

**YEAR 1**

**SEMESTER 1**

## UWB 10101 ENGLISH FOR ACADEMIC PURPOSES

### SYNOPSIS:

English for Academic Purposes focuses on fulfilling students' academic requirements such as the acquisition of reading, writing, speaking and listening skills in English. The course also provides opportunities for students to acquire note taking and study skills. Students will be reinforced on aspects of English language oral and written skills that are most relevant to them in their academic work. By the end of the course, students should be able to use English for wide range of academic activities.

### REFERENCES:

1. Koh Soo Ling (2007). *Effective Text for MUET*. Ilmu Bakti Sdn. Bhd.
2. Azian Abd. Aziz (2006) *English for Academic Communication*. Mc Graw Hill Malaysia
3. Noreha Taib (2003). *Basic English*, 2<sup>nd</sup> Ed. Mc Graw Hill Malaysia
4. Harbans Kaur (2005). *Explore MUET*. Fajar Bakti Sdn. Bhd

## UQ\* 1\*\*\*1 CO-CURRICULUM I

### SYNOPSIS:

This subject is offered in different activity options for Diploma and undergraduate students, namely Sports and Recreational, Club/Associations and Uniform Bodies.

## UWA 10102 ISLAMIC STUDIES

### SYNOPSIS:

This course explains about Islamic concept as ad deen. It discusses the study of al-Quran and al-Hadith, Aqidah ahl al-Sunnah wa al Jamaah, trends of aqidah's doctrine, the growth of fiqh's mazhab, the principles of muamalah, Islamic criminal law, the ethics of work in Islam, issues in Islamic Family law, and current issues.

### REFERENCES:

1. Harun Din. (2001). *Manusia Dan Islam*. Kuala Lumpur: Dewan Bahasa dan Pustaka.
2. Ismail Hj. Ali. (1995). *Pengertian dan Pegangan Iktikad yang benar: Ahli Sunnah Wal Jamaah*. Kuala Lumpur: Penerbitan al-Hidayah
3. Mustafa Abd. Rahman. (1998), *Hadith Empat Puluh*. Kuala Lumpur: Dewan Pustaka Fajar.
4. Mustafa Hj. Daud. (1995). *Konsep Ibadah Menurut Islam*. Kuala Lumpur: Dewan Pustaka dan Bahasa.
5. Paizah Hj. Ismail. (1991). *Undang-undang Jenayah Islam*. Kuala Lumpur: Dewan Pustaka Islam, Angkatan Belia Islam Malaysia.

## UWA 10202 MORAL STUDIES

### SYNOPSIS:

This course explores the introduction to moral concepts, some aspects related to the morality and its importance in our daily lives, some western moral theories, moral values in great religions of the world, morality and ethics in professional careers and contemporary moral issues.

### REFERENCES:

1. Eow Boon Hin. (2002). *Moral Education*. Longman.
2. Ahmad Khamis. (1999). *Etika Untuk Institusi Pengajian Tinggi*. Kuala Lumpur. Kumpulan Budiman
3. Mohd Nasir Omar (1986). *Falsafah Etika; Perbandingan Islam dan Barat*. Kuala Lumpur. JPM.
4. Hussain Othman. (2009). *Wacana Asasi Agama dan Sains*, B. Pahat. Penerbit UTHM.
5. Hussain Othman, S.M. Dawilah Al-Edrus, Berhannudin M. Salleh, Abdullah Sulaiman, (2009). *PBL Untuk Pembangunan Komuniti Lestari*, Batu Pahat, Penerbit UTHM.

## UWB 10602 FRENCH LANGUAGE

### SYNOPSIS:

This course is designed for students to learn the basic French language. Students are exposed to the skills of listening, reading, speaking, and writing with basic vocabulary, grammar and structure. Students are also exposed to the real daily situations which will help them to communicate using French language.

### REFERENCES:

1. Girardet, Jacky et Cridlig, Jean-Marie, (1996) *Méthod de français: PANORAMA 1*. Paris: CLE International.
2. Hatier, (1995). *Le Nouveau Bescherelle Complete Guide 12 000 French Verbs*. Paris: LIBRAIRIE HATIER
3. Kaneman-Pougatch, Massia et al, (1997). *Méthod de français: Café Crème 1*. Paris: HACHETTE F.L.E..
4. Grégoir, Maïa et al, (1995). *Grammaire Progressive du Français avec 500 exercices*. Paris: CLE International.
5. Miquel, Claire Leroy et al, (1995). *Vocabulaire Progressive du Français avec 250 exercices*. Paris: CLE International.
6. Peter V. O'Neil (2003) *Advanced Engineering Mathematics*. Thomson Brooks/ Cole.

## UWB 11002 MALAY LANGUAGE

### SYNOPSIS:

This course is designed for students to learn the basic of Malay language. Students are exposed to the skills of listening, reading, speaking, and writing with basic vocabulary, grammar and structure. Students are also exposed to the real daily situations which will help them to communicate using Bahasa Melayu.

