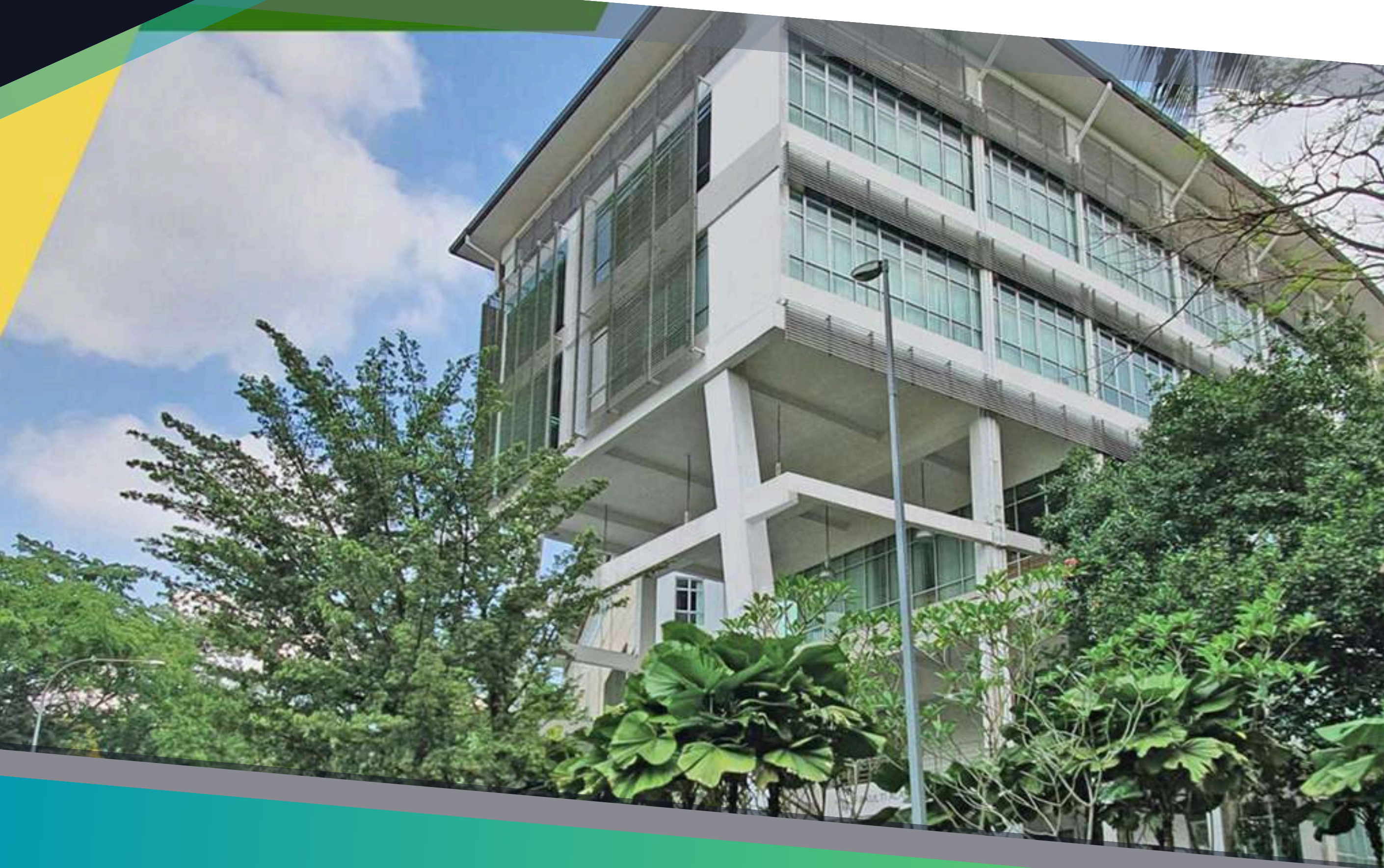


**FABU
UTM**

POSTGRADUATE ACADEMIC GUIDEBOOK

2023/2024



**POSTGRADUATE ACADEMIC
FACULTY OF BUILT ENVIRONMENT AND SURVEYING
UNIVERSITI TEKNOLOGI MALAYSIA**

builtsurvey.utm.my

POSTGRADUATE ACADEMIC GUIDEBOOK

- Academic Year 2023/2024

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
- UTM Academic Rules of Graduate Studies
- Postgraduate Research Procedure (ProPS 06)

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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

To 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 and Core Values

Vision

To be the faculty of choice for education and professional development in 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

Professional Built Environment Education for Sustainable Development

Core Values

Creative | Progressive | Collaborative | Inclusive | Sensitive

Foreword by the Dean

Welcome to the Faculty of Built Environment and Surveying (FABU) Universiti Teknologi Malaysia (UTM). This Guidebook contains useful information about the academic programmes conducted by the Faculty. The Faculty is one of the leading faculties offering undergraduate and postgraduate programmes in the field of Built Environment and Surveying in Malaysia. It offers undergraduate degree programmes in Architecture, Urban and Regional Planning, Quantity Surveying, Landscape Architecture, Construction, Land Administration and Development, Geomatic Engineering, Geoinformatics, and Real Estate. Our programmes are accredited by a range of national and international professional bodies. Both undergraduate and postgraduate programmes offered by the Faculty are well established and well regarded by employers. The Faculty also has close links with the industry, where many of our students enjoy successful careers. In addition, the QS World University Rankings by Subject released recently ranked Faculty in the top 100 worldwide. This is an excellent achievement for the Faculty.

The Faculty emphasises the integration of academic knowledge and practical skills required for professional practice. Apart from imparting technical knowledge, the acquisition of generic skills is vital for graduates to be competitive in the job market and successful in the future. Hence, generic skills are well-addressed in our courses. International exposure is another key to success in today's complex and dynamic world. Therefore, students need to gain awareness and insights into foreign cultures and policies to widen their knowledge in various aspects of global issues and challenges.

As a Research University, the Faculty ensures the curriculum adequacy in reflecting critical thinking and problem solving, creativity, and innovations in Built Environment and Surveying. Thus, graduates have opportunities to enhance their knowledge and systematic research skills by pursuing postgraduate studies at the Faculty. The opportunity for this exposure is in-built in the University's academic system through the internationalisation programmes, namely: global outreach, internship abroad, service-learning, and summer school programmes. Therefore, the faculty strongly encourages students to participate in at least one of the internationalisation programmes during their study.

I hope students will take part in academic activities organised by the Faculty as well as portray an optimistic work culture with positive moral values in developing leadership and team working qualities and individual generic skills. It is eminent not only for individual academic excellence but will also contribute to the development of the nation, towards becoming a developed country socially, culturally and politically. If you have concerns and need more information, you may visit the Faculty's website at builtsurvey.utm.my or seek advice from your academic advisors, lecturers, or the faculty's administrative staff.



I sincerely hope you will enjoy your time at the Faculty, and that your education here will serve you well in the future to be a great alumnus.

Introduction

Universiti Teknologi Malaysia

Universiti Teknologi Malaysia (UTM) is the largest engineering-based university in Malaysia offering a variety of programmes for all levels of tertiary education. The city campus are located in Kuala Lumpur, the capital city of Malaysia, tropical campus in Johor Bahru, within Iskandar Malaysia, a vibrant economic corridor in the south of Peninsular Malaysia and Agri Campus in Pagoh, within the Pagoh Education Hub located in the northern part of Johor.

UTM's mission is to develop holistic talents and prosper lives through knowledge and innovative technologies. . This is in line with the aspiration of the country towards becoming a knowledge-based, innovation-led economy grounded in creativity and innovation with high value creation. Through a strategic transformation of its organisational structure, UTM is focused in creating a vibrant academic culture and fertile intellectual ecosystem that inspire creativity and innovation.

With a strength of more than 1,500 academic staff, of which more than 500 are international graduate faculty members, UTM continuously strives to develop and enhance quality academic and professional programmes of international standard and global recognition. The student population consists of more than 24,000 students in both undergraduate and postgraduate programs and more than 6,000 enrolled in distance learning programmes as part-time students in various fields of specialisation. More than 5,000 of these students are international students from more than 70 countries.

UTM has established a reputation for cutting-edge research undertakings and innovative education, proven by becoming the three-time winner for the National Intellectual Property Award for organisation category. A stimulating research culture exists in UTM through 5 Research Alliances (RA) in strategic disciplines namely Innovative Engineering, Health and Wellness, Smart Digital Community, Resource Sustainability and Frontier Materials. UTM is actively engaged in research collaborations with renowned institutions such as Harvard University, MIT, University of Oxford, Imperial College of London, University of Cambridge, Tokyo University and Meiji University in areas of mutual interests.

Faculty of Built Environment and Surveying

The **Faculty of Built Environment and Surveying** was recently formed on 1 July 2018 under the UTM Synergy 4.0 exercise to restructure the academic entities. The exercise aimed to open more opportunity for synergy and collaboration between academia and students. This newly entity is the result of merging between the previously known **Faculty of Built Environment** and the **Faculty of Geoinformation and Real Estate**.

The Faculty of Built Environment was initially established in 1970, as the Faculty of Architecture and became the Faculty of Built Environment in 1974. While the later was initially established in 1972 as the Faculty of Surveying, before rebranded to the Faculty of Surveying and Real Estate in 1994, Faculty of Engineering and Geoinformation Science and the Faculty of Geoinformation and Real Estate.

Currently the Faculty offers 9 Undergraduate degree programmes, 11 Master by Coursework programmes, 1 Master of Philosophy programmes and 1 Doctor of Philosophy programmes under 11 academic disciplines, namely Architecture, Landscape Architecture, Quantity Surveying, Urban and Regional Planning, Transportation Planning, Geoinformatics, Remote Sensing, Geomatics Engineering, Land Administration & Development, Real Estate, and Facilities Management. The student population in the faculty totals about 2,100 undergraduates and 780 postgraduates including about 200 international students.

The undergraduate programmes are designed to provide a firm academic base and professional expertise in the respective disciplines. The Faculty uses its strong industry links to focus on current topics, skills in demand now and in the future. Students are encouraged to undertake real-world projects and participate in international exchange and global outreach programmes. All undergraduate programmes in the faculty are recognised by the Public Service Department of Malaysia and accredited by the respective governing boards of local as well as international professional institutions relevant to the programme. A degree from the Faculty of Built Environment and Surveying will keep graduates at the forefront of national and global agendas in planning, design, construction, operation and development sectors.

The Faculty of Built Environment and Surveying is committed to making a significant and positive impact on the country by combining academic strength with industry partnerships which are at the forefront of dealing with some of the major issues facing the nation today. Sustainability and integrated practice continue to define our teaching and research excellence. With a staff of 174 academics, 97 supporting staff and our excellence in real world teaching, research and consultancy service, the faculty aspires to be a destination of choice for high quality academics.



Administration

Organisational Structure

AHLI JAWATANKUASA EKSEKUTIF FABU 2023

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PENGARAH						PENOLONG PENDAFTAR	PENOLONG PENDAFTAR KANAN	
								
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CREATIVE | PROGRESSIVE | COLLABORATIVE | INCLUSIVE | SENSITIVE



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BAGIAN FABU 2023

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POSTGRADUATE PROGRAMMES

Master of Architecture

Introduction

The Master of Architecture Program is a professional degree equivalent to the professional qualification of the Board of Architects Malaysia Part II. It is a continuation of the Board of Architects Malaysia Part I, which is addressed in the Bachelor of Science in Architecture program in UTM. The program is a taught course Master Program and as such there is a structured curriculum with an emphasis on more research-based architectural design studio projects. This focus enables a more intellectual and theoretical basis in the architectural projects addressed within the program at the same time contribute to the development of architecture within the National framework; that emphasises on the sustainable development. The focus on research-based is an addition to the technical, scientific and technological considerations that are already embedded in the courses. The Master of Architecture program is recognised by the Board of Architects Malaysia (LAM), Malaysian Institute of Architects (PAM) and the Public Services Department (JPA). The architecture program in UTM is the first in the country acknowledged by PAM and LAM. The preceding 3 years Bachelor of Science in Architecture is accredited for LAM Part I, and this 2 years Master of Architecture is accredited for Part II.

UTM degree holders in Master of Architecture with 2 years relevant working experience are eligible to sit for the LAM Part III examination in order to be registered as a professional architect.

Name of Award

Master of Architecture [M. Arch.]

Entry Requirement (Faculty Requirement)

Candidate must fulfil the general conditions of university and specific programme requirement according to one of the following:

1. Bachelor of Science in Architecture/Degree in Architecture (LAM Part 1) or equivalent with a CPA of 3.0 and above; completed at least 6 months of practice in an architectural firm after graduating with a LAM Part 1
OR
2. Bachelor of Science in Architecture/Degree in Architecture (LAM Part 1) or equivalent with a CPA 2.7 to 2.99; completed at least 12 months of practice in an architectural firm after graduating with a LAM Part 1
OR
3. Bachelor of Science in Architecture/Degree in Architecture (LAM Part 1) or equivalent with a CPA 2.5 to 2.69; completed at least 24 months of practice in an architectural firm after graduating with a LAM Part 1
OR
4. Bachelor of Science in Architecture/Degree in Architecture (LAM Part 1) or equivalent with a CPA 2.3 to 2.49; completed at least 36 months of practice in an architectural firm after graduating with a LAM Part 1.

Screening Process

1. The **first screening process** will be made after the candidate submit the online application form and related documents to UTM.
2. Only the selected candidates will undergo a **program interview** as part of the selection process.
3. **International candidates** must obtain LAM Part 1 certificate before they apply for the Master of Architecture UTM (for more information, please visit <https://www.lam.gov.my>)

Programme Educational Objectives

- PEO1 Knowledgeable and competent in line with the professional qualification of Board of Architect Malaysia Part II.
- PEO2 Scholarly in research and solve problems critically, analytically and creatively based on scientific facts and sound ideas.
- PEO3 Professional, ethical, responsible and responsive to the values of humanity and sustainability.
- PEO4 Proficient in communication and contribute to working teams as well as competitive in various local and global market.

Programme Learning Outcomes

PLO 1	Integrate scholarly knowledge in architecture and the built environment relevant to established vision.
PLO 2	Identify, analyse and integrate architectural knowledge from various sources in producing potential solutions.
PLO 3	Produce feasible solutions with consideration of appropriate design approach, process using effective architectural presentation.



