

**COURSE SYNOPSIS  
FACULTY OF COMPUTING AND INFORMATICS**

**BACHELOR OF SCIENCE WITH HONOURS**

<b>BPKP</b>	<b>PROGRAMME CODE</b>
<b>HC12</b>	<b>Multimedia Technology</b>

**BACHELOR OF INFORMATION TECHNOLOGY WITH HONOURS**

<b>BPKP</b>	<b>PROGRAMME CODE</b>
<b>HC13</b>	<b>Business Computing</b>

**BACHELOR OF COMPUTER SCIENCE WITH HONOURS**

**BPKP  
PROGRAMME  
CODE**

<b>HC00</b>	
<b>Software Engineering</b>	
<b>HC05</b>	
<b>Network Engineering</b>	
<b>HC14</b>	<b>Sciences</b>
<b>Data</b>	

**FACULTY  
CORE  
(CENTRE FOR INFORMATION TECHNOLOGY STUDIES)**

### **IT12103 INTRODUCTION TO COMPUTER PROGRAMMING**

This course provides an introduction to computer programming. Students will learn basic programming concepts such as control structure, user defined functions, arrays, pointers and some object oriented concepts such as classes and objects.

#### **References**

D.S.Malik. Introduction to C++ Programming: Brief Edition. Course Technology, Cengage Learning. 2009  
B. Stroustrup. Programming: Principles and Practice Using C++.Addison-Wesley Professional. 2008.

### **IT12203 BASIC MATHEMATICS**

This course provides students with introduction to basic mathematics in calculus, which of function, Limit & Continuous, Algebra Vectors, Differentiation, Integration and their applications. The purpose is to develop the students' mathematical knowledge and to provide the students analytical techniques as well as problem solving methods needed in computing.

#### **References**

James Stewart. 2015. Stewart Calculus: Early Transcendental. 8th Ed. Brooks Cole.  
George B. Thomas, Joel R. Hass, Maurice D. Weir. 2014. Thomas' Calculus. 13th Ed. Pearson/Addison Wesley.  
Anton H., Bivens I. Davis S. 2012. Calculus Early Transcendental. 10th Ed. John Wiley & sons. Education.century Penguin Books  
Ron Larson. 2014. Algebra & Trigonometry. 9th Ed. Brooks Cole

### **IT12403 INTERNET TECHNOLOGY**

This course provides an introduction of fundamental concepts and architecture of internet in addition to the World Wide Web (WWW) and its associated technologies. This course covers topics in Internet and WWW technology such as communication tools, security and privacy, multimedia, e-commerce and information services on the internet.

#### **References**

Jennifer T. Campbell. 2014. Discovering the Internet Complete, 5th Edition, Publisher: Course Technology  
Gary P. Schneider & Jessica Evans. 2013. New Perspectives on the Internet: Comprehensive, 9th Edition, Publisher: Course Technology  
Gary B. Shelly, Denise M. Woods & William J.Dorin. 2013. HTML5 and CSS Comprehensive, 7th Edition, Publisher: Course Technology  
Jason Beard & James Michael George. 2014. The Principles of Beautiful Web Design, 3rd Edition, Publisher: SitePoint

### **IT12603 OPERATING SYSTEM**

This course introduces students to the importance of the concept of Operating System (OS) as primarily providing users with interface to manage a complex system. A computer consists of processors,

memories, timers, disks, mouse, keyboard, network interfaces, and wide variety of other devices. In short, OS is to provide for an orderly and controlled allocation of the processors, memories and input / output devices.

### **References**

Flynn, I.M McHoes, A., 2013 Understanding Operating Systems, 7th Edition. Cengage Learning  
Palmer, M.J., 2011 Guide to Operating Systems. Prentice Hall, (Enhanced Edition) Tanenbaum, A. S., 2014 Modern Operating Systems. Prentice Hall, 4th Edition  
Stallings, W. 2014 Operating Systems: Internals and Design Principles. Prentice Hall, 8th Edition  
M. Flynn (Author)  
Sobell M.G 2012 A Practical Guide to Linux Commands, Editors and Shell Programming 3rd Edition. Prentice Hall  
Muster, J. 2002 Introduction to Unix and Linux. McGraw Hill

### **IT22103 OBJECT ORIENTED PROGRAMMING**

Object-Oriented Programming with Java takes a full-immersion approach to object-oriented programming. Proper object-oriented design practices are emphasized throughout the course. Students learn how to use the standard classes first, then learn to design their own classes. In this course will introduce and uses a gentler approach to teaching students on how to design their own classes, separating the coverage into two sections. GUI coverage is also located independently in the middle of semester will be covered as desired by industry. This course provides a language-independent presentation of object-oriented principles, such as objects, methods, inheritance (including multiple inheritance) and polymorphism.

### **References**

Wu Thomas C., 2013, An Introduction to Object-Oriented Programming with Java, 10th Edition, McGraw Hill, US.  
Malhotra S. & Choundhary S., 2014, Programming in java, 2nd Edition, Oxford University Press, UK.  
Barnes D.J & Kolling M., 2012, Objects First With Java, 5th Edition Pearson Prentice Hall.  
Savitch W. & Carrano F., 2011, Java: An Introduction to Problem Solving & Programming, 7/E, Prentice Hall, US.  
Morelli R. & Walde R., 2012, Java, Java, Java, Object-Oriented Problem Solving, 6th Edition, Prentice Hall, US.

### **IT22303 STATISTICS**

This course provides students with statistic theories in probability theory, discrete probability distributions, continuous probability distributions, estimation methods, and hypothesis tests.

### **References**

McClave, James T. & Sincich, Terry, 2011, A First Course in Statistics, 11th Ed, Pearson/Prentice Hall: New Jersey.  
Hishamuddin, Som, 2005, Panduan Mudah Analisis Data Menggunakan SPSS Windows, UTM:Malaysia.  
Larson, Ron and Farber. Besty, 2003, Elementary Statistics-Picturing the World, 2nd Ed, Prentice Hall: New Jersey.

Mann, Prem S., 2006, Introductory Statistics, 6th Ed, John Wiley & Sons.  
Yahaya, A.S. et.al., 2008, Problem and solutions in Statistics for Engineers & Scientist, Prentice Hall.