### REFERENCES:

1. Asmah Hj. Omar. (2005). *Susur Galur Bahasa Melayu*. KL: DBP..
2. Asmah Hj. Omar. (2003). *Nahu Melayu Mutakhir*. KL: DBP.
3. Abdul Hamid Mahmood. (1992). *Menguasai Ejaan Bahasa Malaysia Dengan Cepat*. KL: DBP
4. Abdul Hamid Mahmood. (1998). *Menguasai Ejaan Bahasa Melayu*. KL: DBP.
5. Edward S. King. (1998). *Speak In Malay*. KL: Times Publication..
6. Edward S. King. (1998). *Write In Malay*. Times Publication : KL

## UWB 10702 GERMAN LANGUAGE

### SYNOPSIS:

This course is designed for students to learn the basic German language. Students are exposed to the skills of listening, reading, speaking, and writing with basic vocabulary, grammar and structure. Students are also exposed to the real daily situations which will help them to communicate using German language.

### REFERENCES:

1. Nur Zakiah binti Amir Hamzah, *Guten Tag !*, Batu Pahat: Pejabat Penerbit UTHM.
2. Angela Wilkes. (2006). *German For Beginners*, London: Usborne Publishing Ltd.
3. Hartmurt Aufderstrasse. (1998). *Themen Neu 1*, Lehrwerk fuer Deutsch als Fremdsprache.
4. Dr. Albert H. Small. (1991). *German â la Cartoon*. German Grammar through Cartoons.

## **UWB 10802 JAPANESE LANGUAGE**

### **SYNOPSIS:**

This course is designed for students to learn the basic Japanese language. Students are exposed to the skills of listening, reading, speaking, and writing with basic vocabulary, grammar and structure. Students are also exposed to the real daily situations which will help them to communicate using Japanese language.

### **REFERENCES:**

1. *Kodansya`s Furigana Japanese Dictionary. (2005).*
2. *Minna no Nihongo Listening. (2006). 2rd Ed. Tokyo: 3A Corporation*
3. *Minna no Nihongo Jap-English (2006). 2rd Ed. Tokyo: 3A Corporation.*
4. *Japanese Conversation for Beginners (2006) Bonjinsha, Tokyo Japan*
5. *Japanese Language Center for International Students, Tokyo University of foreign Studies.*

## **UWB 10902 MANDARIN LANGUAGE**

### **SYNOPSIS:**

This course is designed for students to learn the basic Mandarin language. Students are exposed to the skills of listening, reading, speaking, and writing with basic vocabulary, grammar and structure. Students are also exposed to the real daily situations which will help them to communicate using Mandarin language.

### **REFERENCES:**

1. Liang An Xiang. 2002. EPH Publishing (M) Sdn. Bhd. K.L.
2. Shi Yun. 2002. EPH Publishing (M) Sdn. Bhd. K.L.
3. Claudia Ross & Jing-heng Sheng Ma. 2006. Routledge. London.
4. Dr.Lim Choon Bee. 2005. Universiti Putra Malaysia Press. Serdang.
5. Hui Jin Chang. 2002. United Publishing House(M) Sdn.Bhd. K.L.
6. Claudia Ross. 2002 .Press of Ohio. USA.
7. Duan Duan Li & Yanping Xie. 2002. Press of Ohio. USA.

## UWB 11102 SPANISH LANGUAGE

### SYNOPSIS:

This course is designed for students to learn the basic Spanish language. Students are exposed to the skills of listening, reading, speaking, and writing with basic vocabulary, grammar and structure. Students are also exposed to the real daily situations which will help them to communicate using Spanish language.

### REFERENCES:

1. Nurul Sabrina Zan: *Hola! Hablo Español* First Edition. Batu Pahat: Penerbit UTHM.
2. Joy Renjilian - Burgay, Ana Beatriz Chiquito y Susan M. Mraz: *Caminos*.
3. Salina Husain. *Vamos a aprender español lengua extranjera*
4. Gail Stein. *The Complete IDIOT'S GUIDE to Learning Spanish on Your Own*. 2nd Ed.
5. Irwin Stern. *Ultimate SPANISH Revised and Update*.

## UWB 11202 ARABIC LANGUAGE

### SYNOPSIS:

This course is designed for students to learn the basic Arabic language. Students are exposed to the skills of listening, reading, speaking, and writing with basic vocabulary, grammar and structure. Students are also exposed to the real daily situations which will help them to communicate using Arabic language.

