

UNIVERSITY OF TECHNOLOGY SARAWAK

BACHELOR OF MOBILE GAME DEVELOPMENT (HONOURS), N/0211/6/0004 MQA/PA 15925



PROGRAMME SYNOPSIS

Year 1 Semester 1

Course: CMD3113 Logic, Math & Physics for Mobile Games

Synopsis:

This course provides students with trigonometry snippets, vector operations, and 1D/2D/3D motion that are needed to improve the level of game development. By the end of the course, students will have a thorough understanding of math and physics concepts, principles, and formulas needed to control and enhance user's gaming experience.

Course: CMD3123 Fundamentals of Game Development

Synopsis:

This course covers the fundamental concepts and key issues of Game development with a practical foundation in game design.

Course: CMD3133 Game Analysis & Design Concept

Synopsis:

This module is necessary for students to understand about working successfully as an artist in the video game industry. Students will understand about video game art is interactive and intertwined with complex and changing technology.

Course: CSS3113 Introduction to Programming

Synopsis:

This course provides the fundamental knowledge of problem-solving skills, writing algorithms, basic programming syntax, control structures (loops, if statements, switches), functions and input/output operations. Knowledge of C programming varies including operating systems and various application software for computer architectures and embedded system.

Course: CSS3513 Data Communication & Networking

Synopsis:

This course provides the knowledge of the Open System Interconnection (OSI) layered model including the concept and application of each OSI layer namely application, data link, network, transport and

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presentation layer so that the students are able to understand the Local Area Network(LAN) and Wide Area Network(WAN) designs and implement them within organizations.

Course: MPU3412 Co-curriculum

Synopsis:

To provide platforms for students in order to apply soft skills, such as communication while strengthened ability to follow rules and realized the important of discipline. Through involvements of the student, the characteristics and qualities of the students such as teamwork, self-confidence, and others are built and therefore will able to expose student with diversity knowledge, skills and techniques of awareness of lifelong learning.

Year 1 Semester 2

Course: CMD3213 Mobile Games Design: Documentation, Concept and Preproduction

Synopsis:

This course provides students with an in-depth introduction to the preproduction phase to develop mobile games, which often remains overlooked or misunderstood. This course will guide students to lay out a ground plan to create successful mobile games. The planning process is called preproduction, and the deliverable is a document that provides details of the idea, how it is going to look, gameplay, location where your environment takes place, top-down layouts, objectives, purpose, reference, story, and visual development.

Course: CMD3223 Digital Imaging

Synopsis:

This module is arranged in three main sections which include: establishing a foundation and rationale for digital imaging paradigm; Summaries of underlying knowledge bases for digital imagery design practice; Summaries of practices of digital imaging across a broad range of game design.

Course: CMD3233 Animation Principles

Synopsis:

This module covers the animation principles. This module also gives students overview of the principles of animation. Students will learn the theory alongside the actual action in performing and acting through real action footage captures.

Course: CMD3243 3D Modelling

Synopsis:

This module will encompass two basic categories of 3D modelling which include solid modelling and shell/boundary modelling. Three common and popular ways to represent a model will also be covered

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which include polygonal modelling, curve modelling, and digital sculpting. The modelling stage taught will consist of shaping individual objects that are later used in final project. Several modelling techniques will also be taught. These techniques include constructive solid geometry, implicit surfaces, and subdivision surfaces.

Course: CSS3123 Data Structure and Algorithms

Synopsis:

This course provides the fundamental knowledge about data structure and algorithm, such as primitive data types, pointer, Abstract Data Type (ADT); and algorithms such as recursive function, sorting, and searching. Students learn C programming language which has the syntax that has extensively affected modern programming languages.

Course: CSS3133 Object Oriented Programming

Synopsis:

This course provides the students with concepts of Object Oriented (OO) and the ability to design the objects, classes, inheritance, polymorphism, exceptions handling and Model-View-Controller (MVC) architecture. Students learn programming languages, such as C# or Java.

Year 2 Semester 1

Course: CMD3313 Mobile Games Design: Production and Testing

Synopsis:

This course provides students the knowledge and practical skills to discover how to create, test, and play mobile games which falls under the production and testing stage. Based on the concepts set during preproduction stage, this course transforms them into source code and different assets.

Course: CMD3323 Game Business & Marketing

Synopsis:

The course covers the essentials and gives advice on when and how to begin marketing a game. To aid learning, marketing terms and important principles are offered. This course also covers several real-world game launches and marketing materials as examples. This course will teach you how to create a marketing plan for mobile games and how to use existing technologies to create marketing materials.

Course: CMD3333 Mobile Games Engines

Synopsis:

The course covers theory and practical skills in game engine design topic areas such as understanding the graphics pipeline as it influences engine design, hardware principles and the relationship to game engine construction, mathematical principles involved in game engine design, scene graph construction

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and maintenance, texture and materials management, collision systems, physics systems, particle systems, and control systems. Furthermore, this course will examine software and toolsets that assist game engine designers in their tasks. Students will be expected to design and implement a game engine in teams as well as properly document their design and development strategy.

Course: CMD3343 Game Programming

Synopsis:

The course covers introduction to event driven programming, game engine scripting, game engine class structures, learning to plan and to report on a significant programming project, learn to work in programming in teams, and learn to use standard game development environments, in particular the Unity3d development platform.

Course: CMD3353 Professional Development and Leadership Skills

Synopsis:

The course covers the various theories and models of leadership and personal development. It gives students insights that leadership skill is essential in the workplace environment.

Year 2 Semester 2

Course: CMD3413 Mobile Games Design: QA, Review and Documentation

Synopsis:

This course provides students with knowledge of quality assurance testing, reviewing, and preparing for the release of a mobile game. Students will learn everything they need to know about creating a test plan, identifying issue logs and bugs, correcting them, and documenting the process before releasing a mobile game.

Course: CMD3423 Research Methodology

Synopsis:

The course covers quantitative and qualitative methods for social research ideas and processes. It gives students a comprehensive overview of research methodologies and techniques to consider undertaking a scientific study on society. The research procedures are all the selection and formulation of the research problem, factors affecting the research topic, research tools, and sampling design.

Course: CMD3434 Mobile Game Development and Deployment

Synopsis:

This course covers with an in-depth introduction to technologies and techniques used to create successful cross platform mobile games by developing a mobile gaming app.

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Course: CMD3443 Project Management

Synopsis:

The course covers the fundamental knowledge, skills and experience on modelling, planning, organizing, scheduling, and budgeting of a mobile game development project and how a project can be aligned to provide value to an organizations' work or business process.

Year 2 Semester 3

Course: MPU3183 Penghayatan Etika dan Peradaban (Appreciation of Ethics and Civilisations) - For Local Student ONLY

Synopsis:

Kursus ini mempersiapkan pelajar untuk menghayati etika dan peradaban yang wujud dalam masyarakat kepelbagaian etnik di Malaysia untuk memperteguhkan pemikiran kritikal dan analitikal mereka bagi menangani kehidupan yang lebih mencabar. Pengisian kursus ini memfokuskan kepada penghayatan etika dan peradaban dalam acuan Malaysia. Pelajar akan didedahkan dengan dinamika konsep etika dan peradaban yang menjadi kekuatan kepada pembentukan negara Malaysia berdasarkan susur masa evolusi sejarahnya dari era pra-kolonial sehingga ke pasca-kolonial. Kefahaman tentang pembentukan etika dan peradaban dalam masyarakat kepelbagaian dibincangkan bagi meningkatkan penghayatan etika dan peradaban ke arah pemantapan kesepaduan nasional dan bangsa Malaysia. Peradaban acuan Malaysia perlu dikupas serta diperdebatkan dalam aktiviti akademik berpandukan Perlembagaan Persekutuan sebagai tapak integrasi dan wahana etika dan peradaban. Pembinaan kesepaduan nasional amat dipengaruhi oleh globalisasi dan perkembangan teknologi maklumat dan komunikasi yang kompleks. Oleh kerana itu, penghayatan etika dan peradaban menzahirkan perilaku tanggungjawab sosial dan digerakkan pada peringkat individu, keluarga, komuniti, masyarakat, dan negara. Justeru, perubahan yang berlaku dalam masyarakat dan pembangunan langsung ekonomi telah membawa cabaran baru dalam mengukuhkan kelestarian etika dan peradaban di Malaysia. Amalan Pendidikan Berimpak Tinggi (HIEPs) dipraktikkan dalam pengajaran dan pembelajaran bagi mendalami kursus ini. (pengajaran & pembelajaran).

Course: MPU3193 Falsafah dan Isu Semasa (Philosophy and Current Issues)

Synopsis:

Kursus ini merangkumi hubungan ilmu falsafah dengan Falsafah Pendidikan Kebangsaan dan Rukun Negara. Penggunaan falsafah sebagai alat untuk memurnikan budaya pemikiran dalam kehidupan melalui seni dan kaedah berfikir serta konsep insan. Topik utama dalam falsafah iaitu epistemologi, metafizik dan etika dibincangkan dalam konteks isu semasa. Penekanan diberikan kepada falsafah sebagai asas bagi menjalin dialog antara budaya serta memupuk nilai sepunya. Di hujung kursus ini pelajar akan mampu melihat disiplin-disiplin ilmu sebagai satu badan ilmu yang komprehensif dan terkait antara satu sama lain.

