PROGRAMME SYNOPSIS

Year 1 Semester 1

Course: CSS 3112 Introduction to Programming

Synopsis:
The course covers problem solving skills, writing algorithms, basic programming syntax, control structures (loops, if statements, switches), functions and input/output operations.

Course: CSS 3213 Discrete Mathematics

Synopsis:
This course provides the knowledge about logic, set, functions, graph, and trees; and use the theories to solve the problem.

Course: CSS 3413 Introduction to Software Engineering

Synopsis:

This course provides the knowledge of the role of the software engineers, and the processes involved in the software development life cycle.

Course: CSS 3513 Data Communication & Networking

Synopsis:
This course provides the fundamental knowledge of data communication and networking especially LAN and WAN, and implement to the working or living place.

Course: CSS 3523 Computer Architecture

Synopsis:
This course provides the knowledge about the computer architecture and components of the computer such as system buses, memory, I/O, and CPU.

Course: MPU 3412 Co-curriculum

Synopsis:
Students will take part in organizing university's and outside events to gain opportunity of training and learning of specific techniques and skills related to the themes of the events apart from participating in soft skills improvement programs while joining other outdoor sports activities. These will allow students to practice effective communication skills, both verbally or written, polish managerial skills while becoming leaders and managing events in the university, and cultivate awareness of lifelong learning while exposing to well-diversify of knowledge, skills and techniques.

Course: UCS 3112 Communication in the Workplace

Synopsis:
This course comprises of basic knowledge and skills in workplace communication, providing a fundamental exposure and guide to the various forms of communication in the workplace covering both verbal communications and written communication. These include practice in conveying ideas and opinions, writing proposals and business letters, preparing reports, oral communication and presentation.

Year 1 Semester 2

Course: CSS 3122 Data Structure and Algorithms

Synopsis:
This course provides the fundamental knowledge about data structure and algorithm, such as primitive data types, pointer, ADT; and algorithms such as recursive function, sorting, and searching. The students learn C programming language which has the syntax that widely affected modern programming languages.

Course: CSS 3133 Object Oriented Programming

Synopsis:
Understand the concepts of Object Oriented (OO) and able to design the objects, interfaces, and templates by using C++ language.

Course: CSS 3223 Calculus

Synopsis:
This course provides the students the concept and practical use of calculus that can be used in research and development of Computer Science, especially application in Artificial Intelligence.

Course: CSS 3313 Multimedia Technology

Synopsis:
This course provides the theoretical knowledge and practical techniques related to developing interactive multimedia application and how multimedia works especially worldwide web as a multimedia technology.

Course: CSS 3323 Database Development & Applications

Synopsis:

This course provides the students the knowledge about database, types of database, the implementation of the database, and the importance of database usage in applications.

Course: CSS 3533 Operating Systems

Synopsis:
This course provides the students the fundamental concepts of Operating System (OS), different types of OSes, multi-processing, peripherals handling.

Course: CSS 3542 UNIX-like OSes and Software Tools

Synopsis:
This course provides the students the knowledge of UNIX-like OSes such as Linux and FreeBSD, and the software tools such as sh, awk, grep, find, dd, and so on.

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Year 2 Semester 1

Course: CSS 3232 Statistics

Synopsis:
This course provide the students the knowledge of concepts and theories of statistics such as probability, correlation and regression, that is highly used in machine learning and data mining, so that the students are able to apply the statistical theories into the algorithms.

Course: CSS 3423 Network Security

Synopsis:
This course provides the students the understanding of computer and software security by using the protection mechanisms such as firewall and cryptography.

Course: CSS 3553 Human Computer Interaction

Synopsis:
This course provides the students the knowledge about how users interact with computers. The students will learn and practice the approaches of design, implementation, and evaluation of the system usability.

Course: CSS 3433 Requirement Engineering

Synopsis:
This course provides the students the knowledge of requirement engineering, its importance in software development life cycle, different methods and tools to deal with requirement elicitation and representation.