### REFERENCES:

1. Mohd Hisyam Abdul Rahim; Ahmad Sharifuddin Mustapha; Mohd Zain Mubarak. (2008). *Bahasa Arab UMR 1312*. Batu Pahat: Penerbit UTHM..
2. Mohd Hisyam bin Abdul Rahim. (2005). *Senang Berbahasa Arab*. Batu Pahat: Penerbit KUiTTHO.
3. Ab. Halim Mohammed; Rabiyyah Hajimaming; Wan Muhammad Wan Sulong. (2007). *Bahasa Arab Permulaan*. Serdang: Penerbit UPM.
4. Mohd Khairudin Khudri. (2006). *Akar Umbi Pembelajaran Bahasa Arab*. Kajang: One Touch Creative.
5. Sini, Mahmud Ismail; Abd Aziz, Nasif Mustapha; Husayn, Mukhtar. T.th. *al-'Arabiyyah Lil Nashiin, Kitab al-Tilmiz*. al-Mamlakah al-Saudiyah: Idarah al-Kutub al-Madrasiyah, Wizarah al-Taalim

## BIT 10103 SOFTWARE ENGINEERING

### SYNOPSIS:

The course explains the importance of software engineering and system development crisis. It also provides an introduction to software development life cycle by using software development models, development proposal and project management. In addition, the course also explains the development of life cycle: Requirement Analysis, specification, design, testing and program estimation.

### REFERENCES:

1. Ghezzi, C., Jazayeri, M. & Mandrioli D. 2003. *Fundamentals of software engineering*. New Jersey: Pearson Education, Inc.
2. Ian, S., 2006. *Software engineering*. 8<sup>th</sup> ed., New Jersey: Pearson Education.
3. Pressman, R.S., 2004. *Software engineering: A practitioner's approach*. 6<sup>th</sup> ed., New York: McGraw-Hill.
4. Schach, Stephen. 2005. *Object oriented and classical software engineering*. 6<sup>th</sup> ed., New York: McGraw-Hill.

## BIT 10203 INTRODUCTION TO INFORMATION TECHNOLOGY

### SYNOPSIS:

This course introduces topics such as information technology, computer hardware, computer software, file and data management, information system, telecommunication, internet and latest issues in information technology.

### REFERENCES:

1. O'Leary, T.J. & O'Leary, L.I. 2002. *Computing essentials complete edition*. Singapore: McGraw-Hill.
2. White, R. 2002. *How computers work*. New York: QUE.
3. Hutchinson, S. E. & Sawyer, S. C. 1998. *Computers, communications and information*. Mc Graw Hill.
4. Turban, E., McLean, E. & Wetherbe, J. 1999. *Information technology for management: Making connections for strategies advantage*. New York: Wiley.
5. Miswan Surip. 2003. *Etika, komputer dan sosial*. Parit Raja: Penerbit Kolej Universiti Teknologi Tun Hussein Onn Malaysia.

## BIT 10303 COMPUTER PROGRAMMING

### SYNOPSIS:

This course introduces the concept of programming by using high level language such as C. Students will learn the techniques to define and solve problems before writing the coding.

### REFERENCES:

1. Mohd Zainuri et al., 2006. *Pengaturcaraan C*. Batu Pahat: Penerbit Universiti Tun Hussein Onn Malaysia.
2. Bradley, Julia, C. 2004. *Programming C*. New York: McGraw Hill.
3. Nor Haizan Mohamed Radzi. 1998. *Pengaturcaraan C*. Skudai: Penerbit Universiti Teknologi Malaysia.

## BWM 11603 STATISTICS

### SYNOPSIS:

**Descriptive Statistics:** Statistics definition, sampling technique, frequency distribution, graf, measure of Central Tendency and variance. **Random Variables:** Discrete and continuous random variables, expected value and variance. **Probability Distribution:** Binomial, poisson and normal distribution. **Sampling Distributions:** Sampling distributions for mean, difference between two means, variance and ratio of two variances, t-distribution, chi-square distribution and F-distribution. **Estimations:** Point and interval estimation. Confidence interval for mean, difference two means, variance and ratio of two variances. **Hypotheses Testing:** Test of mean, difference two means, variance, ration of two variances and difference between two samples. **Simple Linear Regression:** Graphical method, least squares method. Coefficient of determination  $R^2$ . Confidence interval of slope and intercept. Test of slope. Correlation coefficient.

### REFERENCES:

1. Cik Sri Mazzura, Nafisah, Kek, S.L. & Phang, P. (2007) *Engineering Statistics* (Module)
2. Larson, R. & Farber, B. (2006) *Elementary Statistics: Picturing the World*. 3<sup>rd</sup> ed. Singapore: Pearson Prentice Hall.
3. Mann, P.S. (2004) *Introductory Statistics*, 5<sup>th</sup> ed. Wiley International Ed.
4. Levine, D.M., Ramsey, P.P. & Smidt, R.K. (2001) *Applied Statistics for Engineers and Scientist: Using Microsoft Excel and Minitab*. Upper Saddler-River : Prentice Hall.
5. Bluman. A.G. (2004) *Elementary Statistics: A Step by Step Approach*. 6<sup>th</sup> Ed. McGraw Hill.
6. Crawshaw, J. & Chambers, J. (2001) *A Concise Course in Advanced Level Statistics with Worked Examples*. Cheltenham: Nelson Thornes.



**YEAR 1**

**SEMESTER 2**

## UQ\* 1\*\*\*1 CO-CURRICULUM II

### SYNOPSIS:

This subject is offered in different activities options for Diploma and undergraduate students, namely Sports and Recreational, Club/Associations and Uniform bodies.

