

MASTER OF COMPUTER SCIENCE

PROGRAMME SPECIFICATIONS

The Master of Science, Field: Computer Science is offered on a full-time basis. The full-time programme is offered only at the UTM Main Campus in Johor Bahru. The duration of study for the full-time programme is subjected to the student's entry qualifications and lasts to a maximum of four (4) years.

The programme is offered on full-time and is based on a 2-Semester per academic session. This is a mixed-mode master programme. Academic load for each semester depends on total number of credits. Students can take a minimum of one course (equivalent to 3-4 credits) up to a maximum of twenty (20 credits) for full-time. Students are required to finish all course works before starting dissertation. Students with a minimum CGPA of 3.5 can register one (1) elective course together with dissertation. Students who register courses with UM status can also register dissertations. Assessment method for academic achievement is the combination of two (2) parts, that is based on GPA/CGPA and research progress report. The research progress report needs to be submitted by week 12 of the semester through GSMS. Dissertation evaluation is graded based on three categories i.e. satisfactory (MM), Unsatisfactory (TM) and Fail (GG).

General Information

1. Awarding Institution	Universiti Teknologi Malaysia			
2. Teaching Institution	Universiti Teknologi Malaysia			
3. Programme Name	Master of Computer Science			
4. Final Award	Master of Computer Science			
5. Programme Code	MCSSA2AJA			
6. Professional or Statutory Body of Accreditation	Ministry of Higher Education			
7. Language(s) of Instruction	English			
8. Mode of Study (Conventional, distance learning, etc)	Conventional			
9. Mode of operation (Franchise, self-govern, etc)	Self-governing			
10. Study Scheme (Full Time/Part Time)	Full Time			
11. Study Duration	Full-time : Minimum - 3 semesters : Maximum - 8 semesters			
Type of Semester	No. of Semesters		No of Weeks/Semester	
	Full Time	Part Time	Full Time	Part Time
Normal	3	-	8	-
Short	-	-	-	-

Course Classification

No.	Classification	Credit Hours	Percentage
i.	University Courses	3	6.7%
ii.	Programme Core Courses	12	26.7%
iii.	Programme Electives	6	13.3%
iii.	Research	24	53.3%
	Total	45	100%
Total Credit Hours to Graduate		45 credit hours	

COURSE MENU

Master of Computer Science students are required to register and pass the following courses before registration of Dissertation III.

- i. **FOUR** Core Courses
- ii. **TWO** Elective Courses
- iii. **ONE** University Elective Course (course code M*** **3).
- iv. Dissertation II (course code MECS xx80)

COURSE MENU 1

YEAR 1: SEMESTER 1			
Code	Course	Credit	Pre-requisite
MECS1023	Advanced Data Structure and Algorithm	3	
MECS1033	Advanced Artificial Intelligence		
MECS1043	Research Methodology in Computer Science (Dissertation I)		
Mxxx xxx3	Elective I	3	
Uxxx xxx3	University Common Elective	3	
	TOTAL CREDIT	15	
	CUMULATIVE CREDITS	15	

YEAR 1: SEMESTER 2			
Code	Course	Credit	Pre-requisite
MECS1013	Advanced Theory of Computer Science	3	
Uxxx xxx3	Elective II	3	
MECSxx80	Dissertation II	9	
	TOTAL CREDIT	15	
	CUMULATIVE CREDITS	30	

YEAR 2: SEMESTER 1			
Code	Course	Credit	Pre-requisite
MECSxx80	Dissertation III	15	
	TOTAL CREDIT	15	
	CUMULATIVE CREDITS	45	

COURSE MENU 2

YEAR 1: SEMESTER 1			
Code	Course	Credit	Pre-requisite
MECS1023	Advanced Data Structure and Algorithm	3	
MECS1033	Advanced Artificial Intelligence		
MECS1043	Research Methodology in Computer Science (Dissertation I)		
	TOTAL CREDIT	9	
	CUMULATIVE CREDITS	9	

YEAR 1: SEMESTER 2			
Code	Course	Credit	Pre-requisite
MECS1013	Advanced Theory of Computer Science	3	
Mxxx xxx3	Elective I	3	
Uxxx xxx3	University Common Elective	3	
	TOTAL CREDIT	9	
	CUMULATIVE CREDITS	18	

YEAR 2: SEMESTER 1			
Code	Course	Credit	Pre-requisite
Mxxx xxx3	Elective II	3	
MECSxx80	Dissertation II	9	
	TOTAL CREDIT	12	
	CUMULATIVE CREDITS	30	

YEAR 2: SEMESTER 2			
Code	Course	Credit	Pre-requisite
MECSxx80	Dissertation III	15	
	TOTAL CREDIT	15	
	CUMULATIVE CREDITS	45	

* Research (course code MECS **80), to be taken every semester until the submission of a thesis. The progress of a candidate in any semester is assessed through research progress reports submitted at the end of each semester. It is important for the students to know that the submission of the progress report needs to be done by the student themselves via GSMS website <http://spsapp3.utm.my:8080/gsmsv4/>.

RESEARCH CODE (MECSxx80)

Year	Semester	Research Course Code
1	2	MECS1280
2	1	MECS2180
2	2	MECS2280
3	1	MECS3180

Programme Educational Objectives (PEO)

Code	Intended Educational Objectives
PEO1	Acquire mastery and competency in advanced computing knowledge
PEO2	Become computer scientists who are effective communicators, professional and imbued with high standards of ethical conducts within their organization and society
PEO3	Be analytical thinkers who are responsive to the changing environment and practice lifelong learning

Programme Learning Outcomes (PLO)

After having completed the programme, graduates should be able to demonstrate the following competencies:

Code	Intended Learning Outcomes
PLO1	Apply advanced knowledge to solve critical issues in the field of Computer Science. (Knowledge and Understanding)
PLO2	Manage and solve complex problems efficiently using systematic and standard approaches. (Cognitive Skills)
PLO3	Adapt technical and scientific skills to solve real world problems. (Practical Skills)
PLO4	Perform effective collaboration with stakeholders professionally. (Interpersonal Skills)
PLO5	Use a broad range of information, media and technology to support study or research findings. (Communication Skills)
PLO6	Use digital technologies and software competently to support study or research works. (Digital Skills)
PLO7	Analyse numerical or graphical data using quantitative or qualitative methods for solving problems. (Numeracy Skills)
PLO8	Demonstrate leadership, autonomy and responsibility in a team by managing resources and tasks fairly. (Leadership, Autonomy and Responsibility)
PLO9	Perform independent studies for self-advancement through continuous academic or professional development. (Personal Skills)
PLO10	Propose entrepreneurial project based on relevant knowledge and expertise. (Entrepreneurial Skills)
PLO11	Conduct respectable, ethical and professional practices in organization and society. (Ethics and Professionalism Skills)

GRADUATION CHECKLIST

To graduate, students must pass all the stated courses in this checklist. It is the responsibility of the students to ensure that all courses are taken and passed. Students who do not complete any of the courses are not allowed to graduate.

NO.	CODE	COURSE	CREDIT EARNED (JKD)	CREDIT COUNT- ED (JKK)	TICK (✓) IF PASSED
(a) CORE COURSES (12 CREDITS) - ALL					
1	MECS1013	Advanced Theory of Computer Science	3	3	
	MECS1023	Advanced Data Structure and Algorithm			
	MECS1033	Advanced Artificial Intelligence			
	MECS1043	Research Methodology in Computer Science (Dissertation I)			
TOTAL CREDIT OF CORE COURSES (a)			12	12	
(b) ELECTIVE COURSES (6 CREDITS) – CHOOSE 2 ONLY					
2	MCSD2213	Advanced Analytics for Data Science	3	3	
	MCSD1233	Big Data Management			
	MCSD2123	Massive Data Mining and Streaming			
	MECR1063	Cryptographic Engineering			
	MECR2213	Cyber Threat Intelligence			
	MECR1023	Information Security Governance and Risk Management			
	MECS2423	Virtual and Augmented Reality Environment			
	MECS2433	Advanced Computer Graphics and Image Processing			
	MECS2413	Advanced Human Computer Interaction			
	MECS2323	Advanced Computer Network and Cloud Computing			
	MECS2313	Advanced Computer System & Architecture			
	MECS2343	Blockchain Technology			
	MEEH1293	Intelligent Engineering Solution			
	MKET1423	Wireless Communication systems			
	MKET1523	Internet of Things Technology			
TOTAL CREDIT OF ELECTIVE COURSES (b)			6	6	
(c) UNIVERSITY GENERAL COURSES (3 CREDITS) – CHOOSE 1 ONLY					
1	UBSS6013	Organization Behavior and Development	3	3	
	UBSS6023	Business Ethics, Responsibility and Sustainability			

	UHMS6013	Seminar on Global Development, Economic and Social Issues			
	UHMZ6023	Malaysian Society and Culture			
	UHS6013	Philosophy of Science and Civilization			
	UHPS6013	Dynamics of Leadership			
	UHL6013	Malay Language for Postgraduates			
	URTS6013	Environmental Ethics			
	UECS6013	IT Project Management			
	UECS6023	Introduction to Technopreneurship			
	UMJJ6013	Basic Japanese Language and Culture			
TOTAL CREDIT OF UNIVERSITY GENERIC COURSES (c)			3	3	
(d) RESEARCH (24 CREDITS)					
1	MECS xx80	Dissertation II	9	9	
2	MECS xx80	Dissertation III	15	15	
TOTAL CREDIT OF CORE COURSES (d)			24	24	
TOTAL CREDIT TO GRADUATE (a + b + c + d)			45	45	
DISSERTATION					
1	Softcopy Thesis (Endorsed by Supervisor)				
2	Copy of Pre-transcript				
3	Copy of Registration Slip (Current Semester)				
4	Copy of Publication (Optional)				
5	Graduation Course Checklist (Endorsed by Coordinator)				
6	Copy of IC (Local Student) / first page of Passport (International Student)				
7	Fee Release Letter (UTM Bendahari)				
8	Program Exit Survey				
9	Graduation Form				

COURSE SYNOPSIS

CORE COURSES

MECS1013 - Advanced Theory of Computer Science

The course presents the most fundamental theories and concepts that provide a mathematical sense to answer some of the basic questions as can the given problems be solved by computation and how efficiently can a given problem be solved by computation. The course provides an in-depth study of the main models and concepts of the mathematical theory of computation, including automata and languages, computability and complexity. The emphasis of the course will be on the ability to move from a concrete problem to a mathematical model, and after proving things about the mathematical model to correctly interpret what we have learned about the concrete problem.

MECS1023 - Advanced Data Structure and Algorithm

This course provides a solid or advanced understanding of theory and practice of data structure and the study of algorithms analysis. Students will learn the most common data structures and the advanced concepts of the data structure such as B-trees, heaps and priority queues. Further, students will be exposed to the techniques used in the development and analysis of data structures and its algorithms. The analytical abilities of the students in this course are to analyze the performance of data structures and algorithms. At the end of the course, students should be able to implement and apply the theory and concepts of the advanced data structure in assignments.

MECS1033 - Advanced Artificial Intelligence

Increasing practical implementation of several Soft Computing approaches in real world problems has grounded this course to explore the intensity of SC techniques. As such, Neural Computing, Nature Inspired Computing and Granular Computing provide foundations for the conception, design and development of the intelligent systems. By hybridizing such paradigms, it has been possible to create a number of successful and sophisticated solutions to complex real-world problems. The aim of this course is to provide the student with knowledge of the principles, mechanisms and theory behind SC and their applications. The theory of each SC techniques is given in a conceptual and in a mathematical way; the practice is discussed with stress on the outcomes of successful applications and on the intricacies of the actual implementations

MECS1043 - Research Methodology in Computer Science

This course covers the general principles of Research Methodology that are applicable to Computing and Digital Technology discipline. It discusses the fundamental process in conducting academic research. The theoretical and practical aspects of preparing a research proposal presented. Among topics that will be covered are introduction to research and its philosophy, problem formulation and research objectives, literature review, research methodology and design, data collection procedures, data analysis, research proposal and thesis preparation and research management.

ELECTIVE COURSES

MCSD2213 - Advanced Analytics for Data Science

This course provides a solid or advanced understanding on the use of analytics approach in the examination of data or content to discover deeper insights, make predictions or generate recommendations using sophisticated techniques and tools on real world problems. Students will learn descriptive analytics using advanced tools to gain insight into the past. Students will also acquire understanding of predictive analytics using statistical and machine learning techniques to understand future outcomes. The prescriptive analytics provides knowledge in simulation and optimization to quantify the effect of future decisions to advise possible outcomes before a decision is made. The analytical abilities to be acquired by students in this course are to reliably select analytic techniques or methods and specify steps involved in the analysis process and to interpret analytically the results obtained from data analytics techniques or tools. At the end of the course, students should be able to implement and apply the knowledge on analytical techniques or tools in real world problems and be able to make informed decisions or recommendations through analytical interpretations of results.

MCSD1233 - Big Data Management

This course provides basic fundamentals of big data architecture and management. Students will learn the big data processes and the current big data technologies that are available. Further, students will be exposed to the big data platform ecosystem for big data manipulation. The big data management will be explored for the best practice in managing and manipulating large amounts of data. At the end of the course, students should be able to understand the architecture and management of big data and also can develop simple applications of big data handling using a particular platform in assignment.

MCSD2123 - Massive Data Mining and Streaming

This course aims to introduce students to basic principles and methods of machine learning algorithms that are typically used for mining large data sets. This course also will provide students with the skill and knowledge to build systems capable of analysing huge amounts of data. It explains the principle of distributed file systems and shows Map reduce as a tool for creating parallel algorithms. Typically, it covers the algorithms used for analysing networks, fundamental principles of techniques such as decision trees and support vector machines and finally neural network architecture. The students will gain practical understanding through a coding exercise where they will implement and apply one machine learning algorithm on a particular large dataset.

MECR1063 - Cryptographic Engineering

This is a survey and seminar course that gives an overview on the concepts of advanced database topics such as databases to handle objects, unstructured data, semi-structured data; distributed databases and data warehouses. The course opens with a sequence of lectures by the instructor to provide background on post relational database systems. This sets the stage for student review papers on their topic of interest and a practical group project in databases to expose them to issues and research solutions regarding emerging database technologies.

MECR2213 - Cyber Threat Intelligence

With the rapid increase of cyber-attacks, accurate security information is becoming more difficult to obtain. This course exposes the students to a complete cycle of CTI which includes hunting, behavioral patterns extraction, clustering and correlation, threat actor attribution until taking it down. Besides, it also explains the Cyber Kill Chain process in launching an attack. Understanding CKC is important in detecting cyberthreat. CTI will be explained in 3 different levels; strategic, tactical and operational.

MECR1023 - Information Security Governance and Risk Management

The subject is aimed at imparting knowledge and skill sets required to assume the overall responsibilities of administration and management of security of an information system. This subject covers issues related to administration, management, and governance of security of information systems. Topics include auditing and data management, risk management (risk identification, risk analysis, risk control), contingency planning, incident handling and risk governance. The subject will study in detail principles and tools related to these topics. The subject will also cover security standards, evaluation and certification process, security planning, ethical and legal issues in information and privacy.

MECS2423 - Virtual and Augmented Reality Environment

This course focuses on Virtual and Augmented Reality (AR) systems, algorithms, and applications. With the proliferation of powerful, always-on, Internet-connected mobile devices such as smartphones, tablets and newer head-worn displays, sophisticated applications that combine location-specific content with the current user view are becoming more possible. Application developers for these devices require a broad set of technical and design skills to create effective interactive AR experiences. Topics will include vision-based marker and feature tracking, model-to-view space transformations, mobile application development, and AR interaction techniques

MECS2433 - Advanced Computer Graphics and Image Processing

The aim of the course is to give understanding of sound knowledge and theory of Computer Graphics & Image Processing. First part of the lecture will cover basic and advanced theory of Computer Graphics. Second part of the lecture will deal with Image Processing and Pattern Recognition.

MECS2413 - Advanced Human Computer Interaction

This course provides the students with advanced topics in Human Computer Interaction (HCI). The course gives students practice and theoretical knowledge of the use of HCI methodologies for both design and evaluation, different types of HCI experimentation, including both quantitative and qualitative methods. Students are expected to participate in group activities, student-led presentations, and discussion of several research papers in HCI.

MECS2323 - Advanced Computer Network and Cloud Computing

This course focuses on advanced topics in the computer network. Topics covered include the technical knowledge of IPv6, concept of SDN, and implementation of wireless, sensors, Adhoc and 5G network. The second part is Students will have an opportunity to perform research in these and other areas of computer network and cloud computing.

MECS2313 - Advanced Computer System & Architecture

This course focuses on advanced topics in the design and analysis of computer architectures. Topics covered include instruction set design, pipelining, instruction-level parallelism, high-speed memory systems, storage systems, interconnection networks, and multiprocessor architectures. Students will have an opportunity to perform research in these and other areas in the field of computer architecture.

MECS2343 - Blockchain Technology

This course focuses on the introduction to blockchain technology and its applications. Blockchain is a technology which will lead the majority of data storage and information sharing for upcoming many industries. In this course students will understand about fundamentals of blocks, blockchain protocol as well as the fundamentals of cryptographic primitives used in the Blockchain and smart contract. The protocol behind the chain formation of blocks with data stored will be understood with practical implementations. Consensus Protocol creation for blockchain formation will be created using python script to understand blockchain from the very core. As a hands on, students will be introduced with a development of blockchain application through Solidity Smart Contract platform.

MEEH1293 - Intelligent Engineering Solution

In an increasingly competitive world where more and more data is becoming available from web documents, digital media, financial markets, and wireless sensors, there is a great need for new intelligent systems that can analyse huge amounts of data and make the right decisions. These intelligent systems can analyse the stock markets and make robust predictions, control and optimize factory productions in an uncertain environment, improve transportation safety, improve the quality of life of the elderly or entertain the children. This course provides students a solid theoretical foundation, a set of practical tools and projects that allow the understanding and the design of intelligent systems and services that fulfils the needs for a dynamic and ever changing industry and offer exciting opportunities for research.

MKET1423 - Wireless Communication Systems

This course introduces students to the introductory and advanced level of wireless communication technologies. In the beginning students will be presented with the concept of wireless communication systems and mobile radio propagation. Students will then be illuminated on MIMO technology in mobile communication. Next, the course will describe cellular concepts that will include small cell networks. This is followed by details on the overall evolution of the mobile communication system. Finally, this course will cover different multiple access techniques used in wireless communication systems.

MKET1523 - Internet of Things Technology

The course provides students with a technical background to the Internet of Things (IoT) which includes its concept, architecture and applications. It also gives the underlying communication protocols and technologies. The course has a significant practical element that will be delivered during lab sessions in which students are expected to complete exercises involving system design, device programming and cloud development.

UNIVERSITY GENERAL COURSES

UBSS6013 - Organization Behavior and Development

This course helps students integrate behavioural science theories, tools, concepts, and techniques learned in the lab to an OB application in a "real" organization. Students are expected to conceptualize and apply Organization Behaviour three-level of analysis and synthesize it with the theory and practice of Planned Change for individuals, groups and organizations. Throughout the course, participants are exposed to the important topics central to behaviours of organization and its holistic process for development and change. Some of the topics include multiple views of organizations that influence organizational change, the evolution of organizational development and its challenges. The course also covers the nature of planned change, theories and types of change, the role of values and ethics in organizational change, and the concept of emergent change to enable participants to have an overall view of how available approaches to planned change management can be applied in organizational settings.

UBSS6023 - Business Ethics, Responsibility and Sustainability

Business plays a significant role in societal and environmental well-being. Private and public organizations are no longer responsible to shareholders and those inside the organizations, but to external parties including consumers, politicians, regulators, communities and ordinary citizens. To fulfill the conflicting needs of these stakeholders, business leaders and managers often encounter complex situations that require them to make difficult decisions whereby the lines between right and wrong are blurry. This course aims to provide students with the fundamental knowledge about the role of organizations in a society and to develop their skills to sustainably manage organizations that integrate legal, ethical, economic, environmental, and social dimensions into their decision-making. The course intends to develop responsible managers who have high integrity, professionalism and interpersonal skills. The course will also teach strategies on how managers can promote responsible conduct in their companies. The course objectives will be achieved through various teaching and learning methods, specifically through critical examination of case studies involving ethical issues and dilemmas on complex and controversial business problems. This course is integrative in nature built upon the understanding and reflection of the main disciplines covered in the core courses in the MBA program.

UHMS6013 - Seminar on Global Development, Economic and Social Issues

This course focuses on different approaches to economic development with reference to economic growth. Discussion on this course also includes issues related to globalization, technology, and digital divides as well as the social crisis that has become a global concern. It aims in developing skills in understanding and analyzing global issues and recommending relevant solutions. Issues will be discussed in detail.

UHMZ6023 - Malaysian Society and Culture

This course is designed for international postgraduates. This course discusses the various aspects of Malaysian culture and society. Topics on belief system, religious festivals, customs, and etiquettes of different ethnic groups in Malaysia will be introduced to the students. In addition, students will also be introduced to the Malay Language. At the end of the course

students should be able to understand the cultures practiced among Malaysians and adapt themselves to these new cultures.

UHS6013 - Philosophy of Science and Civilization

This course discusses the meaning and nature of the philosophy of science and civilization. It seeks first to explore the different denotation, connotation, and cognitive substance of philosophy, science, and civilization, as independent concepts. It then seeks to understand these terminologies individually in their historical perspectives and their relationship to each other. Understanding the meaning and import of culture is necessary to our understanding of civilization. The study of the nature and meaning of religion is therefore significant in our appreciation of culture and civilization. Historically, Islam and the Muslims have always been intricately connected to the Western world. Thus, the discussion also includes comparative studies of Islamic and western philosophy and universal values. The final discussion is about the contribution of Islam to the world's civilization, education, culture and scientific development.

UHPS6013 - Dynamics of Leadership

This course is intended to encourage students to discover and develop their personal leadership qualities. Students will be exposed to leadership theories so that they could develop an insight that leadership itself is a dynamic relationship based on mutual influence and common purpose between leaders and followers. Topics covered include Introduction to Leadership, Leadership Traits & Ethics, Leadership Behaviour and Motivation, Influencing: Power, Politics, Networking and Negotiation, Contingency Leadership Theories, Communication, Coaching, and Conflict Skills, The LeaderFollower Relationship, Team Leadership, Leading Self-Managed Teams, Transformational and Level 5 Leadership. Students will be evaluated based on their class leadership role, short talk and personal learning portfolios.

UHL6013 - Malay Language for Postgraduates

This course is offered to international students of the Master and PhD programmes, from Indonesia, Brunei, Southern Thailand and Singapore. In this course students are given exposure on how to write scientific works (in Malay). The focus of this course is the spelling aspect, punctuation, sentence variety, language adjustment, paragraph writing and writing style. In addition, students will be exposed to writing formats such as literature writing, citations, bibliographies, abstracts, and editing.

URTS6013 - Environmental Ethics

Environmental ethics is the discipline in philosophy that studies the moral relationship of human beings to, and the value and moral status of, the environment and its nonhuman contents. It covers the challenge of environmental ethics to the anthropocentrism (i.e., human-centeredness) embedded in traditional western ethical thinking; the early development of the discipline in the 1960s and 1970s; the connection of deep ecology, feminist environmental ethics, and social ecology to politics; and the attempt to apply traditional ethical theories, and virtue ethics, to support contemporary environmental concerns. It focuses on environmental literature on wilderness, and possible future developments of the discipline.

UECS6013 - IT Project Management

This course presents a hands-on perspective to Information Technology project management. This course will assist post-graduate students to plan and implement their post-graduate projects as well as other IT projects effectively. The subject is organized into three main sections, that covers: i) Basic concepts, life cycle and framework of project management, ii) Detailed description of each project management knowledge areas under the Project Management Institute (PMI) Body of Knowledge (PMBOK) and its applications, and iii) Real Project Initiation, Planning, Executing, Monitoring and Closing. The Project Management areas include – project integration, scope, time, cost, quality, human resource, communications, risks and procurement management. Students will also be utilizing the latest tools for understanding, reviewing, communicating, and developing Business Model for a project. Teams of students are expected to perform real projects and achieve agreed Key Performance Indicators (KPI).

UECS6023 - Introduction to Technopreneurship

This course provides an overview of the basic concepts on entrepreneurship focusing on the nature, environment, and risks of new venture formation and building of businesses with IT in the Malaysian context. Students will learn on how to analyse and evaluate the business opportunities using knowledge and skills taught in this course and suggest innovative business ideas, business planning, self-assessment and operating strategies required to start a new small business. Students will also be exposed to current case studies of existing companies involved in the IT business. Active participation by students during class discussions and activities is encouraged & expected so that students can gain hands-on experience with conducting research, developing, writing, evaluating, presenting and defending segments of a business plan.

UMJJ6013 - Basic Japanese Language and Culture

At this course, students will be introduced to simple yet useful familiar everyday expressions and very basic phrases using basic grammars to develop oral communication skills for social purposes. This course is suitable for beginners who wish to develop basic conversational skills in a short period. E-learning will be introduced, and students must complete some Kana and communication courses within the time frame by self-learning. After this course, students are expected to speak common phrases in different situations and make simple conversations in Japanese language.

RESEARCH

MECS XX80 - Dissertation II

This is the initial part of a 2-part Master dissertation that every student must fulfil successfully. Students are required to propose a suitable research topic under the supervision of a lecturer as a supervisor. Students must meet regularly with a supervisor who will monitor their continuous progress. At the end of this course, students are required to prepare a report and present their proposal.

MECS XX80 - Dissertation III

This is the second part of a 2-part Master dissertation that every student must fulfil successfully. In this stage, students are required to execute the next phases of their development plan from Part 1. Students are now required to code and integrate the different modules that make up the proposed project. Students will test the developed modules and the final fully integrated project following software development and research testing practices. Students must meet regularly with supervisor(s) who will monitor their continuous progress. Students are required to prepare a report and present their final work.