### **IT22403 DATABASE MANAGEMENT SYSTEMS**

The course introduces the field of database management and its advantages as compared to file based system as the precursor to database system. It examines the database environment and the three level ANSI SPARC architecture. The course covers relational model and languages, namely relational algebra, SQL and a brief introduction to Data Definition Language (DDL). The course discusses the main techniques for database analysis and design such as ER Diagram and Normalization. The course also covers the issue of DBMS security. The course finally concentrates on three functions that should be provided by the Database Management System, namely transaction management, concurrency control and recovery.

#### **References**

Thomas Connolly, Carolyn Begg. 2015, Database Systems : A Practical approach to design, implementation and management), Addison Wesley.  
Jeffrey A. Hoffer et al. 2014, Modern Database Management. Pearson Education Inc.  
CJ Date. 2004. An Introduction to Database Systems. Pearson Education Inc. David M. Kroenke et al. 2008. Database Concepts. Pearson Education Inc

### **IT22603 DATA STRUCTURE**

This course will introduce to student on the concept of Data Structure which enclose Foundational Data Structure and Object Oriented Design (OOD), Pointer and Array-Based List, Linear structure; Linked Lists, Queues and Stack, Dynamic Structure: Binary Trees and B-Tree. Algorithmic; Searching and Hashing Algorithms, and Sorting Algorithms, Recursion and Standard Template Library.

#### **References**

Malik, D. S. (2013) Data Structure Using C++, 3rd Edition. Course Technology.  
Deitel & Deitel (2014) C++ How to Program 2014, International Edition, Pearson International Edition, Pearson Education.  
Carrano Frank M. (2012) Data Abstraction and Problem Solving with C++ Walls and Mirrors, Sixth Edition, Addison Wesley  
Collins, William J. (2003) Data Structures and The Standard Template Library, International Edition. McGraw-Hill.

### **IT32203 DISCRETE MATHEMATICS**

Discrete mathematics forms the mathematical foundation of computer and information science. It is an important branch of modern mathematics. It mainly studies the structure and relationship of the discrete quantities. The course covers the basic elements of discrete mathematics which provide a foundation for an understanding of algorithms and data structures used in computing. Topic covered include Logic, Sets, Foundations, Mathematical Reasoning, Various Counting Techniques, Relations, Graphs, Trees, and Boolean Algebra.

#### **References**

Malik D.S. and Sen M.K. 2010. Discrete Mathematics: Theory and Application. Revised edition, Thomson Learning.  
Epp S.S., 2011. Discrete Mathematics with Applications. (Fourth edition). Brooks/Cole.  
Johnsonbaugh R. 2009. Discrete Mathematics. International edition, 7th edition. Pearson education.  
Rosen K.H., 2012. Discrete Mathematics & its Application, (7th edition). McGraw-Hill.

### **IT32103 HUMAN COMPUTER INTERACTION**

The course provides the concept of communication and interaction focusing on user interface design, evaluation and implementation. The student will adopt skills for designing, implementing and evaluating interactive systems within the people, activities, technologies and context of use. All this knowledge is important to create or develop a usable and attractive human computer interaction (HCI) application.

#### **References**

David Benyon. 2014. Designing Interactive Systems: A Comprehensive Guide to HCI and Interaction Design. 3rd ed. Pearson Education Limited.  
Ben Shneiderman, Catherine Plaisant, Maxine Cohen, Steven Jacobs. Designing the User Interface: Strategies for Effective Human-Computer Interaction. 2016. 6th ed. Prentice Hall.  
Yvonne Rogers, Helen Sharp, Jenny Preece. 2015. Interaction Design: Beyond Human - Computer Interaction. 4th ed. Wiley.  
Alan Dix, Janet Finlay, Gregory D. Abowd, Russel Beale. 2003. Human Computer Interaction. 3rd ed. Prentice Hall.

### **IT32403 MANAGEMENT INFORMATION SYSTEM**

This course teaches students how organisations use ICT and Information Systems to achieve their objectives. In the early part of this course, the discussions focus on how organisations use Information Systems to achieve their objectives. It is then followed by a discussion on how to secure information system. The latter parts discuss how IS can help managers to enhance decision making processes.

#### **References**

Kenneth C. Laudon. (2014). Management Information System: Managing the Digital Firm. 13th Edition. Pearson International Edition  
James O'Brien & George Marakas (2011). Management Information Systems. 10th Edition. McGraw-Hill/Irwin  
Farah Walleeda Jalaluddin, et al. (2014). Information Systems: An Introduction. Oxford Fajar Sdn Bhd.

### **CORE PROGRAM TECHNOLOGY MULTIMEDIA (HC12)**

#### **IM12103 FUNDAMENTALS OF MULTIMEDIA**

This course covers an introduction of multimedia building block such as text, graphic, sound, animation, and video. Appropriate multimedia authoring software and hardware will be used and discusses. Processes involved in multimedia development such as planning and design will also covered.

#### **References**

Tay Vaughan. 2014. Multimedia Making It Work. 9th ed. Mc Graw Hill.  
Vic Costello. 2016. Multimedia Foundations: Core Concepts for Digital Design, 2nd ed. Focal Press.  
Nigel Chapman and Jenny Chapman. 2009. Digital Multimedia. 3rd ed. John Wiley.  
T. M. Savage and K. E. Vogel. 2013. An Introduction to Digital Multimedia. 2nd ed. Burlington, MA : Jones & Bartlett Learning.

#### **IM12203 MULTIMEDIA DESIGN**

This course exposes students with multimedia design processes, particularly interactive multimedia. It focuses on the design aspects of digital media as well as on the theory and practice of the tools and

techniques required for creating interactive multimedia.

### **References**

- Vic Costello, Susan Youngblood, Norman E. Youngblood. 2016. *Multimedia Foundations: Core Concepts for Digital Design*. 2nd ed. Focal Press.
- David Benyon. 2014. *Designing Interactive Systems: A Comprehensive Guide to HCI and Interaction Design*. 3rd ed. Pearson Education Limited.
- Ben Shneiderman, Catherine Plaisant, Maxine Cohen, Steven Jacobs. 2016. *Designing the User Interface: Strategies for Effective Human-Computer Interaction*. 6th ed. Prentice Hall.
- Carolyn Handler Miller. 2014. *Digital Storytelling: A Creator's Guide to Interactive Entertainment*, 3rd ed. Focal Press.
- Alan Cooper, Robert Reimann, and David Cronin. 2014. *About Face 3: The Essential of Interaction Design*. 4th ed. Wiley Publishing.

### **IM22103 VIDEO PRODUCTION**

The course describes the latest industry trends in video production. It will introduce the students to the video technologies and techniques that are relevant in ensuring successful video production project. By developing practical skills, it aids the student's own development, and provides a coherent overview of the issues that affect all in the converging industries of communications and media. The course will also provide practical advice and tips to help students deliver a high quality project on time and within budget.

### **References**

- Vasuki Belavadi. 2013. *Video Production*. 2nd ed. Oxford University Press.
- Gerard Millersoon and Jim Owens. 2011. *Video Production Handbook*. 5th ed. Focal Press.
- Bruce Mamer. 2013. *Film Production Technique, Creating the Accomplished Image*. 6th ed. Wadsworth Cengage Learning.
- Leonard C. Shyles. 2007. *The Art of Video Production*". Sage Publications.
- Lynne S. Gross and James C. Foust. 2012. *Video Production: Disciplines and Techniques*. 11th ed. Videomaker and John Burkhart. 2012. *The Videomaker Guide to Video Production*. 5th ed. Focal Press.

### **IM22203 ANIMATION**

This course is an introduction to animation. It combines both the history, the theoretical elements of animation aesthetics and concepts, with the practical knowledge of animation techniques required to produce animation. The students will be exposed to three dimensional (3D) digital creative content development processes such as storyboarding, modelling, animating, rendering, applying visual effects and compositing. Upon completion of the course, students will be able to produce one short 3D animation sequences.

### **References**

- Sham Tickoo. 2017. *Autodesk Maya 2017: A Comprehensive Guide*, 9th Edition. Purdue Univ.
- Liz Blazer. 2016. *Animated Storytelling: Simple Steps For Creating Animation and Motion Graphics*. Peachpit Press.
- Molly Bang. 2016. *Picture This: How Pictures Work*. Chronicle Books.
- Tina O'Hailey. 2013. *Rig it Right! Maya Animation Rigging Concepts (Computers and People)*. Focal Press.
- Paul Wells. 2011. *Understanding Animation*. Routledge. London.
- Neil Landau. 2010. *101 Things I Learned @ in Film School*. Grand Central Publishing.

### **IM22403 TECHNOPRENEURSHIP**

The course equips students with the entrepreneurship skills needed to enter digital workforce. Students will learn and practice digital development, business plan, issues related to legal policies and laws concerning commerce on the Internet, global outsourcing and etc. The course covers three major domains:

- Technology
- Economics (e.g., digital payment system, advertising and marketing and business models).
- Social and Transaction Models (e.g., intellectual rights and legal initiatives).

### **References**

eUsahawan Portal, Web.eusahawan.net

Dorf, C., R., Byers, T., H., (2005), Technology Ventures: From Idea to Enterprise, McGraw Hill

Wan Nong Muzaffar (2015). Kuasai Perniagaan Internet (Siri 1), Published by Group Buku Karangkrif ISBN: 9789678606493

Wan Nong Muzaffar (2015). Kuasai Perniagaan Internet (Siri 2), Published by Group Buku Karangkrif ISBN: 9789678607773

Wan Nong Muzaffar (2015). Kuasai Perniagaan Internet (Siri 3), Published by Group Buku Karangkrif ISBN: 9789678608305

Friedman, T., L., (2006), The World is Flat: The globalized world in the twenty-first century, Penguin Books

Tapscot, D., Williams, A., D., Wikinomics: How Mass Collaboration Changes Everything, Atlantic Books

E-Business Technologies, Napier, Judd, Rivers, and Adams

Halsall, 2010 Computer Network & the Internet: Pearson. Akins, Joanna (2015). Quick Win Digital Marketing, Published by Oak Tree Press ISBN No. 9781781190548

AmmarZahar (2014). Ledakan Facebook. Seri Kembangan, Selangor: Jootawan Group

AmmarZahar (2014). Strategi pelancaran produk; bagaimana menghasilkan 4 angka dalam masa 24 jam. Seri Kembangan, Selangor : Jootawan Group.

Andrews, Adrian (2015). Social media marketing. Published by internetcheatsheets.blogspot.com. ISBN: 9781304826589

Asad, Issa (2014). Instant Profits with Instagram : Build Your Brand, Explode Your Published by Issa Asad, ISBN: 9780990812302

Goldfarb, Sam (2015). Facebook for Business: How To Market Your Business on Facebook and Get More Sales, New Customers and Brand Awareness. Published by BookBaby, ISBN: 9781617924729

### **IM32103 WEB PROGRAMMING**

This course will provide students with a fundamental understanding as to how an HTML-compliant web site was developed, implemented, and maintained by using the Internet programming language. Students also learn two types of web programming language; client-side scripting (HTML5, CSS3, Canvas and JavaScript) and server-side scripting (PHP) with a simple connection to the SQL database (MySQL) using Apache Web Server.

### **References**

Meloni, Julie C. 2015. Sams Teach Yourself PHP, MYSQL and Apache. 5th ed. Sams Publishing. Deitel and Deitels. 2015. Internet & World Wide Web How to program. 6th ed. Prentice Hall.

Welling, Luke & Thomson, Laura. 2009. PHP and MySQL Web Development. 4th ed. Pearson Education, Inc

### **IM32303 COMPUTER GRAPHIC**

This subject is an introduction to computer graphic and applications. Students will learn computer graphics concepts and basic techniques for operating (creation, manipulate and interact) with two dimensional (2D) or three dimensional (3D) objects on a display screen. The course also provides overview of few typical applications of computer graphics. Students will be exposed with graphic programming language and softwares. At the end of this course students are required to develop a an

interactive graphic application.

### **References**

- Angel E. 2012. Interactive Computer Graphics: A Top-Down Approach Using OpenGL. 6th ed. New York: Addison Wesley.
- Hill, F. S. Jr. 2007. Computer Graphics Using OpenGL. 3rd ed. New Jersey: Prentice Hall.
- Hearn, D. & Baker, M.P. 2011. Computer Graphics with OpenGL. New Jersey: Prentice-Hall.
- Dave Shreiner, Mason Woo, Jackie Neider and Tom Davis. 2008. OpenGL Programming Guide. 6th ed. Pearson.
- James D. Foley, Andries van Dam, Steven K. Feiner, John F. Hughes. 1995. Computer Graphics: Principles and Practice in C. 2nd ed. Addison-Wesley Professional.

### **IM32503 SYSTEM ANALYSIS & DESIGN**

To enable students to fully appreciate the principles of modern design and development methodologies. Emphasis is placed upon the process of translating real-world system design, development and implementation problems using unified modelling language, process modelling and agile development techniques. The students will undertake analysis of incomplete or contradictory evidence/data and judges the appropriateness of the enquiry methodologies used. The will also recognise and argues for alternative approaches.

### **References**

- Joseph Valacich, Joey George, Jeffrey A. Hoffer. 2011. Essentials of Systems Analysis and Design (5th Edition). Prentice Hall.

### **IM32603 ADVANCED MULTIMEDIA**

The course is designed to give students a detailed grounding in issues related to multimedia technology such as concepts and representation of sound, pictures, video, data compression and transmission. It will also cover aspects of multimedia communication networks including broadband ATM, wireless and mobile networks. The student will also learn on how to establish video streaming via online. After successful completion of this unit, student will be able to integrate multimedia technology into both the design and simulation of real world multimedia applications and system. Such skills are useful for their career advancement in the future.

### **References**

- Parag Havaladar and Gerard Medioni (2011). Modern Multimedia Systems, 1st Edition. Cengage. ISBN-10:9814352608 | ISBN-13: 9789814352604
- Ze-Nian Li and Mark S. Drew (2004). Fundamentals of Multimedia. Pearson Prentice Hall, New Jersey. ISBN-10:0130618721
- David A. Forsyth and Jean Ponce (2003). Computer Vision: A Modern Approach. Prentice Hall. ISBN-10:0130851981
- Tay Vaughan (2006). Multimedia: Making it Work, Seventh Edition. McGraw-Hill Osborne Media. ISBN-10:0072264519
- David Salomon (2000). Data Compression: The Complete Reference (2nd edition). Springer. ISBN: 0-387-95045-1

### **IM32803 MULTIMEDIA PROJECT MANAGEMENT**



Multimedia project management is crucial for every student to learn how to plan and execute their project on time. The course will teach the student how to manage the project base on the pre-production, production and post- production development phases. The student will be equipped with variety of skills that is useful in the management of multimedia project. The students are expected to demonstrate their knowledge of multimedia project management in the individual and group assignments as well as the final project.

### **References**

- Greg Horine. 2017. Project Management Absolute Beginner's Guide (4th Edition). Pearson Education Inc.
- Donald J. Scott. 2016. Project Management: A Quick Start Beginner's Guide for the Serious Project Manager to Managing Any Project Easily.
- Joseph Heagney, 2016. Fundamentals of Project Management. 5th Edition. American Management Association.
- Nancy Lyons & Meghan Wilker. 2012. Interactive Project Management: Pixels, People, and Process (Voices That Matter).
- Russ Unger & Carolyn Chandler. 2012. A Project Guide to UX Design: For user experience designers in the field or in the making. 2nd ed. Peachpit Press.
- Scott Berkun. 2008. Making Things Happen: Mastering Project Management (Theory in Practice). O'Reilly Media.
- Tim Frick. 2008. Managing Interactive Media Project, Thomson Delmar Learning, Canada
- Elaine England & Andy Finney. 2007. Managing Multimedia Project Management for Interactive Media. 4th ed. Addison-Wesley.

### **IM33002 PROJECT 1**

This course is designed to let students apply all the ICT knowledge to turn ICT application product. It will focus on the planning, analysis and design part in producing an ICT product that can be adapt into business.

### **References**

- Gaya Penulisan UMS Online Journal.  
Online Journal.
- Charles S. Wasson, "System Analysis, Design and Development: Concept, Principal and PRactices", Wiley Publishing , 2016.

### **IM42103 ETHICS IN INFORMATION TECHNOLOGY INDUSTRIES**

This issues need to be comprehended and delivered to students in a constructive manner and offer the existing regulatory framework to balance out freedom of information dissemination with the need to adhere to rules and regulations of the law. Students should understand important concepts of ethics and legal, regulations, privacy, security and other issues pertaining to society in relations with digital divergence and ICT literacy in order for them to have comprehensive knowledge for them to carry out responsibilities in the digital world.

### **References**

- Mike Quinn (2014), Ethics for the Information Age, International Edition, Pearson.
- Herman T. Tavani. (2016). Ethics and technology: Controversies, Questions, and Strategies for Ethical Computing 5th Editions. Wiley
- George W.Reynolds (2012), Ethics in Information Technology, 4th Edition, International Edition, Cengage Learning.
- Gerd Leonhard. (2016) Technology Vs. Humanity: The Coming Clash Between Man and Machine. Fasa Future Publishings
- Deborah G. Johnson & Keith W. Miller (2009), Computer Ethics, 4th Edition, Pearson International

### **IM42303 NETWORK AND SECURITY**

Provide the students with fundamental knowledge on the concept and operation of networking and security.

#### **References**

William Stallings. 2014. Network Security Essentials – Application and Standards. 5th ed. Pearson.  
Raymond R. Panko. 2013. Corporate Computer and Network Security. 3rd edition. Pearson.  
Dieter Gollmann. 2011. Computer Security. 3rd ed. Wiley (Australia).  
William Stallings. 2014. Cryptography and Network Security – Principles and Practices. 6th ed. Pearson.

Data Communication and Networking: Behrouz A. Forouzan, Mc Graw Hill, 5rd Edition. 2013  
Computer Networks: Tenenbaum AS., Prentice Hall, 5th Edition, 2011.  
Corporate Computer Security: Randy J. Boyle ad Raymond R. Panko., Person, 3rd Editions, 2013  
Computer Security:Principle and Practice: William Stalling., Pearson, 3rd Edition, 2015.

### **IM42504 PROJECT 2**

This course is designed to let students to generate a creative project idea and teach them on how to manage and handle an ICT application project in a proper way by going through a complete and correct development process. It also designed to let students apply all the ICT knowledge to turn into an ICT application product. It will focus on the development and implementation and handle project testing in producing an ICT product that can be adapt into business.

#### **References**

Gaya Penulisan UMS Online Journal  
Charles S. Wasson, “System Analysis, Design and Development: Concepts, Principal and Practices”, Wiley Publishing, 2016.

### **IM42612 INDUSTRIAL TRAINING**

Industrial Training aims to expose students with real working environment before they graduate and find employment. The duration of industrial training is 24 weeks. Throughout the industrial training period, students are placed in IT-related companies under the supervision of industrial supervisor where the students undergo their industrial training, and an academic supervisor from the faculty.

## **CORE PROGRAM E-COMMERCE (HC13)**

### **IE12103 E-COMMERCE**

This module focuses on marketing & promotion plans, strategic planning, consumer habits, legal and trade- related issues on the Internet or more commonly known as Electronic Commerce. It covers the sale and purchase of digital network products and services. The module also provides a framework and technical analysis to understand electronic commerce. It is divided into three main domains:

- Economics (Includes digital banking systems, advertising and marketing, business model and e-cash)
- Social and Transaction Models (Including intellectual property and legal matters).
- Technology (Including internet infrastructure and server management)

#### **References**

Chaffey, D. (2007). E-business and E-commerce Management: Strategy, Implementation and Practice. Pearson Education.

Efrain Turban et. Al..2012. Electronic Commerce: A Managerial and Social Networks Perspective, 7th Edition, Global Edition. Person International.

Farhoomand, A. F., & Lovelock, P. (2001). Global e-commerce: Text and Cases. Prentice Hall.

Laudon K.C. & Traver C. G. 2014. E-Commerce 2015 Business Technology Society, Ninth Edition. Pearson International.

Schneider Gary P. 2015. Electronic Commerce, Eleventh Edition. Course Technology: Cengage Learning.

### **IE12203 BUSINESS MANAGEMENT**

As e-commerce students, the course is outlined as an introduction to management principles in the context of business & management. It is necessary for the students to be equipped with necessary business skills and knowledge in order for them to carry out task and responsibilities in a competitive business environment in which technical skills are not sufficient to meet the challenges. This subject will mould the students with the fundamental knowledge and practise in managing e-business.

#### **References**

Khalidah, Satirejit, Lai F.W., Rohani, Sofiah, Rahayu, Ilmiah (2015). Business Management A Malaysian Perspective. Oxford

Andrew DuBrin (2012). Management Essentials. Cengage Learning.

Robbins, Stephen P. & Coulter, Mary (2010). Management. Pearson

Burnes (2010). Managing Change. Pearson

### **IE22103 MARKETING**

This course discusses the issue of the Internet's impact and how it affected the function of marketing. The core principle of Marketing are undergoing a fundamental re-examination of its core principles. Traditional marketing methods are still relevant in the networked economy, but firms must also consider a host of new and innovative marketing methods now at their disposal.

#### **References:**

Philip Kotler and Gary Armstrong (2018) 'Principles of Marketing', London : Prentice Hall, 17th ed.

Armstrong G. & Kolter P. (2013) 'Principle of Marketing', Pearson, 14th Edition, Global Edition.

Strauss J & Frost R. (2009) 'E-Marketing", 5th Edition, International Edition, New Jersey : Pearson Prentice Hall

Dave Chaffey and Fiona Ellis-Chadwick (2018) 'Digital Marketing', Pearson Education Limited, 6th ed.

Baines P., Fill C., Page K.,(2011) 'Marketing' 2nd Edition, Oxford

### **IE22203 E-COMMERCE BUSINESS MODEL**

The growth of internet has been astonishing with huge risks and opportunities, as many businesses have faced. While other online businesses flourish, others fail. This course explores the characteristics of internet business models used by these successful companies. It will also train the students in business modelling, through the application of internet technologies.

#### **References:**

Kenneth C. Laidon & carol Guercio Traver (2018) E-Commerce : Business, Technology & Society, Pearson, 14th, Ed.

In Lee (2008) E-Business models, services and communications, Hershey, PA : Information Science Reference Vaines P., Fill C., Page K., (2011) 'Marketing' 2nd Edition, Oxford

<http://www.thedrum.com/opinion/2016/11/28/7-e-commerce-trends-worked-2016>

<http://blog.lemonstand.com/e-Commerce-trends-2017-far/>

<http://10e-Commercetrends.com/>

<http://www.ecommerceceo.com/types-of-ecommerce-business-models/>

<http://www.moduslink.com/global-e-commerce-trends/>

### **IE22403 WEB PROGRAMMING**

This course will provide students with a fundamental understanding as to how an HTML-compliant web site was developed, implemented, and maintained by using the Internet programming language. Students also learn two types of web programming language; client-side scripting (HTML5, CSS3, Canvas and JavaScript) and server- side scripting (PHP) with a simple connection to the SQL database (MySQL) using Apache Web Server.

#### **References**

Meloni, Julie C. (2011) Sams Teach Yourself PHP, MYSQL and Apache 5th Edition, Sams Publishing

Deitel and Deitels (2011) Internet & World Wide Web How to program 5th Edition, Prentice Hall.

Welling, Luke & Thomson, Laura (2009) PHP and MySQL Web Development 4th Edition, Pearson Education, Inc.

### **IE32103 TECHNOPRENEURSHIP**

This course provides exposure to entrepreneurial areas applying and using technology expertise in the production of products, services, business management and decision-making regarding business profits. This course is divided into entrepreneur development phase starting from 'Idea Generation' and 'Proof Of Idea' (POI) through competency, generic, entrepreneurial and academic development approaches. Next, the Phase of Strategic Technological Improvement (PPTS) will start with "Proof Of Concept" (POC) and R & D through enhancement and enhancement of existing products / services. To be relevant to the existing industry, this course will provide exposure to the preparation of business plans using the MDeC format.

#### **References**

Brikman, Yevgeniy, (2016) Hello, Startup, O`Reilly

Gruber, Frank (2014) Startup Mixology: Building, Growing, Celebrating Startup Success, Wiley

Dorf, C., R., Byers., T., H., (2005), Technology Ventures: From Idea to Enterprise, McGraw Hill

Friedman, T., L., (2006), The World is Flat: The globalized world in the twenty-first century, Penguin Books

Tapscot, D., Williams., A., D., Wikinomics: How Mass Collaboration Changes Everything, Atlantic Books

E-Business Technologies, Napier, Judd, Rivers, and Adams

Halsall, 2010, Computer Network & the Internet: Pearson.

### **IE32303 INFORMATION TECHNOLOGY PROJECT MANAGEMENT**

Project management essentials affect the bottom line of information system project technical and business performance. By introducing this course it will explore the application of knowledge, skills, tools, and techniques, that are used by project managers when managing information technology

projects as well as the current IT factors that affect IT project management decision making. Special emphasis will be placed on learning the best practices currently used by organizations and practitioners to ensure the best chance for project success.

### **References**

- K. Schwalbe (2014). Information Technology Project Management. Course Technology, Seventh Edition, Thomson Learning
- Jeffrey L. Brewer, Kevin C. Dittman (2018). Methods of IT Project Management. Purdue University Press
- Larson R.W. & Gray C.F. (2013). Project Management The Managerial Process, 5th Edition, Mc Graw Hill
- Olson D.L. (2014). Information system Project Management. Business Expert Press
- Hughes, B., Ireland, R., West, B., Smith, M., Shepherd D., (2012). Project Management for IT related Project. 2nd Edition, BSC Learning & Development Ltd.

### **IE32503 ANALYSIS & DESIGN FOR E-COMMERCE**

Systems analysis and design concentrate on current practice of system development and principles consists of planning phase, analysis phase and design phase. This course is to understand organizational style of business and its impact on IS as well as the techniques and deliverables of the profession. Students will be exposed on methods and principles of system development cycle which emphasize the role of people, management and quality issues, and consider practical and business realities. I

### **References**

- Jeffrey A. Hoffer, Joey F. George & Joseph S. Valacich, 2014, Modern System Analysis & Design Seventh Ed, Pearson Education Limited.
- Kendall & Kendall, 2014, Systems Analysis and Design, Ninth Ed, Pearson International Edition.
- Marakas M. George, 2006, Systems Analysis and Design, Second Ed, McGraw-Hill International Edition

### **IE32603 ETHICS IN INFORMATION TECHNOLOGY**

This issues need to be comprehended and delivered to students in a constructive manner and offer the existing regulatory framework to balance out freedom of information dissemination with the need to adhere to rules and regulations of the law. Students should understand important concepts of ethics and legal, regulations, privacy, security and other issues pertaining to society in relations with digital divergence and ICT literacy in order for them to have comprehensive knowledge for them to carry out responsibilities in the digital world.

### **References**

- Mike Quinn (2014), Ethics for the Information Age, International Edition, Pearson.
- Herman T. Tavani. (2016). Ethics and Technology: Controversies, Questions, and Strategies for Ethical Computing, 5th Edition. Wiley
- George W. Reynolds (2012), Ethics in Information Technology, 4th Edition, International Edition, Cengage Learning.
- Gerd Leonhard. (2016). Technology Vs. Humanity: The Coming Clash Between Man and Machine. FASE Future Publishings
- Deborah G. Johnson & Keith W. Miller (2009), Computer Ethics, 4th Edition, Pearson International.

### **IE32803 NETWORK AND SECURITY**

In this course, students will learn such concepts as protocols, topologies, hardware, and network operating systems. This course will also examine various types of security issues on web, email, file transfer, wireless, instant messaging, and how to protect physical access. Students will learn about intrusion detection, computer virus prevention, and various encryption technologies to secure access to network resources.

#### **References**

Data Communication and Networking, Behrouz A. Forouzan, Mc Graw Hill, 5rd Edition. 2013. Computer Networks; Tanenbaum AS. (Prentice Hall), 5th Edition, 2011.

Raymond R. Panko. (2010). Corporate Computer and Network Security. Pearson.

J. Richard Burke (2004). Network Management: Concepts and Practices – A Hands-on Approach.

### **IE33002 PROJECT 1**

The course is designed to let students apply all the ICT knowledge to turn into an ICT application product. It will focus on the planning, analysis and design part in producing an ICT product that can be adapt into business.

#### **References**

Gaya Penulisan UMS

Online Journal.

Charles S. Wasson, "System Analysis, Design and Development: Concepts, Principal and Practices", Wiley Publishing, 2016.

### **IE42103 SECURITY & E-COMMERCE PAYMENT SYSTEM**

Electronic Payment is essential to online transactions. The emergence of e-commerce or e-business which is encouraged by advancement of Internet technology has forced the industry players to look for other new alternatives to fulfill the needs of electronic payment. In this course, a few electronic payment methods would be discussed including credit card based online payment, digital check, and digital cash, e-payment based on debit cards, smart cards, prepaid cards, pay-by-phone service and micropayments. Security is one of the major emphases in this course. The security requirements for e-payment or e-commerce such as message privacy, message integrity, authentication, authorization and non-repudiation will be discussed. The course is also attempts to give students the broad and comprehensive understanding in determining the risks for consumers and businesses that involved in electronic payment.

#### **References**

Donal O'Mahony, Michael Peirce and Hitesh Tewari. (2001). Electronic Payment for E-Commerce. Artech House, London.

Raymond R. Panko. (2013). Corporate Computer and Network Security. 3rd Edition, Pearson.

Randall J.Boyle and Raymond R. Panko (2017). Corporate Computer Security (Fourth Edition).Pearson

### **IE42303 DATA MINING**

This module is designed for undergraduate students studying on BIT (Business Computing) course. This course is an introductory course on basic concepts, principles, methods, implementation

techniques and application in data mining. Areas covered include data preprocessing, classification models, association analysis, clustering and KDD process model. The goal is to present the fundamental concepts and algorithms for each data mining techniques, thus providing the students with the necessary background for the application of data mining to real problems. The learning will be enhanced with hands on practical set of exercises with the use of data mining tools.

### **References**

Hongbo Du (2010), Data Mining Techniques and Applications: An Introduction, CENGAGE Learning  
Herbert Jones (2018), Data Mining: The Data Mining Guide for Beginners, Including Applications for Business, Data Mining Techniques, Concepts, and More, CreateSpace Independent.  
Ian H. Witten, Eibe Frank, Mark A. Hall, Christopher J. Pal (2016), Data Mining: Practical Machine Learning Tools and Techniques (Morgan Kaufmann Series in Data Management Systems) 4th Edition, Morgan Kaufmann.  
Jiawei Han, Jian Pei, Micheline Kamber (2012), Data Mining: Concepts and Techniques (Morgan Kaufmann Series in Data Management Systems) 3rd Edition, Morgan Kaufmann.

### **IE42504 PROJECT 2**

This course is designed to let students to generate a creative project idea and teach them on how to manage and handle an ICT application project in a proper way by going through a complete and correct development process. It also designed to let students apply all the ICT knowledge to turn into an ICT application product. It will focus on the development and implementation and handle project testing in producing an ICT product that can be adapt into business.

### **References**

Gaya Penulisan UMS  
Online Journal  
Charles S. Wasson, "System Analysis, Design and Development: Concepts, Principal and Practices", Wiley Publishing, 2016.

### **IE42612 INDUSTRIAL TRAINING**

Industrial Training aims to expose students with real working environment before they graduate and find employment. The duration of the industrial training is 24 weeks. Throughout the industrial training period, students are placed in IT-related companies under the supervision of industrial supervisor where the students undergo their industrial training, and an academic supervisor from the faculty.

## **ELECTIVES**

### **IP00103 CREATIVE WRITING**

The course will introduce students to creative writing with particular relevance to pre, production and post-production of live action, documentaries, short film, animated short and other interactive media. The principles of narration and the design of story are the highlights given in the subjects focusing on the aspects of linear and non-linear storytelling. The students are required to translate idea, written scripts, develop storyboard and produce a short multimedia and film production. The course is conduct in a workshop format through fieldwork approach. **(BARU)**

### **References**

Karen Sullivan, Kate Alexander, Aubry Mintz & Ellen Besen (2013). Ideas for the Animated Short, Finding and Building Stories, 2nd Edition, Focal Press, New York.  
Michael Hauge. 2017. Storytelling Made Easy: Persuade and Transform Your Audiences, Buyers, and Clients — Simply, Quickly, and Profitably. Indie Books International LLC.  
Noah & Mica Scalin. 2017. Creative Sprint: Six 30-Day Challenges to Jumpstart Your Creativity Flexi bound. Quarto Publishing Group.  
Jill Chamberlain. 2016. The Nutshell Technique: Crack the Secret of Successful Screenwriting. University of Texas Press.  
Simon Basher. 2013. Basher Basics: Creative Writing- The Plot Thickens! King Fisher.

### **IP00803 CYBER LAWS**

Before 1990, few people had heard of the Internet. By the mid-1990s it was hard to drive down the street without seeing a billboard advertising a Website. In only a few years the Internet significantly changed the way we live and work. It also presented people with tough and interesting legal questions. This course is designed to introduce you to the new and challenging problems of Internet law. We will look at relatively simple questions, such as whether clicking on an "I Agree" button is the same as signing a document, as well as more complicated questions, such as where in the world you are (legally speaking) when you are on the Internet. Issues pertaining intellectual properties (copyright, patent, trademark and etc.) are also discussed. This course also debate issues pertaining to privacy, personal data and internet crime and their association with e-business and national security.

#### **References**

George W. Reynolds. (2015). Ethics in Information Technology. 4th Edition, Thomson Course Technology  
Izura Mand et al.(2004) Introduction to Cyber Law of Malaysia, Advance Professional Courses, Kuala Lumpur (Dalam Table 4)  
International Law Book Services. (2011), Cyberlaws of Malaysia. Legal Research Board (Dalam Table 4)  
Gerald R. Ferrera, Margo E.K. REder, Robert C. Bird, Jonathan J.Darrow, Jeffrey M. Aresty, Jacqueline Klosek and Stephen D. Lichtenstein. (2012). Cyberlaw : Text and Cases. 3rd Edition, South-Western

### **IP00903 PRINCIPLES OF ACCOUNTING**

Understanding the basic of accounting. Its principle & accounting transactions. It will also covers Accounting Information Systems (AIS) in the organisation as the support of strategic and operational decision making & problem solving . The course emphasis in developing students' abilities to understand the processing of accounting data and the controls that are necessary to assure accuracy and reliability of the data.

#### **References**

Rosli, Junaidah, Noor Asma, Robiah, Rohana @Norliza, Rokiah, Warren, Reeve & Duchac (2011). Accounting A Malaysian Perspective Fourth Edition.  
Fung, Suriya, Cheong, Fadhlina & Tan (2009). Accounting An Asian Edition. (Cengage Learning)  
Romney & Steinbart (2015). Accounting Information Systems 13th Edition. (Pearson)  
Reeves, Warren & Duchac (2012). Principles of Accounting 24th edition. (Cengage Learning)  
Simkin, Rose & Norman (2015). Core Concepts of Accounting Information Systems 13th Edition. (Wiley)



## **IP01103 RESEARCH METHODOLOGY**

Research and development is focusing on research in IT and ethics in IT. It also focuses on literature review and writing literature review in scientific writing. Students will learn the research design, developing questionnaires and analyse all the data that has been collected during data collection. The course covers three major domains:

- 1 - Apply the concept of literature review,
- 2- Apply the skills in data collection and analysis,
- 3- Demonstrate academic writing skills in technical writing.

### **References**

- Briony J. Oates (2006). Researching Information Systems and Computing. SAGE Publications Ltd.  
Pamela L. Alreck and Robert B. Settle (2004). The Survey Research Handbook. 3rd Ed. Mc-Graw Hill.  
Sekaran, U. (2006). Research Methods for Business : A Skill Building Approach. 4th ed., Wiley Student Edition.  
Salkind, N.J. (2006). Exploring Research. 6th ed., Prentice Hall.  
Sekaran, U., & Bougie, R. (2010). Research Methods for Business : A Skill-Building Approach. New York: John Wiley & Sons.  
Gary B. Shelly and Harry J. Rosenblatt (2011). System Analysis and Design. 9th ed., Shelly Cashman Series.  
Jerrrey A. Hoffer, Joey F. Goerge, Joseph S. Valacich (2010). Systems Analysis and Design. 5th ed., Prentice Hall.  
Pearsall, Thomas E. (2010). The Elements of Technical Writing. 3rd ed., Longman.  
Briony J. Oates, 2013, Researching Information Systems and Computing, SAGE Publications Ltd.  
Teaching Research Methods: Learning by Doing, 2009, Journal of Public Affairs Education  
Teaching Research Methods to Undergraduates, 1996, Journalism & Mass Communication Educator  
Mukesh, Salim and Ramayah, 2013, Business Research Methods, Oxford  
Alan Bryman, 2012, Social Research Methods, Oxford

## **IP01803 CURRENT TOPICS AND ISSUES**

There is no set syllabus for this course. Students are required to attend the lecture and talks on the current topics and issues related to the IT industry and the work environment. The talks will be conducted within 6 weeks of lectures. There are 6 guest speakers which represent the IT industry deliver the talk on current topics and issues from e-commerce and multimedia point of views. Students are also required to organize an e-community project with the main objective to share knowledge and skills related to ICT with the local communities.

### **References**

- <http://www.mscomalaysia.my>  
<http://kdi.mscomalaysia.my/Main.action>  
<http://www.technopreneurdevelopment.net.my/cms>  
Anna Fung & Choy Tuck Onn, Easy Steps to report writing (new edition), Marshall Cavendish, 2000  
Simon Mort, Professional Report Writing, Gower publishing, 1997  
Pusat Pengajian Pasca Siswazah, UMS, Gaya Penulisan UMS, UMS, 2006

## **IP00703 PRINCIPLES OF MARKETING**

This course discusses the issue of the Internet's impact and how it affected the function of marketing. The core principles of Marketing are undergoing a fundamental re-examination of its core principles. Traditional marketing methods are still relevant in the networked economy, but firms must also consider a host of new and innovative marketing methods now at their disposal. **(BARU TABLE 4)**

### References

Philip Kotler and Gary Armstrong (2018) 'Principles of Marketing', London : Prentice Hall, 17th ed.  
Armstrong G. & Kolter P. (2013) 'Principles of Marketing', Pearson, 14th Edition, Global Edition.  
Strauss J & Frost R. (2009) 'E-Marketing', 5th Edition, International Edition, New Jersey : Pearson Prentice Hall  
Dave Chaffey and Fiona Ellis-Chadwick (2018) 'Digital Marketing', Pearson Education Limited, 6th ed.  
Baines P., Fill C., Page K., (2011) 'Marketing' 2nd Edition, Oxford

### **IP01503 CREATIVE THINKING SKILL** (for HC12 students only)

This course covers about the teaching of creative thinking skill for the development of new idea and decision making. The student as the creative thinker will be exposed to the creative thinking concept, the six thinking hats techniques and the visualisation processes for the creative problem solving exploration in the idea generation. The students are required to apply the six thinking hats techniques and the mind mapping techniques at the end of the course for knowledge comprehension. Students are also exposed to current issues regarding creative thinking such as gamifications, Industry 4.0 and High Order Thinking Skills (HOTS).

### References

H. Scott Fogler & Steven E. LeBlanc (2014). Strategies for Creative Problem Solving, Prentice Hall. 3rd Edition.  
Scott G.Isaksen, K.Brian Dorval & Donald J.Treffinger (2011). Creative Approaches to Problem Solving: A Framework for Innovation and Change. SAGE Publications, Inc. 3rd edition  
Edward Lumsdaine & Monika Lumsdaine (1995). Creative Problem Solving. Thinking Skills for a Changing World. McGraw-Hill Inc.  
Edward de Bono (1976). Mechanism of Mind. Penguin Books.

### **IP01603 E-COMMERCE** (for HC12 students only)

To ensure that a student has basic knowledge of e-commerce in order to prepare them for the other courses in the Multimedia Program. It requires the students to read the textbooks, listen to lectures and a great deal of work in planning and developing a website.

### References

Schneider Gary P. 2015. Electronic Commerce. 11th ed. Course Technology: Cengage Learning.  
Laudon K.C. & Traver C. G. 2014. E-Commerce. 2014. Business Technology Society. 9th ed. Pearson International.  
Efrain Turban et. Al..2012. Electronic Commerce: A Managerial and Social Networks Perspective. 7th ed. Global Edition. Person International.  
Greenstein M. & Vasarhelyi M. 2002. Electronic Commerce: Security, Risk Management, and Control.

2nd ed. McGraw-Hill Irwin.

**IP01203 ENGINEERING SYSTEM** (for HC13 students only)

System engineering has to do with the application of engineering principles in the development of systems that include computers – hardware and software and system's interaction with users and its environment. To this, system definition, specification, system design, system development and implementation, validating, deploying and maintaining socio-technical systems will be discussed further.

**References**

Blanchard B.S. & Facrycky W.J (2014) System Engineering and Analysis. 5th Edition. Prentice Hall  
Sommerville. (2007). Software Engineering 8 Edition. Pearson Education Ltd  
Kappel, G. et al. (2006). Web Engineering. John Wiley & Sons, Ltd.  
Pfleeger S.L. & Atlee J. M (2012). Software Engineering: Theory and Practice. 4 Editions. Prentice Hall

**IP01303 MULTIMEDIA** (for HC13 students only)

This course covers an introduction of multimedia building block such as text, graphic, sound, animation, and video. Appropriate multimedia authoring software and hardware will be used and discusses. Processes involved in multimedia development such as planning, costs, design, production, talent acquisition, testing, and delivery are also covered.

**References**

Tay Vaughan. 2014. Multimedia Making It Work. 9th ed. Mc Graw Hill.  
Vic Costello. 2016. Multimedia Foundations: Core Concepts for Digital Design, 2nd ed. Focal Press.  
Nigel Chapman and Jenny Chapman. 2009. Digital Multimedia. 3rd ed. John Wiley.  
T. M. Savage and K. E. Vogel. 2013. An Introduction to Digital Multimedia. 2nd ed. Burlington, MA: Jones & Bartlett Learning.

**IP01903 Digital Workfoce**

Digital Transformation in Workforce is offered to students who is eligible to undertake internship. The course equips students with the self-employability skills needed to enter digital workforce. Students will learn and practice digital profile development, bidding a job online, issues related to legal policies and laws concerning commerce on the Internet, global outsourcing and etc. The course covers three major domains:

Technology (e.g., platform(s) used in bidding projects: Freelancer.com, Upwork, Behence).

• Economics (e.g., digital payment system, advertising and marketing and business models).

• Social and Transaction Models (e.g., intellectual rights and legal initiatives).

**References**

eUsahawan Portal, web.eusahawan.net  
Dorf, C., R.,Byers.,T.,H.,(2005),Technology Ventures: From Idea to Enterprise, McGraw Hill  
Wan Nong Muzaffar (2015). Kuasai Perniagaan Internet (Siri 1), Published by Group Buku Karang kraf, ISBN: 9789678606493  
Wang Nong Muzaffar (2017). Kuasai Perniagaan Internet (Siri 2), Published by Group Buku Karang kraf, ISBN: 9789678607773  
Wang Nong Muzaffar (2017). Kuasai Perniagaan Internet (Siri 3), Published by Group Buku Karang kraf, ISBN: 9789678608305