## UWA 10302 ISLAMIC AND SOUTH EAST ASIA CIVILISATION

### SYNOPSIS:

The course discusses the introduction of civilization, its development, the interaction between civilizations; the Islamic civilization, Islam in the Malay civilization; Indian and Chinese civilizations as well as contemporary civilization issues and also the principles of Islam Hadhari.

### REFERENCES:

1. Ahmad Hakimi Khairuddin dan Faridah Che Husain. (2006). *Isu-isu Kontemporari Dalam Tamadun Islam dan Tamadun Melayu, dalam Tamadun Islam dan Tamadun Melayu. Siri Teks Pengajian Tinggi*. Kuala Lumpur: Penerbit Universiti Malaya2.
2. Ibnu Khaldun, Muqaddimah Ibnu Khaldun.
3. Huntington, S. *The Clash of Civilizations and the Remaking of the World Order*.Mahyuddin
4. Hj. Yahaya. (1998) *Tamadun Islam*, Shah Alam: Penerbit Fajar Bakti Sdn. Bhd.
5. Bei Ye. (2001). *Zhongguo Wenming Lun - Zhongguo Gudai Wenming De Benzhi Yu Yuanli* (Bicara Tamadun Cina - Teori dan Asas Tamadun Kuno Cina), Penerbit: Zhongguo Shehui Kexue Chubanshe Beijing.

## UWB 10202 EFFECTIVE COMMUNICATION

### SYNOPSIS:

This course emphasizes on task- based learning approach and focuses on developing students' delivery of speech in oral interactions and presentations. Importance is given on mastery of self-directed learning, team-work, research, oral presentations, reasoning and creativity. This course also enables students to acquire knowledge and skills necessary for conducting and participating in meetings, including writing of meeting documents. Students will also be exposed to the techniques of conducting interview.

### REFERENCES:

1. Cheesebro,T, O'Connor, L. & Rios, F. (2007). *Communication skills : preparing for career success* (3rd ed.) Upper Saddle River, NJ: Pearson.

2. Davies, W.J. (2001) *Communication skills : a guide for engineering and applied science student* (2nd ed.) . London: Prentice Hall.
3. Joan van Emden, L. (2004). *Presentation skills for students*. New York: Palgrave Macmillan.
4. Richard Johnson-Sheehan (2005). *Technical Communication Today*. New York: Pearson.
5. Salbiah Seliman et. al. (2004). *English Communication for learners in engineering*. Malaysia: Prentice Hall.

## **BPK 10403 BASIC ACCOUNTING**

### **SYNOPSIS:**

The content of this course consists of introduction to accounting, processing and recording of accounting information, balancing and closing processes, commercial operation, financial report, financial analysis, introduction to managerial accounting, Cost-Volume-Profit (CVP) analysis and budgeting as a planning tool.

### **REFERENCES:**

1. Che Zurina Aklilah, Noriah, Noor Azizi, Mohd Azlan, (2001), *Perakaunan Perniagaan*, UUM, Sintok.
2. Hongren, Harrison, Bamber, (2004), *Accounting*, Prentice Hall, New Jersey.
3. Weygant, Kieso, Kimmel(2002), *Accounting Principles*, John Wiley & Sons, Canada.

## **BIT 10403 INTRODUCTION TO MULTIMEDIA**

### **SYNOPSIS:**

Introduce multimedia concept, applications and techniques involved. Multimedia components: text, image, audio, graphics, animation, video, compression, storage and network. Multimedia system: computer technology, operating system, communication system and database. Documentation of multimedia application, user interface and programming tool. HTML basic and WWW audio video software.

### **REFERENCES:**

1. Vaughn, T. 2006. *Multimedia: Making it work*. 7<sup>th</sup> ed., US: McGraw Hill.
2. Burg, J. 2008. *The science of digital media*. US: Pearson.
3. Hillman, D. 1998. *Multimedia technology and applications*. US: Delmar Publisher.

## BIT 10703 DATA STRUCTURE AND ALGORITHMS

PREREQUISITE SUBJECT: BIT 10303 COMPUTER PROGRAMMING

### SYNOPSIS:

This course introduces students to data concept, data structure and types of data structure, array, pointer, abstract data type, searching, sorting, trees and graph.

### REFERENCES:

1. Wong Chun Keong. 2000. *Data structures with C*. Kuala Lumpur: Sejana Publishing.
2. Marini Abu Bakar et al. 1999. *Struktur data menggunakan C*. Kuala Lumpur: Prentice Hall.
3. Tenenbaum, A.M., Angenstein, M.J. & Langsam Y. 1990. *Data structures using C*. New York: Prentice-Hall.
4. Kruse R.L. 1995. *Data structures and program design in C*. Boston: Prentice-Hall.

## BIT 11103 DISCRETE STRUCTURE

### SYNOPSIS:

This course discusses the concepts of discrete mathematics and its practical applies in ICT. The topics consist of fundamental of logic and proof, sets, mathematical induction, relation and function, recurrence relation, algorithm and graph theory.

