

POSTGRADUATE HANDBOOK 2021/2022



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

Malaysia-Japan
International
Institute of Technology
(MJIIT)

nurturing values • empowering minds

<https://mjiit.utm.my/>

MESSAGE FROM THE DEAN



Konnichiwa. My heartiest congratulations and warmest welcome to all students to Malaysia-Japan International Institute of Technology (MJIT), Universiti Teknologi Malaysia (UTM). MJIT UTM is preparing to become a world leading Japanese-oriented engineering education hub with support from the Higher Education Department, Ministry of Education, Malaysia, Japan International Cooperation Agency (JICA) and more than 29 Japanese Universities through the Japanese University Consortium (JUC). Our Japanese-oriented engineering education utilizes the K.E.S. (*Knowledge-Experience and Self-study*) pedagogy concept of teaching and learning

which focuses more on classroom learning in early years and learning through experience and self-study in later years. The well-known 5S concept and *Kaizen* are incorporated in learning cultures at MJIT, aim to inculcate important values highly sought in today's world, including team working, responsible and resilience.

MJIT provides state-of-the-art facilities for postgraduate students comprising of well-established research laboratories under the auspices of innovative Kohza (*iKohza*) featuring the unique mentoring concept of *senpai-kohai*. Junior members are nurtured and closely supported by their seniors, combining collegial collaboration and continuous guidance from Professors and senior members of the *iKohza*. We have strong partnerships with industries such as Takasago Ltd., Daiichi, Rohm Wako, Nippon Koei, JEOL, NTT and Mitsubishi Heavy Industries Asia Pacific LTE Ltd., to name a few, in supporting our learning and research ecosystems. On behalf of the MJIT family, I wish you successful academic endeavours throughout your study at MJIT. Don't forget to experience the UTM lifestyle while at the same time mastering the Japanese-oriented engineering education with us!

PROFESSOR DR. ALI SELAMAT

Dean

ABOUT THIS HANDBOOK

This handbook provides information to postgraduate students undertaking programmes at MJIIIT. MJIIIT is committed to ensuring the quality of your research and study experience and, as such, this handbook will help you to understand the minimum requirements to safeguard high standards of postgraduate degree activity as well as informing you about all the support available to you as you progress through your degree. You should read this handbook in conjunction with the Academic Rules of Graduate Studies (updated on Aug. 2021) and the relevant information in the websites in Table 1.

Table 1: LIST OF USEFUL WEBSITES

INSTITUTION	WEBSITE / URL
MJIIIT	http://mjiit.utm.my
UTM Kuala Lumpur Campus	http://kl.utm.my
School of Postgraduate Studies (SPS)	http://sps.utm.my/
Student Recruitment and Admission Division (SRAD)	http://admission.utm.my/
Academic Management Division (AMD)	http://academicmanagement.utm.my/
Universiti Teknologi Malaysia	www.utm.my
Library (PSZ)	http://library.utm.my/
IT Service Centre (CICT)	http://cict.utm.my
Academic Computing (ACID)	http://acid.utm.my
UTM International Student Center	http://isc.utm.my/
Student Affairs and Alumni	http://www.utm.my/studentaffairs/
UTM International	http://www.utm.my/international/

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1.0 Introduction

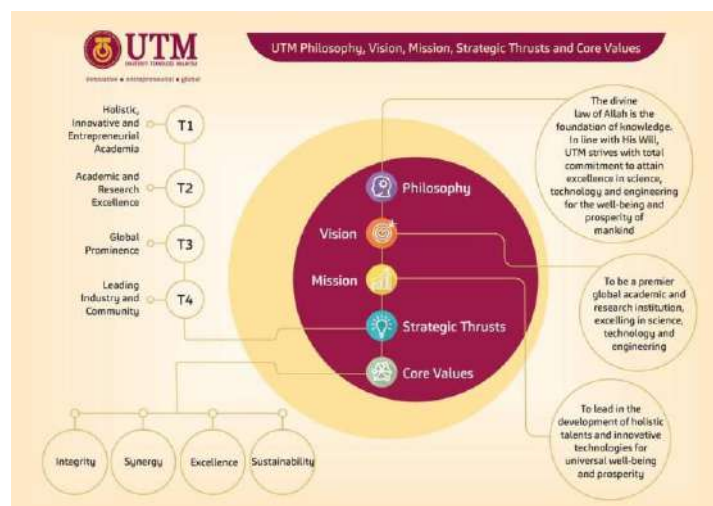
1.1 Universiti Teknologi Malaysia

UTM Kuala Lumpur (UTM KL) is a graduate campus of Universiti Teknologi Malaysia (UTM), and is under the same corporate structure as its main campus in Johor Bahru, Johor. The current UTM KL which is located at the center of Kuala Lumpur city used to be the original campus of UTM on Lot 4582 Jalan Sultan Yahya Petra (previously known as Jalan Semarak), with an area of 47.56 acre. UTM KL is a semi-autonomous branch campus headed by a Pro-Vice Chancellor and the whole structure is governed by the same Board of Directors under the same protocol of Chancellor and Pro-Chancellors. The administrative and academic support for UTM KL is provided by the major administrative offices such as Office of the Registrar, Bursary, Library, Office of Asset and Construction Management, Centre for Information & Communication Technology and Office of Corporate Affairs.

UTM KL is in its own local community affiliated with UTM, offers leading-edge programmes at bachelor and graduate degree levels and provides services both locally and internationally. In the current academic session, the UTM KL is offering full-time undergraduate programmes and postgraduate programmes under its three major faculties: The Razak Faculty of Technology and Informatics, Azman Hashim International Business School and Malaysia-Japan International Institute of Technology (MJIT). Some of these faculties also offer part-time executive programmes for working professionals. In addition, part-time and modular programmes are provided by UTMSPACE (The School for Professional and Continuing Education).

There are several centers of excellence in UTM KL which carry out research activities and also offer some academic programmes. Other major supporting units include the branch offices of Innovation & Commercialization Center (ICC), School for Graduate Studies (SPS) and UTM International. Their presence at UTM KL would be supportive of the Campus key results areas and its strategic objectives.

UTM Philosophy, Vision, Mission, Strategic Thrusts and Core Values



1.2 Malaysia-Japan International Institute of Technology

The idea to initiate the Japanese-type education in Malaysia was borne in 2001 and agreed by both Malaysia and Japan during the course of ASEAN + 3 Summit at Bandar Seri Begawan, Brunei Darussalam by the then Prime Ministers Tun Dr. Mahathir Mohammad and Junichiro Koizumi respectively. Due to UTM's strength and collaboration with many Japanese universities, UTM has been chosen to set up the Malaysia-Japan International Institute of Technology (MJIT). It is officially established in 1st August 2010 and strategically located in UTM Kuala Lumpur.

MJIT was established as a government-to-government initiative with the objective of incorporating a novel Japanese-style of education in Malaysia. The approach is based on intensive R&D activities as well as close relations between academics and students capitalising on a highly productive work environment with a strong sense of professional ethics. MJIT works closely with Japanese universities and industries to create a distinctive working culture and employs a holistic approach in its programme offerings. MJIT offers undergraduate programmes, postgraduate and R&D activities. Presently, academic programmes at MJIT are strongly supported by a consortium of twenty-five Japanese universities and five associate members from Japanese government agencies and industry. For further details about the history of MJIT, please refer to <https://mjit.utm.my/history/>.

MJIT strives to create partnerships through a hybrid approach of joint research, joint supervision, student-exchange, and staff mobility within the Japanese consortium universities. Presently, facilities at MJIT in Kuala Lumpur include a new multi-storey building with state-of-the-art laboratories for research and development. Moreover, MJIT is able to exploit all the facilities of UTM including the established research facilities and support of experienced academics. Figure 1 shows the current organization chart of MJIT.

Vision of MJIT

Leading in cutting edge technology education and research

Mission of MJIT

Providing Japanese style engineering education blended with Malaysia distinctiveness for sustainable industry and society.

Leading in academic and research excellence in Electronics, Precision, Environmental & Green Engineering and Management of Technology

Tagline of MJIT

Engineering the Nation with Precision for Sustainable Development

MJIT CONSORTIUM UNIVERSITIES IN JAPAN



UNIQUENESS OF MJIT

01

Provides a holistic approach in its human development (Ningen-Ryoku) programmes to develop confidence, decisiveness, independence and maturity in the graduates. These characteristics prevail through emphasis on skills in communication, problem solving, responsibility and ethics in the programme curriculum.

02

Utilizes the K.E.S. (Knowledge, Experience, Self-study) pedagogy concept of teaching and learning approach which focuses on more class contact in lower years, learning through experience and self-study in later years.

03

The unique Senpai-Kohai relationship or mentor-mentee concept is emphasized from the moment the students step into MJIT until they graduate. The implementation of i-Kohza (research) laboratory system which promotes strong collaborative work by senior and junior researchers as well as continuous guidance from the professors in R&D project strengthens the concept. All students will be part of the i-Kohza system.

04

The successful Japanese concept of SS and Kaizen will be part of the learning concept of MJIT, aimed to develop the skills of the Japanese which are envied by many, such as team working, responsibility, and resilience.

05

MJIT students can pursue Japanese-style of education in English at affordable cost.

06

Selected undergraduate students will have the opportunities to do part of their industrial training or attend some courses in Japan.

07

Postgraduate students will have opportunities for attachment in research laboratories in Japan for three (3) months to one (1) year.

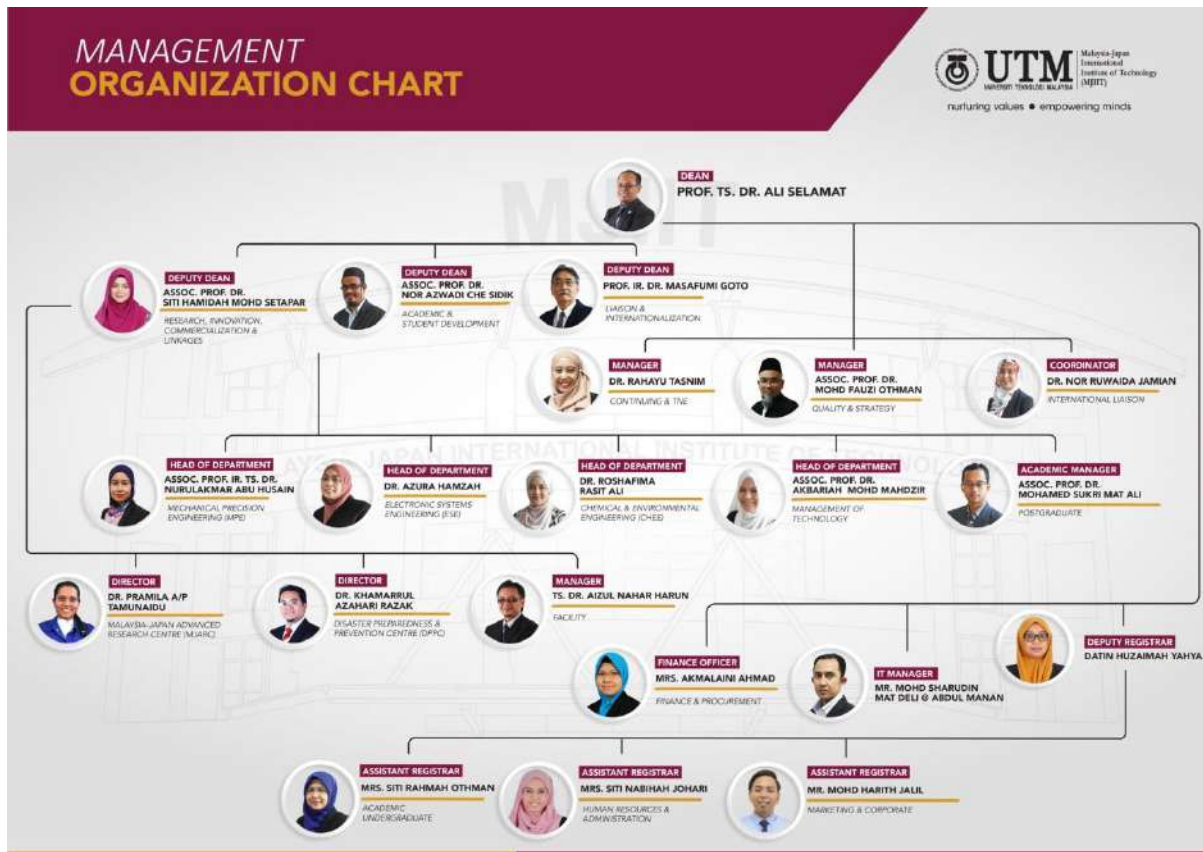


Figure 1: Organization chart of MJIIIT's Management Team

1.3 Programmes

MJIIIT offers the following postgraduate research programmes:

- Doctor in Philosophy (Ph.D) (by research)
- Master of Philosophy (M.Phil) (by research)
- Master of Technology and Innovation Management (by taught course)
- Master of Sustainable Systems (by taught course)
- Master of Sustainability and Environmental Sciences (Joint Degree taught course)
- Master of Disaster Risk Management (by taught course)

The programmes are offered in full-time modes with specific research project supervised by supervisor/s. The Ph.D and Master degrees have been especially designed to incorporate the latest advancements in technology, offering students the exclusive experience of undertaking research under the supervision of Malaysian and Japanese experts while combining both theory and practice. Table 1 shows the duration of studies.