Course: CSS 3563 Artificial Intelligence

Synopsis:
This course provides the students the knowledge of Artificial Intelligence (AI), knowledge representation, and application of AI such as Neural Network, Natural Language Processing, Genetic Algorithm, and Swarm Intelligence.

Course: CSS 3613 Ethics and Professionalism

Synopsis:
This course provides the students the understanding of responsibilities and ethical issues in the working environment, risks and liabilities, and intellectual property so that they are able to develop the software without violating legality.

Year 2 Semester 2

Course: CSS 3334 Web Technology

Synopsis:
This course provides advanced knowledge of web-based system development process including the fundamental HTTP server, PHP/Perl/Python or other server scripting languages, MySQL and other databases, HTML5, CSS3, and JavaScript, so that the students are able to develop web-based system and to solve the problem of an organisation.

Course: CSS 3142 Algorithm and Design Complexity

Synopsis:
This course provides the students the knowledge of the time and space complexity of computer algorithms such as sorting, searching, and graph algorithms in order to solve the problems with different paradigms.

Course: CSS 3443 Software Quality and Testing

Synopsis:
This course provides the knowledge of software quality and testing so that the students understand how to implement software testing, fix the bugs, and improve the software performance.

Course: UCS 3122 Professional English: Essential Communication Skills

Synopsis:

This course provides a comprehensive reference guide on technical communication principles, skills and practice in workplace. It explains the principles of effective communication, both written and oral, and provides solid advice and practical guidelines on how to strengthen communication skills and produce good technical writing. It introduces the theory, specimen documents, suggested layouts and explanations that develop skills and understanding.

Year 2 Semester 3

Course: MPU 3113 Hubungan Etnik

Synopsis:
This course focuses on concepts of culture and ethnic relations, specially emphasises on the latest development in Malaysia. It includes the concepts of ethnic relations, insights of ethnic relations in Malaysia in the aspects of economics, politics, constitutions and religions in Malaysia. It also discuss about the challenges for the enhancement of the ethnic relation and the roles of the government and the society.

Course: MPU 3123 Tamadun Islam & Tamadun Asia (TITAS)

Synopsis:
This course focuses on concepts of culture and ethnic relations, specially emphasises on the latest development in Malaysia. It includes the concepts of ethnic relations, insights of ethnic relations in Malaysia in the aspects of economics, politics, constitutions and religions in Malaysia. It also discuss about the challenges for the enhancement of the ethnic relation and the roles of the government and the society.

Course: MPU 3212 Malaysian Economy

Synopsis:
This course provides the student with an overview of the Malaysian economy, the role of the government and its economic interaction with other countries. Various topics will be discussed, including: the government economic policies and activities (primary, secondary and tertiary), Collin Clark's hypothesis of economic development, key growth engines of Malaysian economy towards high income economy (Iskandar, NCER, ECER, SCORE, and SDC), and Economic Transformation Programme (ETP).

Course: UCS 3412 Bahasa Kebangsaan

Synopsis:
Kursus ini membolehkan pelajar mempertingkatkan kecekapan berbahasa sesuai dengan intelek pelajar untuk berkomunikasi secara lisan dan tulisan dalam konteks rasmi, kreatif dan bukan kreatif. Mata pelajaran ini disediakan untuk mempertingkat kecekapan berbahasa sesuai dengan intelek pelajar untuk berkomunikasi dengan lisan dan tulisan dalam konteks rasmi, kreatif dan bukan kreatif.

Year 3 Semester 1

Course: CSS 3344 Mobile Application Development

Synopsis:
This course provides knowledge and practical skill of mobile application development process including the fundamental concepts of mobile devices, hardware peripherals, processor architecture, and Operating Systems, so that the students are able to solve the problem of an organisation by developing mobile application. The students will use Java language and utilise the HTML5 technology during development on Android platform.

Course: CSS 3453 Project Management

Synopsis:
This course provides with fundamental knowledge emphasises on planning, organising, scheduling, and budgeting so that the students are able to demonstrate managing a software development project.

Course: CSS 3622 Change Management

Synopsis:
This course provides the knowledge of organisational change so that the students are able to cope and solve the technical problem during the change.

Course: CSS 3714 Final Year Project I

Synopsis:
In the beginning of the course, students are required to attend a research workshop where they will be taught on how to execute a research, conduct literature review, decide appropriate methodology, collect, interpret and analyse data. Later, students will be guided by the respective supervisors on how to plan for research which will be conducted later in the course entitled Final Year Project II. Students will carry out weekly discussion with their supervisor on the research topic, objective, scope, research programme, and the extent of the development of the research proposal. A report and a presentation of the research proposal are required at the end of the course.

Course: MPU 3312 Entrepreneurship Skills

Synopsis:
This course also provides an understanding of an individual as entrepreneur and the process of creating and growing a new venture. The topics include theory of entrepreneurship, types of entrepreneurship, the importance of entrepreneurship and factors affecting entrepreneurship, entrepreneurship develop in Malaysia, entrepreneurial creativity and innovation, opportunity identification, business plan, business support system and form of business entities and relate legal requirements.

Year 3 Semester 2

Course: CSS 3153 Parallel Programming

Synopsis:
This course provides the students with knowledge and concept of parallel programming including data parallelism, multiprocessor architecture, process communication, data sharing, synchronous parallelism, multi-computer architecture, message passing programs, replicated workers, and distributed termination detection.

Course: CSS 3633 Business Process Management

Synopsis:
This course provides the knowledge of business process management so that the students are able to implement the software development process into the business model.

Course: CSN 3724 Final Year Project II

Synopsis:

Students will carry out weekly discussion with their supervisor on the research topic, objective, scope, research programme, and the extent of the development of the research proposal. A final report and a presentation of the research proposal are required at the end of the course.

Course: UCS 3212 Creativity and Innovation

Synopsis:

This subject explores the creativity and innovation of thinking skills with an exposure of principles of thinking, methods of generating ideas, creativity in problem solving techniques, creativity in writing as well as giving the experience of producing creative and innovative product through project given.

Course: UCS 3312 Green Technology

Synopsis:

This subject explores the green technology with basic knowledge and fundamental green principles in recycling, green home living, green daily life, green buildings, alternative energy, green transportation, green business and green economics.

Year 4 Semester 1

Course: CSN 3812 Industrial Training

Synopsis:

Twenty four weeks on job training at (any of the following) material suppliers, consulting or construction firms, development firms, government department and statutory bodies related to software engineering practices. Nature of works encompasses software development, project management, IT administration etc. Work experience is recorded in work diary, training report, and presentation upon completion.

Elective Subjects

Course: CSS 3913 Computer Vision and Image Processing

Synopsis:

This course provides the students with advanced knowledge and techniques of computer vision that simulates the biological vision, so that the students are able to develop software that is used in computer vision field.

Course: CSS 3923 GUI Programming

Synopsis:

This course provides the students with advanced knowledge of developing applications with graphical user interface (GUI) by using GUI widget toolkit so that the students are able to develop the user-friendly software for the users.

Course: CSS 3933 Functional Programming

Synopsis:

This course provides advanced knowledge of functional programming paradigm so that the students are able to develop software by using different design instead of procedural programming and OOP.

Course: CSS 3943 Machine Learning

Synopsis:
This course provides advanced knowledge of Artificial Intelligence focus in Machine Learning so that the students are able to apply the algorithm to solve the problems such as face recognition, voice recognition, stock forecasting and others.

Course: CSS 3953 Data Mining

Synopsis:
This course provides the students with knowledge of algorithms and computational paradigms that allow the computer to find patterns and regularities in databases or large datasets by using selection, cleaning, coding, pattern recognition, machine learning and other statistical methods, so that the computer can be used to perform forecasting and improve the performance of interactions.

Course: CSS 3963 Computer Graphics

Synopsis:
This course provides fundamental knowledge of computer graphics such as geometric primitives, 2D and 3D geometric transformations, clipping and windowing, scene modelling and animation, algorithms for visible surface determination, local and global shading models and colour models, which are important in multimedia software development.