### REFERENCES:

1. Rosen K., 2003. *Discrete mathematics and its applications*. 5<sup>th</sup> ed., New York: McGraw Hill Inc.
2. Kolman, B., Busby, R., Ross, S. 1996. *Discrete mathematical structures*. New Jersey: Prentice Hall, Inc.
3. Johnsonbaugh R., 2005. *Discrete mathematics*. 5<sup>th</sup> ed., Singapore: Prentice Hall, Inc.
4. James L. H., 2002. *Discrete structures, logic, and computability*. 2<sup>nd</sup> ed., John and Bartlett Pub. Co.
5. Simpson, A., 2002. *Discrete mathematics by example*. United Kingdom: McGraw-Hill.

**YEAR 1**  
**SEMESTER 3**

## **BIT 10803 INFORMATION TECHNOLOGY SKILLS**

### **SYNOPSIS:**

This course offers student skills in computer troubleshooting for computer maintenance. Students are exposed to safety steps and the right care for computers. Besides this, students are taught techniques to assemble and disassemble computer, and safety step to protect their computers. They are also introduced to computer network basic concept, hardware computer network maintenance, network hardware maintenance, computer network cabling and cable testing. Later, students are exposed to digital camera handling technique, video camera and NLE machine together with the use of software editing. Techniques learned include shooting, editing, composing, testing and producing a product.

## **BIT 21002 COMPUTER, ETHICS AND SOCIAL**

### **SYNOPSIS:**

This course introduces students to computing ethics in this cyber era. Besides, students are exposed to analyzing specific problem scenarios such as privacy, trustworthy, and responsibilities of information technology professionals. In addition, students are also explained about the background of ethical theory, social, politic and laws.

### **REFERENCES:**

1. Quinn, M. J. 2006. *Ethics for the information age*. 2<sup>nd</sup> ed., Boston: Pearson Education, Inc.
2. Baase, S. 2003. *A gift of fire: Social, legal and ethical issues for computer and the Internet*. 2<sup>nd</sup> ed., New Jersey: Prentice Hall.
3. Reynolds, G. 2003. *Ethics in information technology*. London: Thomson Course Technology.
4. MacKinnon, B. 2001. *Ethics: Theory and contemporary issues*. 3rd ed., London: Wadsworth.
5. Zawiyah Mohd Yusof, Nazura Abdul Manaf, Masnizah Mohd, Azizi Abdullah, Hafiz Mohd Sarim & Tengku Mohd Tengku Sembok. 2005. *Teknologi maklumat & komunikasi: Etika, undang-undang dan sosial*. Kuala Lumpur: McGraw Hill.

**YEAR 2**

**SEMESTER 1**

## UWS 10103 NATIONHOOD AND CURRENT DEVELOPMENT IN MALAYSIA

### SYNOPSIS:

This course will provide students a fundamental concept, the processes of formation and development of Malaysia. The topics covered include the concept of state, Malacca Kingdom, implication of imperialism and colonisation, spirit of patriotism and nationalism, independence and formation of Malaysia. Besides, students will also be exposed to the constitution of Malaysia, Malaysian Government System, Economic and Social Development Policy as the main policy in the national development. At the end of the course students will able to appreciate the roles and responsibilities of a good citizen to the country.

### REFERENCES:

1. Zahrul Akmal Damin, Fauziah Ani, Lutfan Jaes, Khairunesa Isa, Siti Sarawati Johar, Harliana Halim, Khairul Azman Mohd Suhaimy, Shamsaadal Sholeh Saad, Ku Hasnan Ku Halim dan Mohd Akbal Abdullah (2009). *Kenegaraan & Pembangunan Malaysia*. Batu Pahat: Penerbit UTHM.
2. Ahmad Esa, Harliana Halim, Khairul Azman Mohd Suhaimy, Ku Hasnan Ku Halim, Marwan Ismail, Mohd Akbal Abdullah, Shamsaadal Sholeh Saad dan Zahrul Akmal Damin (2004). *Ikhtisar Sejarah Kenegaraan & Pembangunan Malaysia*. Johor Bahru: Muapakat Jaya Percetakan Sdn. Bhd.
3. Kassim Thukiman (2002). *Malaysia: Perspektif Sejarah dan Politik*. Skudai: Penerbit Universiti Teknologi Malaysia.
4. Nazaruddin Mohd Jali, Ma'rof Redzuan, Asnarulkhadi Abu Samah dan Ismail Mohd Rashid (2005). *Pengajian Malaysia*. Petaling Jaya: Prentice Hall.
5. Ruslan Zainudin, Mohd Mahadee Ismail dan Zaini Othman (2005). *Kenegaraan Malaysia*. Shah Alam: Fajar Bakti.

## UWS 10303 MALAYSIAN STUDIES AND CULTURE

### SYNOPSIS:

This course provides students in the understanding of Malaysia from various perspectives. Topics to be discussed include Malaysia in relation to its history, achievement and international affairs. In addition, students will also be exposed to the ethnic composition of the country, culture and heritage. Teaching and learning process enables student to acquire knowledge and appreciates the reality of life in Malaysia through experiential learning.