Table 1: Duration of Studies

Programme	Minimum (semesters)	Maximum (semesters)
M.Phil	2	8
Master of Sustainable Systems	3	8
Master of Technology and Innovation Management	3	8
Master of Disaster Risk Management	2 normal semesters + 1 short semester	8
Master of Sustainability and Environmental Sciences (Joint Degree with University of Tsukuba)	4	8
Ph.D	6*	16

*refer to Section 4.4 for exceptional cases

1.3.1 Programme Educational Objectives and Programme Outcomes for Ph.D and M.Phil

With the spirit of outcome based education, our programme educational objectives are to produce graduates with the following abilities five years after their graduation:

- PEO1 **generate** in-depth **relevant** knowledge in professional practices for the benefits of both national and international communities.
- PEO2 **maintain** conducive working environment qualities through effective leadership, problem solving and high order thinking skills.
- PEO3 **advocate relevant** knowledge and expertise through effective oral and written communications.
- PEO4 **develop relevant** niche knowledge and cutting-edge technologies.
- PEO5 **nurture and promote** professional and ethical responsibilities including contemporary issues and environmental awareness.

In order to realize the programme educational objectives, we design the programme learning outcomes to be measured and assessed:

- PLO1 Confidently generate in-depth knowledge acquisition and management.
- PLO2 Originate, formulate, characterize, and solve appropriate operational problems and designs.
- PLO3 Develop knowledge and technology of relevant project
- PLO4 Generate comprehensive knowledge of appropriate fields in business thinking /entrepreneurship
- PLO5 Adapt appropriate research methodologies, techniques and tools
- PLO6 Communicate effectively through written and oral
- PLO7 Exemplify high leadership qualities and team working
- PLO8 Seek high ethical standards and integrity in appropriate practice

To in line with the Malaysia Qualification Framework 2.0, new PEOs and PLOs have been set as the following

New Program Educational Objectives (PEO)

- PEO1 Mastery of knowledge and competency in niche knowledge and cutting-edge technologies.
- PEO2 Professionalism and high standards of ethical conduct for the benefits of both national and international.
- PEO3 Responsive to changing situations by continuously acquiring new knowledge and skills.

New Program Learning Outcome (PLO)

- PLO1 Demonstrate originality and independence in undertaking analytical and critical evaluation and synthesis of complex information, specialized concepts, theories, methods and practice.
- PLO2 Apply knowledge critically and integrative to manage and resolve complex issues through research, using advanced techniques, tools, skills or by a range of approaches for decision making and producing new ideas in niche area.
- PLO3 Demonstrate practical skills competencies through the use of tools or investigative techniques which are informed by knowledge at the forefront of research innovation.
- PLO4 Demonstrate decent collaboration with different people in learning and working communities and other groups and networks.
- PLO5 Communicate clearly the knowledge, skills, ideas, critique and conclusion or rationale using appropriate methods to a diversity of audiences.
- PLO6 Competently use a wide range of suitable digital technologies and appropriate software in the research work.
- PLO7 Apply mathematical and other quantitative, qualitative tools to analyze and value numerical and graphical data.
- PLO8 Demonstrate significant autonomy, independence, leadership, and interpersonal skills at work and class.
- PLO9 Exemplify self-advancement through continuous academic and professional development.
- PLO10 Demonstrate entrepreneurial characteristics.
- PLO11 Demonstrate adherence to legal, ethical and professional codes of practice.

1.3.2 Programme Educational Objectives and Programme Outcomes for Master of Technology and Innovation Management

We have also developed a set of programme education objectives whereby we expect our graduates to be able to do the following 3 or 5 years after their graduation:

- PEO1. Meramal, menjana dan menterjemah idea dan teknik baru yang kreatif untuk menangani perubahan teknologi dan mengurus pembangunan produk dan perkhidmatan baharu berasaskan teknologi dan inovasi. [*Predict, generate and translate creative new ideas and techniques to address technological change and manage the development of new products and services based on technology and innovation*].

PEO2. Meneraju organisasi untuk berdayasaing berasaskan pengetahuan pengurusan teknologi dan inovasi. [*Leading organizations to compete based on knowledge of technology management and innovation*].

PEO3. Bekerja dalam pasukan pelbagai disiplin dan menyumbang ke arah masyarakat mapan dengan mematuhi etika, piawaian profesional dan piawaian komuniti, serta melibatkan diri dalam pembelajaran sepanjang hayat. [*Work in a multidisciplinary team and contribute towards a sustainable society by adhering to ethics, professional standards and community standards, as well as engaging in lifelong learning*]

In order to realize the programme educational objectives, we design the programme learning outcomes to be measured and assessed:

PLO 1 Menganalisis secara kritikal maklumat yang kompleks dengan pengetahuan dan keaslian dalam konsep, teori, kaedah dan amalan khusus dalam pengurusan teknologi dan inovasi.

Critically analyse complex information with originality and knowledge in specialised concepts, theories, methods and practice in technology and innovation management.

PLO 2 Membina penyelesaian untuk menyelesaikan masalah yang kompleks dengan menggunakan pendekatan, pengetahuan, dan penyelesaian inovatif untuk pengurusan teknologi dan inovasi.

Construct solutions for solving complex issues using advanced approaches, knowledge, and innovative solutions for management technology and innovation.

PLO 3 Melaksanakan kemahiran pengurusan teknologi dan inovasi dengan pengetahuan dan peralatan pembangunan terkini.

Conduct management of technology and innovation skills at its forefront knowledge and latest development tools.

PLO 4 Bekerjasama dengan orang lain dalam pembelajaran dan komuniti kerja secara beretika dan profesional.

Work collaboratively with others in learning and working communities ethically and professionally.

PLO 5 Berkomunikasi dengan jelas pengetahuan, kemahiran, idea, kritikan dan kesimpulan dengan rasional menggunakan kaedah yang sesuai untuk rakan sebaya, pakar, dan tidak berpengalaman.

Communicate clearly the knowledge, skills, ideas, critique and conclusion with rationale using appropriate methods to peers, experts, and nonexperts.

- PLO 6** Menggunakan pelbagai teknologi digital dan perisian yang sesuai dengan kompeten untuk meningkatkan penyelesaian masalah yang kompleks.

Competently use a wide range of suitable digital technologies and appropriate software to enhance the solution of complex issues.

- PLO 7** Mengaplikasikan kaedah matematik, kualitatif dan kuantitatif untuk menganalisis dan menilai angka dan grafik bagi pentafsiran data.

Apply mathematical and other quantitative, qualitative tools to analyse and evaluate numerical and graphical for data interpretation.

- PLO 8** Menunjukkan kemahiran autonomi, kebebasan, kepemimpinan dan tanggungjawab yang signifikan pada situasi yang tidak dapat diramalkan dalam pasukan bekerjasama untuk menyelesaikan masalah yang kompleks.

Demonstrate significant autonomy, independence, leadership and responsibility skills at unpredictable situations within collaboratively team to solve complex issues.

- PLO 9** Mengenalpasti keperluan dalam pengembangan akademik dan profesional yang berterusan melalui kemajuan sendiri.

Recognise the need in continuous academic and professional development through self-advancement.

- PLO 10** Memulakan program keusahawanan dengan membangunkan rancangan perniagaan untuk produk, perkhidmatan berkaitan.

Initiate entrepreneurial program by developing business plan for the related product and services.

- PLO 11** Mematuhi kod amalan undang-undang, etika dan profesional dalam setiap refleksi kritikal dan membuat keputusan sebagai pakar bidang.

Adhere to legal, ethical and professional codes of practice in every critical reflections and decision making as a field expert.

1.3.3 Programme Educational Objectives and Programme Outcomes for Master of Sustainable Systems

We have also developed a set of programme education objectives whereby we expect our graduates to be able to do the following 3 or 5 years after their graduation:

- PEO1** Become agents of change capable of implementing sustainability in current technologies and processes
- PEO2** Display innovative leadership capable of steering the progress of science and technology in every sector based on sustainable systems
- PEO3** Become proactive members by being involved in multidisciplinary teams and contribute towards a sustainable society

In order to realize the programme educational objectives, we design the programme learning outcomes to be measured and assessed:

- PLO1** Attain, integrate and generate advances knowledge and understanding on sustainability systems.
- PLO2** Able to demonstrate practical skills to solve and manage complex issues.
- PLO3** Develop critical and logical thinking skills in order to understand environmental issues and recommend solutions from sustainability perspectives.
- PLO4** Demonstrate professional, legal and ethical responsibility in decision making practices towards environmental and social sound sustainable decision.
- PLO5** Communicate effectively with various communities and societies at large to work effectively with fellow workers and stakeholders.
- PLO6** Embrace lifelong learning and be able to align themselves with knowledge and technology for continuous involvement.
- PLO7** Evaluate and address current complex societal challenges affecting public and community.
- PLO8** Able to demonstrate team working.
- PLO9** Able to demonstrate leadership skills.
- PLO10** Able to demonstrate data management skills for career enhancement.
- PLO11** Develop and demonstrate managerial and entrepreneurial skills for career development in related fields.

1.3.4 Programme Educational Objectives and Programme Outcomes for Master of Disaster Risk Management

We have also developed a set of programme education objectives whereby we expect our graduates to be able to do the following 3 or 5 years after their graduation:

- PEO1** Be an expert and decision maker who are able to acquire and apply knowledge of disaster management throughout his/her life.
- PEO2** Be able to lead and also to be a team member in a disaster management team.
- PEO3** Be planner in reconstruction of infrastructures and health care after a disaster.

In order to realize the programme educational objectives, we design the programme learning outcomes to be measured and assessed:

- PLO1** Apply, integrate and generate advanced knowledge in disaster management.
- PLO2** Apply appropriate advanced tools to solve and manage current and future disaster issues.
- PLO3** Evaluate and address current and post-disaster societal challenges and reconstruction.
- PLO4** Generate solutions to complex disaster situations in compliance with legal, ethical and professional code of practice.
- PLO5** Demonstrate leadership and team-working qualities by communicating and working effectively with peers and stakeholders in managing a disaster.
- PLO6** Apply scientific and critical thinking skills to provide solutions to complex disaster situations.
- PLO7** Retrieve and utilize relevant disaster information to innovate solutions in disaster management continuously.
- PLO8** Apply managerial skills to plan and develop a resilient society.

1.3.5 Programme Educational Objectives and Programme Outcomes for Master of Sustainability and Environmental Sciences (Joint Degree taught course)

We have also developed a set of programme education objectives whereby we expect our graduates to be able to do the following 3 or 5 years after their graduation:

- PEO1** Competent and innovative in incorporating the concepts and values of sustainability in any environmental related field.
- PEO2** Demonstrate innovative leadership skills and capable to generate solutions and ideas by addressing the complexities of the sustainability challenges through a multidisciplinary perspective
- PEO3** Grow professionally with the ability to analyze and communicate environmental issues to a broader community of stakeholders to meet our present needs without compromising future generations.