PLO 4	Capable of working in a team and negotiate responsibly, adapting in various working environments and time conditions.
PLO 5	Convey ideas and explain architectural solutions clearly and appropriately in verbal and written form to a given audience.
PLO 6	Adopt and operate a broad range of digital tools for knowledge sourcing, information processing and formulating potential solutions.
PLO 7	Comply to values set in architectural standards, regulations, guidelines, parameters and universal conventions.
PLO 8	Demonstrating ability to lead and manage cooperatively towards fulfilling pre-determined goals through effective decision making and capacity-building.
PLO 9	Adapt to the changing environments, engage in continuous learning, employing new knowledge and skills to address new challenges in the context of professional development.
PLO 10	Exhibit entrepreneurial skills in architectural or related creative endeavours.
PLO 11	Interpret collective responsibilities of architects in general and codes of architectural ethics particularly within the framework of accountability of architecture towards humanity

Mode and Duration of Study

Mode of Study	Full-time
Minimum Duration	2 years
Maximum duration	4 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	27	51	70
	B. Communication	9		
	C. Cultural Context	3		
	D. Management Practice & Law	6		
	E. Technology and Environment	6		
2. Elective Courses	F. Elective Courses	3	3	5
3. General Courses	G. General Courses	6	6	10
Total credit hours to graduate			60	100

Award Requirements

To be eligible to graduate from this programme, students must complete a total of 60 credit hours, accumulated from courses that are set according to the classification scheme shown above, with a minimum CGPA of 3.0 and have completed all the relevant courses within the time allowed.



List of Courses

The students are assigned to a specific grouping before the registration of courses. Each student is required to register all the courses within the same grouping, except the elective courses (marked with *) that need to be chosen only one (3 credit) from the elective groupings. The students can only register to a maximum of 18 credits only depending to each semester requirement.

Grouping 1

Courses	Course Group	Prerequisite	Credit	Total Credit
MBEA1116 Design Pre-thesis1	A		6	18
MBEA1303 Research Methodology	B		3	
MBEA1213 Socio Culture	C		3	
MBEA2423 Professional Practice	D		3	
UICW6023 Philosophy Science and Civilisation	G		3	

Grouping 2

Courses	Course Group	Prerequisite	Credit	Total Credit
MBEA1126 Design Pre-thesis 2	A		6	15
MBEA1323 Architectural Writing and Publication	B	MBEA 1303	3	
MBEA1223 Urbanism	E		3	
UHAZ6123 Malaysian Society and Culture	G		3	

Grouping 3

Courses	Course Group	Prerequisite	Credit	Total Credit
MBEA1136 Design Pre-thesis 3	A		6	15
MBEA2333 Dissertation	B	MBEA1323	3	
MBEA1233 Sustainable Technologies	E		3	
MBEA1413 Contract and Law	D		3	

Grouping 4

Courses	Course Group	Prerequisite	Credit	Total Credit
MBEA2149 Design Thesis	A	MBEA1116 MBEA1126 MBEA1136	9	12
MBEAXXX3 Elective	F		3	

List of Elective Courses

Courses	Course Group	Prerequisite	Credit	Total Credit
1.MBEA1513 Space Syntax ¹	F		3	33
2.MBEA2653 Outreach ¹	F		3	
3.MBEA1523 Advanced Architectural Computing ¹	F		3	
4.MBEA1563 Green Building Design ¹	F		3	
5.MBEA1573 Architecture and Human Behaviour ¹	F		3	
6.MBEA1533 Measured Drawing ¹	F		3	
7.MBEA1553 Advance Arch Tech & Construction ¹	F		3	
8.MBEA1543 CADD & BIM ¹	F		3	
9.MBEA1583 Current Issues in Architectural Practice ¹	F		3	
10.MBEA2613 Competition ¹	F		3	
11.MBEA2633 Management ¹	F		3	

¹Students need to choose only one (1) course.

Syllabus Synopsis

MBEA1116 Design Pre-Thesis 1

Design Pre-Thesis 1 is an advanced level design that focuses on the impact of cultural ritual, social values and political concepts on architecture and housing. The emphasis is on a critical architectural research to cultivate a greater understanding of the meaning of forms and space specifically from social, political and cultural perspectives.

MBEA1303 Research Methodology

This course introduces the process of formulating appropriate research methodology before applying it as an activity of critical inquiry in the field of interest. The inquiry on the specific topic to be explored is done through direct observation, content analysis study or by identifying issues and problems from primary or secondary sources. Eventually students are to write up the architectural topic of analysis as a final report using the necessary skills gained throughout the course.

MBEA1213 Social Culture

This course provides a unique opportunity for the students to pursue a wide range of issues, including (but not limited to) community, neighbourhood, cultural, heritage, gender, religious, psychological, regionalism, conservation and so on. This course is a companion subject for Design Pre-Thesis 1 which is an advanced level architectural design studio that focuses on the Socio-Cultural theme.

MBEA1553 Advanced Architectural Technology & Construction

The course gives emphasis on human comfort and energy saving concepts and criteria in architecture design. It considers specific aspects of building performance in relation to its context, concepts and techniques needed in the environmental design. Building Information Modelling (BIM) is an integrated process, which foresees a holistic integrated working experience of total building performance. BIM tools are used to analyse the environmental performance of the building.

MBEA1126 Design Pre-Thesis 2

Design Pre-thesis 2 is an advanced level research-based design focusing on urbanism. Understanding of macro and micro relationships in the context of urbanism is of utmost importance in this exercise. Based on a firm understanding of the urban fabric and its relationship with the built environment, this design studio integrates various elements related to architecture in a larger perspective, such as socio-cultural elements, contextual development and the local community as a whole.

MBEA1323 Architectural Writing and Publication

The purpose of this course is to pursue a strong academic rigor in the students in exploring and researching deeper into a topic of interest of their choosing. Through this course the students will be able to venture into an architectural issue without having to explicitly produce an architectural solution, although still producing a thorough and meticulous exploration of its potential solutions.

MBEA1223 Urbanism

This course provides a unique opportunity for the students to pursue a wide range of issues, including (but not limited to) urban conservation, sustainable urbanism, future cities, smart cities, space syntax, resilient cities, urban economic issues, eco-urbanisms and so on. This course is a companion subject for Design Pre-Thesis 2 which is an advanced level architectural design studio that focuses on the Urbanism theme.

MBEA1336 Design Pre-Thesis 3

Design Pre-Thesis 3 is an advanced level design that focuses on complex building design, where the aspects of building technology, efficiency, by-laws, construction and economy are emphasized. The integration based on researches conducted on climate, impact planning on the immediate surroundings and green building aspects will form the core for this studio and are substantially required.

MBEA2333 Dissertation

Dissertation is a major academic writing exercise in the Masters Programme. The purpose of this course is to pursue a strong academic rigor in the students in exploring and researching deeper into a topic of interest of their choosing. Through this course the students will be able to venture into an architectural issue without having to explicitly produce an architectural solution, although still producing a thorough and meticulous exploration of its potential solutions.

MBEA1233 Sustainable Technologies

This course gives emphasis on human comfort and energy-saving concept and criteria in sustainable building design. It considers specific aspects of building performance in relation to its context, concepts and techniques in environmental design. The scope of architectural solutions may be passive or mechanical that illustrates climatic understanding and use of appropriate technological solutions with particular emphasis on tropical climate. This course is a companion subject for Design Pre-Thesis 3 which is an advanced level architectural design studio that focuses on the Sustainable Technologies theme.

MBEA1413 Contract and Law

This course engages the students in a wide-spanning discourse regarding the practice of architecture in Malaysia. It covers aspects from architectural practice, contract, law, economics, as well as procurements and so on, divided into three main segments. This involves the roles and responsibilities of an architect, their

obligations and professional ethics and conduct; principles of law established in Malaysia such as the Architect's Act, Architects Rule, Uniform Building By-law and other By-laws related to the building industry and architectural practice. This course also introduces the economics side of the practice covering feasibility studies, project cash flow analysis, building economics, procurements and matters involving tender and contracts.

MBEA2149 Design Thesis

The Design Thesis under the Masters Studio is the final major design exercise in the training of the architect to apply the accumulated knowledge and maturity gained throughout formal education. It provides a unique opportunity for the students to pursue their own interests in architecture and the built environment derived from research-based design studies or architectural solutions achieved in any of the previous three studios (Design Pre-Theses 1, 2 or 3).

MBEA2423 Professional Practice

This course prepares the students in tackling the real-world aspect of design and architectural practice. The series of workshops allows them to focus and address issues regarding their proposed theoretical design and provide realistic solutions worthy of being constructed, particularly on Feasibility Studies, Fire Regulations and Building and Planning Regulations. Interlaced in between the workshop are series of discussion and sharing session designed to expose students to contemporary professional architectural practice in Malaysia. The students are required to register with Lembaga Arkitek Malaysia (LAM) and Pertubuhan Arkitek Malaysia (PAM) as well. At the end of this course, the students are expected to be able to hit the ground running upon graduation and get themselves on the path to sit for LAM Part 3 as soon as possible.

MBEA1513 Space Syntax

This course introduces Space Syntax (SS) as a set of techniques for the analysis of spatial configurations of all kind, especially when spatial configuration seems to be a significant aspect of human affairs, as it is in buildings and cities. When first started, SS is originally conceived as a tool to help architects simulate the likely effects of their designs, it has since grown to become a tool used around the world in a variety of research areas and design applications. It has been extensively applied in the fields of architecture, urban design, planning, transportation and interior design.

MBEA1573 Architecture and Human Behaviour

The course provides the knowledge of human behaviour and practical application of the knowledge in the design processes. The course concerns two types of interactions, i.e. designer-based and user-based design activities. Both aspects are strongly linked to the cognitive and behavioural aspects of designers as well as users within the designing environment and designer-stakeholder (e.g. users, clients) interactions. Students would be exposed to systematic inquiries techniques and approaches in dealing with design tasks.

MBEA1533 Measured Drawing

This course provides knowledge on heritage with which we can interact and adapt. Some buildings have specific historic context and must be meticulously and exactly preserved. Most buildings, however, must be lived in, interacted with and maintained by the public. These buildings change with us, thus recording a piece of each generation's story. We have an obligation to respect this community resource and preserve it for future generations.

MBEA1523 Advanced Architectural Computing

This course exposes students to the specialized realm of architectural computing, generative design, parametric modelling and the virtual environment. Existing knowledge of software like Revit and Rhino 3D is essential to form the basis for more advanced rule-based modelling. Revit will be paired with Dynamo, while Rhino 3D will be paired with Grasshopper.

MBEA1543 CADD & BIM

This course coaches the students on Building Information Modelling (BIM) and current practices in the industry. The students will be exposed to BIM software and processes to assist them in design production and understanding the intricacies of the building construction and technologies. Students will focus on BIM Authoring and Simulation capabilities to produce justifiable designs according to specific needs. The programme also allows students produce more effective building technical and presentations.

MBEA2653 Outreach

The outreach program has no lectures but is the organisation of an agreed event destination for the architecturally related program (either local or overseas). The program may include student exchange with other universities, academic visit, event management, and expedition. Basic requirements such as managing the event, transportation, accommodation, food, tools and equipment, safety and documentation are all organised by the students. The team working, leadership, attitude, report writing and successful participation in the program is the criteria for assessment. Students are also required to carry out entrepreneurship activities to raise funds independently for travel.

MBEA1523 Advanced Architectural Technology & Construction

The course integrates innovatively the structure, services, current technology, building specifications and their influence on building economy. It is taught as a subject with the main intention of putting into perspective the actual dealings of building requirements when they are put together. This course emphasises integrated design process to create innovative and optimised solutions. A varied range of advanced construction building systems, industrialised building systems (IBS), building information modelling (BIM), green building technologies, intelligent building components and their applications in building design is elaborated. The

students will adapt the knowledge on advanced architectural technology and construction into case studies and final design project.

MBEA1563 Green Building Design

This course enables students to specialise further into Green Building Design. Students are required to critically address, analyse and propose possible future design concept and idea to current building problems using green building design concept. The area of green building design research is vast and in this course the individual students' interests are further enhanced through research assignments proposed by the student.

MBEA1583 Current Issues in Architectural Practice

This course expands the students' exposure towards architectural practice by examining issues, problems and developments in Malaysia. Students will be presented with real-world cases and are expected to explore, discuss and argue from multiple perspectives. The course prepares the students to be more aware of the current practices and equip them to better respond to future issues, changes and potential problems. Students are encouraged to register with PAM and LAM, and participate in events organized or sanctioned by them throughout this course.

MBEA2613 Competition

In this course students will gear themselves to participate in international architectural design competitions, while being coached and tutored by experts in the field via supervisory assignment. Priority will be given to international architectural design competition, but international non-design competitions or local design competitions (or equivalent) can also be considered.

MBEA2633 Management

This course is an open-ended course that provides a platform for students to systematically organize an event and acquire relevant input, guidance and coaching in order to execute the successfully. Students will organize themselves in appropriately sized groups to execute certain tasks as part of the programme for the event. These tasks could consist of sections or segments of a large event such as graphic, media, and advertising department of a national-level conference, sponsorship acquisition department, programme organization and execution and so on.

Master of Science (Urban and Regional Planning)

Introduction

This programme covers the core spatial planning knowledge as well as research and generic skills necessary to be required to be a competent and innovative urban and regional planner. Students are taught to understand and appreciate social, economic and political processes that shape cities and regions, and ways in which public policy can improve the quality of life. Ideas and concepts such as sustainability, urban governance, and regional economic development form the basis of the courses in the programme.

Name of Award

Master of Science (Urban and Regional Planning)

Entry Requirement (Faculty Requirement : if any)

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Programme Educational Objectives

- PEO1 Demonstrate an understanding of the complex theories and principles of urban and regional planning as well as the scope and role of planning in the management of growth and change;
- PEO2 Apply a range of analytical skills and techniques that are designed to address a range of complex problems;
- PEO3 Apply the knowledge, skills and understanding to the achievement of feasible solutions to planning problems;
- PEO4 Work in a multidisciplinary team and contribute to society.
- PEO5 Comply with ethics, professional and community standards, and involve in life-long learning.

Programme Learning Outcomes

- PO1 Master key urban and regional planning principles and practice at local and strategic level
- PO2 Adaptability in applying urban planning methods and techniques across a variety of urban planning contexts and practice
- PO3 Relate urban planning ideas and solutions to societal issues in the diverse urban planning practice environment.



- PO4 Undertake research in urban planning and related fields with minimal supervision and adhere to legal, ethical and professional codes of practice.
- PO5 Lead and communicate effectively with peers and stakeholders in facing challenges within the diverse urban planning environment
- PO6 Demonstrate critical thinking and scientific approach to effective management of urban planning issues and challenges
- PO7 Demonstrate competency in managing information required for lifelong learning.