### REFERENCES:

1. Abdul Halim Nasir. (2004). *Mosque Architecture in the Malay World*. Bangi: Penerbit Universiti Kebangsaan Malaysia.
2. *Ensiklopedia Sejarah Kebudayaan Melayu*. (1998). Kuala Lumpur: Dewan Bahasa dan Pustaka.
3. Khoo Kay Kim. (2001). *Malay Society: Transformation and*



- Democratisation*. Kelana Jaya: Pelanduk Publications
4. Nazaruddin Mohd. Jali. (2003). *Malaysian Studies: Nationhood and Citizenship*. Petaling Jaya: Pearson Prentice Hall.
  5. Yahaya Ismail. (1989). *The Cultural Heritage of Malaysia*. Kuala Lumpur : Dinamika Kreatif Sdn. Bhd.

## **BIT 20502 CREATIVITY AND INNOVATION**

### **SYNOPSIS:**

This course focuses on developing a creative person who will eventually think strategically, creatively and critically. The knowledge and skills acquired throughout the course will later be applied by the students in solving problems and making decisions in the future. In this course, students will be exposed to various creativity and problem solving techniques. Some of the skills to be covered throughout the course are problem solving, techniques in creativity and techniques in innovation.

### **REFERENCES:**

1. Bernacki, E. (2002). *Wow! That's a Great Idea!*. Prentice Hall, Singapore.
2. De Bono, E. (2003). *Serious Creativity 1: Lateral Thinking Tools, Techniques and Application*. Allscript Books, Singapore.
3. De Bono, E. (2003). *Serious Creativity 2: Lateral Thinking Tools, Techniques and Application*. Allscript Books, Singapore.

## **UWB 20302 TECHNICAL WRITING**

### **PREREQUISITE SUBJECT: UWB 10202 EFFECTIVE COMMUNICATION**

### **SYNOPSIS:**

This course introduces students to report writing skills needed at tertiary level. Students will learn basic report writing skills such as proposals, progress report, informational and analytical reports. In order to do this, they will learn how to collect data using questionnaires. The data collected will be analyzed, transferred into graphic forms and presented orally and in writing. Based on the analysis of data, students will be able to draw conclusions and make recommendations.

### **REFERENCES:**

1. Finkelstein, J. (2008). *Pocket Book of Technical Writing*. 3<sup>rd</sup> ed. Singapore: McGraw Hill.
2. Kolin, P. C. (2006). *Successful Writing at Work*. Concise ed. USA: Houghton Mufflin Company.
3. Salbiah Seliman et. al. (2004). *English Communication for Learners in Engineering*. Malaysia: Prentice Hall.
4. Lakshmy Anantha Krishnan et. al. (2003). *Engineering YourRreport: From*

- Start to Finish*. Singapore: Prentice Hall.
5. Gerson, S. J. & Gerson, S. M. (2003). *Technical Writing: Process and Product*. 3<sup>rd</sup> ed. New Jersey: Prentice Hall.

## **BPK 20502 PRINCIPLES OF MANAGEMENT**

### **SYNOPSIS:**

Introduction: Introduction to management, managerial evolution, atmospheric management, ethics and social responsibilities,. Planning: Fundamentals of planning, decision making and strategic planning. Organisational: Structure and organisation design, management of human resource and change. Leadership: Motivation, leadership, communication, Group and teamwork. Control: Fundamental of control.

### **REFERENCES:**

1. Robbins, S.P. dan Coulter, M. (2002). "*Management.*" 7<sup>th</sup> edition. New Jersey: Prentice Hall
2. Robbins, S.P. dan Decendo, D.A. (2001). "*Fundamental of Management: Essential, Concepts And Applications.*" 3<sup>rd</sup> edition. New Jersey: Prentice Hall.
3. Malaysian Institute of Management (Ed.) (2003). "*Management In Malaysia.*" 2<sup>nd</sup> edition. Institute Pengurusan Malaysia
4. Jones, G. R., George, J.M. dan Hill, C.W.L. (1998). "*Contemporary Management.*" New York: Mc Graw-Hill

## **BIT 20103 SYSTEM ANALYSIS AND DESIGN**

### **PREREQUISITE SUBJECT: BIT 10303 COMPUTER PROGRAMMING**

### **SYNOPSIS:**

This course introduces students to Software Life Cycle Model such as analysis, logical design, physical design, implementation and maintenance, and also on techniques and system development methods such as decomposition diagram, ER diagram, DFD and modeling procedure. Besides, students are taught to identify system analysis such as literature, economy, technical, skill, group work and automation role in analysis and designing the system.

### **REFERENCES:**

1. Dennis, A., Wixom, B. H., and Roth, R. M. 2006. *Systems analysis and design*. 3<sup>rd</sup> ed., New Jersey: John Wiley and Sons.
2. Marakas. G. M. 2006. *Systems analysis and design- an active approach*. 2<sup>nd</sup> ed., Boston: McGraw Hill.
3. Hoffer, J. A., George, J. F., dan Valacich, J.S. 2008. *Modern systems analysis and design*. 5<sup>th</sup> ed., New Jersey: Pearson Education.