In order to realize the programme educational objectives, we design the programme learning outcomes to be measured and assessed:

- PLO1** Demonstrate originality and independence in undertaking analytical and critical evaluation and synthesis of complex information, specialized concepts, theories, methods and practice in the field of sustainability and environmental sciences.
- PLO2** Exemplify capacity to solve and manage complex problems or issues which are informed by the knowledge in the aspect of sustainability and environmental sciences.
- PLO3** Demonstrate practical skills competencies through the use of tools or investigative techniques which are informed by knowledge at the forefront of sustainability and environmental sciences.
- PLO4** Work together and collaboratively with different people in learning and working communities.
- PLO5** Communicate clearly the knowledge, skills, ideas, critique, rationale and conclusion to a diversity of audiences.
- PLO6** Demonstrate competencies in using suitable digital technologies and appropriate software to enhance study, research, work and practice.
- PLO7** Apply mathematical and other quantitative, qualitative tools to analyze and evaluate numerical and graphical data for study and work. Apply mathematical and other quantitative, qualitative tools to analyze and evaluate numerical and graphical data for study/work.
- PLO8** Demonstrate significant autonomy, independence, leadership, and interpersonal skills at work and class.
- PLO9** Exemplify self-advancement through continuous academic and professional development.
- PLO10** Initiate or lead entrepreneurial ventures and projects.
- PLO11** Demonstrate ability to engage meaningfully on a range of civic and global issues in the area of sustainability and environmental sciences.

1.4 Administration of Postgraduate Programmes

The postgraduate programmes in UTM are under the administration of the University's School of Graduate Studies (SPS) and Academic Registrar Office (ARO) set up under the office of the Academic Vice Chancellor. ARO is responsible in student recruitment, student admission and academic management such as course registration, course amendment, programme mode change and academic result management. SPS coordinates postgraduate research activities such as research progress report monitoring, Viva Voce and scholarships across the university and maintains the quality of education of postgraduate students in UTM. In addition, SPS is also responsible for

academic programme development and customer relation. ARO is divided into Student Recruitment and Admission Division (SRAD) led by a director and Academic Management Division (AMD) led by a director. The academic leadership of SPS comprises a Chair and two Associate Chairs, one Academic manager and supported by a dedicated team of administrative and clerical staff based mainly in UTM main campus in Skudai, Johor. The AMD branch office and SPS branch office in UTM Kuala Lumpur are situated at 8th floor of Razak Tower. The organisation and members of staff of SPS and ARO is shown in Figure 2. AMD KL is also responsible to manage workspace for postgraduate students. For booking of workspace, you need to contact Mr Syamir Noraini Kassim at 03-2180 5176.

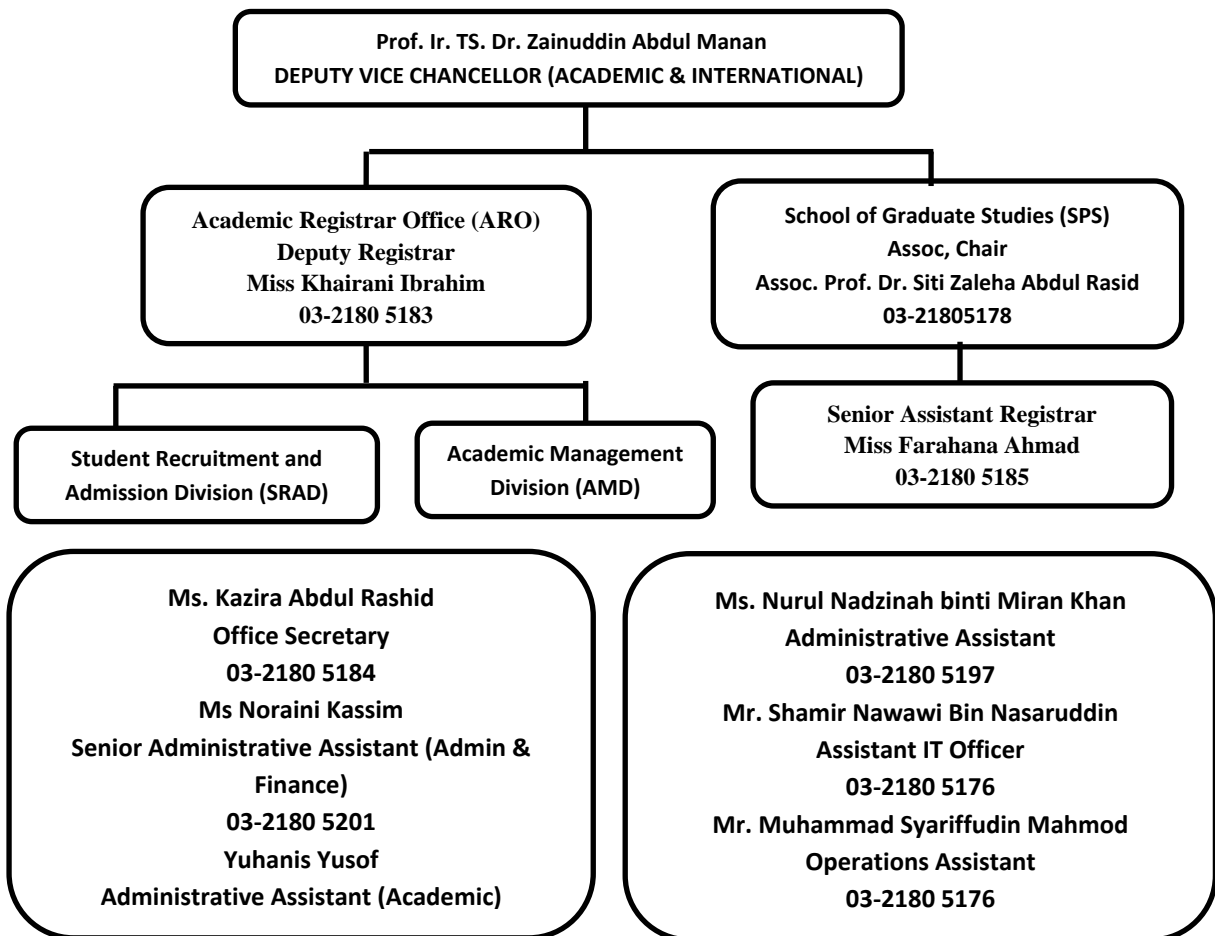


Figure 2: Kuala Lumpur SPS and ARO Organisation (<https://sps.utm.my/departmentsps-kuala-lumpur/>)

1.5 MJIT Postgraduate Committee

At MJIT, a Postgraduate Committee has been set up under the Deputy Dean of Academic. Other committee members include Postgraduate Academic Manager, one deputy registrar, two administrative assistants and several academics. The committee works closely with SPS, SRAD and AMD pertaining to the academic and social matters of your life and aims to foster a stimulating research environment. It facilitates the process of selecting postgraduate students and identifying the potential supervisors in line with their research areas.

One of the main responsibilities of Postgraduate Committee is supervision arrangement. A postgraduate candidate is supervised by one or more graduate staff that holds a minimum of PhD degree. If you are supervised by more than one supervisor, the group of supervisors is called *panel of supervisors*. In a panel of supervisors, there must be one main supervisor appointed among UTM graduate academic staff; the co-supervisors can be from any research institution related to your area of study, including those from Japanese consortium universities. Among the supervisors in the panel, there must be at least one supervisor (either co- or main) from MJIT. You can identify and contact suitable supervisors and co-supervisors according to your research interest from the lists of academics given at the back of this handbook or from MJIT website and brochures. For more information on the minimum qualifications for supervisors and co-supervisors, please refer to the Postgraduate Academic Manager in MJIT. The Postgraduate Committee at MJIT will give the final decision on the allocation of supervisors and co-supervisors.

The general responsibility of a supervisor is to ensure that his/her student make full planning on the research work to be carried out as well as giving advice on academic and personal matters when necessary. The other detail of responsibilities of a supervisor during the research activity and Viva Voce are given in the same SPS website mentioned above. Any enquiries can be directed to the Postgraduate Academic Manager at mjiit.pgam@utm.my.



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**MASTER OF
PHILOSOPHY**



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Hartini Radzi**

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**DOCTOR OF
PHILOSOPHY**

2.5 University Student Support Services

The Office of Student Affairs and Alumni of UTM aims to provide students with a conducive environment for learning and acts as a one stop agency for services related to health, accommodation, financial aid, students' general welfare and more. Please refer to the website at <http://kl.utm.my/studentaffairs/> for more information on various services available. The student support services in UTM Kuala Lumpur include the library, UTM health Centre, transportation and student welfare services. The student affairs office in UTM KL is situated at the first floor of Block P.

2.5.1 Sultanah Zanariah Library (PSZ)

PSZ (Figure 4) is a modern library occupying a four-storey building with a seating capacity of 3,422 and a collection of nearly half a million volumes. As an integral component of the academic programme, PSZ supports the university's teaching, learning, research, consultancy and publication activities. Its services and collection development activities are geared towards fulfilling the need for library materials and information in the university's core area of Science and Technology. Nevertheless, PSZ also has an extensive Humanities and Social Science collection to support courses in these areas which are offered by several faculties. PSZ's operations and services are computerised. All processes including materials acquisition, indexing, circulation and information searching are conducted through the Computerised Library System known as SirsiDynix. Information on all materials available at PSZ can be accessed at <http://ent.library.utm.my/client/main>



Figure 4: PSZ Library

2.5.2 MJIT Library

MJIT Library is one of the branch libraries in UTM Kuala Lumpur. The MJIT Library was officially opened to public on 10th June 2013 and located at the Ground Floor of MJIT Building. The MJIT Library is unique because all the materials are related to Japanese technology, management, and culture. All the books are specifically related with courses taught in MJIT. Patrons will also find collections of materials in Japanese language as the students of MJIT are obliged to learn Japanese language to prepare them prior to their studies or industrial training in Japan. The collections are expected to grow gradually.

COLLECTION OF MJIIT LIBRARY

TYPE	TOTAL (TITLE)
Monograph (Open access & references)	1734
Audio Visual Material	152
TOTAL	1886

OPENING HOURS OF MJIIT LIBRARY

MONDAY-THURSDAY	FRIDAY
8.00AM - 1.00PM	8.00AM - 12.15PM
1.00PM - 2.00PM (CLOSED)	12.15PM - 2.45PM (CLOSED)
2.00PM – 5.00PM	2.45PM – 5.00PM
CLOSED ON SATURDAYS, SUNDAYS AND PUBLIC HOLIDAYS	

A full range of services is provided in the library including book loans, on-line renewal and reservation, inter library loan (ILL) and information consultancy. For any inquiries, you can contact the Librarian at MJIIT Library or phone number +603-22031510.

For general library inquiries kindly email at lib-enquirykl@utm.my

2.5.3 UTM Health Centre

In UTM Kuala Lumpur, health facilities for the staff and student are provided by health centre in the campus and in the student residential area of *Kediaman Siswa Jaya (KSJ) Hostel*.

For emergency and appointment, contact the health centre:

Office of Health Centre:

03-26154457

For enquiries: 03-26154905

FAX:

03-26154306

2.5.4 Transportation

UTM IC provides shuttle bus services for students to move from hostel to campus and vice versa. The buses are available every day except during semester breaks. The service starts at 7.00 a.m. until 12.00 midnight depending on the needs of the students. The buses leave *Kediaman Siswa Jaya (KSJ) Hostel* for UTM IC every 15 minutes. Students who want to book the buses for their off-campus activities may do so through the Vehicle Reservation Management System at <http://vrms.utm.my/>

2.5.5 Student's Welfare

UTM uses the Student Group Family Takaful Insurance Scheme which is managed by the Syarikat Takaful Malaysia Bhd. Through this scheme, every student invests RM10.00 per semester. It is renewed when the insured period expires every semester until the student graduates. This insurance is for students who have registered for the full-time undergraduate and postgraduate studies.

The purposes of the insurance scheme are:-

- i. to ensure that the welfare of the students are taken care of
- ii. to facilitate professional dealings between the university and organisations (with regard to students' practical/industrial training)
- iii. to facilitate students' programmes/activities.