Mode and Duration of Study

Mode of Study	Full-time
Minimum Duration	1 ½ years
Maximum Duration	4 Years

Classification of Courses

Classification	Credit Hours	Percentage
1. Programme Core	22	49
2. Programme Electives	12	27
3. Master Project/Dissertation/Thesis	5	11
4. Compulsory University Courses (including Research Methodology)	6	13
Total	45	100

Award Requirements

For the award of Master of Urban and Regional Planning, the students should achieve a total minimum of 45 credit hours with minimum CGPA of 3.0, including the completion of Research Project.

List of Courses

Semester 1

Courses	Credit	Total Credit
MBEW1015 Land Development Process Studio	5	17
MBEW1023 Sustainable Land Use Planning	3	
MBEW1033 Contemporary Planning Theory	3	
MBEW1043 Sustainable Transportation Planning/ MBEW1053 Rural Community & Culture	3	
MBEW1063 Spatial Analysis Tools (GIS)/ MBEW1073 Planning for Contemporary Social Issues	3	

Semester 2

Courses	Credit	Total Credit
MBEW1085 Planning Workshop	5	17
MBEW1093 Methods of Planning Analysis	3	
MBEW1103 Urban Governance & Management	3	
MBEW1073/ Planning for Contemporary Social Issues/ MBEW1113 Economics and the Environment	3	
MBEW1123 University Course – Research Methodology	3	

Semester 3

Courses	Credit	Total Credit
MBEW2135 Research Project	5	11
MBEW2143 Negotiation in Planning MBEW1053 Rural community & Culture	3	
UXXX6XX3 University General Course	3	

Syllabus Synopsis

MBEW1015 Land Development Process Studio

The aim of the course is to advance students' knowledge on the substantive and procedural aspects of land development process. It involves the appraisal of the components of land development; development concepts; layout and sustainability principles; and stakeholders' roles in the process. Students develop in-depth understanding of the land development process and skills in critically evaluating site suitability, development concepts and layout design principles.

MBEW1085 Planning Workshop

The aim of the course is to expose students to the process of elucidating solutions to contemporary issues within the local planning context. It involves identification of issues; setting up of analytical framework; conducting appropriate analysis and synthesis of the issues towards formulating planning solutions. A case study approach will be adopted which requires a one week visit to a selected study area.

MBEW1093 Methods of Planning Analysis

The course covers three key areas: population analysis and forecasting techniques relevant for urban-regional scale geographic areas; techniques for regional and local economic analysis such as shift-share analysis, the economic base model, location quotient analysis and input-output analysis; and project evaluation methods.

MBEW1023 Sustainable Land Use Planning

This course educates the students on the concepts and principles of sustainable land use planning. It focuses on effective planning policies and instruments to ensure sustainable urban growth. The students will have the necessary land use analysis and management skills for land use decision making and resolving conflicts between natural and built systems for sustainable land use plans.

MBEW1103 Urban Governance and Management

This course provides students with the understanding of tools of urban governance and management. Urban governance includes pertinent issues and key constitutional concepts within the area of land use law and the essential legal precepts in the administration of land use. Urban management section part of the course highlights current urban issues concerning such as waste management, pollution and infrastructure provision and maintenance.

MBEW1033 Contemporary Planning Theory

This course provides students with the understanding of theories and principles of planning. It covers typology, evolution, and discussion of procedural and substantive theories in planning, implementation, public participation, and sustainability. The course will also critically examine theories with regard to planning practice within different socio-political contexts.

MBEW1123 Research Methodology

This course is concerned with the theory and philosophy of knowledge discovery, research and research methodology. The course covers the theory and philosophy of research, research methods, research methodology, research design, purpose of research, types or classification of research, and research process and procedures.

MBEW2143 Negotiation in Planning

This course introduces students to the practice of negotiation and mediation in the context of urban planning and development. Learning from general theories of negotiation and conflict resolution, students will consider the role of urban planners as mediators and consensus-builders who must reconcile conflicting visions about how the city should be designed and developed.

MBEW1053 Rural Community & Culture

This course will introduce the diverse range of communities, landscape, and culture traditions that constitute rural areas. It examines the various approaches and strategies of rural community development implemented in Malaysia and other countries. This course will also explore how the diverse problems and potentials, needs and inspirations should be addressed by planners.

MBEW1073 Planning for Contemporary Social Issues

This course exposes the students to the magnitude of social issues and problems in the urban context. It covers overviews of social issues facing the cities and focuses on such issues as urban growth and urbanization, poverty and inequality, urbanization and the informal economy, and the resultant policy and planning implications.

MBEW1113 Economics and the Environment

This course equips the students with the basic knowledge in economic and environmental relationship and trends in contemporary economic and environmental management. It includes development and environmental relationship, tools of sustainability assessment, the adverse impacts of development on economics and the environment and the economic consequences on the environment.

MBEW2135 Research Project

The aim of the course is to train students in academic research and writing. It requires individual students to undertake investigative studies and produce a dissertation on a topic relevant to urban and regional planning. The tasks involved are identification of problems/issues; literature review; data collection, analysis and interpretations of research findings.

MBEW1043 Sustainable Transportation Planning

This course equips the students with the theory of sustainable transportation planning and their impact on the economy, society and the environment through promotion of sustainable public transportation and non-motorized modes. It also examines the role of institutions, stakeholders and policies in promoting sustainable transportation.

MBEW1063 Spatial Analysis Tools (GIS)

The aim of this course is to provide exposure and training on various methods of spatial analysis in GIS environment to solve urban planning issues. The course introduces the fundamental concepts of GIS, spatial data management and various spatial analyses used in urban and regional planning.

Master of Science (Construction Contract Management)

Introduction

The programme is designed based on the conception that: “a project manager or contract manager” will be more adept in evaluating and selecting a contracting system that is most appropriate to the requirements of the work and conforming to the economic, legal, cost, time and quality requirements and managing it efficiently and effectively, if they are knowledgeable in the principles and philosophy of construction law and operational aspects of the various project procurement and contracting systems”. Contract managers are required to monitor the cost, scope, quality, and time frame and must ensure that all contract conditions are met. This important job affects both the financial and the actual success of the project or company.

Name of Award

Master of Science (Construction Contract Management)

Entry Requirement (Faculty Requirement : if any)

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Programme Educational Objectives

- PEO1 To produce competent construction contract administrators or managers who are very knowledgeable and well versed with construction project management, project procurement and construction law and able to evaluate, select and manage the various types of construction contracts and their associated legal and administrative problems;
- PEO2 To meet the recommendations of the Master Plan of Higher Education which stipulates that the number of effective and high quality postgraduates programs should be increased.
- PEO3 To meet the aspirations of the Economic Transformation Programme that require human resources with knowledge and skills to act as the economic generators such as those in the construction industry
- PEO4 To further enhance the collaboration and cooperation between UTM and the industry and the practising professionals;
- PEO5 To further enhance the activities of technology transfer, diffusion and innovation among academics, practitioners and students

Programme Learning Outcomes

- PO1 Demonstrate the mastery of advanced knowledge about the principles and practice of construction project procurement and contract management, and dispute resolution
- PO2 Demonstrate the research capacity in construction contract management and related fields with minimal supervision
- PO3 Demonstrate the ability to think critically and be able to resolve the issue and the problems related to contract management practices
- PO4 Demonstrate ability to carry out responsibilities in compliance with applicable legal codes and professional ethics in construction contract management and related fields
- PO5 Demonstrate effective communication in resolving issues related to the acquisition of the construction project and contract management environment
- PO6 Demonstrate competence in managing information needed for lifelong learning

Mode and Duration of Study

Mode of Study	Full-time
Minimum Duration	1 year
Maximum Duration	4 Years

Classification of Courses

Classification	Credit Hours	Percentage
1. University		
a. General	3	14.6
b. Research Methodology	3	
2. Programme Core	19	46.4
3. Programme Electives	10	24.4
4. Master Project	6	14.6
Total	41	100

Award Requirements

For the award of Master of Science (Construction Contract Management), the students should achieve a total minimum of 41 credit hours with minimum CPA of 3.0, including the completion of Research Project.

List of Courses

Semester 1

Courses	Credit	Total Credit
MBEG1014 Construction Project Management	4	16
MBEG1024 Construction Business++	4	
MBEG1033 Construction Contract Studies 1	3	
MBEG1043 Law of Contract, Tort, Agency & Sales of Goods	3	
MBEG1053 Land, Planning and Environmental Law	3	
MBEG1063 Construction Environment**	3	
MBEG1073 Construction Project Development**	3	
UXXX6XX3 University General Course	3	

Semester 2

Courses	Credit	Total Credit
MBEG1103 Construction Project Procurement	3	19
MBEG1113 Arbitration	3	
MBEG1123 Alternative Dispute Resolution (ADR) & Adjudication	3	
MBEG1134 Construction Contract Studies 2	4	
MBEG1143 Case Studies	3	
MBEG1153 Research Methodology	3	

Short Semester

Courses	Credit	Total Credit
MBEG1176 Research Project	6	6

Note:

** These are elective courses for students with LL.B. They may choose to take these subjects in lieu of MBEG1043 Law of Contract, Tort, Agency and Sales of Goods and MBEG1053 Land, Planning and Environmental Law

** Students may take up this course in lieu of MBEG1014

Syllabus Synopsis

MBEG1063 Construction Environment

This course will provide students with in-depth knowledge and understanding on the types of construction project development processes, building team members, materials and services. The scope of construction works will include building and infrastructure works.

MBEG1073 Construction Project Development

This course will provide students with in-depth knowledge and understanding about the activities and the parties involved in the construction project delivery processes from inception to completion i.e from pre-contract to post-contract stages. This course will include regulations of health and safety on site, the occupancy and maintenance stages of the construction projects.

MBEG1043 Law of Contract, Tort, Agency and Sale of Goods

The course equips students with the necessary knowledge in order for them to effectively comprehend the discussion in the core courses of Construction Contract Studies I & II. The main focus is on the law of contract beginning from the formation of contract, essentials of valid contract, void and voidable contracts, discharge of contract and remedies for breach of contract. The scope of the law tort, agency and sale of goods are focused on those aspects that are relevant to issues in construction contracts.

MBEG1053 Land, Planning & Environmental Law

The course equips students with knowledge on land development laws in order for them to effectively understand the legal basis of the clauses in construction contracts. The main content of this course concerns the principles of land law and land administration, strata title, conveyance, planning and environmental laws.

MBEG1014 Construction Project Management

It is a course that discusses the concept and application of project management and operational research. It is divided into 3 parts; the concept and application of system approach and strategic thinking in project management; principles of construction project management; and the science of management and operational research. It also looks at management information system and ICT and their application in construction project management.

MBEG1024 Construction Business

This course introduces students to the basics of construction business management combining knowledge gained in construction technology and processes, management, economics and finance from other courses in providing the management tools to help manage a construction business enterprise towards achieving organisational objectives.

MBEG1033 Construction Contract Studies 1

This course introduces to students the basic laws relating to construction contract. It discusses the nature of construction contracts, formation of construction contracts, the use of standard forms of contract, roles, duties and liabilities of consultants, distribution of risks, insurance and bonds in construction contracts and the effects of insolvency to the effectiveness of the clauses in standard forms of contract.

MBEG1103 Construction Project Procurement

This course provides the students with in depth knowledge and understanding about the concept and application of the various construction project delivery systems. It also looks into the various methods of bidding and tendering and the latest application of partnering and alliance systems.

MBEG1123 Alternative Dispute Resolution (ADR) & Adjudication

This course introduces students the various methods of dispute resolution that are being utilized in the construction industry as alternatives to litigation and arbitration. It gives special treatment to the adjudication provisions set out in the Construction Industry Payment and Adjudication Act (CIPAA) 2012 as well as the processes and procedures in mediation, conciliation, dispute review board and others. It also examines dispute resolution clauses in PWD, PAM, CIDB and FIDIC.

MBEG1134 Construction Contract Studies 2

This course is an extension of the Construction Contract Study 1. It generally examines the important terms in construction contracts with special reference to the PWD and PAM standard forms as well as other forms such as CIDB, JCT and FIDIC. This course also discusses issues relating to subcontracting and international contracting.

MBEG1143 Case Studies

This course helps develop students' analysis and critical thinking. It also prepares them with the basic knowledge on legal research methodology. Students are assigned with specific topics for discussion; in addition they are given materials such as articles and books to be analyzed and criticised. They are also required to produce research proposals.

MBEG1113 Arbitration

This course discusses the law relating to domestic and international arbitration in Malaysia. It generally examines the arbitration process and procedure as set out in the legislations, the institutional rules and arbitration agreements. In the course of the discussions, it makes specific reference to the Arbitration Act 2005, the KLRCA and UNCITRAL rules and the PWD and PAM standard forms of contract.

MBEG1153 Research Methodology

This course is concerned with the theory and philosophy of knowledge discovery, research and research methodology. The course covers the theory and philosophy of research, research methods, research methodology, research design, purpose of research, types or classification of research, and research process and procedures.

MBEG1176 Research Project

The aim of the course is to train students in academic research and writing. It requires individual students to undertake investigative studies and produce a dissertation on a topic relevant either to construction contract management, procurement, dispute resolution and project management. The tasks involved are identification of problems/issues; literature review; data collection, analysis and interpretations of research findings. Students shall be required to submit and orally present their dissertation.



Master in Transportation Planning

Introduction

Proper movement of goods and people are essential to the country's development. For a developing country, the need for high quality transport and infrastructure facilities is vital to cater for both urban and rural development. The right policy and workable planning and engineering inputs are therefore very pertinent to the developing countries. To enhance professional understanding of the link between transport services, land use and economic development, the Department of Urban and Regional Planning is offering a Master in Transportation Planning tailored to the needs of developing nations.

Name of Award

Master in Transportation Planning

Entry Requirement (Faculty Requirement : if any)

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Programme Educational Objectives

- PEO1 Mastery of knowledge and competency in advanced areas of transportation planning.
- PEO2 Professionalism with high standards of ethical conduct within organization and society.
- PEO3 Responsive to the current situation through continuous development of new knowledge and skills.

Programme Learning Outcomes

- PO1 Integrate advanced knowledge and concepts related to transportation planning.
- PO2 Construct solutions to complex issues in transportation planning.
- PO3 Apply contemporary tools and techniques in transportation planning.
- PO4 Work together and collaboratively with stakeholders in learning and working environments.
- PO5 Communicate effectively using appropriate methods or techniques with professionals and community.
- PO6 Use competently a wide range of suitable digital technologies and appropriate software to support learning in transportation planning.



- PO7 Evaluate numerical and graphical data in transportation planning using quantitative or qualitative.
- PO8 Demonstrate leadership, autonomy and responsibility in learning and working environment.
- PO9 Demonstrate self-advancement through continuous academic or professional development.
- PO10 Initiate entrepreneurial projects with relevant knowledge and skills.
- PO11 Demonstrate adherence to ethical code of practice and professionalism in dealing with relevant issues.

Mode and Duration of Study

Mode of Study	Full-time
Minimum Duration	1 year
Maximum Duration	4 years

Classification of Courses

Classification	Credit Hours	Percentage
1. Programme Core	26	63
2. Programme Electives	6	15
3. Research Project	6	15
4. Compulsory University Course (including Research Methodology)	3	7
Total	41	100

Award Requirements

For the award of Master in Transportation Planning, the students should achieve a total minimum of 41 credit hours with minimum CGPA of 3.00, including the completion of a Research Project.

List of Courses

Semester 1

Courses	Credit	Total Credit
MBEP1135 Transportation Planning Studio	5	17
MBEP1143 Freight Transportation	3	
MBEP1153 Transportation Data Analytics	3	
MBEX1023 Sustainable Development for Built Environment and Surveying	3	
UXXX6XX3 University General Course	3	

Semester 2

Courses	Credit	Total Credit
MBEP1163 Public Transport System and Operation	3	18
MBEP1173 Transport Policy	3	
MBEP1183 Transport Network Analysis	3	
MBEP1193 Case Study in Transportation	3	
MBEX1103 Research Methodology in Built Environment and Surveying	3	
MBEPXXX3 Electives	3	

Semester 3 (Short semester)

Courses	Credit	Total Credit
MBEP1206 Research Project	6	6

Syllabus Synopsis

MBEP1135 Transportation Planning Studio

Transportation planning for urban areas is a complex process. Land use development directly influences the travel pattern. To ensure sustainability and optimality of future innovative transportation systems these processes need to be comprehensively examined. After completing this course, the student should be able to perform transportation planning studies at various levels and scopes such as Transportation Master Plan, Pedestrian and Cycling Master Plan, Transit-Oriented and other related projects.

MBEP1143 Freight Transportation

This course introduces students to the concept of freight transportation and the overall logistics functions are critical to the sustainability of a trading nation. This course covers all five of transport modes, the contract and the documentations involved in the operation. This course provides students with extensive understanding of the relationship between transportation and economic growth as well as global trade participation. Critical components that define and regulate freight transportations are covered in detail.

MBEP1153 Transportation Data Analytics

Planning for transportation services and operations require a deep understanding of transportation data. These data may represent operational and management constraints; behaviours of travellers; characteristics of routes, trips, and transport infrastructures; market supply and demand; and many others. Failure to understand the underlying relationships of these data will lead to ill-informed, irreversible decisions. Hence, this course aims to provide students with the tools and techniques to understand transportation data and make informed decisions.

MBEP1163 Public Transport Systems and Operations

Safe, efficient and accessible public transportation is a key component of liveable and sustainable transportation systems. It is therefore critical that transport planners have a better understanding of the planning, system and operation of public transportation. Hence, this course aims to provide students with understanding and processes involved in public transport systems and operations focusing on different modes of transport.

MBEP1173 Transport Policy

Understanding The current transport development towards sustainability requires significant transport policy that is able to reap a large benefit of sustainable transportation. Policy measures are needed in setting up the users' behaviour, affordable fares, quality and maintenance of infrastructure, competitiveness of public and green transportation as well as formalisation of the country's overall transportation system. After completing this course, students will be able to adopt policies that are innovative and promote sustainable mobility to overcome the challenges explored.

MBEP1183 Transport Network Analysis

Transportation connects people and goods at different geographical locations. Invariably, these connections involve cost and consume resources, e.g. time and energy. To ensure sustainability and optimality, these connections must be analysed as an integrated network. After completing this course, students will be able to analyse transportation networks using Geographical Information Systems (GIS) to make informed planning decisions.

MBEP1193 Case Study in Transportation

Resilient transportation development is being promoted as one of sustainable development goals. The city's efforts in supporting sustainable transportation have been tremendously visible at present through achievement in completing various projects. This course presents an opportunity for the students to analyse, design, and propose a new or an improvement of the selected transportation system. Using knowledge and skills attained from other courses, students 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 transportation systems and planning.

MBEX1103 Research Methodology in Built Environment and Surveying

This course emphasises the understanding of preparation for academic research proposals and technical writing methods. Furthermore, the students will have to present and clearly explain their research proposal, which also builds up their confidence level in producing research proposals.

MBEP1026 Research Project

The course is designed to equip students with the basic knowledge of concepts, principles and techniques used in a research, vis-à-vis the formulation of 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. At the end of this course, students are able to solve the real-life transportation problem.

MBEX1023 Sustainable Development in Built Environment and Surveying

The aim of the course is to provide the candidates with principles, concepts, applications and tools for analysis and decision making in support of sustainable development and its relation to built environment and surveying. It is widely acknowledged that the sustainable development (SD) concept is inherently ambiguous to the extent that it has been interpreted to suit the needs of particular interest groups. Hence, it is not surprising to note that the SD concept has often been abused for political and commercial gains. Case studies and problem-solving exercises from related programmes will be used to stimulate learning and provide practical experience in addressing Sustainable Development Goals (SDGs) in the Built Environment and Surveying field of study.

MBEP1213 Traffic Impact Assessment

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 a data collection, analyse various traffic analysis, produce a specific mitigation plan required in the traffic impact assessment process and finally, to produce a Traffic Impact Assessment Report (TIA). At the end of this course, students are also able to make decisions based on the result provided in the traffic analysis performed on selected areas.

MBEP1223 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 will equip 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 will examine the current and future technological trend and outlook of the urban economic needs, discuss the issues and prospect of implementing this technological trend in cities, appraise the urban economic change and its impact to the community. Students will also be exposed to implementation of these 'Smart Cities' and how this strategy can be articulated in spatial planning. Through this course, students are expected to improve their understanding and be able to analyse the technological trends and strategies, and suggest the prospects of future urban development.

MBEP2233 Spatial Analysis and Modeling

GIS functions are related 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 will introduce spatial analysis tools and their modelling processes. It will also allow the student to familiarize with the concept of spatial decision support system and multi-criteria decision-making processes. In essence, the course will provide a basic understanding in advanced application of GIS in planning and management.

MBEP1243 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 will integrate all the GIS skills and tools which have been learnt in the previous GIS course (Spatial Analysis and Modelling) and Spatial Analysis elective. Else, the students also will design and customize their own project by utilizing the ArcGIS Online for Organization platform. Students will work in a team and 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 to give theme problems. Students also will be exposed to apps 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.

Master of Science (Tourism Planning)

Introduction

Jointly conducted by the Urban and Regional Planning, Faculty of Built Environment and Surveying and the Marketing and Entrepreneurship, Faculty of Management, this programme adopts a flexible teaching approach to suit the needs of both fresh graduates as well as practitioners in producing skilled and highly trained tourism planners. The teaching approach has evolved from its urban planning tradition since the inception of the course in 1998 to a multi-disciplinary and collaborative approach based on the principles of sustainability. A distinct feature of the course is 'hands on' learning through case-study projects. The programme also covers the whole spectrum of tourism planning such as ecotourism, urban tourism, rural tourism, heritage tourism, island tourism, and sustainable tourism.

Name of Award

Master of Science (Tourism Planning)

Entry Requirement (Faculty Requirement : if any)

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Programme Educational Objectives

- PEO1 Demonstrate an understanding of the complex theories and principles of tourism planning as well as the scope and role of planning in the tourism management of growth and change;
- PEO2 Apply a range of analytical skills and techniques that are designed to address a range of complex problems;
- PEO3 Apply the knowledge, skills and understanding to the achievement of feasible solutions to tourism planning problems;
- PEO4 Work in multi-discipline team and contribute to the society.
- PEO5 Comply with ethics, professional and community standards, and involve in life-long learning.

Program Learning Outcomes

- PO1 Adeptly discuss advanced philosophies, theories, concepts, approaches and principles in tourism planning and related fields.
- PO2 Adaptably apply diverse knowledge and ideas in formulating planning solutions towards holistically addressing relevant tourism issues in diverse perspectives.

- PO3 Proficiently conduct surveys, perform analyses and evaluate alternative tourism planning proposal using advanced techniques and state-of the art technologies in sync with current institutional and professional practices.
- PO4 Effectively collaborate with different groups of stakeholders, partners, scholarly community; and society at large in the tourism and related fields.
- PO5 Effectively and cogently convey tourism planning and management ideas, rationales and propositions through written, visual and oral presentations to different audiences, using a wide range of information, media and technology applications.
- PO6 Adeptly apply cutting-edge digital and information technologies to enhance planning activities in line with a smart tourism framework.
- PO7 Scientifically apply statistical techniques to analyse numerical and graphical data to enhance decision making in tourism planning and development.
- PO8 Effectively lead, collaborate with, and empower team members; build consensus, accommodate and celebrate differences within a team towards accomplishing collective goals in tourism planning and related fields.
- PO9 Consistently relate to and integrate emerging global, national and local economic, environmental socio-political and technological changes in current tourism industry.
- PO10 Promptly initiate and lead project planning and development tasks after considering viability and feasibility via risks and cost-and benefit analyses
- PO11 Adhere 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 key global agenda on sustainable development for tourism.

Mode and Duration of Study

Mode of Study	Full-time
Minimum Duration	1 ½ years
Maximum Duration	4 years

Classification of Courses

Classification	Credit Hours	Percentage
1. University		
a. General	3	14
b. Research Methodology	3	
2. Programme Core	18	38
3. Programme Electives	12	29
4. Research Project	9	19
Total	45	100

Award Requirements

For the award of Master of Science (Tourism Planning), the students should achieve a total minimum of 45 credit hours with minimum CGPA of 3.00, including the completion of Research Project.

List of Courses

Semester 1

Courses	Credit	Total Credit
MBEK1013 Tourism Planning	3	15
MBEK1023 Tourism Management	3	
MBEK1033 Tourism Analysis/ MBEK1043 Tourism and Community	3	
MBEK1056 Studio 1	6	

Semester 2

Courses	Credit	Total Credit
MBEK1063 Tourism Marketing/ MBEK1073 Tourism Economics and the Environment	3	15
MBEK1086 Studio II	6	
MBEK1093 Sustainable Planning & Development/ MBEK1103 Rural Community and Culture	3	
MBEK1113 Research Methodology	3	

Semester 3

Courses	Credit	Total Credit
MBEK1129 Research Project	9	15
MBEK1133 Tourism Product Planning/ MBEK1143 Planning for the Social Issues	3	
UXXX6XX3 University General Course	3	

Syllabus Synopsis

MBEK1013 Tourism Planning

The aim of the course is to provide the candidates with principles of tourism planning. Tourism planning is a process that involves an interdisciplinary approach aimed at creating vibrant, attractive, economically viable, socially responsible and environmentally sustainable tourism products/destination areas.

MBEK1033 Tourism Analysis

The aim of the course is to provide the candidates with an introduction to general principles and components of supply and demand of tourism. In this scenario, the complexities of tourism will be studied so that tourism planner will be able to understand the elements and the factors that need to be considered in tourism analysis. Case studies analysis is used where appropriate to develop problem-solving skills and to provide opportunities for the practical application of theory and concepts learned in class.

MBEK1023 Tourism Management

The aim of the course is to provide students with a cumulative body of knowledge and information that furnishes insights on how to manage tourism development. The first part of the course is an introduction, looking at the various definitions of tourism, its importance and the evolution of tourism to the present day. The second part will look at the functional management of tourism while the third section will be on managing the impact of tourism.

MBEK1063 Tourism Marketing

The aim of the course is to provide students with a framework for understanding and learning marketing and its application in the various sectors of the tourism industry. The first part of the course will provide an overview of the main concepts and principles, which emphasize marketing as a set of managerial practice. The second section will examine a number of important current issues affecting tourism marketing such as branding and destination marketing and evaluating NTO marketing activities.

MBEK1056 Studio I

The aim of the course is to train the student in preparing Tourism Development Plan as well as to provide understanding of the important of sustainable planning principles and its relation to tourism development. The concept is highly pertinent to the planning of tourism products/destination areas in Malaysia which require any tourism development plan to be prepared with good assessment and able to formulate strategies and mechanisms that are aimed to maximise the potential of tourism destination.

MBEK1086 Studio II

This course is the continuity from Studio I, involves the conception of a tourism development plan and charting appropriate strategies to achieve its stated goal and objectives sets in Studio I. It provides for the application of tourism planning and design principles for generating the optimum plan solutions. From the tourism planning standpoint, the proposed development plan serves as a developmental roadmap for the planned period, aimed at guiding decision makers, tourism planners, designers and builders in carrying tourism development activities consistent with the overall plan aspiration.

MBEK1129 Research Project

The aim of the course is to train students in academic research and writing. It requires individual students to undertake investigative studies and produce a dissertation on a topic relevant to urban and regional planning. The tasks involved are identification of problems/issues; literature review; data collection, analysis and interpretations of research findings.

MBEK1133 Tourism Product Planning

One of the most common problems in auditing tourism attractions by decision makers in tourism development (e.g. Ministry of Tourism, Local Authority, State Government and State Tourism Action Council) is to evaluate qualitative perception of visitors or tourists towards attractions they have visited. A systematic procedure using modification of techniques such as Content Analysis will allow the attractions to be analyzed according to themes (e.g. uniqueness, activity, access, basic facilities, interpretation, accommodation, maintenance and service).

MBEK1093 Sustainable Tourism Planning & Development

The aim of the course is to provide the students with principles of sustainable planning and its relation to tourism development. The course discusses how the tourism industry markets physical environments, thus, 'push' and 'pull' factors that give rise to the need to manage tourism development that often less considered by town (or urban) and regional planner. The course covers the whole spectrum of urban and regional environment related to the principles of sustainable development and sustainable tourism.

MBEK1103 Rural Community and Culture

This course will introduce the diverse range of communities, landscape, and culture tradition that constitute rural areas. It examines the various approaches and strategy of rural community development implemented in Malaysia and other countries. This course will also explore how the diverse problems and potentials, needs and inspirations should be addressed by planners.

MBEK1143 Planning for Contemporary Social Issues

This course exposes the students to the magnitude of social issues and problems in the urban context. It covers overviews of social issues facing the cities and focuses on such issues as urban growth and urbanization, poverty and inequality, urbanization and the informal economy, and the resultant policy and planning implications.

MBEK1073 Tourism Economics and the Environment

This course is designed to equip students with the basic knowledge in economic and environmental relationship and trends in contemporary economic and environmental management. It includes development and environmental relationship towards a balanced economic development and environmental conservation, tools of sustainability assessment, the adverse impacts of development on economics and the environment, fundamental economic forces and the economic consequences on the environment.

MBEK1113 Research Methodology

This course is concerned with the theory and philosophy of knowledge discovery, research and research methodology. The course covers the theory and philosophy of research, research methods, research methodology, research design, purpose of research, types or classification of research, and research process and procedures.

Master in Geomatics Engineering

The Master in Geomatics Engineering course consists of 6 core courses, 3 elective courses and 1 University course. The elective courses are divided into two specializations (Survey & Mapping, and Utility Mapping). In addition to these subjects, students are required to submit a Master Project worth of 6 credits. To graduate, students must complete a total of 40 credits and they are assessed through assignments, presentations and final examination. The curriculum of the program is shown.

Name of Award

Master in Geomatics Engineering

Entry Requirement

A Bachelor's degree from Universiti Teknologi Malaysia or any other Institution of Higher learning recognised by the Senate with minimum CGPA 3.00 in relevant field.

Other qualifications equivalent to a Bachelor's degree (CGPA < 3.00) and experience (2 years) in the relevant field recognised by the Senate; CGPA < 2.5 experience (5 years) in relevant field

Programme Educational Objectives

Programme Learning Outcomes

- PO1 Be able to demonstrate mastery of knowledge in the geomatic engineering field
- PO2 Be able to apply practical skills in the geomatic engineering field
- PO3 Be able to relate ideas to societal issues in the geomatic engineering field
- PO4 Be able to conduct research with minimal supervision and adhere to legal, ethical and professional code of practice
- PO5 Be able to demonstrate leadership qualities through communicating and working effectively with peers and stakeholders.
- PO6 Be able to generate solutions to problem using scientific and critical thinking skill
- PO7 Be able to manage information for lifelong learning.

Mode and Duration of Study

Mode of Study	Full-time
Minimum Duration	1 year
Maximum Duration	4 Years
Classification of Courses	

Classification	Credit Hours	Percentage
1. University		
a. General	3	
b. Research Methodology	3	
2. Programme Core	22	
3. Programme Electives	9	
4. Master Project	6	
Total	40	100

Award Requirements

For the award of Master in Geomatics Engineering, the students should achieve a total minimum of 40 credit hours with minimum CPA of 3.0, including the completion of Research Project.



List of Courses

List of Courses for Master in Geomatics Engineering

Codes	Courses	Credits
UNIVERSITY COURSE (3 CREDITS)		
UXXX6XX3	University General Course	3
CORE COURSES (22 CREDITS, COMPULSORY)		
MBEE1014	Satellite Surveying	4
MBEE1024	Geomatics Data Analysis	4
MBEE1034	UAV Mapping	4
MBEE1043	Geomatics Project Management	3
MBEE1054	Geographical Information System	4
MBEX1013	Research Methodology in Built Environment and Surveying	3
MASTER PROJECT (6 CREDITS)		
MBEE1376	Master Project	6
ELECTIVE COURSES (9 CREDITS) – CHOOSE 3 ONLY		
MBEE1513	Land Management	3
MBEE1523	Advanced Engineering Surveying	3
MBEE1533	Hydrographic Surveying Application	3
MBEE1543	Underground Utility Surveying	3
MBEE1553	Geophysics for Utility Surveying	3
MBEE1563	Utility Mapping Standard and Practice	3
MBEX1023	Sustainable Development for Built Environment and Surveying	3
TOTAL NUMBER OF CREDITS		40

Syllabus Synopsis

Master of Science (Geoinformatics)

The Master of Science (Geoinformatics) course consists of 6 core courses, 3 elective courses and 1 University course. In addition to these subjects, students are required to submit a Master Project worth of 8 credits. To graduate, students must complete a total 45 credits and they are assessed through assignments, presentations and final examination.

Name of Award

Master of Science (Geoinformatics)

Entry Requirement (Faculty Requirement : if any)

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Programme Educational Objectives

- PEO 1 Establish themselves with knowledge, expertise and professionalism in Geoinformatics and all related areas.
- PEO 2 Effectively handle and resolve problems and issues related to profession.
- PEO 3 Engage themselves in managing GIS project and entrepreneurship activities in the Geoinformatics profession.
- PEO 4 Effectively communicate with the stakeholders and related parties.
- PEO 5 Demonstrate continuous learning process and systematic approach in problem solving with good ethic and professional code of practice.

Programme Learning Outcomes

- PO1 Be able to demonstrate mastery of knowledge in the Geoinformatics field and related technologies.
- PO2 Be able to apply practical skills in the Geoinformatics field and related technologies for varieties of GIS application.
- PO3 Be able to relate ideas to societal issues in the Geoinformatics field.
- PO4 Be able to conduct research with minimal supervision and adhere to legal, ethical and professional codes of practice.
- PO5 Be able to demonstrate leadership qualities through communicating and working effectively with peers and stakeholders.
- PO6 Be able to generate solutions to problems using scientific and critical thinking
- PO7 Be able to manage information for lifelong learning

Mode and Duration of Study

Mode of Study	Full-time
Minimum Duration	1 year
Maximum Duration	4 years

List of Courses

Codes	Courses	Credits
UNIVERSITY COURSE (3 CREDITS)		
JXXX6XX3	University General Course	3
CORE COURSES (22 CREDITS, COMPULSORY)		
MGHG1114	Principles of GIS	4
MGHG1124	Geospatial Databases	4
MGHG1134	Spatial Analysis & Modelling	4
MGHG1223	Research Methods in GIS	3
MGHG1234	Geospatial Data Management	4
MGHG1243	Programming for GIS	3
MASTER PROJECT (8 CREDITS)		
MGHG2218	Master Project	8
ELECTIVE COURSES (CHOOSE THREE (3) COURSES) (12 CREDITS)		
MGHG1514	Geospatial Data Acquisition and Processing	4
MGHG1524	GIS Project Management	4
MGHG1534	GIS Applications	4
MGHG1544	GIS Application Development	4
MGHG1554	GIS Implementation	4
MGHG1564	GIS & Public Policy	4
MGHG1574	Cartography and Visualization	4
TOTAL NUMBER OF CREDITS		45



Syllabus Synopsis

Course Code	Course Name	Synopsis
MGHG1114	Principles of GIS	This is one of the core courses designed to provide an understanding of theory and principles of geospatial information science and technology (GI S&T) and basic skills in using Geographic Information System (GIS) software. The topics covered include: Maps and their characteristics; Conventional mapping vs digital mapping vs Geographic Information Systems (GIS); Concepts of geospatial data; Digital data storage; Computer software (word processing, 'spreadsheet', database system); GIS definitions; GIS subsystems (Data Input, Data Storage & Management, Data Manipulation & Analysis, Data Output); Model & data structure of geospatial data (vector data model, tessellation data model, Digital Elevation Model/ DEM); Model data conversion (vector <-> raster); Coordinate system (curve vs plane coordinates, map projection, plane coordinate manipulation); Height data manipulation; Accuracy of geospatial data (positional, attributes); GIS working components (technology, data, users). Implementation issues (data, organizational); GIS System procurement.
MGHG1124	Geospatial Databases	Introduction to data and database systems, file-based system, database approach, database management system, database environment, three level ANSI-SPARC Architecture, database language: DDL & DML, data models, relational model, relational algebra, and calculus, structure query language objectives and commands, data manipulation, database planning, analysis and design techniques, entity relationship modelling, types, relationships, attributes, normalization purpose and process, 1NF, 2NF, 3NF, and BCNF, database design methodology, conceptual database design methodology, logical database design methodology for relational model, physical database design methodology for relational model.
MGHG1134	Spatial Analysis & Modeling	This course presents the principles and methodology for spatial data analysis and modeling. Generally, the course covers the methods and techniques that have developed over time that may be grouped into six main streams, distinguished according to the methodological approach adopted such as spatial interaction models, spatial optimization models, spatial (or, geospatial) statistics, spatial econometrics, geo-computation and spatial simulation. In particular, it emphasises on the analyses that are commonly found in GIS which include point data analysis, lines and network data analysis, area objects and spatial autocorrelation, raster or fields based analysis and new approaches to spatial analysis. The course features extensive use of geospatial analysis software tools through group as well as individual project works.

MGHG1234	Geospatial Data Management	<p>This course is designed to provide the students with a greater emphasis on the understanding of geospatial data and how, in practice, it is handled and managed. Among the topics covered throughout the course are:</p> <ul style="list-style-type: none"> ▪ General problems with geospatial data handling and related issues ▪ Geospatial data standard, sharing/ exchange & distribution (MaCGDI, MS1759, feature and attribute coding, metadata, data catalogue, My Geoportal, data security) ▪ Geospatial data storage (sources, format, conversion, compression) ▪ Data Quality(error sources, error in map digitizing, tracking error in coordinate transformation, improvement of spatial accuracy) ▪ Data Integrity and Topology (planar, network, error checking, logical consistency) ▪ Global Positioning System (GPS) data capture & processing (differential correction, coordinate transformation, height data reduction, accuracy enhancement) ▪ Height/ surface data handling (JUPEM's topographic data, GPS data, LiDAR data, geological data, interpolation, extrapolation, TIN, DEM) ▪ Data transfer (format, compression, methods)
MGHG1243	Programming for GIS	<p>There are two goals for this course. First, students will be exposed to introductory programming using either Python, VBA, Ruby or IDL. The students will learn the programming logic, flow control and structured and OO programming. The students also will learn how to start using the programming and scripting features of common GIS and remote sensing (RS) platforms. Second, students will choose one or more GIS/RS platforms and explore its scripting languages in solving any of a variety of GIS/RS problems programmatically (<i>e.g. automating procedures, modelling, custom image processing, spatial statistics, etc.</i>).</p>
MGHG1514	Geospatial Data Acquisition and Processing	<p>This is one of the elective courses designed to provide an understanding of the fundamental principles of photogrammetry and remote sensing. In photogrammetry, the emphasis will be given on the theory and methodology for the production of topographic map, plan, digital terrain model (DTM), orthophoto and rectified photo using aerial photographs. On the other hand, the course on Remote Sensing exposes the students to the concepts of satellite mapping and provides them with technical skill in image processing (image enhancement, transformation and classification).</p>



Course Code	Course Name	Synopsis
MGHG1524	GIS Project Management	<p>This course presents the principles, methods and techniques, and practices of project management to be applied to Geographic Information System (GIS) projects. The aim of this course is to provide students with a practical understanding of basic project management techniques and to enable them to use the knowledge and skills to solve varieties of GIS problems. To meet this aim, the course features a phased approach and extensive use of project management software. In order to increase the effectiveness of students learning, they are encouraged to plan and initiate a GIS project for their group project assignment.</p>
MGHG1544	GIS Application Development	<p>This is one of the core courses designed to provide a more detailed knowledge about GIS software especially those that are commonly used by the GIS community. Students are also exposed with more hands-on exercises using the software. The outline of the course is as below:</p> <ul style="list-style-type: none">• GIS software in the market: focus on ESRI products, MapInfo and Geomedia• Free and Open Source for GIS (FOSS4G) products: QGIS, gvSIG, MapServer, GDAL/OGR, PostGIS, etc.• Supported Data Model/Structures: Vector, Tessellation (Raster); Topological, Non topological• Adopted database concepts: georelational, object-oriented• Software functions: Input, Storage & Management, Manipulation & Analysis, Output• Integration with external software: packages - DBMS, modeling, mapping, statistical• Development & Enhancement: C++, Visual Basic, Python, other programming languages

Master of Science in Remote Sensing

Introduction

Remotely sensed technologies has been one of the prominent and future frontiers in data acquisition for various environmental fields. Acquiring the knowledge, science and practices are vital in successful utilization of this technology to the maximum. It requires specific understanding of the theories, skills in processing and handling of the technology, and sound communication with the prospective users from different scientific backgrounds. To produce experts that are able to operate, utilize, manage and innovate remote sensing technology to the optimum, the Department of Geoinformation is offering a M.Sc. course in Remote Sensing to fulfil the needs towards sustainable development.

Name of Award

Master of Science in Remote Sensing

Entry Requirement (Faculty Requirement : if any)

A Bachelor's degree from Universiti Teknologi Malaysia or any other Institution of Higher learning recognised by the Senate with minimum CGPA 3.00 in relevant field.

Other qualifications equivalent to a Bachelor's degree (CGPA < 3.00) and experience (2 years) in the relevant field recognised by the Senate; CGPA < 2.5 experience (5 years) in relevant field.

Programme Educational Objectives

- PEO1 To possess knowledge, expertise and professionalism in remote sensing fields
- PEO2 To conduct high impact research to solve related problems through critical thinking
- PEO3 To practice ethical communication, life-long learning and effective social skills
- PEO4 To possess leadership qualities and able to work efficiently in an organization
- PEO5 To possess entrepreneurial and innovative mind set in achieving sustainable development

Programme Learning Outcomes

- PO1 Demonstrate mastery of knowledge in remote sensing.
- PO2 Conduct research with minimal supervision in remote sensing.
- PO3 Relate ideas to societal issues in remote sensing.
- PO4 Apply high ethical standards in research, professional practice and social interactions.
- PO5 Demonstrate leadership qualities in studying, conducting scientific research, and communication.
- PO6 Generate solutions to problems using scientific and critical thinking skill.
- PO7 Manage remote sensing information, sciences, and technology for lifelong learning.

Mode and Duration of Study

Mode of Study	Full-time
Minimum Duration	1 years
Maximum Duration	4 years

Classification of Courses

Classification	Credit Hours	Percentage
1. Programme Core	23	
2. Programme Electives	6	
3. Research Project	8	
4. Compulsory University Course	3	
Total	40	100

Award Requirements

For the award of Master of Science (Remote Sensing), the students should achieve a total minimum of 40 credit hours with minimum CGPA of 3.00, including the completion of Research Project.

List of Courses

Codes	Courses	Credits
UNIVERSITY COURSE (3 CREDITS)		
UXXX6XX3	University General Course	3
CORE COURSES (23 CREDITS, COMPULSORY)		
MBER1114	Remote Sensing Technology	4
MBER1124	Digital Image Processing	4
MBER1244	Geographical Information System and Spatial Data Management	4
MBER1254	Geospatial Data Acquisition	4
MBER1264	Geospatial Modelling and Visualization	4
MBER1244	Geographical Information System and Spatial Data Management	4
MBEX1013	Research Methodology in Built Environment and Surveying	3
MASTER PROJECT (6 CREDITS)		
MBER1218	Master Project	6
ELECTIVE COURSES (6 CREDITS) – CHOOSE 2 ONLY		
MBER1113	Geospatial Technology for Sustainable Development	3
MBER1123	Geospatial Technology for Disaster Management	3
MBER1133	Geospatial Technology for Ocean and Coastal Resource Management	3
MBER1143	Spatial hydroinformatics	3
MBER1153	Geospatial Technology for Natural Resources Management	3
MBER1163	Geospatial Technology for Climate Change Resilience	3
MBEX1023	Sustainable Development for Built Environment and Surveying	3
TOTAL NUMBER OF CREDITS		40

Syllabus Synopsis

Master of Science (Real Estate)

The Master of Science (Real Estate) course consists of 5 core courses, 4 elective courses and 1 University course. In addition to these subjects students are required to submit a Master Project worth of 6 credits. To graduate, students must complete a total 45 credits and they are assessed through assignments, presentations and final examination. The curriculum of the program as following;

Name of Award

Master of Science (Real Estate)

Entry Requirement (Faculty Requirement : if any)

.....