4. Shelly, G. B., Cashman, T. J., and Rosenblatt, H. J. 2006. *Systems analysis and design. 6<sup>th</sup> ed.*, Thomas Course Technology.
5. Kendall, K. E. and Kendall, J. E. 2005. *Systems analysis and design. 6<sup>th</sup> ed.*, New Jersey: Pearson Education.

## **BIT 20203 GRAPHICS PROGRAMMING**

### **PREREQUISITE SUBJECT: BIT 10303 COMPUTER PROGRAMMING**

#### **SYNOPSIS:**

An overview of computer graphics, graphics primitives, windowing and clipping, object transformation, object modeling and rendering.

#### **REFERENCES:**

1. Hearn, D. & Baker, M.P. 2004. *Computer graphics with OpenGL: International Edition*. New York: Prentice Hall.
2. Burses, J. 1993. *The desktop multimedia bible*. New Zealand: Addison Wesley.
3. Foley, V.D., Van Dam, A., van Dam, S., and Phillips, H. 1996. *An introduction to computer graphics*. London: Addison Wesley.
4. Hill, F.S. 1990. *Computer graphics*. London: Maxwell Macmillan International.
5. Hillman, D. 1998. *Multimedia technology and application*. Lisbon: Delmer Publisher.

## **BIT 20303 COMPUTER ARCHITECTURE**

#### **SYNOPSIS:**

This course introduces students to Computer Architecture, Bus System, Memory Organization, Handling System, Input/Output, Computer Arithmetic, Set of Instruction, CPU and Control Unit.

#### **REFERENCES:**

1. Stallings, W. 2006. *Computer organization and architecture. 7<sup>th</sup> ed.*, Singapore: Prentice Hall.
2. Hayes, John P. 1997. *Computer system architecture and organization*. New York: Mc Graw Hill.
3. Patterson, David A. and Hennessy, John L. 2005. *Computer organization and design the hardware/software interface*. New Delhi: Elsevier.
4. Bartee, Thomas C. 1991. *Computer architecture and logic design*. New Jersey: McGraw Hill.
5. Mano M. Morris. 1993. *Computer system architecture*. USA: Prentice Hall.

**YEAR 2**  
**SEMESTER 2**

## **BPK 20802 ENTREPRENUERSHIP**

### **SYNOPSIS:**

Economy and business environment, regulations and business support facilities in business, entrepreneur and entrepreneurs, method to identify, analyze and select business opportunities, business planning, management of small and medium enterprises, marketing, operational and budgeting plan and also issues related to entrepreneurship.

### **REFERENCES:**

1. .... (1999), "*Keusahawanan*", MEDEC, UiTM
2. Saridan Abu Bakar, (1997), "*Penyediaan Rancangan Perniagaan*", MEDEC UiTM
3. Wan Liz Ozman Wan Omar dan Sulzari Mohamed, (2002), "*Memperkasakan Usahawan: Panduan Lengkap Pengurusan Perniagaan dan Penjanaan Usahawan*", Utusan Publications & Distributors Sdn Bhd.
4. Robert D. Hisrich dan Michael P. Peters, (2002), "*Entrepreneurship*", Fifth Edition, McGraw-Hill.

## **UWS 10202 ETHNIC RELATIONSHIP**

### **SYNOPSIS:**

This course focuses on the concept of ethnic relations and its practices in the Malaysian society. Class discussions cover the fundamental of ethnic relations and the history of the construction of a plural society. The Malaysia Constitution will be covered as a core of living in the society. Discussions will be further conducted into detail on the linkages between ethnicity and development in social, political and economic aspects based on top-down and bottom-up approaches by the government and society.

### **REFERENCES:**

1. Shamsul Amri Baharuddin (2007). *Modul Hubungan Etnik*. Shah Alam: Universiti Teknologi MARA.
2. Zaid Ahmad, Ho Hui Ling, Sarjit Sing Gill, Ahmad Tarmizi Talib, Ku Halim Ku Arifin, Lee Yok Fee, Nazri Muslim dan Ruslan Zainuddin (2006). *Hubungan Etnik di Malaysia*. Shah Alam: Oxford Fajar Sdn. Bhd.
3. Lembaga Penyelidikan Undang-undang (2003). *Perlembagaan Persekutuan: (hingga 15hb Ogos 2003)*. Petaling Jaya: International Law Book Services.
4. Nazaruddin Mohd Jali, Ma'rof Redzuan, Asnarulkhadi Abu Samah dan Ismail Mohd Rashid (2005). *Pengajian Malaysia*. Petaling Jaya: Prentice

## BIT 20603 OBJECT-ORIENTED PROGRAMMING

### PREREQUISITE SUBJECT: BIT 10303 COMPUTER PROGRAMMING

#### SYNOPSIS:

The course aims to introduce students on object oriented programming (OOP), characteristics of object oriented programming (OOP): Class and object, Inheritance, Polymorphism, Overloading, template and Exception

#### REFERENCES:

1. Rosziati Ibrahim. 2008. *Introduction to object-oriented programming with UML using Borland C++*. Batu Pahat: Penerbit Universiti Tun Hussein Onn Malaysia.
2. Deitel, H.M. and Deitel, P.J. 2003. *C++ how to program*. Pearson Education International.
3. Savitch, W. 2003. *Problem solving with C++, the object of programming*. Addison Wesley.
4. Farrell, J. 2001. *Object-oriented programming using C++*. 2<sup>nd</sup> ed., Thomson Course Technology.
5. Smith, M. 1999. *Object-oriented software in ANSI C++*. 2<sup>nd</sup> ed., London: McGraw-Hill.