2.5.6 Accommodation and Recreation

2.5.6.1 Student Accommodation

UTM Kuala Lumpur (UTM KL) provides a residential college that can accommodate up to 3000 students in one academic session. This college is located at *Kediaman Siswa Jaya (KSJ)*. Other accommodation provided by UTM IC KL are two rental apartments, Keramat Hujung Apartment and Jalan Gurney Apartment, located near the campus.



Figure 5: Kediaman Siswa Jaya

Kediaman Siswa Jaya

Kolej Kediaman Siswa Jaya (KSJ), the student residential accommodation is located at Jalan Rejang, Setapak, approximately 4km from UTM KL. Subject to availability, students may choose to occupy a single or shared room, with an attached inter-connected bathroom. Figure 4 shows the front gate of the hostel. Prospective students and current students may contact Ms. Naimah Mohamed at naimah.kl@utm.my or +6 03- 2615 4123. More details including hostel activities are

available at <http://kl.utm.my/ksj/>. New students may apply for accommodation prior to registration by submitting your application along with your expected time and date of arrival. An email will be sent to you upon confirmation. Hostel application can also be done through the website <http://hostel.utm.my/>

2.5.6.2 Residensi UTM KL



Figure 6: Residensi UTMKL

Residensi UTMKL comprises four towers for between 11 and 22 floors. The complex contains 500 rooms and will be professionally managed by Royal Widad Hotel, The Regency and Dormani Halmark, all of whom have extensive experience in the hospitality industry in the country. Rooms will be managed as a hotel and three-star service apartments to provide comfort and convenience of fully equipped accommodations for tenants. Residensi UTMKL contains a seven-storey podium and four towers for accommodation. Tower 1 is the highest tower with 22 floors containing 150 units of two-bedroom accommodations. Meanwhile, the 13-storey Tower 2 consists of 50 units of three-bedroom accommodation units, followed by Tower 3, an 11-storey tower containing 118 studio units, and Tower 4, a 14-storey tower containing 182 studio units. In addition, Residensi UTMKL features a 10-lane bowling hall, a multipurpose hall that can accommodate up to 500 guests, a swimming pool, 60 business lots of retail space taking up 39,860 square meters, and features 719 parking lots. For reservation, please contact admin.residensiutmkl@utm.my or at 03-2697 3603.

2.5.6.3 The Regency Scholar's Inn UTM KL

Rooms and suites are available for students with family members. For reservation, please contact 03-2180 6000, or send e-mail to theregencyscholarsinn@gmail.com

2.5.6.4 Student Recreation

Sports facilities such as sports field and gymnasium are available on campus and at the students' residential apartment *KSJ* to encourage students to participate in sports and recreation. Booking of sports facilities can be made at the Sports Unit (HEMA) booking counters based on a first-come, first-serve basis. It is our mission to cultivate a healthy lifestyle among students and staff. Annual sporting events are held to encourage students to be active and have fun while in UTM. For enquiries, you can call +603-26154851.

2.6 Scholarship and Financial Aids

A limited number of funding is available for those wishing to pursue the M.Phil and Ph.D degrees at MJIT. The following represents a non-exhaustive list pertaining to applicable scholarships and financial assistantships.

2.6.1 Research Assistantships

Malaysian students involved in research work that are funded by grants may be offered positions as Research Officers or Research Assistants by their supervisors. Students may be required to undertake additional duties and will be remunerated with a monthly allowance. Further information on availability may be obtained from the respective faculty members at MJIT.

2.6.2 UTM Scholarships & Zamalah

The University offers limited scholarships for Malaysians for postgraduate studies. They include UTM Zamalah for Ph.D studies (Malaysians only) and UTM Scholarships for Masters (Malaysians only). Further information may be obtained from <http://sps.utm.my>

2.6.3 Other Scholarships

Details of other scholarships may be obtained from <http://sps.utm.my/scholarships/>

2.7 Safety

Student safety is important to us. Ensuring the health and safety of students, staff and visitors is one of the University's highest priorities. The University is responsible for providing a safe environment and safe systems of work, but safety cannot be achieved without the full cooperation of everyone. University Ordinances require every student whilst on University premises; to take reasonable care for the health and safety of themselves and others; to act in accordance with University safety rules. Students are required: to read the fire procedure notices and familiarise themselves with the alternative fire exits; to report accidents, near misses or dangerous conditions to a responsible member of the department; to co-operate with health and safety instructions. In practical/laboratory departments, there is a safety code/handbook which sets out school/departmental safety arrangements in detail. If you have any problems or questions about safety, raise them with a member of teaching staff or with MJIT/Departmental Safety Coordinator.

The KL Campus safety unit number and the emergency number for fire, police or ambulance etc, are given below.

EMERGENCY CALLS

General

UTM KL Safety unit 03-26154281/4989/5081

Emergencies

Police/Ambulance 999

Civil Defence 999

Fire & Rescue 999

To Call from any
Handphones 999 / 112

Electrical Breakdown 15454

Water Woes
(Selangor) 1-800-88-5252

2.8 Student Dress Code

- Students are expected **TO BE CLEAN, WELL GROOMED and DRESSED** in a manner appropriate to the Malaysian custom or norms.
- Students must **MAINTAIN A PROFESSIONAL APPEARANCE** by wearing **collared** shirts/t-shirts, shoes, slacks or long skirts while attending classes and/or on official visits to Faculties/Administration building.
- Avoid **WEARING INAPPROPRIATE CLOTHING or FOOTWEAR** including:-
 - Shorts skirts or boxer shorts
 - Round-neck T-shirt.
 - Sleeveless shirts.
 - Tight slacks/pants.
 - Slippers/sandals.
- During any formal/official university event, male students are **REQUIRED TO BE DRESSED** by wearing long sleeved shirts, necktie, slacks (not jeans) and leather shoes or **COMPLETE NATIONAL OUTFIT**. Female students are **REQUIRED TO WEAR 'BAJU KURUNG'** or any **APPROPRIATE SUIT** such as long skirts or loose slacks.
- Female students are not allowed to **WEAR VEILS** in campus.
- Headgears such as **BANDADA or CAPS** must be removed while on formal/official visits or business in campus, except during sport activities.
- For male students, **HAIR MUST BE NEATLY TRIMMED and REASONABLE IN LENGTH, COLOURING and FREESTYLE HAIRDO** are strictly prohibited.
- MALE STUDENTS** are strictly prohibited **TO PUT ON ANY FEMALE COSTUMES and/or ACCESSORIES and VICEVERSA**.
- Male students are strictly prohibited **TO WEAR BANGLES, BRACELETS, EARRINGS and NECKLACES**; and female students are prohibited to have their **EARS PIERCED MORE THAN ONCE PER EAR**, as it is against the norms of Malaysian society.
- TATTOOS** are prohibited on any parts of the body.
- Students **MUST PUT ON** their **MATRIC CARD** at all times while in campus/premises. The **Matric Card MUST BE WORN** and **DISPLAYED** at chest level.

Note: STUDENTS' FAILURE TO COMPLY WITH ANY OF THESE REGULATIONS WILL BE GIVEN A WARNING OR FINED NOT MORE THAN RM50.00 (FOR FRIST OFFENCE). STUDENTS WILL BE REFERRED TO THE DISCIPLINARY AUTHORITY FOR REPEATED OFFENCE.



Figure 7: Student Dress Code

3.0 Introduction to *iKohza* System

The unique *Senpai-Kohai* relationship or mentor-mentee concept is emphasized from the moment a student is admitted into MJIT. The implementation of the innovative research laboratory (*iKohza*) system promotes strong collaborative between senior and junior researchers as well as continuous guidance from the professors in R&D project. The successful Japanese concept of 5S and Kaizen are part of the learning concept at MJIT aimed at developing skills of the Japanese such as team-working, responsibility, and resilience.

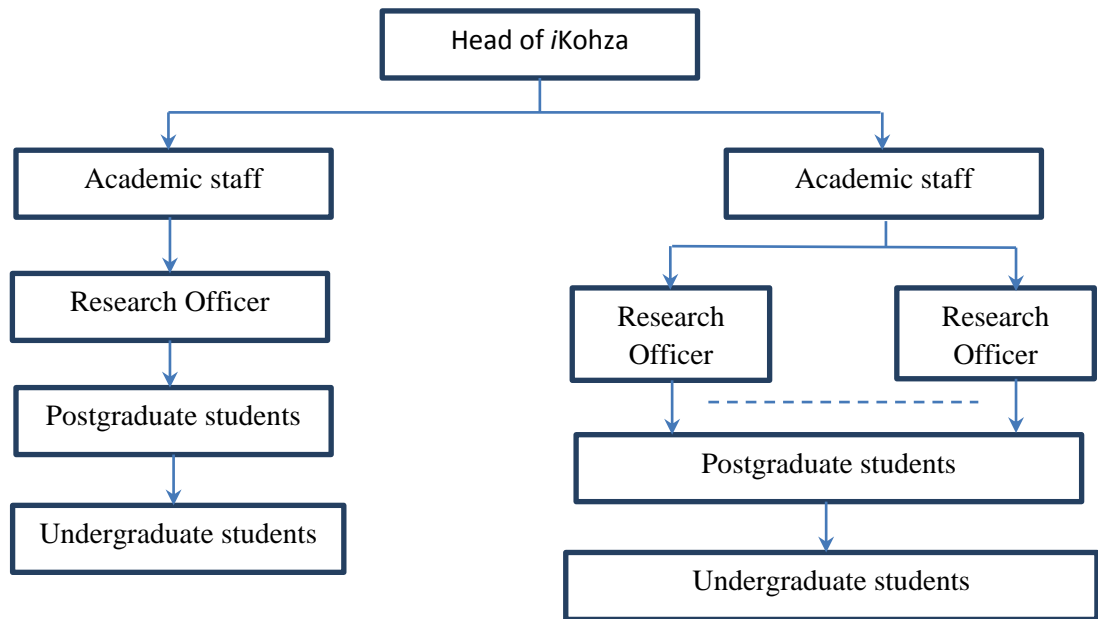


Figure 8: Structure of *iKohza*

Figure 8 shows the structure in an *iKohza*. Head of *iKohza* will be assisted by academic staff who can hire research officers in conducting research in the *iKohza*. More than one research officers can be under an academic staff member, depending on the size of the *iKohza*. Research officers will help in mentoring postgraduate students whereas postgraduate students will help to guide final year undergraduate students in projects. An outline of each of MJIT's research laboratories (*iKohzas*) are given below in Sections 3.1-3.19. Further information may be obtained from www.mjiit.utm.my.

RESEARCH AREA	iKOHZA
<p><i>Environmental Engineering:</i></p> <p><i>Science Engineering:</i></p> <p><i>Biological Technology</i></p> <p><i>Chemical:</i></p> <p><i>Innovation, Technology Management & Business:</i></p> <p><i>Multi-Technology:</i></p>	<ol style="list-style-type: none"> 1. <u>Air Resources Research Laboratory</u> 2. <u>Wind Engineering for (Urban, Artificial, Man-made) Environment</u> 3. <u>Takasago Thermal Environmental System</u> 4. <u>Tribology and Precision Machining (TriPreM)</u> 5. <u>Metabolic Engineering & Molecular Biology (MemBio)</u> 6. <u>Biologically Inspired System and Technology (Bio-iST)</u> 7. <u>Algal Biomass (AlBio)</u> 8. <u>Chemical Energy Conversions And Applications (ChECA)</u> 9. <u>Nano-characterization, Structural Control And Processing (Nano3)</u> 10. Intellectual Property and Innovation 11. <u>Communication Systems and Network (CSN i-Kohza)</u> 12. <u>Optical Devices and Systems (ODESY)</u> 13. <u>Embedded System (ES) Research Laboratory</u> 14. <u>Advanced Devices and Materials Engineering (ADME) Research Lab</u> 15. <u>Pattern Recognition and Automation (PRA) ikohza/ Center for AI and Robotics (CAIRO)</u> 16. <u>Vehicle System Engineering Research Lab</u> 17. <u>Intelligent Dynamics & System</u> 18. <u>Shizen Conversion & Separation Technology (SHIZEN)</u>

AREA	Centre of Excellence
Multidisciplinary	1.DISASTER PREPAREDNESS & PREVENTION CENTRE (DPPC)

Director of COE

COE	Director
Disaster Preparedness & Prevention Centre (DPPC)	<ul style="list-style-type: none"> Dr. Khamarrul Azhari Razak dppc@utm.my

Head of iKOHZA

iKOHZA	Head
Shizen Conversion and Separation Technology (SHIZEN / CLEAR)	Prof. Dr Tomoya Tsuji
Metabolic Engineering & Molecular Biology (MEMO BIO)	Dr. Nor' azizi Bin Othman
Air Resources	Prof. Dr Ezzat Chan bin Abdullah
Chemical Energy Conversions and Applications (CHECA)	Dr. Kamyar Shameli
Algal Biomass (ALGAE)	Prof. Dr. Koji Iwamoto
Embedded System (ES)	Assoc. Prof.Dr. Ooi Chia Yee
Pattern Recognition and Robotics (PRA)	PM. Ir. Dr. Zool Hilmi Bin Ismail
Biologically Inspired Systems and Technology (Bio-IST)	Dr. Muhamad Kamal bin Mohammed Amin
Advanced Devices and Materials Engineering (ADME)	Prof Ir. Dr Abdul Manaf b. Hashim
Communication Systems and Networks (CSN)	Prof Dr Yoshidie Yamada
Intelligence Dynamics and System (IDS)	Prof. Ir. Ts. Dr Aminuddin bin Hj Abu
Tribology and Precision Machining (Tri Prem)	Prof. Dr Kanao Fukuda

Advance Vehicle System (AVS)	PM Ts Dr Mohd Azizi Bin Abdul Rahman
Wind Engineering and Environment (WEE)	PM. Dr. Sheikh Ahmad Zaki b. Shaikh Salim
TAKASAGO Thermal/Environmental Systems (TTES)	Prof. Dr Yutaka Asako
Optical Devices and Systems (ODESY)	Dr. Azura Binti Hamzah
Engineering Materials and Structure, (eMast)	Prof. Ir. Ts. Dr. Saiful Amri Bin Mazlan
Interlectual Property and Innovation Management	PM Dr. Akbariah bt Mohd Mahdzir
Disaster Preparedness & Prevention Center (DPPC)	Dr. Khamarrul Azahari
Software Engineering Of Industrial Revolution (SEIR)	Dr Halinawati Binti Hirol
Wellness Innovation Technology (WIT)	PM. Dr Azila binti Abdul Aziz

COE RESEARCH INTEREST

Disaster Preparedness & Prevention Centre (DPPC)
<ul style="list-style-type: none"> • Early warning system for flood and landslides • Integration of information, modelling, and mapping technologies to provide situational awareness and decision support via web-accessible graphics and information. • Prevention of flood and landslide • Best practices and effective preparedness programs and policy • Tropical Geo Engineering

iKOHZA RESEARCH INTERESTS

Communication Systems and Network	<i>Shizen</i> Conversion & Separation Technology	Pattern Recognition & Robotics
<ul style="list-style-type: none"> • Algorithm • Wireless Sensor Network • Communication Protocol • Network Security • Cloud Computing • Cognitive Radio Network 	<ul style="list-style-type: none"> • Separation and Purification Process • Green Extraction Technology • Oil/Wax/Fat (Lipid) • Biomaterial 	<ul style="list-style-type: none"> • Artificial Intelligence (AI) • Intelligent Systems & Soft Computing • Pattern recognition • Robotics • Control • Process Tomography Instrumentation
Intelligence Dynamics and System	Air Resources	Intellectual Property and Innovation Management
<ul style="list-style-type: none"> • Noise and Vibration Control • Damaged Detection • Intensity Identification • Non –linear System Identification • Smart Material- Magnetoreological (Magneto rheological) and Electrorheological (ER) fluids application • Vibration damper and active suspension system • Structural Dynamics 	<ul style="list-style-type: none"> • Air Quality Surveillance • Air Pollution Modelling and Assessment • Quantification and Characterization of Atmospheric Aerosols and Toxic Compounds in Incineration or High Temperature Processes • Air Pollution Control System Engineering 	<ul style="list-style-type: none"> • Project Management Human Resource Development • Operations, Quality and Project Management • Innovation and Technology Management • Corporate Governance

Tribology & Precision Machining	Advanced Devices & Materials Engineering	Advanced Vehicle System
<ul style="list-style-type: none"> ● Mechanisms of wear ● Contact ● Numerical analysis ● Influence of gases ● Lubrication ● Elast-Hydrodynamic Lubrication ● Rolling contact 	<ul style="list-style-type: none"> ● Synthesis/growth of carbon nanomaterials, semiconductors, organic/molecular materials and bio-materials as well as their nanostructure formation technologies ● Various novel nano devices and functional devices covering electronic/photonic devices, sensors and solar cells 	<ul style="list-style-type: none"> ● Alternative & emulsion fuels ● Engine downsizing ● Turbo compound ● Waste heat recovery devices ● Combustion and engine control strategies ● Suspension ● Vehicle communication ● Vehicle active safety
Wind Engineering and Environment	Biologically Inspired Systems and Technology	Embedded System
<ul style="list-style-type: none"> ● Wind engineering encompassing urban thermal comfort and building physics 	<ul style="list-style-type: none"> ● Study and analyse the Bio-inspired learning process for development and application of machine learning ● Neural system ● Self-organizing learning ● Swarm intelligence and neurobiological characteristic of the human brain ● Intelligent system 	<ul style="list-style-type: none"> ● VLSI ● Reconfigurable computing ● Architectural translation of complex algorithms ● Architecture-centric CAD algorithm development ● Networking architectures and integrated circuits as well as design-for-testability.
Chemical Energy Conversions and Applications	Engineering Materials and Structure	Metabolic Engineering and Molecular Biology
<ul style="list-style-type: none"> ● Research on sustainable energy development via the application of fundamentals of chemical energy conversion reactions and development of new materials to enhance their efficiency 	<ul style="list-style-type: none"> ● Smart Materials of Magnetorheological (MR) including development of MR materials, fabrication, characterization, design automotive devices and other related applications. ● Micro- and nano-particles development for magnetic 	<ul style="list-style-type: none"> ● Tackle the issues related to green technology from microbiological side. ● The production of new energy source from biomass/biochar

	particles. ● Corrosion and coating of metal particles. ● Nano-technology development of semiconductor materials. ● Development and characterization of tribo-electric materials	
Optical Devices and Systems	Takasago Thermal/Environmental Systems	Algal Biomass
<ul style="list-style-type: none"> ● Optoelectronics, ● Quantum Electronics, ● High-frequency Technology, ● Optical Communications ● Flat-Optical Fibre 	<ul style="list-style-type: none"> ● Thermo-fluid science especially renewable energy and energy saving technologies 	<ul style="list-style-type: none"> ● production of renewable energy and biomass, reduction of carbon dioxide, a greenhouse effect gas, from the air etc using algae, especially microalgae

3.1 Air Resources Research Laboratory

The Air Resources Research Laboratory pertains to the safe guard of our air resources or ambient air quality against man-made pollution. The research includes surveillance and quantification of pollutants that focuses on a detailed physical and chemical characterization of the pollutants in the ambient air or from stationary sources. The data is suitable for detailed investigation on the atmospheric aerosol dynamics, source-receptor relationship, control strategy development, monitoring and control equipment performance evaluation and health effects. The focus of the research work is directed towards fine particulate size fraction that has a strong association with anthropogenic or man-made pollution sources, which is difficult to control and traditionally known to impose health problems. First and foremost, the quantification and characterization of the air pollutant at source is the most important development towards a better understanding of source-receptor relationship and even for air pollution control performance evaluation. Thus, research on the source emission performance along with the application of air dispersion and health risk based models are sought to explain such relationship. In addition, the impact of utilizing fossil or biomass or other alternative fuels towards the local and global climatic change is also area of interest within the group member.

3.2 Communication Systems and Networks Research Laboratory

The Communication Systems and Networks *iKohza* is an inter-disciplinary group focusing on cutting-edge research in the development of reliable and efficient delivery of information for future Internet. It encompasses several areas of study including, but not limited to, telecommunication engineering, mobile communication, sensor networks, intelligent algorithms, network security and bio-inspired networks. The thrust of the research is on the development of new protocols and architectures that integrate 'intelligence' within the network for seamless support for a variety of applications and user requirements in next generation networks. Work includes algorithm design, protocol development, network programming, and prototype development. The main objective of the group is to establish a world-class research environment backed by strong research funding with expertise from Malaysia, Japan and abroad.

3.3 Intelligent Dynamics System Research Laboratory

The Vibration and Noise Research Group is a major component of the Conditioning Monitoring Laboratory based in the UTM Kuala Lumpur and is part of the *iKohza* Group of Malaysia-Japan International Institute of Technology. The Group has first class facilities and excellent capabilities to work efficiently in Noise and Vibration related research activities. The research activities by the Group include finite element model updating, modelling of mechanical joints, sub-structuring, experimental analysis and validation, acoustic intensity analysis and validation and fatigue analysis. The Lab is established with a mission to instil aspiration for conducting innovative collaborative research between the Kyonggi and Hanyang University with active involvement of industry and a focus on solving real-world engineering problems.

3.4 Tribology and Precision Machining Research Lab

The Tribology and Precision Machining Research Lab is designed to research fundamentals of tribological phenomena and support related industries through research activities and cultivating students and *iKohza* members. The lab will collaborate with other *iKohza* and any R&D organizations to generate synergistic effects: Fretting wear (small reciprocating sliding wear) issue with "Conditioning Monitoring", atmospheric gas issues with I2CNER (International Institute of Carbon Neutral Energy Research) in Kyushu University, vegetable oil as environment friendly lubricant with some chemical research groups, energy saving and innovate power generation technology through tribological breakthroughs with coming *iKohza* in EGT, advanced semiconductor development by CMP (Chemical Mechanical Planarization) with some industries, etc.

3.5 Advanced Devices and Materials Research Lab

The advanced devices and materials engineering (ADME) research laboratory is focusing on the research and development of emerging materials and devices down to nano-scale for high performance systems towards future green electronics and green energy applications. Research is highly interdisciplinary which involves Physics, Chemistry, Biology and Electronic/Electrical

Engineering. For the material engineering area, the synthesis/growth of carbon nanomaterials, semiconductors, organic/molecular materials and bio-materials as well as their nanostructure formation technologies are within the focuses of this laboratory. In the device engineering area, various novel nanodevices and functional devices covering electronic/photonic devices, sensors, solar cells are focused by this laboratory.

3.6 Shizen Conversion & Separation Technology (Shizen)

Shizen's research strength focuses on separation and purification processes, waste management technology, biomass conversion and biofuel, and downstream process, bioproduct quality. Besides, it also works on palm oil and oleo-chemicals, food and non-food applications.

3.7 Pattern Recognition & Robotics Automation (PRA)

PRA has established itself as the leading R&D center in AI, Robotics and Automation in the country. Its main role is to acquire advanced technologies, to be involved in research, and to work with local industries to improve their product competitiveness.

3.8 Biologically Inspired System and Technology Laboratory

Inspired by mechanisms operating in living organisms, "Biologically Inspired System and Technology (BIST) Laboratory" is interesting, developing and demonstrating innovative and advanced technology for the well-being of mankind. Although there are many approaches for studying the technology that mimics nature, this research laboratory advances it mostly from a standpoint of system engineering. The research is focusing on biological systems and technologies, and encompasses an array of inter-science and engineering discipline in Machine Learning, Computational Neuroscience, Systems Biology & Medicine, Biomimetics, and Optimal Control & Optimization. The research is not only directed towards modelling and simulation, but also visualization and measurement which are essential methodologies to understand sophisticated complex mechanisms and regulations in living bodies. Besides conducting research from principles to applications, the primary objective of the research group is to develop infrastructure for interdisciplinary research and education in this area. Another important objective is to lead this research field in Malaysia and to focus on the high impact research to compete globally.

3.9 Embedded System Research Laboratory

"Embedded systems" are computer systems, not standing-alone for computing purposes, but built in various appliances, including handyphones, TVs, printers, cars etc., to provide sophisticated functions. They are faced with various challenges, such as mass-productivity, cost, and integration of heterogeneous components. Our goal is to undertake state-of-the-art and cutting-edge research in future design methodologies of giga-scale micro-electronics implementation technology for diverse applications. The group consists of members in MJIT and associate members in other locations such as UTM Johor as well as Japanese universities. We cover four fields: main processing unit, SoC (system-on-chip), analog mixed signal, as well as memory in the near future.

3.10 Chemical Energy Conversions and Applications Research Laboratory

The Chemical Energy Conversions and Applications (ChECA) research laboratory is focusing on the researches of highly efficient chemical energy conversions and applications for developing a sustainable society. In order to achieve this, we conduct investigations having the research discipline of the clarify the phenomena of Ions, Electrons and other associated species transfer in solid materials and Solid/Liquid or Solid/Gas interfaces, and develop the novel materials with fast transportation. Then apply these materials to high performance chemical energy conversions. As the materials, we treat Solid Electrolytes (inorganic, organic, hybrids), Mixed conductors, General Catalysis, Photo/Electro-catalysts, Functional membranes, Nano-structured materials, etc. Their applications are Batteries, Chemical conversion processes, Fuel Reforming, Separation and Reaction, Hydrogen Production/Generation, Bio-fuels, Fuel Cells, Bio-fuel Cells, Chemical Solar Cells, Chemical Sensors, Actuators, Artificial Photosynthesis, Super-Capacitors, etc.

3.11 Wind Engineering for Environment Research Laboratory

The *Wind Engineering for (Urban, Artificial, Man-made) Environment* is established as a center to conduct a pertinence research that is related to the wind engineering applications. Research activities currently undergoing in this lab are concerned particularly on improving the efficiency of urban ventilation, enhancing pedestrian thermal comfort within an urban area, harnessing wind energy for green urban development and others practical interests that are related to bluff body flow. Our research activities are multidisciplinary, where we stretch out our research activities to the other fields such as human behavior in term of energy consumption, social system, and green technology. Our strong collaboration with several institutions in Japan and Malaysia provides not only enhance the research activities but also provides a platform for information and technology sharing.

3.12 Nano-Characterization, Structural Control and Processing Research Laboratory

The Nano-Characterization, Structural Control and Processing (Nano³) Research Lab aims to undertake state-of-art research in materials science and engineering and solid-state-physics by developing analytical techniques of nano-characterization, to apply the advanced techniques to nano-structural control, and to contribute to the fabrication and quality-control of nano-functional materials and devices. The Research Lab now focuses on applying the advanced electron microscopes and focused-ion-beam machines to characterization and analysis. Currently researches on nitride semiconductor films, lead-free solders, silicon solar cells and graphene materials for sensors are being conducted in collaboration with Kyushu University, Meijo University and Imperial College, etc. The Research Lab will collaborate with other research groups and industries in nano-characterization for analysis of crystal growth process, quality-control and failure-analysis.

3.13 Metabolic Engineering and Molecular Biology Research Laboratory

The focus of this iKohza is to tackle the issues related to green technology from microbiological side. It is easily expected to solve that energy sources of all over the world will be insufficient in the future. The production of new energy source from biomass/biochar is now being watched with

interest by the rest of the world. establishment of ikohza is particularly well suited for malaysia's valuable and expanding not only palm oil industry but also any other biomass industries, its developing biomass conversion undertakings, the production of bio ethanol/ bio hydrogen product and biomass conversions creating industrial and medical materials, such as antibiotics, vitamin.

3.14 Vehicle System Engineering Research Laboratory

The Vehicle System Engineering (VSE) Research Laboratory is a highly dedicated group with activities and facilities spanning across the field of Low Carbon and Active Driving Technologies in transportation. Researches toward Low Carbon application aim for higher vehicle efficiency through advanced engine sub-systems, thus leads to lower fuel consumption and emission. Some of the on-going current researches are investigation into alternative & emulsion fuels, engine downsizing, turbo compound, waste heat recovery devices, combustion control strategies and engine mechanism control strategies. On the other hand Active Driving researches focus for better ride and handling of a vehicle. Some of the on-going current researches are active & semi-active suspension system, vehicle-to-vehicle (V2V) communication and vehicle active safety. VSE has close collaboration with industries and some of the top universities in the world, thus enabling access to the state-of-the-art testing equipment and know-hows. The local expertise coupled with extensive links makes this research laboratory a significant entity for vehicle system research and development.

3.15 TAKASAGO Thermal/Environmental Systems Research Laboratory (TTES)

TTES are funded mainly by an international Japanese company namely Takasago Thermal Engineering Co. Ltd. apart from university. Basically, this organization provides comprehensive system-engineering services, with a focus on HVAC systems, leveraging the most advanced technologies in every stage from planning to design, installation/construction, and maintenance for all types of buildings, plants, and other facilities. As such, the primary function of TTES is to resolve the real life up-to-date solar thermal related industry problems faced by our funder through the continuous knowledge exchange and international collaboration.

3.16 Optical Devices and Systems Research Laboratory (ODESY)

After invention of the Laser in 1961, new technologies combining properties of coherent optical light and conventional electronics have been rapidly developed. Constructions of the world wide optical fiber communication network made possible to shear information generated in different country to another country without no time delay. Precise optical measuring system based on the property of coherent optical light have developed, and are using not only in mechanical precision measuring technology but also using in the environmental engineering to identify the contamination material with detailed data such as size and amount of the material. The objectives of ODESY are:

1. To establish research activities in optical devices and systems;

2. To apply the optical technology on various filed such as long-haul communication system, precise measuring system, and environmental and biomedical engineering;
3. To expose students to study the opto-electronics, which is a key technology in the engineering;
4. To establish networking and collaboration among higher learning institutions and industries in Malaysia and Japan.

3.17 Algal Biomass Research Laboratory

The focus of this research laboratory is to tackle the issues related to green technology such as production of renewable energy and biomass, reduction of carbon dioxide, a greenhouse effect gas, from the air etc. using algae, especially microalgae. The objectives of this laboratory also include:

1. To isolate valuable algal strains showing high growth rate, high oil production efficiency, high temperature tolerance, functional chemical substances production etc., from Malaysia and ASEAN countries.
2. To identify the physiological and biochemical characterization;
3. To establish algal mass culture systems which optimized in Malaysia including utilization of waste water;
4. To establish effective methods of algal harvesting and algal oil extraction;
5. To establish cryopreservation methods to keep the useful strains stably;
6. To transfer technology from japan to Malaysia;
7. To improve the quality of research methodology and results by collaborating with other sources of expertise and technology;
8. To provide chemical engineering, metabolic engineering, chemical biology command such as training, short course or other educational medium to enable knowledge transfer to industry and sustainable production of energy source;
9. To encourage higher impact research output such as journals, intellectual properties, patent, commercial products etc;
10. To make this research group the excellence center at MJIT.

3.18 Intellectual Property and Innovation Management Research Laboratory (IPIM)

IPIM is planning to introduce a global database for the intellectual property and patent. Using this intellectual property and patent database, we can analyze the patent database not only for Malaysian products but also for products from more than 100 countries. The research activities of the IPIM will be to lead to the success and competitiveness of the research and development of the university and industrial technology in Malaysia. The intellectual property and the patent database has the potential to help producing highest levels of research output. This database is the first of its kind to be installed in any university or research institution from ASEAN and the East Asia economic zone. This IPIM will collaborate with Yamaguchi University, which is the pioneer in the intellectual property education and also the trainer for the Japanese Patent Office's human resources. IPIM will lead MJIT and UTM to be the top in intellectual property education institute in the world.

3.19 Disaster Preparedness & Prevention Centre (DPPC)

The Disaster Preparedness and Prevention Centre, DPPC, established under MJIT, carrying the mandate of the Look East Policy 2nd Wave (Look East Policy 2.0) in becoming an R&D centre for disaster management for Malaysia and her neighbouring countries as well as providing opportunities of hands-on training on up-to-date disaster countermeasures to those who are practicing disaster management in the field.

4.0 Presenting and Publishing your Research Work

4.1 *iKohza* level presentation (Rinkoh)

In order to develop dynamic and holistic post-graduates, you are required to make numerous presentations during the study at MJIT. One of the most important skills students at MJIT should develop is the ability to communicate ideas and concepts to a group of people through formal and informal presentations. Presentations at *iKohza* level is compulsory and may include proposal presentations, critical design reviews, progress reports, project results, papers in technical conferences as well as poster presentation. The schedule and type of this presentation will be decided by Head of each *iKohza*. You can compile all presentation information that will be useful for your revision and thesis writing.

4.2 National and International level presentation

Research presentations are excellent opportunities to demonstrate originality and inform others of valuable investigation findings. National and international conferences, seminars and journals contain audiences or referees who are experts in specific subject area who are capable of giving valuable advice and comments for further future improvements.

Today's technology and educational conferences or journals often provide websites with specific details about their expectations for papers. Information describing their preferences for paper topics, targeted audience, word length of papers, style format, how to create graphs and charts, multimedia directions and the amount of time allocated for each presentation are all provided. The publication process requires diligence, persistence and a willingness to shape presentation material to target specific groups of readers. Additionally, editors appreciate writers who provide creative research articles and meet their deadlines. It is very important to cultivate good working relationships with editors who can assist student in sharing ideas with the academic community.

4.3 SPS Policy Regarding Publication

A MPhil candidate may submit his/her thesis for viva-voce provided that he/she produced at least one (1) accepted or published publication from journal article, conference proceeding or book

chapter. A doctoral candidate may submit his/her thesis for viva-voce provided that he/she produced at least one (1) article or (2) indexed conference proceedings, accepted or published in SCOPUS/ERA & WOS index. You are encouraged to use *Turnitin* software to check the similarity of your manuscript with other published works before submitting the manuscript for publication. More information on the software is available at SPS website.

4.4 MJIT Policy Regarding Publication

Prior to submitting any manuscripts on your research topic for publication, you should get your supervisor's approval. In addition, you should put MJIT's name as your affiliation in the publication and your supervisor must be one of the authors with his consent.

5.0 Progression of Research Students

Two-year or three-year duration seems to be sufficient to complete a research. While you are doing research involving literature study, research approach formulation, setting up and conducting experiment, and thesis writing, time flies when you are occupied. Experience tells us that progression reviews are essential to monitor the quality of your work and the progress rates against the normal standard. There are several parts in our progression review; some are compulsory whereas the others are optional (subject to your *ikohza*):

- Curriculum
- Supervisory Review/Log book
- Progress Review
- MJIT Graduate Seminar
- First Stage Evaluation (Proposal Defence)
- Viva Voce

For postgraduate students of all programme modes need to take at least one university compulsory course. This course can be taken at any faculty of UTM. At MJIT, we offer Basic Japanese Language and Culture (UMJG 76013). For other university elective courses, students can refer directly to other faculties.

Table 2: List of university compulsory courses

ELECTIVE UNIVERSITY COURSE (3 Credit) (Choose 1)		
Code	Course name	Credit
UHAP 6013	Seminar on Global Development, Economic and Social Issues	3
UHAW 6023	Philosophy of Science and Social Development	3
UHAF 6033	Dynamics of Leadership	3
UHAZ 6123	Malaysian Society and Culture	3
UHAZ 6323	Malay Language for Postgraduates	3
UDPE 1123	Organizational Behavior and Development	3
UCSM 1263	IT Project Management	3
UMJJ 6013	Basic Japanese Language and Culture	3

MJIT Graduate Seminar

- As an initiative to help full research students in self-confident, presentation and communication skills and also to provide a platform for students to share and discuss their research, MJIT graduate seminar will be held on every semester.
- Full research students are compulsory to attend this seminar.

5.1 Curriculum

5.1.1 Research Programmes (M.Phil and Ph.D)

There are four types of compulsory courses/seminars you need to attend:

- Research course – this is the core course that you need to register every semester.
- Research methodology – you need to take this course once throughout your study. You could apply for credit transfer if you have taken an equivalent course before.
- University elective course – you need to take at least one university elective course.
- Research seminar – you need to attend at least one research seminar conducted by visiting professors or faculties of MJIT every semester.