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Course: MPU3312 Malaysia Economy

Synopsis:

This course is aimed at giving students an introductory insight into the Malaysian Economy. Besides, this course also to expose students on the role of the government and its plans and policies. The knowledge is necessary in order to equip them with necessary skills and awareness for future endeavor.

Course: UCS3412 Bahasa Kebangsaan

Synopsis:

Untuk mendedahkan kepada pelajar dengan kepelbagaian pengetahuan, kemahiran dan teknik untuk kesedaran pembelajaran sepanjang hayat. Ia juga menyediakan platform kepada pelajar untuk menggunakan kemahiran insaniah seperti komunikasi, kemahiran pengurusan. Melalui penglibatan pelajar, ciri-ciri dan kualiti pelajar, seperti kepimpinan, kerja berpasukan, keyakinan diri, dan lain-lain akan terhasil dengan adanya penglibatan pelajar.

Course: MPU3143 Bahasa Melayu Komunikasi 2 - For International Student ONLY

Synopsis:

This course is aimed at enabling students to not only learn but more importantly, to communicate in basic Malay language in diverse aspects of daily living in Malaysia.

Year 3 Semester 1

Course: CMD3516 Final Year Project I

Synopsis:

This course covers student's exposure in conducting an industrial level of project related to mobile game development; to provide opportunity for the students to demonstrate and apply related knowledge and skills into the project as a whole; and enhance students' skills in reporting and documentations.

Course: CMD3523 Artificial Intelligence for Games

Synopsis:

The course covers introductory artificial intelligence concepts through both a theoretical and practical perspective, with an emphasis on how to apply these concepts in a game development context. In particular the course focuses on applying concepts such as search, reactive intelligence, knowledge representation, and machine learning to real-time situations and applications as relevant to the field of entertainment technology and simulation.

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Course: MPU3212 Entrepreneurship Skills

Synopsis:

This course is to acquire knowledge and develop skills necessary to plan and begin a venture.

Year 3 Semester 2

Course: CMD3616 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: CMD3623 Product & Innovation Management

Synopsis:

The course covers product and innovation management skills that are required to commercialize new digital products and services, and bring new ventures to the market.

Course: CMD3633 Human Computer Interaction for Mobile Games

Synopsis:

The course covers the various types of Human-Computer Interfaces (HCI) designs and principles in mobile games. Through this course, learners will analyse and experience different types of user interfaces in popular mobile games to better understand how users interact in the mobile games. Learners will also learn to construct basic HCI framework to design and develop end-user interfaces.

Year 4 Semester 1

Course: CMD3716 Industrial Training

Synopsis:

This course covers student's exposure to the real working environment related to mobile game development; to provide opportunity for the students to apply knowledge gained in the class to solve problems in real life situation; and to enhance students' skills in preparation and presentation of reports.

Elective Subjects

Course: CMD3813 2D and 3D Game Art Development

Synopsis:

This course covers fundamental of drawing and design principles, character and environment design, asset creation, and animation, by utilizing 2d and 3d conceptualise tools to create concept art, character models, 3D environments, and other graphical elements for games.

Course: CMD3823 Mobile Games Graphic, Modelling, Texture and Animation

Synopsis:

This module is necessary for students to understand the fundamental of modern animation, and understood the principal guidelines to make animation accessible to novices. This module encompass innovative and practical approach to teaching 2D and 3D animation, in the process providing an engaging, behind-the-scenes look at the way the modern animation industry works.

Course: CMD3833 Multiplayer Game Design

Synopsis:

This course provides students with the major concepts necessary to program a networked multiplayer game. It covers the basics of networking, basics of transmitting data for games, how to compensate for unreliability and lag on the Internet, how to design game code to scale and be secure, and how to integrate gamer services into and using cloud hosting for dedicated servers.

Course: CMD3843 Extended Reality

Synopsis:

This course covers the technical and experimental design foundation required for the implementation of immersive environments in current and future virtual, augmented and mixed reality platforms.

Course: CMD3853 Game Analytics

Synopsis:

This course provides students with topics focusing on user-oriented game analytics. Students are provided with knowledge on various techniques and strategies in game analytics – including different collection, analysis, visualization and reporting techniques – the building blocks of game analytics systems.