## BIT 20703 NETWORK AND DATA COMMUNICATION

#### SYNOPSIS:

This course provides an understanding on Introduction to network and data communication, Physical layer, Data Communication, Wide Area network (WAN), Internetworking, Internet and Latest technology, Optimum Network Presentation and Network Operating System.

#### REFERENCES:

1. Cisco Networking Academy Program. 2004. *CCNA 1 and 2 companion guide*. Revised 3<sup>rd</sup> ed., Cisco press.
2. Forouzan, Behrouz A. 2004. *Data communications and networking*. 2<sup>nd</sup> ed., New Jersey: McGraw-Hill.
3. Stallings, W. 2004. *Data and computer communications*. 7<sup>th</sup> ed., New York: Prentice Hall.
4. Comer, D.E. 1997. *Computer networks and internets*. New York: Prentice-Hall.
5. Tanenbaum, A.S. 2003. *Computer network*. New York: Prentice-Hall.
6. Thurwachter. N, 2000. *Data and telecommunications : Systems and application*. New York: Prentice Hall.

## BIT 20803 DATABASE SYSTEM

### PREREQUISITE SUBJECT: BIT 10303 COMPUTER PROGRAMMING

#### SYNOPSIS:

This course provides an understanding on database concepts. It covers introduction to file and file system, database approach, types of database, history of database management system and database models. It also provides relational database model, history and data relational structure terminology, mathematical relation, database relation, relational attributes, relational keys, relational database schematic representation, relational integrity and relational language. Introduction to structured query language and its criteria. Concept and data modelling components. Table and normalization. Techniques, model and strategy in database design. Network and web integration with database in database technology.

#### REFERENCES:

1. Robb, P., Coronel, C. 1997. *Database system: Design implementation and management*. Florida: International Thomson Publishing Company ITP.
2. Atzemi, P., Para Boschi, S., Torton, R. 1999. *Database system: Concept, language and architectures*. New York: Mc Graw Hill.
3. Connolly, T., Begg, C. 1999. *Database systems: A practical approach to design, implementation and management*. London: Addison-Wesley.
4. Osen Ozkarahan. 1990. *Database management: Concepts, design and practice*. New Jersey: Prentice Hall.
5. Watson, Richard T., et al. 1999. *Database management: Database and organizations*. Boston: John Wiley & Sons, Inc.

## BIT 20403 OPERATING SYSTEMS

#### SYNOPSIS:

This course provides an understanding on major components of operating systems and their services. Topics covered in this course are Introduction to Operating Systems, Structure of Computer Systems and Operating Systems, Processes, CPU Scheduling, Deadlock, Memory Management, Virtual Memory and File Management.

#### REFERENCES:

1. Silberschatz, A. 2003. *Operating system concepts*. 6<sup>th</sup> ed., London: Addison Wesley.
2. Stallings, W. 2005. *Operating systems internal and design principles*. 5<sup>th</sup> ed., New York: Pearson Education International.
3. Davis & Rajkumar. 2005. *Operating system*. 6<sup>th</sup> ed., New York: Pearson Education International.

4. Deitel, Deitel & Choffnes. 2004. *Operating systems*. 3<sup>rd</sup> ed., New York: Pearson Education International.
5. Nutt, G. 2001. *Operating system: A modern perspective*. London: Addison Wesley.



**YEAR 2**  
**SEMESTER 3**

## **BIT 10503 CYBER ENTREPRENEURSHIP**

### **SYNOPSIS:**

This course introduces students to the principles of cyber business which consist definition, concept and related issues, operation processes, funding and product marketing.

### **REFERENCES:**

1. Amat Taap, Ridhwan Fontaine, Mohd Rizal Abdul Razak & Nor Asiah Abdullah. 2001. *Introduction to Cyberpreneurship*. McGraw-Hill.
2. Lambing, P.A. 1999. *Entrepreneurship*. 2<sup>nd</sup> ed., New Jersey: Prentice Hall.
3. David Carson, D., Cromie, S., & McGowan, P., *Marketing and entrepreneurship in SME's: An innovative Approach*. 1<sup>st</sup> ed., NewYork: Prentice Hall.
4. Vaugh, D.E., 1997. *Financial planning for the entrepreneur*. 1<sup>st</sup> ed., New York: Prentice Hall.
5. