of mainly geomatics data, relating to the Earth, its physical features and the built environment. It comprises tools and techniques of measuring, managing, presenting and analysing geospatial data from diverse sources with well-defined characteristics on accuracy and continuity; and in the form of digital format. Geospatial data are obtained from a wide range of technologically advanced tools like total station, Global Positioning System (GPS) / Global Navigation Satellite System (GNSS) equipment, digital aerial imagery (from both satellite and airborne), Terrestrial Laser Scanner (TLS), Unmanned Aerial Vehicle (UAV), echo sounder and Ground Penetrating Radar (GPR). These data are processed and manipulated by using a computer and the latest software. Also included in the area of geospatial are computer-based Geographic Information Systems (GIS) and remote sensing for monitoring the environment.

Bachelor of Geomatics Engineering with Honours is one of the oldest programmes in UTM. It was first introduced in the early 1970s. Prior to 1994, the programme was known as Bachelor of Surveying (Land). This bachelor programme strives to deliver a quality educational experience via emerging geomatics technologies towards providing a significant contribution to the needs of the surveying and Geomatics Engineering profession nationwide.

NAME OF AWARD

Bachelor of Geomatics Engineering with Honours [B.Geomatics Eng (Hons)]

PHILOSOPHY

The field of geomatics engineering produces graduates who are well-mannered, knowledgeable, skilled, noble, responsible, ethical and with integrity in line with the core values of UTM and FABU, achieved through an experiential learning process based on real-world experience, understanding of the basics of the field and related technologies and preparing themselves to produce the availability of future surveyors who are able to solve real industry challenges.

PROGRAMME RECOGNITION

Bachelor of Geomatics Engineering with Honours is a professionally accredited degree by the Licensed Land Surveyors Board of Malaysia. The programme is also recognised by the Public Services Department of Malaysia and Malaysian Qualifications Agency (MQA).

AIM

The programme's goal is to produce graduates that are knowledgeable, expert and skilful in the field of land surveying and Geomatics Engineering as well as capable of managing, administrating and updating geospatial data professionally.

PROGRAMME EDUCATIONAL OBJECTIVES

The undergraduate programme in Bachelor of Geomatics Engineering with Honours is designed to produce graduates who will be:

- PEO1 Competent and innovative in acquiring and applying knowledge towards solving Geomatics Engineering problems.
- PEO2 Grow professionally with proficient soft skills to pursue career opportunities locally and globally.
- PEO3 Demonstrate high ethical values as well as a sense of responsibility towards organization and community.

PROGRAMME LEARNING OUTCOMES

The intended learning outcomes of the Bachelor of Geomatics Engineering with Honours programme are:

- PLO1 Ability to acquire knowledge of science and technology in the field of Geomatics Engineering.
- PLO2 Ability to analyse information using appropriate Geomatics Engineering techniques and tools.
- PLO3 Ability to execute Geomatics Engineering tasks using available resources.
- PLO4 Ability to adapt to changing situations and expectations within the team towards geomatics-based industrial and community needs.
- PLO5 Ability to convey ideas and negotiate convincingly in Geomatics Engineering project.
- PLO6 Ability to utilize information in Geomatics Engineering using appropriate software.
- PLO7 Ability to analyse numerical and graphical information in Geomatics Engineering field.
- PLO8 Ability to coordinate leadership qualities in the Geomatics Engineering field.
- PLO9 Ability to perpetually acquire contemporary knowledge in the field of Geomatics Engineering.
- PLO10 Ability to identify business opportunities and embark on entrepreneurship in Geomatics Engineering field.
- PLO11 Ability to practice good ethics and positive values in the profession and society of Geomatics Engineering field.

CAREER PROSPECTS

Spectrum of professional career prospects in Bachelor of Geomatics Engineering with Honours are as follows:

1. Licensed Land Surveyor
2. Government Land Surveyor
3. Geodesist
4. Hydrographer (offshore & onshore positioning specialises in marine hydrographic survey and oceanography)
5. Astronomer & Islamic Astronomer (Falak Syarie)
6. Photogrammetrist
7. Researcher
8. Academician
9. Geospatialist (government public sector & private firm)
10. Geomatics Engineer (e.g., oil, gas & mineral exploration, construction, energy & utilities, land-use planning, three dimensional (3D) imaging, and positioning technology).

List of government agencies and local authorities that continuously require this profession are:

1. Jabatan Ukur dan Pemetaan Malaysia (JUPEM)
2. Land and Survey Department, Sarawak
3. Jabatan Tanah dan Ukur Sabah
4. Agensi Angkasa Malaysia (MYSA)
5. Pusat Hidrografi Nasional Malaysia
6. Jabatan Laut Malaysia
7. Jabatan Perhutanan
8. Higher education institution (Universities and Polytechnic)
9. Jabatan Kemajuan Islam Malaysia (JAKIM).

List of private sectors (local & international) that continuously require this profession are:

1. PETRONAS Carigali Sdn Bhd
2. Tenaga Nasional Berhad (TNB)
3. Telekom Malaysia
4. Licensed land surveying firm in Malaysia
5. Construction, plantation or logistics firms (e.g., Sime Darby Berhad, YTL Corporation Berhad)
6. Land surveying equipment & system supplier
7. Related offshore and onshore oil & gas operating companies (e.g., FUGRO, SHELL, Sapura Energy)
8. Private geomatics university college.

// MODE AND DURATION OF STUDY

Mode of Study : Full-time

Minimum Duration : 4 years

Maximum Duration : 6 years

// CLASSIFICATION OF COURSES

Courses offered under this programme are based on the classification scheme shown in the table below:

Classification	Course Group	Credits	Total credit hours	Percentage
1. Programme Core	A. Survey Camp	3	77	60
	B. Core Courses	69		
	C. Industrial Training	5		
2. Elective Courses	D. Elective Courses	36	36	28
3. General Courses	E. General Courses	16	16	12
Total credit hours to graduate			129	100

// AWARD REQUIREMENTS

To graduate, students must achieve a total of not less than 129 credit hours accumulated from courses that are set according to the classification scheme shown in the Classification of Courses section, with a minimum CGPA of 2.0.

// LIST OF COURSES ACCORDING TO SEMESTER (MATRICULATION/STPM)

Semester 1

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SSCE1023 Mathematics for Surveyors I	B		3	15*
2. SBEU1032 Physics Theory for Surveyors	B		2	
3. SBEU1013 Fundamental of Survey & Mapping	B		3	
4. SBEU1093 Computer Programming	B		3	
5. ULRS1122 Aspirasi (Local)	E		2	
6. ULRS1132 Citra Malaysia (International)	E		2	
7. UHLB1112 English Communication Skill (MUET Below Band 4)	G		HL	

Note: *MUET Band 3.5 and below should register for course UHLB1112 (HL).

Semester 2

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SSCE1053 Mathematic for Surveyors II – Advance Calculus	B		3	14*
2. SBEU1132 Applied Physics for Surveyors	B	SBEU1032	2	
3. SBEU1503 Cartography	B		3	
4. SBEU1043 Engineering Surveying	B		3	
5. ULRS1042 Falsafah dan Cabaran Semasa (Lokal)	E		2	
6. UHLM1012 Malay Language for Communication (International)	E		2	
7. ULRF2XX2 Kursus Pembelajaran Servis dan Penglihatan KOMUNITI	E		2	

Semester 3

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SSCE2443 Statistic for Surveyors	B		3	17*
2. SBEU2113 Mathematic for Surveyors III – Survey Computation	B		3	
3. SBEU2043 Engineering Surveying Technology	B	SBEU1043	3	
4. SBEU2602 Geodesy I	B		2	
5. SBEU2141 Survey Camp I (HW)	A		1	
6. UHLB2122 Professional Communication Skills 1	E		2	
7. *****Free Elective	D		3	

Semester 4

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEU2412 Introduction to Adjustment Computation	B		2	15*
2. SBEU2252 Satellite Positioning I	B		2	
3. SBEU2452 Photogrammetry I	B		2	
4. SBEU2513 Hydrographic Surveying	B		3	
5. SBEU2613 Geodesy II	B		3	
6. SBEU2151 Survey Camp II	A		1	
7. ULRS1032 Integriti dan Anti Rasuah	E		2	

Semester 5

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEU3XX3 Elective 1	D		3	18*
2. SBEU3XX3 Elective 2 ¹	D		3	
3. SBEU3XX3 Elective 3 ¹	D		3	
4. SBEU3213 Field Astronomy	B		3	
5. SBEU3313 Cadastral Survey	B		3	
6. SBEU3161 Survey Camp III	A		1	
7. ULRS3032 Entrepreneurship and Innovation	E		2	

Note: ¹Elective courses to be offered, choose 9 credits. Elective courses will be advised by the Programme Coordinator.

Semester 6

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEU3XX3 Elective 4 ¹	D		3	15*
2. SBEU3XX3 Elective 5 ¹	D		3	
3. SBEU3553 Geographical Information System	B		3	
4. SBEU3922 Technical Writing	B		2	
5. UHLB3132 Professional Communication Skills 2	E	ULHB2122	2	
6. UHLX1XX2 Elective Foreign Language	E		2	

Note: ¹Elective courses to be offered, choose 6 credits. Elective courses will be advised by the Programme Coordinator.

Short Semester

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEU3905 Industrial Training – Practical & Seminar	C		5	5*

Semester 7

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEU3**3 Elective 6 ¹	D		3	18*
2. SBEU3**3 Elective 7 ¹	D		3	
3. SBEU4XX3 Elective 8 ¹	D		3	
4. SBEU4XX3 Elective 9 ¹	D		3	
5. SBEU4313 Land Law and Survey Regulation	B		3	
6. SBEU4942 Undergraduate Project I	B		3	

Note: ¹Elective courses to be offered, choose 12 credits. Elective courses will be advised by the Programme Coordinator.

Semester 8

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEU4XX3 Elective 10 ¹	D		3	14*
2. SBEU4XX3 Elective 11 ¹	D		3	
3. SBEU4372 Project Management for Surveyors	B		2	
4. SBEU4342 Professional Practice	B		2	
5. SBEU4944 Undergraduate Project II	B		4	

Note: ¹Elective courses to be offered, choose 6 credits. Elective courses will be advised by the Programme Coordinator.

ELECTIVE COURSES

No	Course Code	Course Name	Credit
1.	SBEU3253	Satellite Positioning II	3
2.	SBEU3283	Least Squares Adjustment	3
3.	SBEU3453	Photogrammetry II	3
4.	SBEU3403	Remote Sensing	3
5.	SBEU3523	Hydrographic Surveying Technology	3
6.	SBEU3893	Map Projection	3
7.	SBEU3323	Cadastre Survey Practice	3
8.	SBEU4743	Marine Geodesy	3
9.	SBEU4273	Underground Utility Mapping	3
10.	SBEU4803	Deformation Survey	3
11.	SBEU4823	Tidal Processing & Analysis	3
12.	SBEU4833	Terrestrial Laser Scanning	3
13.	SBEU4723	Falak Syarie	3
14.	SBEU4873	Law of the Sea	3
15.	SBEU4853	Geospatial Management & Implementation	3
16.	SBEU4863	Industrial Survey	3
17.	SBEU4913	Marine Cadastre	3
18.	SBEU4923	Geospatial Data Analysis	3
19.	SBEU4933	Airborne Survey	3

SYLLABUS SYNOPSES

The following syllabus synopses address only the core and elective courses offered in this programme. Syllabus synopses for general courses are listed in the General Courses section. Students are encouraged to take courses offered in other programmes as free elective courses. However, students are advised to consult the programme coordinator before enrolling for any of these elective courses.

Core Courses

SBEU1013 - FUNDAMENTAL OF SURVEY AND MAPPING

This course introduces students to fundamental aspects of surveying and mapping. The basic surveying and mapping techniques as well as equipment are introduced and students will get the opportunity to use this equipment.

SBEU1093 – COMPUTER PROGRAMMING

This course is designed to provide knowledge in computer programming, which is essential for geomatics engineers. This course helps to solve many geomatics related problems such as surveying computation, graphical analysis and multimedia elements that are sometimes not offered by geomatics commercial software. The teaching concentrates on the concept, skills and techniques of problem solving using an appropriate programming language. A commercial programming language is used in this course. The programming exercises are designed to solve problems in geomatics engineering.

SBEU1032 – PHYSICS THEORY FOR SURVEYORS

This course is designed to provide students with the understanding, knowledge and exposure to the theory and concept of physics related to geomatics engineering and its associated technologies. The course covers topics of Electromagnetics of wave and sounds with its physical interaction, Wave Propagation, Gravity, Thermal and heat transfer, Orbital mechanics and Optics. Strong emphasis is given in relation to state-of-the-art geomatics measurements in retrieving and recording the environmental and geographical information. Students will be exposed to the fundamentals of physics through lectures, short computational experiments and scientific discussion in each topic.

SSCE1023 – MATHEMATICS FOR SURVEYORS I

This course introduces students to basic math concepts and principles useful for survey computation and the overview or guide to computation processes unique to surveying and mapping. It provides students with a solid foundation in the fundamental theoretical aspects of the operations of arithmetic, algebra, geometry, and trigonometry, along with a broad range of techniques for applying the theory in survey computation, emphasizing their inter-relationships and applications to surveying and mapping.

SSCE1053 – MATHEMATICS FOR SURVEYORS II

This course is designed to develop topics of differential and integral calculus, emphasizing on real numbers, functions, continuity and limits and derivatives. It provides students with the important ideas of calculus but emphasizing its application to surveying and mapping. This course includes the study of functions; limits and continuity; derivatives for functions of one-variable including algebraic, logarithmic, and exponential functions; interpretations of the derivative and its application in survey computation.

SBEU1503 – CARTOGRAPHY

This course focuses on topics such as introduction to cartography: Definition, concept, role of maps to people; Data and information: data sources, data capture, criteria, measurement, data gathering, data selection and processing: Principle, procedure and data transformation techniques for information; Generalisation: principle, data manipulation and processing using manual and computerized technique; Types of map, map element, topographical & thematic maps, charts, plans, large and small-scale maps; Cartographic communication: Introduction to cartographic communication model; Map design: procedures and layout, symbolization and their uses; Map production: principle, process, equipment and planning, photography, duplicating and printing; and Introduction to computer cartography: system and software.

SBEU1043 – ENGINEERING SURVEY

This course is designed to introduce the theory and principles of different types of engineering surveys by the use of selected surveying projects and problems to enable a basic understanding of each topic to be gained. This course also provides both theory and application of computer assisted drafting/mapping, to develop skills through intensive practical work. Students will possess land survey drawing skills in computer assisted drafting.

SBEU1132 – APPLIED PHYSICS FOR SURVEYORS

This course provides a cohesive understanding on the application of the concepts and related theories of physics in geomatics engineering. Students will be given modules that present the application of electromagnetics wave, microwave and radio frequency signals, Optical spectrum, Sounds wave, and Antenna and other reception instrumentation in geomatics measurement. This course is anticipated to expose the state-of-the-art geomatics technologies and measurements relevant to the latest physics application. Lectures, computational exercise and scientific discussion through class debates and presentations are carried but in each module according to the course schedule. Students are strongly encouraged to complete the course of SGHU1032 (Physics theory) as a prerequisite to enrol in this course.

SSCE2443 – STATISTIC FOR SURVEYORS

This course is designed for mathematical statistics, emphasizing on summary statistics and statistical inference, histograms and sample statistics, probability, sampling distributions, tests of significance, correlation and regression. It provides students with the important ideas of mathematical statistics but emphasizing its application to surveying and mapping for supporting the need of the Geomatics engineer in geospatial data analysis. The focus is on practical Geomatics problems such as selecting the appropriate analysis, data preparation and input & output interpretation. The course features extensive use of computer software and writing to solve statistical problems related to Geomatics needs.

SBEU2113 – MATHEMATICS FOR SURVEYORS III

This course provides some aspects of surveying computation related to various surveying problems. It examines various ways of solving problems, starting from the basic formulae to more advanced algorithms in achieving the results. The learning process is based on two modules; lectures and tutorials. This course encourages group working and students are allowed to discuss with each other to solve the given problems.

SBEU2043 – ENGINEERING SURVEY TECHNOLOGY

This course provides basic theory of advanced electronic instrumentation in engineering surveys. It comprises of several aspects such as physical laws and frequency spectrum of electromagnetic waves; basic principle of electronic measurement using total station and Electronic Distance Measurement (EDM); Electro Optical and Microwave Distance (EOMD) measurements; propagation of electromagnetic waves in air; corrections of TS/EDM distances, errors in TS/EDM, and baseline configuration and calibration. In practical sessions, the student is exposed to automation data collection, processing, analysis and drawing using geomatics engineering software such as CDS and AutoCAD. In addition, the course also addresses present-day technology on Underground Utility Mapping, Digital Terrain Model (DTM) and road design.

SBEU2602 – GEODESY I

This course deals with the basic concept and knowledge of geodesy. This includes history on the determination of size and shape of the earth, fundamentals and principles of the geoid, sphere, ellipsoidal geometry, curves of the ellipsoid's surface, computation of geodetic coordinates, direct and inverse geodetic problems, geodetic datum (local and global datum) and deflections of the vertical. It also includes the coordinate systems, datum transformation and height system used in Malaysia. Lastly, it provides exposure on geodetic infrastructure and its current practice in Malaysia in order to improve student knowledge and skills on geodesy for positioning, mapping and other geomatics related applications.

SBEU2141 – SURVEY CAMP I

This course provides students with the experience to carry out geomatics related projects such as planimetric and vertical control establishments. This involves field work practical (e.g., project planning and data acquisition via a combination of terrestrial and space observation technologies), laboratory work (e.g., data management and processing), report writing and presentation. Extensive laboratory work training on Digital Elevation Model (DTM), areas, contouring, and volume of earthwork are also provided throughout this course.

SBEU2412 – INTRODUCTION TO ADJUSTMENT COMPUTATION

This course provides the principle and methodology for least square estimation (LSE) or/and least square adjustment (LSA). It emphasises on several key elements of LSE that comprises error in measurement, random variables, weight of observation, and observation on linear equations. The course features use of MATLAB software as a computational tool that is conducted via group and individual project works.

SBEU2252 – SATELLITE POSITIONING I

This course takes a basic look at student knowledge and skills related to satellite-based technology for positioning, mapping and other geomatics related applications. The contents consider basic theory, methods and data processing techniques for satellite-based positioning on GPS/GNSS.

SBEU2452 – PHOTOGRAMMETRY I

This course provides an understanding of the principles and theory in producing topographic map, plan, digital terrain model (DTM), orthophoto and rectified photo by using aerial photographs. It emphasises on the procedure for producing the map by applying analogue and analytical methods. Extensive laboratory works on the use of photogrammetric instruments and photogrammetry's software are included.

SBEU2513 – HYDROGRAPHIC SURVEY

This course provides the concepts and principles of hydrography survey that comprises nautical and hydrographic charts production; ocean tides; seabed depth and position determination. Students will be exposed to hydrography surveys planning, processing and plotting.

SBEU2613 – GEODESY II

This course provides advanced theory on geodesy that comprises methods and geodetic data processing as being practised in Malaysia. Establishment of horizontal and vertical control using GNSS and precise levelling will be conducted by the student. Details about map projection and coordinate systems in Malaysia will extensively be discussed.

SBEU2151 – SURVEY CAMP II

This course is intended to provide students with experience to carry out field practical hydrographic surveying, photogrammetry survey and GPS survey that comprises data acquisition, processing and presentation. The field practical exposes students to project planning, flight planning, establishment of ground controls and tide gauge station, DGPS technique of positioning, depth measurement using MBES, data processing and chart production. Students will also be exposed to the use of current meter, side scan sonar (SSS) and unmanned aerial vehicle (UAV) during this field practical.

SBEU3213 – FIELD ASTRONOMY

This course introduces the basic concepts of astronomy and its application in surveying. It exposes students to the concept of the universe, such as the galaxy and solar system that are related to procedures of field astronomy for the determination of astronomical geodetic control (i.e., azimuth, latitude and longitude) for cadastral surveying, geodesy and falak syarie (Islamic astronomy).

SBEU3313 – CADASTRAL SURVEY

This course provides information on the 2009 Cadastral Survey Regulations. It covers several topics such as, Role of the Survey Department, Land Office and Land Surveyors Board for Peninsular Malaysia; Coordinate systems and azimuth observations; Use and calibration of equipment; Cadastral classification; Survey datum; Measurement and booking for bearing and distance; Traverse survey and techniques to extend the line; Short lines measurement and Border demarcation; Types of boundary marks; Calculation for the reservation; Traverse bearing adjustment (c and m); Reparation of final calculation sheet; Certified plan drawing and updating for standard sheet or cadastral map; Refixation; and Working procedures at the Survey Department and CALS System.

SBEU3161 – SURVEY CAMP III

The course is designed to execute cadastral survey projects. The standard and practice of cadastral survey will be implemented according to the Department of Survey and Mapping Malaysia guideline.

SBEU3553 – GEOGRAPHICAL INFORMATION SYSTEM

The course is designed to give the students a basic understanding of the Geographic Information System. All related philosophies, theories and methodologies of GIS are explained. Terminology, history of GIS, basic concepts, components of GIS, Geospatial database, application and recent issues are covered.

SBEU3922 – TECHNICAL WRITING

The purpose of this course is to equip students with technical communication skills. With this skill students will be able to explain geomatics technology and related disciplines to technical and non-technical audiences. Effective technical writing clarifies technical jargon; that is, it presents useful information that is clear and easy to understand for the intended audience.

SBEU3905 – INDUSTRIAL TRAINING – PRACTICAL & SEMINAR

The main objective of this course is to equip students with knowledge on land survey according to the National Land Code 1965 (Title Ownership, Subdivision, Partition, Amalgamation, Surrender and re-alienation as well as Stratum Survey), Strata Titles Act 1985 (Party wall survey), Land Acquisition, Reservation of Land, Field to Finish, Engineering Survey, Topography Survey, Hydrography Survey, Utility Mapping Survey, Coordinated Cadastral System, National Digital Cadastral Database, eCadastre and Professional Ethics.

For the seminar program, the students will share their experiences and knowledge learnt throughout their industrial attachment. The seminar will be held 3 weeks after the students have completed their 15 weeks of attachment. Students who have completed their internship program are expected to identify some related case studies, produce a report and the student's analysis of the situation. Students are also required to present their training assessment attributes such as:

- Site and operational overview
- Job content and quality of work
- Supervisor and co-workers
- Learning experience

SBEU4313 – LAND LAW AND SURVEY REGULATION

The main objective of this course is to equip students with knowledge on land laws and land administration such as the National Land Code, Strata Title Act, Group Settlement Act, Malay Reserve Enactment, Survey Regulations and others which are being practiced presently by professional land surveyors in Malaysia.

SBEU4942 – UNDERGRADUATE PROJECT I

The main aim of this course is to provide students with an understanding of research and research methods in the various fields of geomatics engineering. Students should be able to acquire skills in performing literature review, design and plan their research projects and write as well as present research findings. Students will also be exposed to the practices of managing research projects.

SBEU4372 – PROJECT MANAGEMENT FOR SURVEYORS

This course provides training on project planning, organizing, and managing resources towards a successful completion of specific goals in projects related to geomatics engineering. These include a project's overview; time and cost estimation; project activities and schedule; risk planning; methodology, progress monitoring and sustainability of the operating system. In addition, the course covers an overview of the project manager and his role, project variables, corrective actions identification, risk factors, project output/delivery and cost-benefit analyses.

SBEU4342 – PROFESSIONAL PRACTICE

The main objective of this course is to equip students with knowledge of the laws and regulations pertaining to professional land surveyor practices, registration, professional service contracts and related legal entities.

SBEU4944 – UNDERGRADUATE PROJECT II

The main aim of this course is to provide students with an opportunity to apply their knowledge, skills and techniques of geomatics engineering. In this course, students will acquire skills in handling and managing their research project individually and independently with the direct supervision of a supervisor.

Elective Courses

SBEU3253 – SATELLITE POSITIONING II

This course takes a systematic look at the aspects of GPS/GNSS carrier-phase measurement influencing user positioning accuracy. The course contents will consider methods and techniques mitigating the impact of various positioning errors. This includes system augmentation techniques employing real-time correction data links.

SBEU3283 – LEAST SQUARE ADJUSTMENT

This course presents comprehensive principles, methodology and implementation of least square estimation (LSE) (or least square adjustment) of spatial data. In particular, it emphasises on the relevant topics of LSE, which include non-linear LSE, statistical analysis, quality of LSE, trilateration, triangulation, traverse and network 3D baseline vector adjustment, combined model, pre-analysis, solution of normal equation and sequential LSE. The course features extensive use of MATLAB and STARNET software as computational tools through group as well as individual project works.

SBEU3453 – PHOTOGRAMMETRY II

This course provides concepts and applications of photogrammetry as an extension of Photogrammetry I and the application of digital close-range photogrammetry. The students are exposed to the theory and practical use of relevant instruments and software through group as well as individual project works.

SBEU3403 – REMOTE SENSING

This subject introduces basic principles of remote sensing, emphasizing on all the basic aspects of the remote sensing process, interaction of electromagnetic radiation with objects of interest on the earth surface and in the atmosphere and platforms for acquisition of remotely sensed data. Students will learn about processing of satellite remotely sensed data with different spectral, spatial and temporal resolution in the laboratory work. At the end of the course, students will have knowledge on the basic principles of remote sensing and digital image processing, which is useful in the field of Geomatics for deriving geospatial information from the remotely sensed data, serving as the key input to the database updating for map production.

SBEU3523 – HYDROGRAPHIC SURVEYING TECHNOLOGY

This subject is intended to give additional knowledge to the students concerning various technologies and techniques in support of the hydrography survey and various marine applications. The course emphasises on the principles of the hydrographic measurement, field survey preparation, system configuration and specification, procedures of data acquisition, elements of data processing and data presentation. The course covers several topics such as development in hydrographic surveying, Differential Global Positioning System, automation in hydrographic surveying, electronic chart, side scan sonar survey, multi-beam and multi-transducer seabed mapping, introduction to seismic survey, role of hydrographers in the oil industry, hydrographic survey in port developments and a brief on the law of the sea.

SBEU3893 – MAP PROJECTION

This course provides principles and concepts in map projections and its applications in surveying and mapping. The contents of this course cover basic mapping equations for plane (azimuthal), conical and cylindrical projections, geometrical characteristics of the projections, elements of distortions in map projections, and its mathematical functions. The Coordinate system and projections that are being used for surveying and mapping in Malaysia (RSO, Cassini, WGS84, GDM2000) will be introduced. The students will also be exposed on the generation of transformation modules for coordinate systems in 3D to 2D, and vice versa.

SBEU3323 – CADASTRE SURVEY PRACTICE

The main objective of this course is to equip students with knowledge on land survey according to the National Land Code 1965 (Title Ownership, Subdivision, Partition, Amalgamation, Surrender and re-alienation as well as Stratum Survey), Strata Titles Act 1985 (Party wall survey), Land Acquisition, Reservation of Land, Field to Finish, Coordinated Cadastral System, National Digital Cadastral Database, e-Cadastre, Multipurpose Cadastre, Marine Cadastre, Professional Ethic as well as issues and future trend in cadastre survey (3D Cadastre).

SBEU4743 – MARINE GEODESY

This course provides basic concepts and knowledge on marine geodesy. The contents cover theory, methods and data processing techniques in terrestrial and satellite geodesy technology for marine geodesy. This course covers several aspects such as physical properties of seawater, marine circulation, wind-wave propagation and marine gravity. Moreover, marine geodetic infrastructure in Malaysia and its applications is also discussed.

SBEU4273 – UNDERGROUND UTILITY MAPPING

This course provides principals and understanding of underground utility surveying and mapping. The course covers several guidelines and standards that comprises different quality levels and methodology. Several important aspects are also provided such as electromagnetic waves and its propagation to ground-based soil; geophysical detection tools; electromagnetic locator and Ground Penetrating Radar; and utility database and data management. Students will also be exposed to the authority's requirements as well as updated technology in subsurface utilities installation and mapping.

SBEU4803 – DEFORMATION SURVEY

This course provides principles of geodetic deformation survey and analysis for structural and ground-based deformation (landslide and crustal deformation). The course covers procedures in deformation survey, network adjustment, analysing and interpreting the deformation results. At the end of the course, students will gain experiences with several projects on deformation by applying these concepts and techniques.

SBEU4823 – TIDAL PROCESSING & ANALYSIS

This course provides a comprehensive knowledge of tidal processing and analysis. These include exposure on the theory and principles of tidal processing; data acquisition; data management; data processing and tidal data analysis.

SBEU4833 – TERRESTRIAL LASER SCANNING

This course provides a new concept and technique of high accuracy of three-dimensional (3D) object measurement using Terrestrial Laser Scanning technology. In the course, students will be exposed to data collection and data processing using a geodetic terrestrial laser scanning technology and related point clouds processing software. At the end of the course, students will gain experiences on several projects such as landslide monitoring, structure deformation study, 3D topographic mapping and other geomatics related projects by applying these concepts and techniques.

SBEU4723 – FALAK SYARIE

This course provides principles and contemporary astronomical techniques that are being applied by worldwide Islamic countries including the Islamic Religious Authorities. The astronomical technique contributes to several Islamic applications such as Islamic calendar preparation, determination of Islamic daily prayer times, and direction of Qiblah.

SBEU4873 – LAW OF THE SEA

This course provides comprehensive knowledge of the Law of the Sea such as the main legal concepts of the international legal regime governing the use of the oceans; the sea-bed and subsoil thereof; the issues related to regulations and sustainable use of ocean spaces particularly in areas beyond national jurisdiction; and also the different methods of the law of the sea as compared to national law in such matters as formulation and enforcement of the law and dispute resolution.

SBEU4853 – GEOSPATIAL MANAGEMENT & IMPLEMENTATION

This course provides guidance in selecting and implementing GIS. It presents descriptions of products offered by the top four GIS software developers. It also discusses the use of a GIS consultant to help you select and implement GIS, as well as GIS staffing issues.

SBEU4863 – INDUSTRIAL SURVEY

This course provides students with the introduction and scope of industrial survey. It comprises background and concepts of industrial survey, methodologies and procedures of industrial survey, special instrumentations used in industrial survey and the computational aspect of industrial survey. This course also exposes students to the underground survey, which touches on the concept and its related problems as well as the methodology and instrumentation.

SBEU4913 – MARINE CADASTRE

The course concerns the fundamentals of marine cadastre and the needs of marine cadastre in the marine spatial planning, development and administration. The course emphasizes on the establishment of the marine cadastre system and the new requirements for sustainable marine records. It also provides an understanding of the current marine cadastre developments in Malaysia and worldwide.

SBEU4923 – GEOSPATIAL DATA ANALYSIS

This course provides an overview of spatial data analysis in Geographic Information Systems (GIS) for surveyors. Three main important areas in spatial data analysis are emphasized: visualization, exploration; and modelling. In addition, this course aims to develop both a theoretical understanding and a comprehensive practical grounding through the construction and integration of a range of spatial models. This course is roughly divided in to three parts. First is about the nature of the spatial data followed by spatial data analysis, the second part deals with the identification of spatial patterns (e.g., spatial autocorrelation, spatial clustering) and the third section refers to examples of spatial modelling.

SBEU4933 – AIRBORNE SURVEY

The course provides principles for acquiring high accuracy data surveying and mapping using airborne survey techniques such as unmanned aerial vehicle (UAV), LiDAR and related mapping sensors. Students will be exposed to simulation projects such as mapping and monitoring by utilizing UAV and LiDAR.

12 BACHELOR OF SCIENCE IN LAND ADMINISTRATION AND DEVELOPMENT WITH HONOURS

INTRODUCTION

Bachelor of Science in Land Administration and Development with Honours is designed to produce graduates who are competent and knowledgeable in land matters to manage the challenges of the land administration system in the 21st century. It is the intention of this programme to make land administration as one of the professions that could enhance the land delivery system of the nation.

The sub-disciplines covered in the programme include:

- Laws on Land Administration
- Planning and Land Development
- Surveying and Information Technology
- Land Resources Management

Graduates are currently employed in public and private sectors. They are also capable of establishing their own practice offering services to clients of diverse backgrounds, relating to land administration, management and development.

The syllabus of the programme has been designed to include subjects ranging from law, policy, planning, economics, surveying, valuation and land development to subjects on technical matters such as land information system including Geographic Information System (GIS) and the institutional set up of the Malaysian Land Administration System.

NAME OF AWARD

Bachelor of Science in Land Administration and Development with Honours [BSc..LAD (Hons)]

PHILOSOPHY

The Bachelor of Science in Land Administration and Development with Honours fosters competent, ethical and adaptable professionals who excel in solving land-related issues with critical thinking, leadership and effective communication. Grounded in integrity and lifelong learning, graduates are committed to serving God, the community and the nation while contributing to sustainable and inclusive land governance locally and globally.

PROGRAMME RECOGNITION

The *Jawatankuasa Tetap Penilaian dan Pengiktirafan Kelayakan* (JTPPK) chaired by the YB the Minister of Education in their 69th meeting on August 25, 1998 has agreed to recognize the Bachelor of Science in Land Administration and Development with Honours as follows:

“The Bachelor of Science in Land Administration and Development with Honours is hereby recognized as equivalent to other Bachelor of Science with Honours obtained from other institutions of higher education in Malaysia”.

AIM

The programme aims to produce land administrators and land developers who will be able to respond efficiently, transparently and endeavour for sustainability in the administration and development of land.

PROGRAMME EDUCATIONAL OBJECTIVES

The undergraduate programme in Bachelor of Science in Land Administration and Development with Honours is designed to produce graduates who will be:

- PEO1 Competent and innovative in acquiring and applying knowledge towards solving land administration and development problems
- PEO2 Good interpersonal skills and continuously seek for career advancement opportunity through lifelong learning
- PEO3 Uphold ethical values with sense of responsibility towards organization and community

PROGRAMME LEARNING OUTCOMES

The intended learning outcomes of the Bachelor of Science in Land Administration and Development with Honours programme are:

- PLO1 Ability to acquire knowledge and describe principles of land administration and development.
- PLO2 Ability to apply and analyse information using appropriate land administration and development techniques and tools.
- PLO3 Ability to think critically, identify, formulate and solve problems related to land administration and development.
- PLO4 Ability to adapt to changing situations and expectations within the team towards land administration and development-based industrial needs
- PLO5 Ability to convey ideas and negotiate convincingly
- PLO6 Ability to develop digital skills for land administration and development applications
- PLO7 Ability to analyse numerical and graphical information in land administration and development.

- PLO8 Ability to lead, coordinate and manage people and organization effectively; and work collaboratively within the organization and business environment.
- PLO9 Ability to perpetually seek and acquire contemporary knowledge in land administration and development.
- PLO10 Ability to identify business opportunities and embark on entrepreneurship.
- PLO11 Ability to practice good ethics and positive values in the profession and society.

PROGRAMME ACCREDITATION

This programme obtained full accreditation from the Board of Valuers, Appraisers, Estate Agents and Property Managers (BOVAEP) and also from the Malaysian Qualifications Agency (MQA).

CAREER PROSPECTS

Bachelor of Science in Land Administration and Development with Honours graduates can be employed in the public sector, government agency and private sector.

a) Public Sector

Land Administrator in District and Land Office, Registrar in State Land and Mines Office, Development Division in Local Authority, Housing Division in State Government Secretary office and other posts at federal level namely Ministry of Housing and Local Government and Ministry of Natural Resources and Environment.

Other organizations and agencies that usually employ Land Administration graduates include agencies directly involved such as the Valuation and Property Services Department, Ministry of Finance Malaysia, Local Authority.

b) Government Agency

Urban Development Agency (UDA), Regional Development Authority (RDA), State Economic Development Corporation (SEDC), Permodalan Nasional Berhad (PNB), Lembaga Urusan & Tabung Haji, FELDA, FELCRA and other agencies that have specific division related to land administration and development field.

c) Private Sector

Land Manager, Land Developer, Land Consultants, Financial Institutions and other related firms.

MODE AND DURATION OF STUDY

Mode of Study : Full-time
Minimum Duration : 4 years
Maximum Duration : 6 years

CLASSIFICATION OF COURSES

Courses offered under this programme are based on the classification scheme shown in the table below:

Classification	Course Group	Credits	Total credit hours	Percentage
1. Programme Core	A. Valuation	9	95	73.6
	B. Property Management	3		
	C. Estate Agency	3		
	D. Economics	5		
	E. Law	18		
	F. Professional Practice	3		
	G. Accounting	2		
	H. Property Investment and Finance	5		
	I. Urban Planning	3		
	J. Broad Based Knowledge Courses	44		
2. Elective Courses	K. Elective Courses	18	18	14
3. General Courses	L. General Courses	16	16	12.4
Total credit hours to graduate			129	100

AWARD REQUIREMENTS

To graduate, students must achieve a total of not less than 129 credit hours accumulated from courses that are set according to the classification scheme shown in the Classification of Courses section, with a minimum CGPA of 2.0. Pass industrial training (equivalent to 12 credit hours) and complete the undergraduate project at Year 4.

LIST OF COURSES ACCORDING TO SEMESTER (MATRICULATION/STPM)

Semester 1

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBET1012 Introduction to Land Administration	E		2	17
2. SBET1022 Malaysia Legal System	E		2	
3. SBET1033 Principles and Methods of Property Valuation	A		3	
4. SBET1043 Building Technology	J		3	
5. SBET1052 Principles of Economics	D		2	
6. SBET1093 Town and Country Planning	I		3	
7. ULRS1122 Malaysian Nation – State Aspiration (Local Students)	L		2	
8. ULRS1132 Citra Malaysia (International Students)	L		2	
9. ULHM1012 Malay Language for Communication 2* (For International Students Only)	L		2	

Note: *Total sum of credit hours for local students. The total sum of credit hours for international students will consider an additional 2 credit hours for UHLM1012.

Semester 2

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBET1063 Contract, Agency, and Torts Law	E		3	18
2. SBET1073 Investment Valuation	A		3	
3. SBET1083 Surveying and Computation	J		3	
4. SBET2123 Property Management	B		3	
5. SBET2242 Accounting and Financial Management	G		2	
6. ULRS1042 Philosophy and Current Challenges)	L		2	
7. ULRF2XX2 Service Learning and Community Engagement Courses	L		2	
8. UHLB1112 English Communication Skills (MUET 1,2,3 & 3.5)	E		HL	

Note: MUET Band 1, 2, 3 & 3.5 should register course UHLB1112 (HW)

i.Note: * i.UHLB1112 detail refers to UTM.J.08.06/14.10/1/3/2 Jld 3 (15) dated 27th September 2022. HW compulsory audit course.

Semester 3

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBET2113 Applied Valuation	A		3	16
2. SBET2153 Property Taxation and Valuation	D		3	
3. SBET2133 Real Estate Law	E		3	
4. SBET2143 Database System and Management	J		3	
5. SBET4332 Alternative Dispute Resolution	E		2	
6. ULRS1032 Integrity and Anti-Corruption	L		2	

Semester 4

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBET3203 Real Estate Marketing and Agency	C		3	17
2. SBET2173 Building Law and Regulation	E		3	
3. SBET2163 Building Services and Maintenance	J		3	
4. SBET2183 Cadastral Surveying	J		3	
5. UHLB2122 Professional Communication Skills 1	L		2	
6. XXXX****3 Free Elective*	K		3	

Semester 5

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBET3233 Land Acquisition Practices	E		3	18
2. SBET3213 Land Development Practices	J		3	
3. SBET3223 GIS and Spatial Analysis	J		3	
4. SBET3193 Urban Land Economic	D		3	
5. ULRS3032 Entrepreneurship and Innovation	L		2	
6. UHLB3132 Professional Communication Skills 2	L		2	
7. UHLX1122 Foreign Language Communication Elective	L		2	

Note: *Subject offered by other Faculty.

Semester 6

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBET3258 Industrial Training (Practical)	J		8	12
2. SBET3264 Industrial Training (Seminar)	J		4	

Semester 7

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBET4273 Development and Investment Appraisal	H		3	16
2. SBET4282 Statistic and Data Analysis	J		2	
3. SBET4302 Undergraduate Project I	J		2	
4. SBET4**3 Elective 1 ¹	K		3	
5. SBET4**3 Elective 2 ¹	K		3	
6. SBET4**3 Elective 3 ¹	K		3	

Note: ¹ Elective courses to be offered, choose 9 credits. Elective courses will be advised by the Programme Coordinator.

Semester 8

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBET4323 Ethics and Professional Practice	F		3	15
2. SBET4314 Undergraduate Project II	J		4	
3. SBET4522 Property and Project Financing	K		2	
4. SBET4**3 Elective 4 ¹	K		3	
5. SBET4**3 Elective 5 ¹	K		3	

Note: ¹ Elective courses to be offered, choose 6 credits. Elective courses will be advised by the Programme Coordinator.

* course offered by other Faculty.

SYLLABUS SYNOPSES

The following syllabus synopses address only the core and elective courses offered in this programme. Syllabus synopses for general courses are listed in the General Courses section. Students are encouraged to take courses offered in other programmes as free elective courses. However, students are advised to consult the programme coordinator before enrolling for any of these elective courses.

Core Courses

SBET1012 – INTRODUCTION TO LAND ADMINISTRATION

Land Administration is the process of regulating land and property development and the use and conservation of the land, the gathering of revenues from the land through sales, leasing and taxation, and the resolving of conflict concerning the ownership and use of the land. Land administration functions can be divided into four: juridical, fiscal, regulatory and information management. The first three functions are traditionally organised around three sets of organisations while the latter, information management is integral to the other three components. Land management is the process by which the resources of land are put to good effect. It covers all activities concerned with the management of land as a resource both from an environmental and from an economic perspective. It can include farming, mineral extraction, property and estate management and the physical planning of towns and countryside.

SBET1022 – MALAYSIA LEGAL SYSTEM

This course is designed to give an understanding and knowledge of the general principles with regard to the legal system in Malaysia. It acts as a legal foundation for students before continuing with the core legal courses, i.e., the law of contract, agency & tort, offered in the following semester.

SBET1033 – PRINCIPLES AND METHODS OF PROPERTY VALUATION

This course aims to provide the basics of valuation principles. It explains the scopes and areas of valuation, the concept of real estate as an investment, mathematics of valuation and the methods used in the appraisal of property valuation.

SBET1043 – BUILDING TECHNOLOGY

The course aims at enabling students to provide competent valuation surveying and property management services which require a good understanding of essential aspects of buildings. The knowledge imparted to students covers the functions, design criteria, types of construction and technologies of each element of a building, the construction process, types of building material and building finishes. The elements cover the substructure and superstructure of a building. Students will also be introduced to the basic knowledge of building drawing.

SBET1052 – PRINCIPLES OF ECONOMICS

This course provides the basic elements of economics. It introduces to the students' basic economic principles such as the theory of firms and market organizations. This is followed by pricing mechanisms, competition and monopoly. Other topics such as allocation theory, economic rents, interest and wages, economic equilibrium and other general economic theory and some aspects of macroeconomic topics are also covered in this course.

SBET1063 – CONTRACT, AGENCY AND TORTS LAW

This course introduces students to the principles of law relating to contract, agency and torts which will be a foundation to learning real estate law. Among the aspects of law which will be focussed upon includes the formation of contract, discharge of contract, remedies for breach of contract, introduction to the law of agency, the tort of negligence and other torts relating to property. At the conclusion of this course students should be able to demonstrate an understanding of fundamental principles of the law of contract, agency and torts.

SBET1073 – INVESTMENT VALUATION

The primary aim of this course is to provide students with the fundamentals of property investment. It begins with an overview of general investment types and their characteristics before focusing on property as an investment asset. The course continues with introducing the conventional methods in valuing freehold and leasehold properties. Discounted Cash Flow (DCF) methods are also discussed and compared with conventional valuation methods. In addition, students will be introduced to the techniques used in the selection of investment opportunities.

SBET1083 – SURVEYING AND COMPUTATION

This course focuses on matters pertaining to principles, aspects and basic techniques in data measurement, processing and presentation. The techniques in establishing the planimetric and vertical controls as well as detailed surveys are discussed in this course. Calculation of areas and volume of earthwork are also emphasized relating to property valuation and land development.

SBET1093 – TOWN AND COUNTRY PLANNING

This course is designed to give students the understanding, knowledge and exposure on concepts, principles and systems of town and country planning applicable in Malaysia. The contents include planning concepts and principles, urban history, urban development, structure and organization of town and country planning in Malaysia, planning legislation (Act 171 and Act 172), development plans and plan making process. Students will also be taught planning control systems and the tools used to control the real estate development process.

SBET2113 – APPLIED VALUATION

This course intends to provide a comprehensive understanding of the various aspects of applied valuation and concurrently, develop theoretical knowledge and practical skills among students and prepare them to practice valuation. The course enables students to apply valuation methods for a wide range of properties, including residential, commercial and agriculture by taking into account the economic, physical, regulatory and other information.

SBET2123 – PROPERTY MANAGEMENT

The primary purpose of this course is to provide students with the fundamentals of professional property management as stated in the Malaysian Property Management Practice Standards. This includes mainly the operational aspects of property management such as handing over of property, building and maintenance management, tenant/lease management, financial management, marketing management, health, safety and emergency management relating to various types of properties managed in Malaysia.

SBET2133 – REAL ESTATE LAW

This course touches upon the law relating to real estate, primarily in accordance with the National Land Code 1965 and the procedures in respect of it. It addresses the alienation of land, types of titles and ownership rights on the land, land dealings, registration and restraints on dealings.

SBET2143 – DATABASE SYSTEM AND MANAGEMENT

The main objective of this course is to provide knowledge, exposure and skills on computer technology and the usage of information technology within the land administration and development areas of study. Besides that, this course is also designed to offer students aspects of database management systems. It concentrates on the process of establishing a database for land management and administration systems, including designing the conceptual, logical and physical models related to land information systems. This course also highlights the models and attributes within the framework of the internet, intranet and multimedia. Students will be equipped with the fundamentals of land information database management systems. By the end of the course, students should be able to understand the basic concepts of computerization and database system, and its application in relation to land and property.

SBET2153 – PROPERTY TAXATION AND VALUATION

This course is designed to give students the knowledge on statutory valuation consisting of valuation for the purpose of property taxation. This includes legal aspects in property taxation such as rates, stamp duties, real property gains tax, development charge, land premium, quit rent and income tax. Students will also be exposed to the method and procedure to value and determine the various types of property taxations.

SBET2173 – BUILDING LAW AND REGULATION

This course is designed to provide students with knowledge relating to the provisions of building law and regulations for the establishment of the strata title scheme in high rise residential buildings. The related issues and problems in the current strata schemes will be highlighted and discussed. Issues such as: delay in obtaining the strata titles, determination of the subject of the strata ownership, the rights of the parcel proprietors as regards to the parcel and the common property, the allocation of the share units to parcel proprietors, the enforcement of the financial and nonfinancial obligations of the parcel proprietors, the settlement of disputes and most importantly the management issues. The present National Land Code 1965 will be investigated as it provides the basis for the ownership of the subsidiary titles.

The newly enacted Building and Common Property (Maintenance & Management) Act 2007 which provides for the proper maintenance and management of buildings and common property will also be discussed in detail. By the end of the course students should be able to explain the provisions of the Strata Titles Act in obtaining the ownership of a parcel and the provision of the Building and Common Property (Maintenance and Management) Act 2007 for the proper maintenance and management of buildings and common property; state and critically evaluate related issues and problems in the implementation of the provisions in both the Acts; and be actively involved in giving ideas and comments on selected issues related to the strata scheme.

SBET2163 – BUILDING SERVICES AND MAINTENANCE

The course aims at enabling students to provide competent valuation surveying and property management services which require a good understanding about essential aspects of buildings. The knowledge imparted to students covers the functions, design criteria and different types of building services, and the aspects and issues in managing the maintenance of buildings.

SBET2183 – CADASTRAL AND TITLING

Cadastral surveying (cadastre) is primarily concerned with field surveys for the marking of property boundaries on the ground, the recording of such information digitally or on plans and other cadastral documentation for land development. It relates the surveying of land boundaries to laws and regulations, as well as to the works of practicing licensed land surveyors.

SBET2242 – ACCOUNTING AND FINANCIAL MANAGEMENT

The skills of the property profession are unique but are often seen as being narrow when compared with competitors. This course provides an opportunity to understand the financial world and how it relates to property. By the end of the course, students should be able to explain the scenario of the financial system in Malaysia and how it relates to property development, identify the categories of finance available in the financial market for land development projects and describe the innovation in project financing that are being used in the current property market. Students should also be able to propose one development project and choose the suitable types of debenture or equity finance for funding.

SBET3203 – REAL ESTATE MARKETING AND AGENCY

This course is designed to provide students with an overview of the scope and role of Real Estate Agents in the business of property transactions, leasing, selling and buying. The focus will be given to the jurisdiction and function of agents in his approach to carry out his duty as laid out by the 1981 Act and Malaysian Estate Agency Standards, as well as practical tips to enhance the practice and professionalism of real estate agents. This course will also acquaint students with the fundamentals of marketing knowledge such as market segmentation, marketing strategy and marketing mix which are critical to the agent's success.

SBET3233 – LAND ACQUISITION PRACTICES

This course exposes students to land acquisition practices. Students are introduced to legislation and valuation practices based on it. Students will do a practical task on land acquisition procedures and the presentation of claims of all parties involved.

SBET3213 – LAND DEVELOPMENT PRACTICES

This course introduces students to the knowledge of the interrelated factors that contribute to a successful land development project. It provides students with the knowledge of planning and land development practice; physical characteristics and land suitability; local governance interaction and approvals; and land development issues and innovation.

SBET3223 – GIS AND SPATIAL ANALYSIS

This course is designed to offer students several aspects of GIS and spatial analysis management practices. It concentrates on the aspect of the process of establishing GIS database and spatial analysis management for the land administration information system. The conceptual framework of GIS and spatial analysis management is discussed to highlight the models and attributes within the internet, intranet and multimedia framework. Students will be equipped with the fundamentals of land administration information GIS database and spatial analysis management practices.

SBET3193 – URBAN LAND ECONOMICS

The primary purpose of this course is to provide students with the fundamentals of land economics which relates to location theory, land value and urban growth. These are then examined in the context of the urban land development policy in Malaysia. This course examines the impact of policies on land development and land use in Malaysia. The main discussion focuses on the usage and problems in urban lands such as housing, transportation and industry, and also the roles of responsible agencies for land development.

SBET3258 – INDUSTRIAL TRAINING – PRACTICAL

This course is designed to expose students to the various aspects of industrial practices and ethics and also to apply training knowledge. Students can develop the necessary skills for the preparation and delivery of a professional presentation. The industrial training placement must be related with our course such as with a land developer, land development consultant, the land office, land value consultant and GLC agencies.

SBET3264 – INDUSTRIAL TRAINING – SEMINAR

The purpose of the Industrial Training Seminar is to allow students to develop the necessary skills for the preparation and delivery of a professional presentation. After completing their industrial training in their third year, students are required to present a case study in a seminar. Students should realize the importance of these seminars in furthering their education and development as a professional. The skills learned will assist the student in making future presentations. Some of the skills to be learned during preparation for the student seminar include searching for the topic/issue. Students are likely to discover some of the most interesting and exciting developments in their field or related fields.

SBET4273 – DEVELOPMENT AND INVESTMENT APPRAISAL

This course is designed to provide students with an understanding of the introduction to property development (development theory, process, timing and market), regulations and their effects on land and property development decisions (government regulations, development control, tax etc), property development investment (property investment financial measures; financing in real estate investment; property development investment and finance), and property development appraisal (cashflow construction and sensitivity analysis, risk analysis and return).

SBET4283 – STATISTICS AND DATA ANALYSIS

The aim of this course is to introduce students to the fundamentals of quantitative techniques in real estate. Specifically, the course covers the theories and applications of statistics in the social sciences. The related topics included in this course are: introduction to statistics and data analysis, descriptive statistics, sampling theory, basic probability, hypothesis testing, confidence interval, correlation and regression.

SBET4302 – UNDERGRADUATE PROJECT I

This course is research based to teach students how to undertake academic research and it is a partial requirement for the award of the Bachelor in Property Management. It contains syllabi on the aspects of academic research in real estate. The goal of this course is to develop knowledge and skills among students in research disciplines in real estate. The main aspects that will be taught to students are problem formulation, setting research objectives, developing a theoretical framework through literature review, selecting and designing data collection and analysis methods, effective thesis report writing and presenting the results.

SBET4323 – ETHICS AND PROFESSIONAL PRACTICE

This course emphasises on the etiquette and professionalism in real estate and land administration and development in the world in general and Malaysia in particular. The aim is to highlight to the students the nature of the profession, the knowledge and soft skills required as a real estate professional. Students will also be exposed to the various paths of the property professionals and the prospects awaiting them. Some aspects of ethics will also be introduced in this course.

SBET4332 – ALTERNATIVE DISPUTE RESOLUTION

The focus of this course is to study the major METHODS of dispute resolution i.e. litigation, arbitration and other ADR methods: their principles and procedures as outlined in the Civil Procedure Code and the Arbitration Act 2005. Students are also introduced to the various types of other methods such as the non-binding conflict management techniques (e.g. dispute review boards, dispute review advisors, negotiations), non-binding methods of dispute resolution (executive tribunal, conciliation, and mediation), and binding dispute resolution methods such as adjudication, and expert determination.

SBET4314 - UNDERGRADUATE PROJECT II

This course is research based to teach students how to undertake academic research. This subject is a continuation of Undergraduate Project 1. Focus on this semester is to complete the project and emphasis's given to data collection, analysis of the data and findings of the study, and eventually to produce a report and article writing. Students have to present their research findings.

SBET4522 - PROPERTY AND PROJECT FINANCE

Students are expected to understand in general the practice of the financial system in Malaysia. Indeed, the students may learn the basic concepts of financing which is one of the main subjects in the financial system. As an introduction, financing aspects are emphasized, such as the principles, types and facilities offered and lending analysis. Furthermore, a deeper emphasis will be given to students to give an understanding of the aspects and practices of financing in property development projects. Among the areas to be emphasized are the sources of property financing available, the types offered, the parties involved and the requirements for the submitted applications. Apart from that, the lectures will also discuss various innovations and issues that arise in the finance sector, especially in property development.

Elective Courses

SBET4293 - HOUSING DEVELOPMENT LAW

This course is designed to discuss the theories and practical aspects of the housing industry in Malaysia. The relationship of the economic theory of housing demand and supply is highlighted and discussed. The role played by the major players of the housing industry is of the utmost importance to be identified. Laws and legislations are vital for the development of the Housing industry in Malaysia and therefore it is important to understand in detail the provisions that govern the housing industry. The housing delivery system will also be the focus of this course as without it the house cannot be delivered smoothly from the developer to the purchaser. The issues involved and encountered by the parties in the industry are identified in order to be understood and to find the solutions to the problems.

SBET4503 - PROJECT MANAGEMENT

This course is designed to introduce students to project management knowledge and consists of the project manager's role, the parties involved in project management, tender, contract, procurement, project life cycle, site management, cost control and project planning and control techniques

SBET4513 – CORPORATE LAND MANAGEMENT

This course is concerned with aspects of corporate real estate management; it examines the role of real estate in corporate organization. It approaches real estate management in a strategic manner that offers assistance in objective real estate decision making. This support value enhancement of corporate real estate is in order to realign real estate with business strategy. This course also incorporates the land banking role in corporate organizational goals.

SBET4533 – RURAL AND REGIONAL PLANNING

This course gives particular emphasis on rural areas as part of the land resources for development. By introducing the phenomena or the situation of rural areas in Malaysia, certain issues, constraints, challenges and potentials can be highlighted. This will lead to matters relating to mechanisms in managing and administering land resources in the rural areas. Various institutions and organizations are involved in developing the rural areas whether for agricultural purposes or recreational and leisure activities. Besides looking at Malaysia's experiences, the experiences from other developing countries as well as the developed nations is also brought forward. The course also looks into the regional planning aspects in Malaysia as well as in other countries.

SBET4543 – SUSTAINABLE PROPERTY DEVELOPMENT

This course provides both an introduction to sustainable development, including a general approach to sustainable thinking, and a review of the principles and practices of sustainable development as agreed by the international community of nations. The course also addresses examples of sustainability issues in land development. By the end of the course, students will be able to discuss the concept of sustainability and to apply analytical skills to assess the suitability of projects and resource use.

SBET4553 – ISLAMIC LAND LAW

This course introduces students to the sources of Islamic law, the prevailing theories of ownership, with emphasis on land ownership; The extent of individual ownership, the defeasibility of title in Islamic law, the role of the state, and the rights and powers vested on individual owners concerning the use, enjoyment and transfer or transmission of the property according to Islamic law and prevailing Malay custom; The power of state to alienate, forfeit and impose taxes; The right of individuals to acquire property: grants and alienation; labour or revivification of wasteland and pre-emption; dealings, including transfer of titles, rights and interests through sales and purchase, tenancies, gifts, inter vivos and wills, charitable endowment; securities pledge, charge, jual janji, restraints on dealings; transmission and inheritance.

SBET4563 – ENVIRONMENTAL MANAGEMENT

The course introduces the way to manage our environment effectively. In relation to land development, students will learn land development in sensitive areas like beaches, hilly sites, sea fronts and wetlands. The way to manage our environment is by following guidelines from acts of parliaments and related circulars. Moreover, students will study techniques to undertake Environmental Impact Assessment and Social Impact Assessment. In the end, students will have knowledge on the techniques to prepare EIA and SIA and their application within the land and real estate development process.

SBET4573 – TENANCY LAW

This course presents the principles relating to the law of tenancy. In particular, it emphasizes on the creation of the relationship between the landlord and tenant, the types of leases and tenancies, the contents of a tenancy agreement, the covenants of the landlord and the tenants and the termination of tenancies as well as the implications which arose from such termination.

SBET4583 – ADMINISTRATIVE LAW

This course is designed to give an understanding and knowledge of the basic principles of Administrative law as applicable in Malaysia, and bring together the norms and principles applicable to administrative functioning and decision-making, adopting the comparative methodology by referring, at suitable places, to the law in other common law countries.

SBET4603 – LAW OF SUCCESSION

This course discusses the Muslim estates and their rights, the concept of distribution of the Muslim estate, the law of succession and also the current issues on Muslim estate distribution in Malaysia.

SBET4623 – TOURISM DEVELOPMENT STUDIES

The course introduces the tourism industry and the significance of tourism in the national economy, the organizational structure of tourism in Malaysia, and comparable studies with other countries, basic concepts of tourism development, types of tourism, factors in encouraging the development of the tourism industry and the need for tourism planning and management

SBET4633 – STRATEGIC DEVELOPMENT POLICY STUDIES

This course is designed to expose students to the roles played by the main actors involved in the formulation and implementation of public policies particularly in Malaysia. Through this course, it is expected that students should then be able to critically analyze the government's policies by evaluating the public policies' performance.

SBET4643 – CONTEMPORARY LAND DEVELOPMENT

This course was designed to discuss the rapid growth of urban development that has resulted in the use of underground land as an alternative choice for utilization of the land in the world, and Malaysia is no exception. The trend in the development of land does include the development of waterfront land. This so-called contemporary development has resulted in the rise of issues of ownership of the underground land and also the waterfront land. This course assists the student in understanding the current trends of developing the urban and suburban land for the development of the nation.

SBET4663 – AWQAF DEVELOPMENT AND MANAGEMENT

This course discusses awqaf definitions, concepts, principles, type, legal, management and utilization of awqaf, and also the development of awqaf properties in Malaysia.

SBET4673 – LAND INFORMATION MANAGEMENT

This course is designed to focus on land information management theory and practices among several stakeholders and government agencies. Land information must integrate the technical and institutional aspects into a truly corporate information resource. Land information must have added value by combining information concerning use, condition, value and tenure of land, and disseminating this to the decision makers. The land information solutions cannot be implemented in isolation and must operate within, and effectively support, the corresponding national legal, institutional and fiscal frameworks.

13 BACHELOR OF REAL ESTATE WITH HONOURS

INTRODUCTION

The Real Estate degree programme run by the department is the first real estate degree programme in the country. This programme is mainly designed to meet the diversity of real estate professional needs in the region and worldwide. The competitiveness of the real estate industry across the region and worldwide have affected practitioner's expectations on real estate graduates from time to time. Therefore, changes on the programme syllabus were made accordingly to keep up with the fast changing needs of the industry worldwide. The changing trend in the industry from purely knowledge based professionals to knowledgeable professionals with soft skills have changed the way real estate professionals are trained. This program offers wide range of Real Estate disciplines aligned with guideline by Board of Valuers, Estate Agents, Appraisals and Property Management (BOVEAP) including; Real estate Valuation, Property Management, Economics and Finance, Law, Information and Communication Technology (ICT), and Research and Development, many others.

NAME OF AWARD

Bachelor of Real Estate with Honours [B.Real Estate (Hons)]

PHILOSOPHY

The Real Estate program is committed to nurturing ethical, competent, and future-ready professionals who recognize the transformative role of property in shaping resilient and inclusive communities. Aligned with UTM's "Innovating Solutions" ethos, the program fosters deep industry knowledge, law literacy, and digital fluency. We emphasize creative thinking, ethical conduct, and real-world problem-solving to prepare graduates who lead with integrity, innovate purposefully, and contribute meaningfully to sustainable development in urban and rural landscapes.

PROGRAMME RECOGNITION

The first intake to the programme was first offered by the University in the 1973/74 academic session. The programme received its recognition from The Public Services Department (JPA). This professional programme also meets the requirements of the Board of Valuers, Estate Agents, Appraisers and Property Management (BOVAEP).

AIM

The aim of the programme is to produce knowledgeable and skilled professionals in real estate relevant areas such as property manager, valuer, estate agent, property fund manager and facilities manager. This programme will also be equipped with a positive and balanced attitude as well as to solve problems in real situations in industry. They will also train to acquire continuous learning skills in order to be specialist and skill workers in the real estate field.

PROGRAMME EDUCATIONAL OBJECTIVES

The undergraduate programme in Bachelor of Real Estate with Honours is designed to produce graduates who will be:

- PEO1 Knowledgeable and proficient in mastery theories, methodologies, and technical skills in real estate discipline in-line with the industry requirement.
- PEO2 Competent in addressing real estate concerns coherently, innovatively, and ethically through sustainable approaches.
- PEO3 Excellent interpersonal skills and continuity of lifelong learning for career advancement in the local and international real estate industry.

PROGRAMME LEARNING OUTCOMES

The intended learning outcomes of the Bachelor of Real Estate with Honours programme are:

- PLO1 Integrate and articulate in depth knowledge in property management related areas.
- PLO2 Demonstrate intellectuality in the application of knowledge in property management.
- PLO3 Apply comprehensive methods, procedures, and technical expertise in property management.
- PLO4 Work together efficiently with a diverse real estate community locally and internationally.
- PLO5 Communicate effectively both in written and spoken form with real estate professionals, other professionals and community.
- PLO6 Utilize a broad range of basic and advanced technological applications in real estate.
- PLO7 Adopt numerical and graphic data for coherent and creative solutions in real estate.
- PLO8 Function individually or in teams, effectively, with a capability and responsibility to demonstrate an accountable leadership in the real estate industry.
- PLO9 Self-motivated and life-long learning appreciation in the real estate profession.
- PLO10 Enrich entrepreneurship skills competency for real estate career development
- PLO11 Understand and commit professionally, ethically and with humane responsibility, in line with the BOVAEP standards.

PROGRAMME ACCREDITATION

This programme obtained full accreditation from several agencies in Malaysia as well at international level.

- a) Malaysia Qualification Agency (MQA), Ministry of Education
- b) Board of Valuers, Estate Agents, Appraisals and Property Managers (BOVAEP)

CAREER PROSPECTS

Graduates of this programme can seek employment as real estate professionals either in the public or private sector; local and overseas. The typical positions that they usually hold are:

- Valuation Executive
- Property Manager
- Facilities Manager
- Real Estate Agents
- Project Manager
- Real Estate Agency
- Real Estate Consultant
- Property Portfolio Manager
- Property Fund Manager
- Property Consultant

Accordingly, organisations and agencies that usually employ Real Estate graduates include:

- Government agencies such as Valuation and Property Services, Ministry of Finance Malaysia, local authorities and other government agencies.
- Property public listed companies such as Sunway Berhad, IOI Berhad, SBCG Group Berhad, IJM Land Berhad, etc.
- Private companies which are involved in real estate; Valuation Companies, Estate Agencies, Corporations, Hyper Market
- Property Developers
- Financial Institutions and Banks
- Corporate Real Estate Companies or Organizations such as PETRONAS, FELDA, RISDA, FELCRA, Khazanah Nasional, TM, EPF, KWAP etc.

MODE AND DURATION OF STUDY

Mode of Study : Full-time
Minimum Duration : 4 years
Maximum Duration : 6 years

CLASSIFICATION OF COURSES

Courses offered under this programme are based on the classification scheme shown in the table below:

Classification	Course Group	Credits	Total credit hours	Percentage
1. Programme Core	A. Valuation	9	74	73.6
	B. Property Management	9		
	C. Estate Agency	3		
	D. Economics	7		
	E. Law	8		
	F. Professional Practice	3		
	G. Accounting	3		
	H. Property Investment and Finance	6		
	I. Urban Planning	3		
	J. Broad Based Knowledge Courses	23		
2. Elective Courses	K. Elective Courses	36	36	14
3. General Courses	L. General Courses	16	16	12.4
Total credit hours to graduate			126	100

AWARD REQUIREMENTS

To graduate, students must achieve a total of not less than 126 credit hours accumulated from courses that are set according to the classification scheme shown in the Classification of Courses section, with a minimum CGPA of 2.0.

LIST OF COURSES ACCORDING TO SEMESTER (MATRICULATION/STPM)

Semester 1

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEH1013 Principle and method of Real Estate Valuation	A		3	15*
2. SBEH1023 Introduction to Real Estate Profession	F		3	
3. SBEH1032 Malaysian Legal System	E		2	
4. SBEH1073 Surveying and Computation	J		3	
5. SBEH1052 Economics	D		2	
6. ULRS1122 Malaysian Nation – State Aspiration	General		2	
7. ULHM1012 Malay Language for Communication 2* (For International Students Only)	General		2	
8. ULRS1132 Malaysian Citra (For International Students Only)	General		2	

Note: *Total sum of credit hours for local students. The total sum of credit hours for international students will consider an additional 4 credit hours for UHLM1012 and ULRS1132.

Semester 2

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEH1113 Applied valuation	A		3	15
2. SBEH1043 Building Technology	B		3	
3. SBEH1093 Contract, Agency and Tort Law	E		3	
4. SBEH2102 Information Technology in Real Estate	J		2	
5. ULRS1042 Philosophy and Current Challenges)	General		2	
6. UHLB1112 English Communication Skills* (For MUET Band 1, 2 and 3.5 Only) HW	General	HL		
7. ULR2XX2 Service Learning & Community Engagement Courses	General		2	

Note: MUET Band 1, 2, 3 should register course UHLB1112 (HW)

ii Note: *UHLB1112 detail refers to UTM.J.08.06/14.10/1/3/2 Jld 3 (15) dated 27th September 2022. HW compulsory audit course.

Semester 3

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEH2233 Property Finance and Accounting	G		3	16
2. SBEH2083 Town and Country Planning	I		3	
3. SBEH2133 Real Estate law	E		3	
4. SBEH2143 Land Economics	D		3	
5. SBEH3152 Statistics and Econometrics	D		2	
6. ULRS1032 Integrity and Anti-Corruption (Local & International Students)	General		2	

Semester 4

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEH2123 Property Management	B		3	17
2. SBEH2183 Building Service and Maintenance	B		3	
3. SBEH2063 Investment Valuation	H		3	
4. SBEH2163 Property Taxation and Land Acquisition	A		3	
5. SBEH3XX3 Elective 1	Elective		3	
6. UHLB2122 Professional Communication Skills 1	General		2	

Semester 5

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEH3XX3 Elective 2	Elective		3	16
2. SBEH3XX3 Elective 3	Elective		3	
3. SBEH3XX3 Elective 4	Elective		3	
4. SBEH3203 Real Estate Marketing and Agency	C		3	
5. ULRS3032 Entrepreneurship and Innovation	General		2	
6. UHLB3132 Professional Communication Skills 2	General		2	

Semester 6

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEH3XX3 Elective 5	Elective		3	19
2. SBEH3XX3 Elective 6	Elective		3	
3. SBEH3XX3 Elective 7	Elective		3	
4. SBEH3302 Undergraduate Project 1	J		2	
5. SBEH3343 Property Portfolio Management	H		3	
6. ****3 Free Elective 8	Elective		3	
7. UHLX1112 Foreign Language for Communication Electives	General		2	

Semester 7

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEH3XX3 Elective 9	Elective		3	16
2. SBEH3XX3 Elective 10	Elective		3	
3. SBEH3XX3 Elective 11	Elective		3	
4. SBEH3XX3 Elective 12	Elective		3	
5. SBEH4314 Undergraduate Project II	J		4	

Semester 8

Courses	Course Group	Prerequisite	Credit	Total Credit
1. SBEH4264 Industrial Training – Seminar	J		4	12
2. SBEH4258 Industrial Training – Practical	J		8	

ELECTIVE COURSES

CODE	COURSE NAME (ELECTIVE – YEAR 3)	CREDIT
SBEH3223	Economic Analysis for Real Estate	3
SBEH3173	Strata Management	3
SBEH3193	Resource sustainability	3
SBEH3293	Market research and feasibility study	3
SBEH3333	Facility management	3
SBEH3273	Business Valuation	3
SBEH3423	Asset Management	3
SBEH3353	Project Management and Construction	3

CODE	COURSE NAME (ELECTIVE – YEAR 4)	CREDIT
SBEH4213	Valuation of specialized properties, plant and machinery	3
SBEH4323	Corporate Real Estate Management	3
SBEH4283	Professional Practice (Compulsory)	3
SBEH4953	Computer Assisted Mass Appraisal (CAMA)	3
SBEH4423	Asset Valuation	3
SBEH4373	Quality Management	3
SBEH4343	People Management in Real Estate	3
SBEH4403	Cost Estimating and Tendering	3
SBEH4363	GIS in Real Estate	3
SBEH4383	International Property Market	3
SBEH4413	Land Development	3

// SYLLABUS SYNOPSES

The following syllabus synopses address only the core and elective courses offered in this programme. Syllabus synopses for general courses are listed in the General Courses section. Students are encouraged to take courses offered in other programmes as free elective courses. However, students are advised to consult the programme coordinator before enrolling for any of these elective courses.

Core Courses

SBEH1013 – PRINCIPLES AND METHODS OF REAL ESTATE VALUATION

This course aims to provide the basis of valuation principles. It explains the scopes and areas of valuation, the concept of real estate as an investment, mathematics of valuation and the methods used in the appraisal of property valuation.

SBEH1023 – INTRODUCTION TO REAL ESTATE PROFESSION

This course introduces the students to the property profession. The aim is to highlight to the students the nature of the profession, the knowledge and soft skills required as a real estate professional. Students will also be exposed to the various paths of the property professionals and the prospects awaiting them. Some aspects of ethics will also be introduced in this course.

SBEH1032 – MALAYSIAN LEGAL SYSTEM

This course is designed to give an understanding and knowledge of the general principles with regard to the legal system in Malaysia. It acts as a legal foundation for the students before continuing with the core legal courses, i.e., the law of contract, agency & tort, offered in the following semester.

SBEH1043 – BUILDING TECHNOLOGY

The course aims at enabling students to provide competent valuation surveying and property management services which require a good understanding about essential aspects of buildings. The knowledge imparted to students covers the functions, design criteria, types of construction and technologies of each element of a building, the construction process, types of building material and building finishes. The elements cover the sub-structure and superstructure of a building. Students also will be introduced to the basic knowledge of building drawing.

SBEH1052 – ECONOMICS

This course provides the basic element of economics. It introduces to the student the basic economic principles such as the theory of firms and market organizations. This followed by the pricing mechanism, competition and monopoly. Other topics such as allocation theory, economic rents, interest and wages, economic equilibrium and other general economic theory and some aspects of macroeconomic topics are also covered in this course.

SBEH1063 – INVESTMENT VALUATION

The primary aim of this course is to provide students with the fundamentals of property investment. It begins with an overview of general investment types and their characteristics before focusing on property as an investment asset. The course focuses on the income approach, covering valuation methods in valuing freehold and leasehold properties, including the residual method, investment method, profits method and Discounted Cash Flow (DCF) method. In addition, students will be introduced to various techniques to be used in the selection of investment opportunities.

SBEH1073 – SURVEYING AND COMPUTATION

This subject focuses on matters pertaining to principles, aspects and basic techniques in data measurement, processing and presentation. The techniques in establishing the planimetric and vertical controls as well as detailed surveys are discussed in this subject. Calculation of areas and volume of earthwork are also emphasized in this subject, which relates to property valuation and land development.

SBEH1083 – TOWN AND COUNTRY PLANNING

This course is designed to give understanding, knowledge and exposure on concepts, principles and system of town and country planning applicable in Malaysia. The contents are planning concept and principles, urban history, urban development, structure and organization of town and country planning in Malaysia, planning legislation (Act 171 and Act 172), development plans and plan making process. The students also will be taught about the planning control systems and the tools used to control the real estate development process.

SBEH1093 – CONTRACT, AGENCY AND TORT LAW

This course will introduce the students to the principles of law relating to contract, agency and torts which will be a foundation to learning real estate law. Among the aspects of law which will be focussed upon includes the formation of contract, discharge of contract, remedies for breach of contract, introduction to the law of agency, the tort of negligence and other torts relating to property. At the conclusion of this course students should be able to demonstrate an understanding of fundamental principles of the law of contract, agency and torts.

SBEH2102 – INFORMATION TECHNOLOGY IN REAL ESTATE

The course aims to impart knowledge on the use of information technologies in real estate. It comprises both the theoretical and practical aspects of information technologies applications for real estate. For the theoretical part, students will be introduced to the basic aspects of information technologies application. This will focus on the commonly used software and latest technologies in real estate. The types of software include spreadsheet, database management systems (DBMS) and statistical packages. For the practical part, students will be given hands-on exercises on several computer programmes of the above mentioned. The course is expected to provide basic knowledge and skills for computer applications in real estate. This includes basic coding and programming.

SBEH2113 – APPLIED VALUATION

This course intends to provide a comprehensive understanding of the various aspects of applied valuation. Concurrently, develop theoretical knowledge and practical skills among the learners and prepare them to practice valuation. The course will enable the learner to apply valuation approaches (and its methods) in carrying out his valuation on a wide range of properties, including residential, commercial, industrial, agriculture, and development land by considering the economy, physical, regulation and other factors affecting property value.

SBEH2123 – PROPERTY MANAGEMENT

The primary purpose of this course is to provide students the fundamentals of professional property management as stated in Malaysian Property Management Practice Standards. This includes mainly the operational aspects of property management such as handing over of property, building and maintenance management, tenant/lease management, financial management, marketing management, health, safety and emergency management relating to various types of properties managed in Malaysia.

SBEH2133 – REAL ESTATE LAW

This course touches upon the law relating to real estate, primarily in accordance with the National Land Code 1965 and the procedures in respect of it. It will address the alienation of land, types of titles and ownership rights on the land, land dealings, registration and restraint on dealings.

SBEH2143 – LAND ECONOMICS

The primary purpose of this course is to provide fundamental knowledge in rural and urban land economics. The first phase introduces market interaction of land resources, theories in economic development, and land returns in rural areas. The second phase comprises urban land economic entails urbanization process underlying the economic forces in city development and city arrangement. This also includes calculation of land value from economic aspects for commercial land, industrial land, and housing land. Further, this course discusses the economic issues related to urban areas including poverty, pollution, congestion, and crimes. Nevertheless, this course also touches on urban land use policy, housing policy and local government as land development agent and market economy.

SBEH2163 – PROPERTY TAXATION AND LAND ACQUISITION

This course is designed to give students the knowledge on statutory valuation consisting of valuation for the purpose of property taxation. This includes legal aspects in property taxation such as rates, stamp duties, real property gains tax, development charge, land premium, quit rent and income tax. Students will also be exposed to the method and procedure to value and determine the various types of property taxations and land acquisition practices. Students will do a practical task on land acquisition procedures and the presentation of claims of all parties involved.

SBEH2183 – BUILDING SERVICES AND MAINTENANCE

The course aims at enabling students to provide competent valuation surveying and property management services which require a good understanding about essential aspects of buildings. The knowledge imparted to students covers the functions, design criteria and different types of building services, and the introduction and aspects in the maintenance of buildings.

SBEH2233 – PROPERTY FINANCE AND ACCOUNTING

The skills of the property profession are unique but are often seen as being narrow when compared with competitors. This course provides an opportunity to understand the financial world and how it relates to property. By the end of the course, students should be able to explain the scenario of the financial system in Malaysia and how it relates to property development, identify the categories of finance available in the financial market for land development projects and describe the innovation in project financing being used in the current property market. Students should also be able to propose one development project and choose the suitable types of debenture or equity finance for funding.

SBEH3152 – STATISTICS AND ECONOMETRICS

This course introduces students to the fundamentals of quantitative techniques in real estate. Specifically, the course covers the theories and applications of statistics and econometrics for real estate analyses.

SBEH3203 – REAL ESTATE MARKETING AND AGENCY

This course is designed to provide students with an overview of the scope and role of Real Estate Agents in the business of property transactions, leasing, selling and buying. The focus will be given to the jurisdiction and function of agents in his approach to carry out his duty as laid out by the 1981 Act and Malaysian Estate Agency Standards, as well as practical tips to enhance the practice and professionalism of real estate agents. This course will also acquaint students with the fundamentals of marketing knowledge such as market segmentation, marketing strategy and marketing mix which are critical to the agent's success.

SBEH3343 – PROPERTY PORTFOLIO MANAGEMENT

Property finance are introducing to expose student on various alternative ways of making equity investments in real estate, ranging from purchasing properties like an apartment building, either as an individual or in a partnership, to investing in publicly traded companies called real estate investment trusts (REITs) that develop and own hundreds of apartment properties throughout the nation. Investments can also be made in mortgages used to finance real estate, ranging from making a mortgage loan (as a lender) or purchasing a publicly traded mortgage-backed security (residential or commercial). Furthermore, property portfolio management will provide students the fundamentals of Modern Portfolio Theory (MPT) with further discussion on Capital Market Theory (CMT) in relation to real estate investment. These two breakthroughs in financial theory have given a significant impact to financial analysts and investors in managing their investment assets. The main discussion will be the questions of: i) what is the best possible investment portfolio? And ii) what is the price of investment assets? The central of this course is the application of MPT and CMT in real estate analysis in relation to capital/financial market condition

SBEH3302 – UNDERGRADUATE PROJECT I

This course is research based to teach students how to undertake academic research and is a partial requirement for the award of the Bachelor in Property Management. It contains syllabi on the aspects of academic research in real estate. The goal of this course is to develop knowledge and skills among students in the research discipline is real estate. The main aspects of this subject that will be taught to the students are problem formulation, setting research objectives, developing theoretical framework through literature review, selecting and designing data collection and analysis methods, effective thesis report writing and presenting the results.

SBEH4258 – INDUSTRIAL TRAINING – PRACTICAL

This course is designed to expose students to the various aspects of industrial practices and ethics and also to apply the training knowledge. Students will be placed in practical training centres at various government and private agencies throughout Malaysia and abroad. They are exposed to practical aspects of real estate. The details of industrial training are included in the Rule Book published by the faculty and university.

SBEH4264 – INDUSTRIAL TRAINING – SEMINAR

This course is designed to expose students to the various aspects of industrial practices and ethics and also to apply the training knowledge. Students will be placed in practical training centres at various government and private agencies throughout Malaysia and abroad. They are exposed to practical aspects of real estate. The details of industrial training are included in the Rule Book published by the faculty and university.

SBEH4314 – UNDERGRADUATE PROJECT II

This course is research based to teach students how to undertake academic research. This subject is a continuity of Undergraduate Project 1. Focus on this semester is to complete the project and the emphasis given to data collection and analysis of data and findings of the study and eventually produce a report and article writing. Students have to present their research findings.

Elective Courses

SBEH3223 – ECONOMIC ANALYSIS FOR REAL ESTATE

This course exposes the students with the various types of economic analysis in real estate decision-making. It describes the relationship of real estate and capital markets and the various types of economic analysis in different situations. These are examined both in micro and macro terms. Aspects examined are the analysis of the urban real estate markets, labour markets, economic growth and real estate markets, housing markets, household price and financing, property market cycle, real estate market operations.

SBEH3173 – STRATA MANAGEMENT

This course is designed to provide students with knowledge relating to the provisions of building law and Regulations for the establishment of the strata title scheme in high rise residential buildings. The related issues and problems in the current strata schemes will be highlighted and discussed. Issues such as: delay in obtaining the strata titles, the determination of the subject of the strata ownership, the rights of the parcel proprietors as regards to the parcel and the common property, the allocation of the share units to parcel proprietors, the enforcement of the financial and non-financial obligations of the parcel proprietors, the settlement of disputes and most importantly the management issues. The present National Land Code 1965 will be investigated as it provides the basis for the ownership of the subsidiary titles. The newly enacted Strata Management Act 2013 to replace the Building and Common Property (Maintenance & Management) Act 2007 which provides for the proper maintenance and management of buildings and common property will be discussed in detail. By the ends of the course the students should be able to explain the provisions of the Strata Titles Act in obtaining the ownership of a parcel and the provision of the Strata Management Act 2013 and its Regulation for the Proper maintenance and management of building and common property; state and critically evaluate related issues and problems in the implementation of the provisions in both the Acts; to be actively involved in giving ideas and comments on selected issues related to strata scheme.

SBEH3193 – RESOURCE SUSTAINABILITY

The subject intends to provide a comprehensive understanding of environmental issues associated with real estate disciplines. This subject introduces the basic concept of natural resources as well as the fundamentals of sustainable development. It focuses on the value creation of ecosystem services and the direction of 17 Sustainable Development Goals (SDGs). This subject also provides understanding towards the current phenomenon regarding environmental issues related to real estate disciplines including energy management, solid management, and urban heat island (UHI) phenomenon in urban areas. The subject includes the relevant environmental policies, campaign, and awareness. It exposes students with the current development of green building including the green components at their benefits to the environment, economic, and social.

SBEH3293 – MARKET RESEARCH AND FEASIBILITY STUDY

This course is designed to provide the students with an understanding of the concept of basic market analysis, microeconomic and macroeconomic base analysis and the importance of market analysis. Besides, this course also exposed students to various analyses including supply analysis, demand analysis, competitor analysis and consumer analysis. All of these analyses are followed by learning the feasibility study including the types, scopes and financial measures.

SBEH3333 – FACILITIES MANAGEMENT

This course aims to introduce the facilities management concept and its contributions in achieving organisation objectives. The course covers the main elements relevant to facilities management. It is broken into four parts: The first part sets the scene by bringing in the facilities management concept and how it has emerged as a professional discipline. The second part outlines the various competencies that are required to be a facilities manager. The third part is devoted to the roles and responsibilities of facilities management in an organisation. The fourth part covers key management functions that are important in facilities management and the sustainable concept of managing facilities.

SBEH3273 – BUSINESS VALUATION

The primary purpose of this course is to provide students the fundamental and practical aspects undertaking real estate-related business valuation. The discussions are mainly on financial statement analysis and investment returns. There are three main valuation methods discussed viz. income, cost and market approaches.

SBEH3423 – ASSET MANAGEMENT

An asset is any entity that can be used to produce a good, product or a service to meet the needs of a client. Strategic Asset Management course is designed to provide basic knowledge of asset management and prepare the students to be able to manage assets. Based on the coursework, students progressively address problems in designing and managing assets. This is achieved through a balanced program of subjects in asset management science and engineering, business administration and management and industrial engineering, with emphasis on practical applications.

SBEH3353 – PROJECT MANAGEMENT AND CONSTRUCTION

The course aims at enabling valuation surveying and property management students to acquire the essential aspects of project management, particularly a non-complex construction project. The knowledge imparted to students covers the knowledge areas and practices of project management including the project integration management, project scope management, project time management, project cost management, project quality management, project human resource management, project communication management, project risk management and project procurement management.

SBEH4213 – VALUATION OF SPECIALIZED PROPERTIES, PLANT AND MACHINERY

This course is designed to provide the students with an understanding of introduction to special properties, methods of valuation for special properties, valuation for residential properties and valuation for commercial properties. Besides, mining properties, industrial properties and agricultural properties are included as special properties. The methods of valuation applied to special properties are influenced by the functions of the property, business operations and the assets or machinery located in the property.

SBEH4323 – CORPORATE REAL ESTATE MANAGEMENT

This course introduces corporate real estate management by examining the role of real estate in corporate organisations. It approaches real estate management strategically in order to assist real estate decision-making at corporate and business levels. The primary objective of such an approach is to support value enhancement of corporate organisations by aligning real estate with corporate and business strategy.

SBEH4283 – PROFESSIONAL PRACTICE

This course introduces students to the professional practice of real estate, in particular, to the requirements and characteristics of a professional. The primary aim is to expose students to the nature of professional practices relating to real estate profession in Malaysia and selected markets. The highlights of the course include differences between professional and non-professionals, qualifications and requirements to be real estate professionals, code of ethics and standards, professional negligence, setting up of professional business organization, opportunities and challenges in the field of valuation, estate agency and property management.

SBEH4953 – COMPUTER ASSISTED MASS APPRAISAL (CAMA)

This course introduces the student to the concept of and the needs for computer assisted mass appraisal (CAMA) for the real estate professionals especially for those who work in Local Authorities and involved in valuation of properties for property taxation (assessment tax) purposes. Students will be equipped with the basic principles and concepts of mass appraisal and techniques used in mass appraisal models in the CAMA System. This course will enable students to develop professional awareness in advanced valuation techniques in valuing the universe of properties to help increase the capacity of Local Authorities in the administration of property taxation in Malaysia. The highlights of the course will include the topics such as differences between the traditional valuation and the mass appraisal techniques, the history of mass appraisal, data collection, specifying the valuation model and calibrating the valuation model for the mass appraisal application case study and the standards of mass appraisal. Students will also be exposed to the application of the real CAMA-UTM system developed by UTM which has been used by Local Authorities in Malaysia.

SBEH4423 – ASSET VALUATION

Asset valuation is the process of determining the fair market or present value of assets, using book values, absolute valuation models like discounted cash flow analysis, option pricing models or comparable method of valuation. The primary purpose of this course is to provide students the added knowledge of professional property valuation as per Malaysia Valuation Standard. This includes mainly the valuation of special assets that deal with various asset categories such as movable assets, non-movable assets, intellectual property and biological assets. The core principles and concept of asset valuation will be exposed to the student in line with industry needs and requirements.

SBEH4373 – QUALITY MANAGEMENT

Enable valuation surveying and property management students to acquire the essential aspects of quality management in order to provide customer's satisfied services. The knowledge imparted to students covers the knowledge areas and practices of quality management including the quality management concepts, principles, requirements, implementation and performances measurement.

SBEH4343 – PEOPLE MANAGEMENT IN REAL ESTATE

This course is designed to provide student understanding and knowledge of managing people in real estate. The focus will be given to the principles and practices of people management in real estate ranging from recruitment cycle to staff performance assessment. This course will also enable the students to employ a range of strategies to manage negotiations and conflict resolution.

SBEH4403 – COST ESTIMATING AND TENDERING

This course is designed in a way to introduce the students on the principles of building estimating and tendering. It will illustrate the broad application of the theory to many estimating and tendering applications. It emphasizes the procedure of tendering and estimating, the preparation of unit rates and the estimating process for each trade of building. At the end of the course, students should be able to understand the factors that affect the tender and perform calculations to estimate each trade of building.

SBEH4363 – GIS IN REAL ESTATE

The course aims to impart knowledge about GIS and its application in real estate. It consists of both the theoretical and practical parts of GIS application. The theoretical part will introduce the basic principles of GIS to students. This will include the definitions, the components, and the functions of GIS. Students are expected to be able to relate the theoretical aspects of GIS to the real estate knowledge or experience that they have gained through other subjects. The practical part will give students an opportunity to learn to use a selected GIS programme. This would enable them to have hands-on experience of real estate data input, data management, data analysis and data output using GIS. As a whole, this subject would provide basic knowledge and experience an undergraduate student of property management would need in order to embark on a GIS application in real estate.

SBEH4383 – INTERNATIONAL PROPERTY MARKET

An introduction to the international property market, focussing on the fundamental aspects that shape up different markets in different parts of the world. These aspects included those which are generally similar among countries and those which differ by geographic, cultural, political, and administrative boundaries.

SBEH4413 – LAND DEVELOPMENT

This course introduces students to the knowledge of the interrelated factors that contribute to a successful land development project. It may provide students with the knowledge of planning and land development practice; physical characteristics and land suitability; local governance interaction and approvals; and land development issues and innovation.

14 UTM PROFESSIONAL SKILLS CERTIFICATE (UTM PSC)

INTRODUCTION

The UTM PSC course is a non-credit course offered to all UTM Undergraduate Degree students to improve student's skills and experience.

All students are required to take five (5) PSC courses consisting of three (3) compulsory and two (2) elective courses as requirement for completion of program.

UTM has designed its own UTM Professional Skills Certificate programme to enhance the knowledge and skills of UTM students. It provides students with value-added courses so that they will have a competitive edge when they enter the employment market.

BENEFIT

Students enrolled in the programme will receive a **Certificate of UTM Professional Skills Programme** upon completion. The courses taken under this programme will be **officially recorded in the student's academic transcript**. **Completion of all five courses is compulsory**; failure to do so will result in the student being **ineligible for graduation**.

COUSE NAME AND CODE

Courses	Code	Year
COMPULSORY COURSES		
1.Design Thinking For Entrepreneur (DTE) Coordinator : UTM Xcite	GLRB0010	3 – 4
2.Talent and Competency Management (TCM) Coordinator : UTM Career Centre	GLRM0010	4
3. English Communications Skill for Graduating Students (ECS) Coordinator : Language Academy	GLRL0010	4
ELECTIVE COURSES		
1. Data Analytics For Organization	GLRT0010	3 – 4
2. Professional Ethics and Integrity	GLRM0020	3 – 4
3. Construction Measurement (Mechanical & Electrical)	GLRT0030	3 – 4
4. OSHE For Engineering Industry and Laboratory	GLRT0050	3 – 4
5. Quality Management for Built Environment and Engineering Professionals	GLRT0060	3 – 4
6. Safety and Health Officer Introductory Course	GLRT0070	3 – 4

- **Choose two from these 6 electives**

The short courses under the **UTM Professional Skills Certificate (UTM PSC)** programme are typically conducted on weekends (i.e., Saturdays and Sundays), unless otherwise stated.

For more information, please visit the official website:

👉 <https://ugs.utm.my/utm-professional-skills-certificate-utm-psc/>

15 GENERAL COURSES

INTRODUCTION

Compulsory general courses for all new students from the Ministry of Higher Education (KPT).

Malaysia Core value	Innovation and Leadership Skills	Communication Skills	Global Citizen
6 CREDIT	2 CREDIT	6 CREDIT	2 CREDIT
Local Student - ULRS1122 Malaysian Nation-State Aspiration And - ULRS1042 Philosophy and Current Challenges And - ULRS1032 Integrity and Anti-Corruption International Student - ULRS1132 Malaysian Citra And - UHLM1012 Malay Language for Communication 2 And - ULRS1032 Integrity and Anti-Corruption	ULRS3032 Entrepreneurship & Innovation	- UHLB2122 Professional Communication Skills 1 And - UHLB3132 Professional Communication Skills 2 And - UHLX1112 Foreign Language for Communication Electives	ULRF2XX2 Service Learning & Community Engagement Courses

16 ACADEMIC ADVISING

Academic advising is a process that encompasses the development and delivery of accurate, up-to-date information regarding the academic programme, courses, resources, policies, procedures and career options to aid students in pursuing their academic and career goals. All students are assigned an academic advisor for the following purposes:

- 1.To assist students in understanding university policies, procedures and regulations.
- 2.To provide information on academic programmes, institutional support services and resources.
- 3.To assist students in planning, monitoring and evaluating their educational plan towards degree completion and development of decision-making skills.
- 4.To assist students in determining their career goals.
- 5.To assist students in developing their intellectual, personal and social development.

Students are encouraged to seek guidance from their academic advisors and to regard them as mentors. Students **MUST** meet with their academic advisor at least once each semester in order to review their academic performance, course schedule and “be cleared” for registration. A beneficial advisor/advisee relationship should develop far beyond this meeting.

17 ACADEMIC YEAR

The University Academic Year is divided into two regular semesters, namely Semester I and Semester II. Each semester consists of 14 weeks of lectures, as shown in table below. The University also offers a short semester or Semester III at the end of each academic year, and short semesters are not included in the calculation of duration of study.

ITEM	WEEKS
<u>SEMESTER I</u>	
Lectures	14 weeks
Revision Week**	1 week
End of Semester Examination***	2 weeks
Total (A)	<u>17 weeks</u>
Middle of Semester Break*	1 week
Final of Semester Break	5 weeks
<u>SEMESTER II</u>	
Lectures	14 weeks
Revision Week**	1 week
End of Semester Examination***	2 weeks
Total (B)	<u>17 weeks</u>
Middle of Semester Break*	1 week
Final of Semester Break*	10 weeks
OR	
<u>SHORT SEMESTER</u>	
Lectures and Examination	8 weeks
Total (C)	<u>8 weeks</u>
Final Semester Break	2 weeks
TOTAL WEEK PER ACADEMIC SESSION (A) + (B) + (C)	<u>42 WEEKS</u>

* 1 week of mid-semester break for Semester I and II is allocated subject to the academic session calendar set by the University.

**Revision period is not allocated for students who will undergo industrial training during the short semester.

***The final examination period takes into account 14 working days.

Note: The actual implementation dates of Schedule 1 are subject to the academic session calendar set by the University.

The academic calendar is the official calendar for the university and includes all the important date terms, deadlines for enrolment services and registration transactions, and holidays. The calendar gives a general idea of the academic year and is available on the following website: <https://amd.utm.my/academic-calendar/>

18 GRADING AND POINT VALUE SYSTEM

GRADING SYSTEM

Students' achievement in any course is reflected in the grade obtained. The relationship between marks, grade and point value is shown in the table below:

Marks	Grade	Point Value
90 – 100	A+	4.00
80 – 89	A	4.00
75 – 79	A–	3.67
70 – 74	B+	3.33
65 – 69	B	3.00
60 – 64	B–	2.67
55 – 59	C+	2.33
50 – 54	C	2.00
45 – 49	C–	1.67
40 – 44	D+	1.33
35 – 39	D	1.00
30 – 34	D–	0.67
00 – 29	E	0.00

The passing grade for any course is set by the Faculty upon the Senate's approval. Generally, the minimum passing grade (except for studio courses), is D+. **The minimum passing grade for studio courses in the Architecture, Urban & Regional Planning, and Landscape Architecture programmes is C.**

Students will be graded for most of the courses according to the above grading system. However, there are some courses, particularly compulsory audit courses registered with a HW status, that are without grades. For these courses, students will obtain a 'HL' (Pass) or 'HG' (Fail) status. Compulsory audit courses earn credit toward a degree but not grade points.

Students who fail a core or general course must retake (redeem) it by repeating the course until passing. For CGPA calculation purposes, the final credit and grade points of the repeated course will be counted, while the original credits and grade points are nullified.

ACADEMIC STANDING

The students' academic standing is based on Cumulative Grade Point Average (CGPA) and Grade Point Average (GPA). CGPA is a calculation of the average of all of a student's grades for all semesters and courses completed up to a given semester, whereas GPA is a calculation of the average of a student's grade for only the one particular semester. Each grade is changed to point based on the formulation below:

Point = Course Credit × Point Value

$$\text{GPA} = \frac{\text{Total points}}{\text{Total credit units for the particular semester (graded courses)}}$$

$$\text{CGPA} = \frac{\text{Total points for all semesters taken to date}}{\text{Total credits accumulated for all semesters taken to date (graded courses)}}$$

A student's academic standing is determined at the end of every regular semester based on CGPA as shown in the table below.

CGPA	Academic Standing
CGPA > 2.00 1.70 ≤ CGPA < 2.00 CGPA < 1.70	Good Standing (KB) Probationary Standing (KS) Failure Standing/Academic Dismissal (KG)

A student with Probationary Standing (KS) for three consecutive semesters will be given Failure Standing (KG) and will be dismissed from the academic programme. Those with a GPA < 1.00 but a CGPA ≥ 1.70 will face one of the following three options:

1. Allowed to continue his/her study; or
2. Suspended in the following semester; or
3. Dismissed from the academic programme.

GPA/CGPA COMPUTATION

The method of computing the GPA in one particular semester with five graded-courses and one non-graded course (course registered with a compulsory audit course [HW] status) is shown below:

$$\text{Point} = \text{Course Credit} \times \text{Point Value}$$

$$\text{GPA} = \frac{\text{Total points}}{\text{Total credit units for the particular semester (graded courses)}}$$

Courses	Credit Units	Marks	Grade	Grade Point	Point
Course A	4	91	A+	4.00	16.00
Course B	5	84	A	4.00	20.00
Course C	5	66	B	3.00	15.00
Course D	4	56	C+	2.33	9.32
Course E	2	25	E	0.00	0.00
Course F	3	–	HL	–	–
Total credit units enrolled	23	Total Points			60.32
Total credit units from graded courses	20				
Less credit units of failed Course (Course E)	2				
Total credit units earned for the semester	21				

$$\frac{\text{Total points}}{\text{Total credit units for the particular semester (graded courses)}}$$

$$\frac{16+20+15+9.32+0}{20}$$

3.02

To calculate your CGPA, total the credit hours and then the grade points from all semesters. Divide the total grade points by the total credit hours.