Table 3 summarizes the curriculum for both M.Phil and Ph.D students. Table 3: Curriculum for M.Phil students and Ph.D students by research.

Course Category	Code		Subject	Credit
	M.Phil	Ph.D		
University Elective (1 subject)	UXXX XXX3		Select from Table 3	3
Prerequisite (Research student)	UMJP 0010		Research Methodology	0
Research project (Minimum 2 semesters for M.Phil while Minimum 6 semesters for Ph.D)	MMJG 1100	PMJG 1100	Research	0
	MMJG 1200	PMJG 1200	Research	0
	MMJG 2100	PMJG 2100	Research	0
	MMJG 2200	PMJG 2200	Research	0
	MMJG 3100	PMJG 3100	Research	0
	MMJG 3200	PMJG 3200	Research	0
		PMJG 4100	Research	0
		PMJG 4200	Research	0
		PMJG 5100	Research	0
		PMJG 5200	Research	0
		PMJG 6100	Research	0
		PMJG 6200	Research	0
		PMJG 7100	Research	0
		PMJG 7200	Research	0
		PMJG 8100	Research	0
		PMJG 8200	Research	0
Requirement set by MJIT			Research Seminar (Attend only)	0
TOTAL CREDIT				3

5.1.2 Master of Technology and Innovation Management

The minimum duration of this program is 1.5 year (3 normal semesters) for a full time student. The curriculum involves four components below:

- Core courses
- Elective courses
- Management workshop
- Master project

Table 4: Curriculum of Master of Technology and Innovation Management

Semester	Code	Course	Credit
YEAR 1			
I (Normal)	MMJT 1013	Managing Technology and Innovation	3
	MMJT 1023	Business Planning and Organizing.	3
	MMJT 1033	Costing and Financial Analysis	3
	MMJT 1043	Marketing of Technology & Innovative Products	3
	MMJT 1053	Human Resource and Talent Management for Innovation	3
		Total credit	15
II (Normal)	MMJT 1xx3	Select from Table 10	3
	MMJT 1xx3	Select from Table 10	3
	MMJT1183	Research Methodology (Modular)	3
	MMJT 1153	Project 1 (Decision Making and Creative Problem Solving)	3
	MMJT 1xx3	Select from Table 10	3
		Total credit	15
YEAR 2			
I (Normal)	MMJT 2016	Project 2 (Operations and Project Management for Technology Initiatives)	6
	MMJT 1xx3	Select from Table 5	3
	MMJT 2023	Advanced Managerial Techniques	3
	Uxxx xxx3	University General Course Select from Table 2	3
		Total credit	15
	Overall total credit		45

Table 5: Elective Course

Course code	Course name	Credit
MMJT 1063	Finance and Funding of Technology Enterprise (TM)	3
MMJT 1073	Business and Intellectual Property Law (B&TM)	3
MMJT 1083	Leading Knowledge Workers for Innovation (IM)	3
MMJT 1093	Value Configurations and Competitive Strategy (IM)	3
MMJT 1103	Business Networking and Managing Alliances (B&IM)	3
MMJT 1113	Managing Technology Change and Transformation (TM)	3
MMJT 1123	Valuation and Intellectual Property Management (IM)	3
MMJT1133	Strategic Management of Technology	3
MMJT1143	Policy and Economics of Technological Innovation	3

5.1.3 Master of Sustainable Systems

The minimum duration of this program is 1.5 year (3 normal semesters). The curriculum involves four components below:

- Core courses
- Elective courses
- Compulsory university courses
- Compulsory faculty courses
- Master project

Table 6. Curriculum of Master of Sustainable Systems

COMPULSORY UNIVERSITY COURSE (3 Credit) (Choose 1)		
Code	Course	Credit
Uxxx xxx3	<i>University General Course</i> <i>Select from Table 2</i>	3
COMPULSORY FACULTY COURSE (3 Credit)		
MMJP 1183	Research Methodology	3
CORE COURSES (15 Credit) (COMPULSORY)		
MMJS 1113	Applied Sustainable Systems	3
MMJS 1123	Life Cycle Assessment	3
MMJS 1133	Sustainability Management and Policy	3
MMJS 1213	Green Economy	3
MMJS 1313	Industrial Ecology and Cleaner Production	3

PROJECT (12 Credit) (COMPULSORY)		
MMJS 1186	Master Project 1	6
MMJS 1286	Master Project 2	6
ELECTIVE COURSES (9 Credit) (CHOOSE 3)		
MMJS 1143	Environmental Impact Assessment	3
MMJS 1323	Smart Communities	3
MMJS 1333	Renewable Energy	3
MMJS 1343	Sustainable Food Systems	3
MMJS 1353	Integrated Water Science and Technology	3
MMJS 1363	Integrated Solid Waste Management	3
MMJS 1373	Low Carbon Cities	3
TOTAL CUMULATIVE CREDITS		42

5.1.4 Master of Sustainability and Environmental Sciences

The minimum duration of this program is 2 year (4 normal semesters). The curriculum involves four components below:

1. Core courses
2. Elective courses
3. Compulsory university courses
4. Compulsory faculty courses
5. Master project

Table 7. Curriculum of Master of Sustainability and Environmental Sciences

COMPULSORY UNIVERSITY COURSE (3 Credit) (Choose 1)		
Code	Course	Credit
Uxxx xxx3	<i>University General Course Select from Table 2</i>	3
COMPULSORY FACULTY COURSE (3 Credit)		
MMJP 1183	Research Methodology	3
CORE COURSES (7 Credit) (COMPULSORY)		
MMJS 1133	Sustainability Management and Policy	3
01AJ 001	Introduction to Environmental Sciences	1

01AJ 002	Exercises in Environmental Sciences	1
01AJ 003	Field and Laboratory Practices in Environmental Sciences	1
01AJ 004	Tsukuba-MJIIT Joint Seminar	1
PROJECT (16 Credit) (COMPULSORY)		
MMJS 1186	Master Project 1	6
MMJS 1286	Master Project 2	6
01AJ 101	Seminar in Environmental Sciences 1	2
01AJ 102	Seminar in Environmental Sciences 2	2
ELECTIVE COURSES 1 (9 Credit) (Choose 3)		
MMJS 1143	Environmental Impact Assessment	3
MMJS 1323	Smart Communities	3
MMJS 1333	Renewable Energy	3
MMJS 1343	Sustainable Food Systems	3
MMJS 1123	Life Cycle Assessment	3
MMJS 1113	Applied Sustainable Systems	3
MMJS 1373	Low Carbon Cities	3
ELECTIVE COURSES 2 (8 Credit)		
01AJ 301	Simulation of Environmental Policy	2
01AJ 302	Water Environment	2
01AJ 303	Introduction to Waste Management	2
01AJ 304	Solid Waste Management Systems Planning	2
01AJ 305	Utilisation and Recycling of Bioresources	2

01AJ 306	Tropical Climate and Global Monsoon	1
01AJ 307	Terrestrial Ecology	1
01AJ 308	Introduction to Environmental Policy	1
TOTAL CUMULATIVE CREDIT		46

5.1.4 Master of Disaster Risk Management

The minimum duration of this program is 1 year (2 normal semesters and 1 short semester). The curriculum involves four components below:

- Core courses
- Elective courses
- Compulsory faculty courses
- Master project

Table 8. Curriculum of Master of Disaster Risk Management

COMPULSORY FACULTY COURSE (6 Credit)		
MMJP 1113	Research Methodology	3
MMJP 1223	Quantitative Data Analysis for Disaster Management	3
CORE COURSES (15 Credit) (COMPULSORY)		
MMJD 1113	Integrated Disaster Management	3
MMJD 1123	Disaster Data Management and Forecasting	3
MMJD 1133	Control Measures and Mitigation Planning	3
MMJD 1143	Emergency Response Planning and Communication	3
MMJD 1153	Recovery and Reconstruction Management	3
PROJECT (12 Credit) (COMPULSORY)		
MMJD 1266	Master Project 1	6
MMJD 1376	Master Project 2	6
ELECTIVE COURSES (9 Credit) (CHOOSE 3)		
MMJD 1213	Control Measures for Landslides and Debris Flow	3
MMJP 1123	Flood Forecasting and Hazard Mapping	3

MMJD 1233	River Systems and Management	3
MMJD 1243	Geo Information in Disaster Risk Assessment	3
MMJD 1253	Flood Hydraulics and Mechanics of Sediment Transportation	3
MMJD 1263	Disaster Education and Preparedness	3
MMJD 1273	Community and Social Resilience	3
MMJD 1283	Public Health Policy and Management	3
MMJD 1293	Healthcare in Emergencies and Rehabilitation	3
MMJD 1203	Disaster Psychology	3
TOTAL CUMULATIVE CREDITS		42

5.2 Supervisory Review Report/Log book

This section is for research students (MPhil and PhD) as well as mixed mode students who are doing dissertation. This report records the summary of discussion in each meeting between you and your supervisor. The review form could be filled in online at GSMS website. You are required to summarize the discussion in this form and submit it to your supervisors before the next meeting. Things to be included:

- Objectives of the research currently worked on.
- Framework – guidelines, scope and ideas you are using to achieve the above objectives.
- Progress – improvement made compared to previous discussion.

Besides, you need to perform self-checking of your own progress by answering the following Yes/No questions in the review form as shown in Table 9. All the supervisory review reports must be attached together with the progress report that must be submitted at the end of each semester.

Table 9: Yes/No questions of supervisory form

QUESTIONS
Has the student made sufficient progress in meeting the objectives?
Are the supervisor and student clear about current objectives?
Have any specific problems associated with the work or supervision been identified? If appropriate, please comment below.
Are the supervisor and student clear about the work to be done before the next meeting?

5.3 Progress Report

This section is for research students (MPhil and PhD) as well as mixed mode students who are doing dissertation. As a research student, you are required to submit progress reports to your supervisor by the end of every semester. As a mixed mode programme (consisting of research and taught courses) student, you are required to submit progress reports to your supervisor during the semesters when you register research course of dissertation. You need to complete:

- Programme information
- Research progress
- Publication progress
- Thesis progress

After completing the above information, your supervisor needs to fill in the evaluation part and submit it to the office. It may be done online at GSMS website. Progress report form could also be obtained from the website of SPS. Table 10 shows the results given to the student's progress report. Please also be noted that failure to submit the progress report will be given unsatisfactory results. Two consecutive unsatisfactory results is considered Fail in the candidature.

Table 10: Summary of grades, marks and their interpretation

Overall Assessment	Statement by category	Mark Description
(a) Satisfactory	Excellent	$9.0 \leq M \leq 10.0$
		$8.0 \leq M \leq 9.0$
	Very Good	$7.0 \leq M \leq 8.0$
		$6.0 \leq M \leq 7.0$
		$5.0 \leq M \leq 6.0$
(b) Unsatisfactory	Fair	$4.0 \leq M \leq 5.0$
		$3.0 \leq M \leq 4.0$
(c) Fail	Poor	$2.0 \leq M \leq 3.0$
		$1.0 \leq M \leq 2.0$
		$0.0 \leq M \leq 1.0$

5.4 First Stage Evaluation (Research Proposal Defence)

Research proposal defence is scheduled to be in the second semester for M.Phil students and Fast Track Ph.D students, and in the third semester for Ph.D students. For research students, the research proposal defence is also called *First Stage Evaluation*. In that semester, you must have pass the Research Methodology and University Elective courses before you could defend your research proposal. After you have completed successfully these two courses, you can then submit your research title and synopsis to the MJIT Academic office. This is followed by submitting your research proposal report with the main contents (Chapter 1 - Chapter 5) are between 20-50 pages in length. The writing format for the report must be similar to the UTM Postgraduate Thesis format. The research proposal report should address at least the following points:

- An introduction to the research problem. What is the research about? Why is this topic important? What do you hope to achieve by working on this problem?
- A brief history of research into this topic by others including a detailed literature survey.
- A discussion of the approach to the topic. What are the methods used?
- A description of the work you have carried out to date, with results if appropriate.
- A carefully prepared detailed timetable for the research. You should display these timetables as properly formatted GANTT charts or similar.

The research proposal will be evaluated by two members of the panel which will consist of a member of staff knowledgeable in the research field and a chairman appointed by the Postgraduate Committee. Normally, the oral examination will take about 45 minutes with 30 minutes of question and answers.

During research proposal seminar, the examining panel will pay attention to:

- your understanding of the problem you are investigating and why your research is necessary.
- your understanding of the background to the problem, the underlying principles, and what has been achieved by other researchers on this topic.
- your knowledge of how to go about your own research in this topic whether satisfactory progress has been made in the course of your work to date.
- the clarity of your vision for the work you will be carrying out in future, and your ability to timetable that work.

In addition to the above criteria, the following points are looked into for Ph.D candidates:

- critical comments of previous works.
- a preliminary Results chapter, giving an account and a critical discussion of results obtained to date.
- copies of any publications should be appended to the research proposal.

Panel will especially pay attention to the following especially for Ph.D candidates:

- do your research demonstrate the standards of originality and quality required for the award of a Ph.D degree?
- are you completely familiar with the process of producing, and hence be able to defend your research results
- do you possess a sufficient breadth of knowledge in the background material and previously published work?
- is the timetable realistic and appropriate to complete the research and write a thesis in the time available?
- are all the necessary hardware/software/devices/wafers in place and if not, what are the contingency plans?

Please refer to academic office for the schedule of the semester when student defends his research proposal.

5.5 Attachment in Japan Consortium Universities (Student Fellowship Programme)

Selected Malaysian research students will be awarded financial support to have their attachment in research laboratories in Japan to conduct research. This is part of their research programme in which they need to complete three months to one year attachment. For the students whose co-supervisors are from a Japanese consortium university, they may need to travel to Japan for field trip or data collection. Allowances from MJIT student incentive will be put on hold if the recipients go for attachment in Japan are under sponsorship.

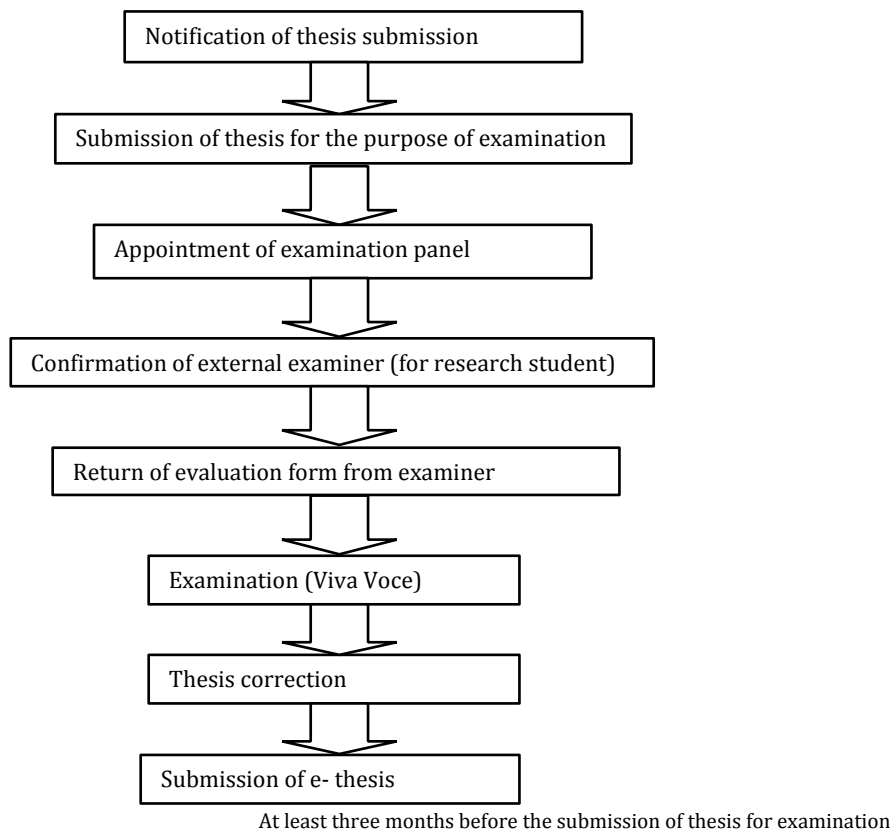
6.0 Writing and Examining Your Thesis/Dissertation

For a Ph.D degree programme, the minimum study duration is six (6) registered semesters or three (3) registered years before you are allowed to submit your thesis for examination. The Ph.D candidate needs to have one refereed journal before he or she could submit the thesis.

6.1 Thesis/Dissertation Guideline

Writing a thesis is a challenging and time consuming task. Therefore, you must schedule the thesis writing carefully. We recommend that the thesis writing should be started by the mid of your second last semester. A good thesis needs a solid content as well as a skilful presentation. Besides, you must follow thesis format and other guidelines set by SPS. Thesis manual can be downloaded from the school's website.

6.2 Thesis Submission and Examination Arrangements



Time/Date

Due date is set by School of Graduate Studies

Two weeks after the appointment date

Six weeks after the appointment date

Duration given depends on the result of examination

Figure 9: Flow chart of thesis/dissertation submission

For the purpose of examination or viva, thesis submission due date is set by SPS every semester. You need to submit the thesis submission form for examination before the due date to avoid the need to register for the coming semester. At least three months before that, you need to submit 'Notification for Submission of Thesis'. All the forms are available at SPS website.

The thesis shall be examined by one or more examiners appointed by the *University Graduate Studies Committee* (JAPSU) from among the experienced academic staff of the University, and by one or more External Examiners appointed by JAPSU. No person who has been involved in the direct supervision of the research student may be appointed as an examiner. For dissertation, two examiners will be appointed by JAPSU from among the experienced academic staff of the University. More details are available at *Panduan Pelantikan dan Tanggungjawab Pemeriksa* at SPS website.

6.3 The Oral Examination/ Viva Voce

You need to submit notification of thesis submission (NHT) three months before the thesis submission for examinations. The notification can be done through the GSMS. Please inform your supervisor on your intention to submit the thesis. You can only submit the thesis when your NHT has been endorsed by the JAPSU (UTM). During the submission of your thesis, you must have:

1. Pass Research Methodology and University elective course.
2. Pass first stage evaluation (Research proposal)
3. Meet the publication requirements.
4. Plagiarism for each chapter of thesis must be less 20%
5. No outstanding debt
6. Pay the viva-voce fees.
 - a. PhD: RM2500 / RM2000(re-viva)
 - b. MPhil: RM1500 / RM1000(re-viva)

You need to submit four (4) copies of your thesis to the academic office. For Phd Industry, you need to submit five (5) copies of the thesis. It is sufficient to submit temporarily bound copies (for example using a ring binding) with soft covers for examination purposes only, providing that the binding is secure.

The copies of your thesis will be scrutinised by the examiners and the additional copy supplied to the Chair Person. It is mandatory for a Ph.D degree that a subsequent oral examination takes place. For the M.Phil degree, an oral examination may be optionally requested by the examiners. The supervisor must be present at the oral examination to understand the corrections and result determined during the examination.

The Examiners can discuss with Chair Person to conduct the oral examination as they wish. The general practice is that 40 minutes are given to a presentation for Ph.D. However, it is customary for most of the time to be spent on the work of the thesis; but the Examiners are at liberty also to ask general questions relevant to the field of study. Nevertheless, you can reasonably be expected to have a majority of questions on:

- the rationale of the research.
- the suitability, advantages, limitations etc. of the experimental/theoretical methods used; any alternatives which might have been tried.
- adequacy of interpretation of the results; loopholes, flaws, etc. "Given more time, what would you do next?"
- the contemporary literature on the subject.

Most External Examiners are very particular with grammatical and typographical errors, and it is the rare thesis where a list of these is not produced. Examiners are also carefully in checking the References and you should avoid errors in the preparation of the Bibliography. The important thing is not just to avoid the correction of these errors afterwards, but to avoid implanting in the examiner's mind the idea that the thesis has been thrown together carelessly. It should therefore be a challenge to the student to produce a thesis which from cover-to-cover is absolutely free of these avoidable errors in English.

6.4 Concluding the Examining Process for Research Students

Following the examination for research students, the examiners need to sign the Examiner Report Form. The outcome of the examination will be one of the following recommendations:

- (a) the degree be awarded unconditionally
- (b1) the degree be awarded subject to certain minor corrections of detail specified by the examiners. The corrections shall be carried out within one month of receipt of the specifications to the satisfaction of the supervisor.
- (b2) the degree be awarded subject to certain changes specified by the examiners in the examiner report form. The revisions shall be carried out within a month and shall be confirmed by the Internal Examiner.
- (c) the thesis as a whole is unacceptable. The candidate is invited to resubmit the thesis taking account of the comments of the examiners. It will be resubmitted within a timescale to be determined by the examiners.
- (d) the thesis as a whole is unacceptable for the award of a doctoral degree. The candidate is invited to revise and resubmit the thesis for an M.Phil degree.
- (e) no degree be awarded.

Finally after addressing all required corrections and/or revisions to the satisfaction of the supervisor or examiner(s), you should submit four hard bound copies of your thesis, which become the property of the University. The graduate school will subsequently issue an award letter and you are eligible to graduate. One copy of the thesis will be placed in the library, one in the department/faculty and one with your supervisor. Theses of the University are normally made freely available in the Malaysian University Libraries and National Library Network. Please remember enrolment is required for graduation. Forms can be obtained from SPS office.

6.5 Concluding the Examining Process for Students of Mixed Mode Programme

Mixed mode programmes consists of two components, i.e. taught courses and dissertation. Students are required to pass all taught courses before he could embark on research for dissertation. Table 13 shows the student's academic standing in the programmes based on his result in both dissertation and taught courses. Note that student will only be awarded the degree at the end of the study provided that he achieves CGPA ≥ 3.0 in the taught courses and Grade Satisfactory in his dissertation.

Table 11: Student's Academic Standing in Mixed Mode Programmes

CGPA	DISSERTATION/ RESEARCH GRADE	ACADEMIC STANDING	CONDITION TO PROCEED WITH THE STUDY	AWARD OF THE DEGREE
GOOD PASS (KB) $CGPA \geq 3.00$	MM	KB	QUALIFIED	QUALIFIED
	TM	KS	QUALIFIED	NOT QUALIFIED
	GG	KS	TERMINATED	NOT QUALIFIED
CONDITIONAL PASS (KS) $2.67 \leq CGPA < 3.00$	MM	KS	QUALIFIED	NOT QUALIFIED
	TM	KS	QUALIFIED	NOT QUALIFIED
	GG	KG	TERMINATED	NOT QUALIFIED
FAIL (GG) $CGPA < 2.67$	MM	KG	TERMINATED	NOT QUALIFIED
	TM	KG	TERMINATED	NOT QUALIFIED
	GG	KG	TERMINATED	NOT QUALIFIED

Notes: MM-Satisfactory; TM-Not satisfactory; GG-Fail

6.6 Concluding the Examining Process for Students of Taught Course Programme

Academic standing for a taught course programme student is based on cumulative grade point average (CGPA). Table 13 shows the academic standing for a taught course student. Students must maintain KB (Kedudukan Baik or Good Pass) with $CGPA \geq 3.0$ or KS (Kedudukan Syarat or Conditional Pass) with $2.67 \leq CGPA < 3.00$ to continue study. Getting KG (Kedudukan Gagal or Fail) with $CGPA < 2.67$ means the study will be terminated. To be qualified for degree conferment, the academic standing must be KB.

Table 12: Academic standing for Taught Course Programme

MARKS	GRADE	POINTS	LEVEL OF ACHIEVEMENT
90 - 100	A+	4.00	EXCELLENT PASS
80 - 89	A	4.00	
75 - 79	A-	3.67	
70 - 74	B+	3.33	GOOD PASS
65 - 69	B	3.00	
60 - 64	B-	2.67	PASS
55 - 59	C+	2.33	FAIL
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	0.0	

7.0 Faculty by Research Areas

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