Programme Educational Objectives

PEO 1: Established themselves as professional in the field of real estate

PEO 2: Effectively handle and solve problem and issues related to the real estate profession

PEO 3: Engage themselves in advance study in the field of real estate and entrepreneurship activities

PEO 4: Effectively communicate with stakeholders and supervise relate parties in real estate

PEO 5: Demonstrate good ethics and work collectively as a team within real estate profession and society

Programme Learning Outcomes

PO1: Demonstrate mastery of knowledge in the relevant field.

PO2: Apply practical skills in the relevant field.

PO3: Relate ideas to the societal issues in the relevant field.

PO4: Conduct research independently with minimal supervision and adhere to legal, ethical and professional codes of practice.

PO5: Demonstrate leadership qualities through communicating and working effectively with peers and stakeholders.

PO6: Generate solutions to problems using scientific and critical thinking skills.

PO7: Manage information for lifelong learning.



Mode and Duration of Study

Mode of Study	Full-time
Minimum Duration	1
Maximum Duration	4 years

Classification of Courses

Classification	Credit Hours	Percentage
1. Programme Core	20	55
2. Programme Electives	16	20
3. Research Project	6	20
4. Compulsory University Course	3	5
Total	45	100

List of Courses

Codes	Courses	Credits
UNIVERSITY COURSE (3 CREDITS)		
UXXX6XX3	University General Course	3
CORE COURSES (20 CREDITS, COMPULSORY)		
MGHP1114	Strategic Asset Management	4
MGHP1124	Real Estate Business and Marketing	4
MGHP1144	Real Estate Market research	4
MGHP1134	Corporate Real Estate Asset Management	4
MGHP1154	Research Methodology	4
ELECTIVE COURSES (CHOOSE FOUR (4) COURSES) (16 CREDITS)		
MGHP1534	Real Estate Valuation	4
MGHP1524	Real Estate Investment Analysis	4
MGHP1514	Strategic Facilities Management	4
MGHP1544	Real Estate Development	4
MASTER PROJECT (6 CREDITS)		
MGHP1196	Master Project	6

Syllabus Synopsis

Course Code	Course Name	Synopsis
MGHP1114	Strategic Asset Management	The purpose of this course is to provide a framework to manage all assets from an organisational perspective. The key focus areas include providing an asset base that matches and supports the business needs, consolidating existing corporate capital assets and optimising asset utilization, meeting statutory compliance obligations; and aligning asset operating costs with business planning and service delivery requirements.
MGHP1514	Strategic Facilities Management	This course introduces the important strategic elements of facilities management. Topics include facilities management in a strategic framework, the changing business world, facilities management as a business case, quality managed facilities towards a customer focused organisation, business process re-engineering, managing the FM business. Also strategic purchasing for competitive advantage, determining procurement and resourcing strategy and organisational case studies.
MGHP1124	Real Estate Business and Marketing	This course introduces real estate business and marketing, and is divided into two parts. The first part covers introduction to real estate business and real estate business environment. For the second part, it provides a broad scope and introduces the main aspects of marketing, including marketing planning, management and implementation.
MGHP1154	Research Methodology	This course enables students to identify and apply appropriate research methodologies in order to plan, conduct and evaluate research in real estate-related fields. This course will enable students to distinguish between scientific methods and common sense knowledge while laying the foundation for research skills at higher levels.
MGHP1196	Master Project	This course provides opportunity for the students to design and enact an individual research project at the master level, and present it in the form of a master dissertation. The master project forms part of the overall study leading to the award of Real Estate Business. A high standard of achievement will be expected from the students. The project aims to develop intellectual interest among students and to demonstrate their ability for research.



Course Code	Course Name	Synopsis
MGHP1534	Real Estate Valuation	The course provides a framework for the study of advanced valuation techniques towards an objective methodology of real estate valuation. Review the traditional valuation methods. A discussion of new valuation technology includes financial analysis, statistical model and spatial statistical analysis using geographic information system (GIS).
MGHP1544	Real Estate Development	Introduction to property development (development theory, process, timing and market), regulations and their effect on property development decisions (government regulations, development control, tax, etc.), property development measurement (property investment, financial measures; financing in real estate investment; property development investment and finance), property development appraisal (cashflow construction and sensitivity analysis, risk analysis and return) and environmental risks in property development
MGHP1134	Corporate Real Estate Asset Management	This course assesses corporate real estate asset management by examining the role of real estate in corporations. It evaluates real estate management in a strategic manner which offers assistance towards making objective real estate decision-making. This supports value enhancement of corporate real estate assets in order to realign real estate with business strategy.
MGHP1144	Real Estate Market Research	This course is a continuation of the undergraduate curriculum, focusing on more rigorous approaches to property market research. It comprises basic theories with some similar grounds to the undergraduate level but with additional depth on the analytical elements such as data and analysis methods with more emphasis on the quantitative aspects.
MGHP1524	Real Estate Investment Analysis	The course provides various aspects of real estate investment analysis. The discussions are mainly on the implications of the financial aspects and investment performance of real estate investment. Real estate investment analysis is one the important components of decision-making exercises as real estate decision would be crucial for any organisation to deal with.

Master in Land Administration and Development

Land Administration System is the process whereby land and the information about land may be effectively managed. This system is the basis for sustainable development which enables the state to manage information about the ownership, value and use of land, whereby it intends to provide for the security of tenure, access to credit market, and investment, property taxation, protection of state lands, the development and monitoring of land markets, land reform, urban planning and infrastructure development, environmental management, and production of statistical data.

Modern Land Administration is not only the integrated systems but a healthy discipline capable of contributing to world discourse in land policy, land management, public organisation and infrastructures and technical systems. This therefore requires a new breed of expert administrators and developers who have the knowledge and skills to manage and develop land together and help the nation achieve economic growth. This program is designed to have a cross discipline appeal which can expose land administrators, planners, valuers, and surveyors as well as developers and those involved in the process of drafting land policy to a wider perspective.

The Master in Land Administration and Development by course work consists of 5 Core Courses, 4 Elective Courses and 1 University Course. Besides these taught subjects, students are required to submit a Master Project of 6 credits. To graduate, students must complete a total of 40 credits. Students are assessed through assignments, presentations and final examinations.

Name of Award

Master in Land Administration and Development

Entry Requirement (Faculty Requirement : if any)

.....

Programme Educational Objectives

PEO1: Mastery of knowledge and competency in advanced areas of land administration and development field.

PEO2: Professionalism with high standards of ethical conducts within organisation and society.

PEO3: Responsive to the current situation through continuous development of new knowledge and skills.

Programme Learning Outcomes

- PLO1: Integrate advanced knowledge and concepts related to land administration and development.
- PLO2: Construct solutions to complex issues in land matters.
- PLO3: Apply contemporary tools and techniques in supporting land administration system.
- PLO4: Work together and collaboratively with stakeholders in learning and working environment.
- PLO5: Communicate effectively using appropriate methods or techniques with professionals and community
- PLO6: Use competently a wide range of suitable digital technologies and appropriate software to support learning in land field.
- PLO7: Evaluate numerical and graphical data in land field using quantitative or qualitative tools.
- PLO8: Demonstrate leadership, autonomy, and responsibility in learning and working environment.
- PLO9: Demonstrate self-advancement through continuous academic or professional development
- PLO10: Initiate entrepreneurial projects with relevant knowledge and skills.
- PLO11: Demonstrate adherence to ethical code of practice and professionalism in dealing with relevant issues.

Mode and Duration of Study

Mode of Study	Full-time
Minimum Duration	1 years (2 Semester + 1 Short Semester)
Maximum Duration	4 years (8 Semester)

List of Courses

Codes	Courses	Credits
UNIVERSITY COURSE (3 CREDITS)		
UXXX6XX3	Science and Social Development (Subject to change)	3
CORE COURSES (19 CREDITS, COMPULSORY)		
MBET1504	Applied Economics of Land Development	4
MBET1514	Land Administration Systems and Governance	4
MBET1524	Law of Land Development	4
MBET2554	Planning and Development	4
MBEX1013	Research Methodology in Built Environment and Surveying	3
ELECTIVE COURSES (CHOOSE FOUR (4) COURSES) (12 CREDITS)		
MBET2543	Strategic Land Development and Practices	3
MBET1013	Land Information System and Technology	3
MBET2583	Law and Practices Relating to Housing Industry	3
MBET2613	Stratified Land Ownership and Development	3
MBET2623	Contemporary Islamic Land Development	3
MBET2633	Environment and Natural Resource Management	3
MBET1533	Land Taxation	3
MBEX1023	Sustainable Development For Built Environment and Surveying	3
MASTER PROJECT (6 CREDITS)		
MBET2546	Master Project	6
TOTAL NUMBER OF CREDITS		40



Syllabus Synopsis

Course Code	Course Name	Synopsis
MBET1504	Applied Economics of Land Development	This course offers an overview on matters relating to aspects of land development practice. Land development principles and practice are essential for those who are engaged with matters relating to land and the development process. In order to be involved with land development one has to be well equipped with the knowledge on economics of land development.
MBET1514	Land Administration System And Governance	Land administration is a discipline that integrates various land issues from different disciplines such as legal, social, economic, technical, planning and management. This course provides underpinning and comparative approach to land administration of the world particularly those practicing the Torren System. The discussions are mainly on concept of land tenure and land registration, land law related to land tenure, salient features of the land registration system, rights to land and record, the benefits and deficiencies in the land registration system, process of land transfer and computer assisted land registration. The course also provides theoretical and applied knowledge on good land governance for the purpose of building a viable land administration services to society and to develop trusted public administration to deal with the multiple pressures and competing claims, whilst balancing economic growth, environmental protection and social justice.
MBET1524	Law of Land Development	This course delivers law and procedure in land development consist various regulations which are National Land Code 1965, Land Acquisition Act 1960 (Act 468), Federal and State Constitution, Group Settlement Act, Local Government Act 1976 (Act 171), Town and Planning Act 1976 (Act 172) and other legislations that applicable and need to be given attention throughout the land development stages. A substantial part of the course is also dedicated to discuss on the reform of law to facilitate industry and land market needs.



Course Code	Course Name	Synopsis
MBET2554	Planning and Development	This course consists of an overview on planning concept and planning system that guide orderly development in urban, sub-urban and rural areas. There are some procedural theories of planning to be discussed that include the advocacy planning, the incremental approach, transitive approach and etc. In addition, some of the planning issues will be discussed and examined throughout the course. The issues include topics of current interest such as the concept of sustainable development, development versus environment and changes in the development trends.
MBET2546	Master Project	The course is a research-based project of individual interest that relates to land development studies or any current issues on legal, property development, land administration, housing, environment, information technology, or any other relevant topics. With supervision from the supervisors, the students are expected to submit a thesis in accordance with the standard format
MBEX1013	Research Methodology in Built Environment and Surveying	This course emphasises the understanding of preparation for academic research proposal and technical writing method. Furthermore, the students will have to present and clearly explain their research proposal, which also build up their confidence level in producing research proposal.
MBET1013	Land Information System and Technologies	This course is designed to offer students to observe several criteria or principle of land information system such as policies, standards and practices in spatial data management, document management system and workflow management system. It also explores the institutional and technical issues on developing and managing land information system. This course extends to discover on the current technologies and techniques use in land administration for decision support system and spatially enabled society.
MBET2583	Law and Practices Relating to Housing Industry	This course discusses laws and practices in the housing industry. In particular, it contains depth discussion on National Housing Policy and Housing Development Act 1966 (Act 118) and its implementations. This course will also explore the issues that hit the industry by focusing on the housing delivery, affordability, home financing and best practices.



Course Code	Course Name	Course Description
MBET1533	Land Taxation	This course is designed to focus on the roles of land as a source of revenue particularly from taxation provisions. This include in-depth exposure on the governance aspects, types as well as the reformation of land taxation. Besides, several special cases on land taxation practices will be discussed. In the end, students are expected to gain holistic knowledge on the impact of land taxation on land use.
MBET2543	Strategic Land Development and Practices	In this course, students will be exposed to the theoretical and practical aspects of identifying thus determining the overall aims or interests of land development as well as the means to achieve them. The topic covers strategic development practices that specifically refer to regional development corridor in Malaysia, Iskandar Malaysia and regional policy. By the end of this course, it is expected that students would be able to describe the philosophy of land development and the practices adopted in current practice as tools for strategic land development.
MBET2613	Stratified Land Ownership and Development	This course mainly covers principles of stratified property development and ownership. It discusses on important statutes effecting strata development namely the strata title (Act 2013) and Strata Management Act 2013. It includes matters on strata title issuance, security of tenure, parcel owners' rights and obligation. In terms of managerial aspects it covers on developer rights, obligation on strata management as well as the management corporation. It also covers issues on strata and the recent multi-layered land ownership and development such as stratum and spatium.
MBET2623	Contemporary Islamic Land Development	This course delivers on the concept of land development from Islamic perspectives. It contains the Islamic land law on the trustee, public and private ownership, alienation, land use and development process, land acquisition, land forfeiture and taxation as well as Islamic financing on property development such as Mudarabah (Profit loss sharing), Murabahah (Cost Plus), Musawamah and Musyarakah (joint venture). The topic also covers the contemporary practices, issues and solutions on waqf development, Islamic co-housing and etc.

Course Code	Course Name	Course Description
MBET2633	Environmental and Natural Resources Management	The course is design to give the awareness on the importance of environment and natural resources management. It deals with the economy, the environment and natural resources both nationally and globally. The course main interest is to look on how we best use the available resources by conducting sustainable environmental management.
MBEX1023	Sustainable Development for Built Environment and Surveying	The aim of the course is to provide the candidates with principles, concepts, applications and tools for analysis and decision making in support of sustainable development and its relation to build environment and surveying. It is widely acknowledged that the sustainable development (SD) concept is inherently ambiguous to the extent that it has been interpreted to suit the needs of particular interest groups. Hence, it is not surprising to note that the SD concept has often been abused for political and commercial gains. Case studies and problem-solving exercises from related programme will be used to stimulate learning and provide practical experience in addressing Sustainable Development Goals (SDGs) in Built Environment and Surveying field od study.

Master of Assets and Facilities Management

The Master of Assets and Facilities Management course consists of 5 core courses, 5 elective courses and 1 University course. In addition to these subjects, students are required to submit a Master Project worth of 8 credits. To graduate, students must complete a total 46 credits and they are assessed through assignments, presentations and final examination. The curriculum of the program is shown as following.

Name of Award

Master of Assets and Facilities Management

Entry Requirement (Faculty Requirement : if any)

.....

Program Educational Objectives

PEO1 Able to use knowledge of undergraduate engineering and other disciplines to identify, formulate and solve problem in advanced Facilities Management.

PEO2 Able to conduct research and development activities guided/directed systematically in the field of Facilities Management.

PEO3 Build awareness and understanding of professional ethical impact of engineering solution in a global and societal context.

PEO4 Able to promote and disseminate research based knowledge and development activities in Facilities Management through peer review and publication.

PEO5 Know how and resources required to transfer technology to the commercialization and clinical implementation.

PEO6 Aware of the need and ability to lifelong learning.

Program Learning Outcomes

PO1 Demonstrate mastery of knowledge in the asset and facilities management

PO2 Apply practical skills in the asset and facilities management

PO3 Relate ideas to the societal issues in the asset and facilities management

PO4 Conduct research independently with minimal supervision and adhere to legal, ethical and professional codes of practice.

PO5 Demonstrate leadership qualities through communicating and working effectively with peers and stakeholders.

- PO6 Generate solutions to problems using scientific and critical thinking skills.
- PO7 Manage information for lifelong learning.

Mode and Duration of Study

Mode of Study	Full-time
Minimum Duration	1 year
Maximum Duration	4 years

List of Courses

Codes	Courses	Credits
UNIVERSITY COURSE (3 CREDITS)		
UXXX6XXX	University General Course	3
CORE COURSES (20 CREDITS, COMPULSORY)		
MGHT1114	Strategic Asset Management	4
MGHT1124	Strategic Facilities Management	4
MGHT1134	Project & Contract Management	4
MGHT1144	Strategic Maintenance Management	4
MGHT1154	Research Methodology in FM	4
ELECTIVE COURSES (CHOOSE FIVE (5) COURSES) (15 CREDITS)		
MGHT1513	Financial Management/ Risk Management	3
MGHT1523	Quality Management /Value Management	3
MGHT1533	Facilities Information Technology Solutions/ Sustainable Environmental Management (FITS/SEM)	3
MGHT1543	Performance Management	3
MGHT1553	Professional Practice	3
MASTER PROJECT (8 CREDITS)		
MGHT1168	Master Project	8
TOTAL NUMBER OF CREDITS		46

Master of Philosophy

Introduction

The Master of Philosophy programmes offered by the Faculty is in the field of architecture, quantity surveying, urban and regional planning, transportation planning, landscape architecture, geoinformatics, geomatics engineering, remote sensing, land administration & development, real estate and facilities management. The programmes are entirely conducted in research mode whereby students conduct original research under the supervision of experienced supervisors. Students enrol in the programme are compulsory to present their research proposal in semester 2. The proposal will be evaluated by two/three internal panels that will be appointed by the Faculty Academic Committee. In order to graduate, students are required to prepare complete thesis by following the UTM Thesis Writing Guidelines and fulfil the publication requirement. The viva voice session will be held at the Faculty.

Name of Award

Master of Philosophy

Programme Educational Objectives

- PEO1 Demonstrate an understanding of the theories, principles, scope and roles of the built environment (urban and regional planning, quantity surveying, architecture and transport planning) in the process of growth and development.
- PEO2 Apply a range of analytical skills and techniques designed to address a range of complex problems.
- PEO3 Apply the knowledge, skills and understanding for the achievement of feasible solutions to the built environment problems.
- PEO4 Work in multi-disciplinary team and contribute to the society.
- PEO5 Comply with ethics, professional and community standards, and involve in life-long learning.

Programme Learning Outcomes

- PO1 Demonstrate mastery in principles and practices in the field of the built environment at local, strategic, national and international levels.
- PO2 Demonstrate skills in applying methods and techniques across a variety of context and practice in the field of the built environment.
- PO3 Demonstrate the capability to relate ideas and solutions to diverse problems and issues in the field of the built environment.
- PO4 Demonstrate research capabilities in the field of the built environment with minimal supervision and adhere to legal, ethical and professional codes of practice.

- PO5 Demonstrate leadership qualities through effective communication and team working with peers and stakeholders to overcome diverse challenges within the field of the built environment.
- PO6 Demonstrate critical thinking and scientific approach to effectively overcome issues and challenges in the field of the built environment.

Mode and Duration of Study

Mode of Study	Full-time
Minimum Duration	1 ½ years
Maximum Duration	4 Years

Classification of Courses

Classification	Credit	Total Credit
1.University General Course	3	6
2.Research Methodology Course	3	
3.Research (Thesis)	0	

Award Requirements

For the award of Master of Philosophy, the students should pass all courses including the completion of thesis.

List of Courses

Semester 1

Courses	Credit	Total Credit
1.UXXX6XX3 - University General Course ¹	3	6
2.UBEP6013 Research Methodology	3	
3.MBEX / MGHX1100 Research ²	-	

Note:

¹Students are advised to enrol for the course in the earlier semester.

¹Students may choose University General Course based on the subjects offered by the faculty during the respective semester.

²Students must register a research code every semester within the specified dates determined by the University.



Semester 2 - 8

Semester	Course	Credit	Total Credit
2	MBEX / MGHX1200 - Research	-	-
3	MBEX / MGHX2100 - Research	-	-
4	MBEX / MGHX2200 - Research	-	-
5	MBEX / MGHX3100 - Research	-	-
6	MBEX / MGHX3200 - Research	-	-
7	MBEX / MGHX4100 - Research	-	-
8	MBEX / MGHX4200 - Research	-	-

Notes:

- Student need to refer Appendix 1 for their specific research code by programme.
- First Stage Assessment (Proposal Defense) presentation should be done in Semester 2.
- Students should submit Notice for Submission of Thesis (NHT) at least three (3) months prior to submission of the thesis for examination. NHT can be done online (GSMS System) via MyUTM portal.

Syllabus Synopsis

UBEP6013 Research Methodology

This course equips the students with the theory and practice of conducting an academic research. The course covers the theory and philosophy of research, research methods, research methodology, research design, purpose of research, types or classification of research, research process and research writing. The students is expected to prepare the proposal for their thesis.

Research Thesis

Students are expected to conduct an academic research on the related field based on the proposal submitted and approved as per scheduled. It requires individual students to undertake investigative studies which involve an identification of problems/issues; literature review; data collection, analysis and interpretation of research findings. Thesis shall contribute to the related body of knowledge. The students shall be required to submit and defence their thesis.

Areas of Research

Students in the Master of Philosophy programmes conduct research in a variety of areas of interest listed below.

Architecture

- Environmental Engineering & Architectural Sciences
- CAD
- Urban Design
- Architectural Management
- Architecture and Human Behaviour
- Architectural History & Theory
- Urban Greening
- Climatic Mapping
- Children's Environment
- Vertical Green System
- Vernacular Architecture
- Passive Architecture

Landscape Architecture

- Urban Greening
- Landscape Ecology
- Urban Landscape Design
- Landscape Resource Planning
- Landscape Ecology & Urban ecology
- Green Technology
- Children's Environment
- Landscape and Climate Research
- Historical and Heritage Landscape
- Cultural Landscape
- Landscape Professional Practice
- Community Landscape Planning
- Environmental Psychology
- Landscape Visualisation
- Landscape Assessment
- Landscape Resource Planning

Quantity Surveying

- Construction Economics and Cost Management
- Construction Technology and Management
- Construction Law and Contract
- ICT in Construction
- Building Information Modelling
- Dispute Resolution and Adjudication
- Life Cycle Costing
- Sustainable Construction
- Construction Health and Safety
- Plant and Site Management
- Cost Estimating
- Facilities Management
- Building Services

Urban and Regional Planning

- Rural Planning
- Tourism Planning
- Housing and Community Planning
- Regional Planning
- Geographic Information System
- Spatial Modelling
- Urban Morphology
- Spatial Analysis for Social Issues
- Remote Sensing Applications
- Environmental Planning
- Low Carbon Society/City
- Climate Change
- Urban Design
- Urban Development and Management

Transport Planning

- Public Transport Planning & Management
- Port Planning and Cargo Handling
- Regional Transportation Planning
- Transport and the Environment
- Transport Economic
- Logistics & Physical Distribution Management
- Transportation Models
- Airport Planning Management
- Urban Transport and Modelling
- Transport Policy
- Highway Planning
- Freight Transport

Geoinformation and Real Estate

- Geomatics Engineering
- Geoinformatics
- Remote Sensing
- Hydrography
- Real Estate
- Land Administration and Development
- Facilities Management

Doctor of Philosophy

Introduction

The doctorate programmes offered by the faculty are in the field of architecture, quantity surveying, urban and regional planning, transportation planning, landscape architecture, geoinformatics, geomatics engineering, remote sensing, land administration & development, real estate and facilities management. The programmes are entirely conducted in research mode whereby students conduct original research under the supervision of experienced supervisors who are themselves PhD holders.

Students enrol in the programme are compulsory to present their research proposal in semester 3. The proposal will be evaluated by two/three internal panels that will be appointed by the Faculty Academic Committee. In order to graduate, students are required to prepare complete thesis by following the UTM Thesis Writing Guidelines and fulfil the publication requirement. The viva voice session will be held at the Faculty.

Name of Award

Doctor of Philosophy

Programme Educational Objectives

- PEO1 To produce PhD graduates who are experts in their related fields and are able to work independently with supervision from highly qualified supervisors;
- PEO2 To produce PhD graduates who are very knowledgeable and theoretically sound and are able to apply these for the analysis and solution of problems where these leads to new or substantially improved insights and performances;
- PEO3 To produce PhD graduates who can think critically and creatively thus capable of generating and developing new knowledge, products, materials or methods for the benefits of mankind;
- PEO4 To produce PhD graduates with excellent communication skills, capable of communicating effectively both technically and theoretically in various context and with various related parties, thus sharing new knowledge with other researchers from other institutions, universities and also industrialists;
- PEO5 To produce PhD graduates with high integrity and who are ethically professional.

Programme Learning Outcomes

- PO1 Synthesis knowledge and contribute to original research that broadens the frontier of knowledge in the field of built environment.

- PO2 Adapt practical skills leading to innovative ideas in the field of built environment.
- PO3 Provide expert advice to society in the field of built environment.
- PO4 Conduct research independently and adhere to legal, ethical and professional codes of practice.
- PO5 Display leadership qualities through communicating and working effectively with peers and stakeholders.
- PO6 Appraise problems in the field of built environment critically using scientific skills. Integrate information for lifelong learning.

Mode and Duration of Study

Mode of Study	Full-time
Minimum Duration	3 Years
Maximum Duration	8 Years

Classification of Courses

Classification	Credit	Total Credit
1.University General Course	3	6
2.Research Methodology Course	3	
3.Research (Thesis)	0	

Award Requirements

For the award of Doctor of Philosophy, the students should pass all courses including the completion of thesis.

List of Courses

Semester 1

Courses	Credit	Total Credit
1.UXXX6XX3 - University General Course ¹	3	6
2.UBEP6013 Research Methodology Course	3	
3.PBEX / PGHX1100 Research Course ²	-	

Note:

¹Students are advised to enrol for the course in the earlier semester.

¹Students may choose University General Course based on the subjects offered by the faculty during the respective semester.

²Students must register a research code every semester within the specified dates determined by the University.

Semester 2 - 16

Semester	Course	Credit	Total Credit
2	PBEX / PGHX1200 - Research	-	-
3	PBEX / PGHX2100 - Research	-	-
4	PBEX / PGHX2200 - Research	-	-
5	PBEX / PGHX3100 - Research	-	-
6	PBEX / PGHX3200 - Research	-	-
7	PBEX / PGHX4100 - Research	-	-
8	PBEX / PGHX4200 - Research	-	-
9	PBEX / PGHX5100 - Research	-	-
10	PBEX / PGHX5200 - Research	-	-
11	PBEX / PGHX6100 - Research	-	-
12	PBEX / PGHX6200 - Research	-	-
13	PBEX / PGHX7100 - Research	-	-
14	PBEX / PGHX7200 - Research	-	-
15	PBEX / PGHX8100 - Research	-	-
16	PBEX / PGHX8200 - Research	-	-

Notes:

- Student need to refer Appendix 1 for their specific research code by programme.
- First Stage Assessment (Proposal Defense) presentation should be done in Semester 3.
- Students should submit Notice for Submission of Thesis (NHT) at least three (3) months prior to submission of the thesis for examination. NHT can be done online (GSMS System) via MyUTM portal.

Syllabus Synopses

UBEP6013 Research Methodology

This course equips the students with the theory and practice of conducting an academic research. The course covers the theory and philosophy of research, research methods, research methodology, research design, purpose of research, types or classification of research, research process and research writing. The students is expected to prepare the proposal for their thesis.

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Students are expected to conduct an academic research on the related field based on the proposal submitted and approved as per scheduled. It requires individual students to undertake investigative studies which involve an identification of problems/issues; literature review; data collection, analysis and interpretation of research findings. Thesis shall contribute to the related body of knowledge. The students shall be required to submit and defence their thesis.

Areas of Research

Students in the PhD programmes conduct research in a variety of areas of interest listed below.

Architecture

- Environmental Engineering & Architectural Sciences
- CAD
- Urban Design
- Architectural Management
- Architecture and Human Behaviour
- Architectural History & Theory
- Landscape Architecture
- Urban Greening
- Climatic Mapping
- Children's Environment
- Vertical Green System
- Vernacular Architecture
- Passive Architecture
- Landscape Resource Planning
- Landscape Ecology

Landscape Architecture

- Landscape Architecture
- Urban Greening
- Urban Landscape Design
- Landscape Resource Planning
- Landscape Ecology & Urban ecology
- Green Technology
- Children's Environment
- Landscape and Climate Research
- Historical and Heritage Landscape
- Cultural Landscape
- Landscape Professional Practice
- Community Landscape Planning
- Environmental Psychology
- Landscape Visualisation
- Landscape Assessment
- Islamic Built Environment & Islamic Studies

Quantity Surveying

- Construction Economics and Cost Management
- Construction Technology and Management
- Construction Law and Contract
- ICT in Construction
- Building Information Modelling
- Sustainable Construction
- Construction Health and Safety
- Plant and Site Management
- Cost Estimating
- Facilities Management

- Dispute Resolution and Adjudication
- Life Cycle Costing

Urban and Regional Planning

- Rural Planning
- Tourism Planning
- Housing and Community Planning
- Regional Planning
- Geographic Information System
- Spatial Modelling
- Urban Morphology

Transport Planning

- Public Transport Planning & Management
- Port Planning and Cargo Handling
- Regional Transportation Planning
- Transport and the Environment
- Transport Economic
- Logistics & Physical Distribution Management

Geoinformation and Real Estate

- Geomatics Engineering
- Geoinformatics
- Remote Sensing
- Hydrography
- Real Estate
- Land Administration and Development
- Facilities Management

- Building Services

- Spatial Analysis for Social Issues
- Remote Sensing Applications
- Environmental Planning
- Low Carbon Society/City
- Climate Change
- Urban Design
- Urban Development and Management

- Transportation Models
- Airport Planning Management
- Urban Transport and Modelling
- Transport Policy
- Highway Planning
- Freight Transport



Grading and Point Value System for Postgraduate Programmes

Grading System

- Students' achievement in any particular 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 master programme in taught course mode is set by the Faculty upon the Senate's approval. The minimum passing grade is B-.
- Students will be graded for most of the courses according to the above grading system. However, there are some courses, particularly compulsory audit course which registered with a HW status are without grades. For these courses, students will obtain a 'HL' (Pass) or 'HG' (Fail) status. Compulsory audit course earn credit toward a degree but not grade points.

Academic Standing for Master Programmes in Taught Course Mode

- 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 > 3.00	Good Standing (KB)
2.67 ≤ CGPA < 3.00	Probationary Standing (KS)
CGPA < 2.67	Failure Standing/Academic Dismissal (KG)
For graduation CGPA ≥ 3.00	



GPA/CGPA Computation (For Thought Course Mode)

- 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				

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

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

$$= 3.02$$

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.

**This Academic Guidebook is valid subject to new updates and UTM Academic Rules of Graduate Studies*

Academic Standing for Postgraduate Research Program

- Research students are required to complete the online Research Progress Report at the end of every regular semester and will be evaluated by their supervisors.
- A student's academic standing is determined at the end of every regular semester based on status as shown in the table below.

Status	Academic Standing
MM	Good Standing (KB)
TM	Probationary Standing (KS)
KG	Failure Standing/Academic Dismissal (KG)

- A student will be dismissed from the academic programme if obtained Failure Standing (KG).
- A student with Probationary Standing (KS) for two consecutive semesters will be given Failure Standing (KG) and will be dismissed from the academic programme.
- Research students are also required to complete Research Methodology course and University's course for graduation.

**This Academic Guidebook is valid subject to new updates and UTM Academic Rules of Graduate Studies*



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

Faculty of
Built Environment
and Surveying

APPENDIX

COURSE REGISTRATION CODE – RESEARCH PROGRAMME
Faculty of Built Environment and Surveying
(FOR INTAKE SEMESTER 2, 2022/2023 AND ONWARDS)

SEMESTER	DOCTOR OF PHILOSOPHY										
	RESEARCH COURSE CODE (PhD)										
	Architecture	Urban and Regional Planning	Geomatic Engineering	Facilities Management	Real Estate	Geoinformatics	Transportation Planning	Quantity Surveying	Remote Sensing	Land Administration & Development	Landscape Architecture
	PBEA	PBEB	PBEE	PBEF	PBEH	PBEO	PBEP	PBEQ	PBER	PBET	PBEZ
1/16	PBEA1100	PBEB1100	PBEE1100	PBEF1100	PBEH1100	PBEO1100	PBEP1100	PBEQ1100	PBER1100	PBET1100	PBEZ1100
2/16	PBEA1200	PBEB1200	PBEE1200	PBEF1200	PBEH1200	PBEO1200	PBEP1200	PBEQ1200	PBER1200	PBET1200	PBEZ1200
3/16	PBEA2100	PBEB2100	PBEE2100	PBEF2100	PBEH2100	PBEO2100	PBEP2100	PBEQ2100	PBER2100	PBET2100	PBEZ2100
4/16	PBEA2200	PBEB2200	PBEE2200	PBEF2200	PBEH2200	PBEO2200	PBEP2200	PBEQ2200	PBER2200	PBET2200	PBEZ2200
5/16	PBEA3100	PBEB3100	PBEE3100	PBEF3100	PBEH3100	PBEO3100	PBEP3100	PBEQ3100	PBER3100	PBET3100	PBEZ3100
6/16	PBEA3200	PBEB3200	PBEE3200	PBEF3200	PBEH3200	PBEO3200	PBEP3200	PBEQ3200	PBER3200	PBET3200	PBEZ3200
7/16	PBEA4100	PBEB4100	PBEE4100	PBEF4100	PBEH4100	PBEO4100	PBEP4100	PBEQ4100	PBER4100	PBET4100	PBEZ4100
8/16	PBEA4200	PBEB4200	PBEE4200	PBEF4200	PBEH4200	PBEO4200	PBEP4200	PBEQ4200	PBER4200	PBET4200	PBEZ4200
9/16	PBEA5100	PBEB5100	PBEE5100	PBEF5100	PBEH5100	PBEO5100	PBEP5100	PBEQ5100	PBER5100	PBET5100	PBEZ5100
10/16	PBEA5200	PBEB5200	PBEE5200	PBEF5200	PBEH5200	PBEO5200	PBEP5200	PBEQ5200	PBER5200	PBET5200	PBEZ5200
11/16	PBEA6100	PBEB6100	PBEE6100	PBEF6100	PBEH6100	PBEO6100	PBEP6100	PBEQ6100	PBER6100	PBET6100	PBEZ6100
12/16	PBEA6200	PBEB6200	PBEE6200	PBEF6200	PBEH6200	PBEO6200	PBEP6200	PBEQ6200	PBER6200	PBET6200	PBEZ6200
13/16	PBEA7100	PBEB7100	PBEE7100	PBEF7100	PBEH7100	PBEO7100	PBEP7100	PBEQ7100	PBER7100	PBET7100	PBEZ7100
14/16	PBEA7200	PBEB7200	PBEE7200	PBEF7200	PBEH7200	PBEO7200	PBEP7200	PBEQ7200	PBER7200	PBET7200	PBEZ7200
15/16	PBEA8100	PBEB8100	PBEE8100	PBEF8100	PBEH8100	PBEO8100	PBEP8100	PBEQ8100	PBER8100	PBET8100	PBEZ8100
16/16	PBEA8200	PBEB8200	PBEE8200	PBEF8200	PBEH8200	PBEO8200	PBEP8200	PBEQ8200	PBER8200	PBET8200	PBEZ8200

SEMESTER	MASTER OF PHILOSOPHY										
	RESEARCH COURSE CODE (MPhil)										
	Architecture	Urban and Regional Planning	Geomatic Engineering	Facilities Management	Real Estate	Geoinformatics	Transportation Planning	Quantity Surveying	Remote Sensing	Land Administration & Development	Landscape Architecture
	MBEA	MBEB	MBEE	MBEF	MBEH	MBEO	MBEP	MBEQ	MBER	MBET	MBEZ
1/8	MBEA1100	MBEB1100	MBEE1100	MBEF1100	MBEH1100	MBEO1100	MBEP1100	MBEQ1100	MBER1100	MBET1100	MBEZ1100
2/8	MBEA1200	MBEB1200	MBEE1200	MBEF1200	MBEH1200	MBEO1200	MBEP1200	MBEQ1200	MBER1200	MBET1200	MBEZ1200
3/8	MBEA2100	MBEB2100	MBEE2100	MBEF2100	MBEH2100	MBEO2100	MBEP2100	MBEQ2100	MBER2100	MBET2100	MBEZ2100
4/8	MBEA2200	MBEB2200	MBEE2200	MBEF2200	MBEH2200	MBEO2200	MBEP2200	MBEQ2200	MBER2200	MBET2200	MBEZ2200
5/8	MBEA3100	MBEB3100	MBEE3100	MBEF3100	MBEH3100	MBEO3100	MBEP3100	MBEQ3100	MBER3100	MBET3100	MBEZ3100
6/8	MBEA3200	MBEB3200	MBEE3200	MBEF3200	MBEH3200	MBEO3200	MBEP3200	MBEQ3200	MBER3200	MBET3200	MBEZ3200
7/8	MBEA4100	MBEB4100	MBEE4100	MBEF4100	MBEH4100	MBEO4100	MBEP4100	MBEQ4100	MBER4100	MBET4100	MBEZ4100
8/8	MBEA4200	MBEB4200	MBEE4200	MBEF4200	MBEH4200	MBEO4200	MBEP4200	MBEQ4200	MBER4200	MBET4200	MBEZ4200

COURSE REGISTRATION CODE – RESEARCH PROGRAMME
Faculty of Built Environment and Surveying
(FOR INTAKE SEMESTER 1, 2022/2023 AND BEFORE)

SEMESTER	DOCTOR OF PHILOSOPHY										
	RESEARCH COURSE CODE (PhD)										
	Urban and Regional Planning	Transportation Planning	Quantity Surveying	Architecture	Landscape Architecture	Facilities Management	Land Administration & Development	Real Estate	Geoinformatics	Remote Sensing	Geomatic Engineering
	PBEW	PBEJ	PBEU	PBES	PBEL	PGHF	PGHN	PGHP	PGHG	PGHS	PGHU
1/16	PBEW1100	PBEJ1100	PBEU1100	PBES1100	PBEL1100	PGHF1100	PGHN1100	PGHP1100	PGHG1100	PGHS1100	PGHU1100
2/16	PBEW1200	PBEJ1200	PBEU1200	PBES1200	PBEL1200	PGHF1200	PGHN1200	PGHP1200	PGHG1200	PGHS1200	PGHU1200
3/16	PBEW2100	PBEJ2100	PBEU2100	PBES2100	PBEL2100	PGHF2100	PGHN2100	PGHP2100	PGHG2100	PGHS2100	PGHU2100
4/16	PBEW2200	PBEJ2200	PBEU2200	PBES2200	PBEL2200	PGHF2200	PGHN2200	PGHP2200	PGHG2200	PGHS2200	PGHU2200
5/16	PBEW3100	PBEJ3100	PBEU3100	PBES3100	PBEL3100	PGHF3100	PGHN3100	PGHP3100	PGHG3100	PGHS3100	PGHU3100
6/16	PBEW3200	PBEJ3200	PBEU3200	PBES3200	PBEL3200	PGHF3200	PGHN3200	PGHP3200	PGHG3200	PGHS3200	PGHU3200
7/16	PBEW4100	PBEJ4100	PBEU4100	PBES4100	PBEL4100	PGHF4100	PGHN4100	PGHP4100	PGHG4100	PGHS4100	PGHU4100
8/16	PBEW4200	PBEJ4200	PBEU4200	PBES4200	PBEL4200	PGHF4200	PGHN4200	PGHP4200	PGHG4200	PGHS4200	PGHU4200
9/16	PBEW5100	PBEJ5100	PBEU5100	PBES5100	PBEL5100	PGHF5100	PGHN5100	PGHP5100	PGHG5100	PGHS5100	PGHU5100
10/16	PBEW5200	PBEJ5200	PBEU5200	PBES5200	PBEL5200	PGHF5200	PGHN5200	PGHP5200	PGHG5200	PGHS5200	PGHU5200
11/16	PBEW6100	PBEJ6100	PBEU6100	PBES6100	PBEL6100	PGHF6100	PGHN6100	PGHP6100	PGHG6100	PGHS6100	PGHU6100
12/16	PBEW6200	PBEJ6200	PBEU6200	PBES6200	PBEL6200	PGHF6200	PGHN6200	PGHP6200	PGHG6200	PGHS6200	PGHU6200
13/16	PBEW7100	PBEJ7100	PBEU7100	PBES7100	PBEL7100	PGHF7100	PGHN7100	PGHP7100	PGHG7100	PGHS7100	PGHU7100
14/16	PBEW7200	PBEJ7200	PBEU7200	PBES7200	PBEL7200	PGHF7200	PGHN7200	PGHP7200	PGHG7200	PGHS7200	PGHU7200
15/16	PBEW8100	PBEJ8100	PBEU8100	PBES8100	PBEL8100	PGHF8100	PGHN8100	PGHP8100	PGHG8100	PGHS8100	PGHU8100
16/16	PBEW8200	PBEJ8200	PBEU8200	PBES8200	PBEL8200	PGHF8200	PGHN8200	PGHP8200	PGHG8200	PGHS8200	PGHU8200

SEMESTER	MASTER OF PHILOSOPHY										
	RESEARCH COURSE CODE (MPhil)										
	Urban and Regional Planning	Transportation Planning	Quantity Surveying	Architecture	Landscape Architecture	Facilities Management	Land Administration & Development	Real Estate	Geoinformatics	Remote Sensing	Geomatic Engineering
	MBEW	MBEJ	MBEU	MBES	MBEL	MGHF	MGHN	MGHP	MGHG	MGHS	MGHU
1/8	MBEW1100	MBEJ1100	MBEU1100	MBES1100	MBEL1100	MGHF1100	MGHN1100	MGHP1100	MGHG1100	MGHS1100	MGHU1100
2/8	MBEW1200	MBEJ1200	MBEU1200	MBES1200	MBEL1200	MGHF1200	MGHN1200	MGHP1200	MGHG1200	MGHS1200	MGHU1200
3/8	MBEW2100	MBEJ2100	MBEU2100	MBES2100	MBEL2100	MGHF2100	MGHN2100	MGHP2100	MGHG2100	MGHS2100	MGHU2100
4/8	MBEW2200	MBEJ2200	MBEU2200	MBES2200	MBEL2200	MGHF2200	MGHN2200	MGHP2200	MGHG2200	MGHS2200	MGHU2200
5/8	MBEW3100	MBEJ3100	MBEU3100	MBES3100	MBEL3100	MGHF3100	MGHN3100	MGHP3100	MGHG3100	MGHS3100	MGHU3100
6/8	MBEW3200	MBEJ3200	MBEU3200	MBES3200	MBEL3200	MGHF3200	MGHN3200	MGHP3200	MGHG3200	MGHS3200	MGHU3200
7/8	MBEW4100	MBEJ4100	MBEU4100	MBES4100	MBEL4100	MGHF4100	MGHN4100	MGHP4100	MGHG4100	MGHS4100	MGHU4100
8/8	MBEW4200	MBEJ4200	MBEU4200	MBES4200	MBEL4200	MGHF4200	MGHN4200	MGHP4200	MGHG4200	MGHS4200	MGHU4200

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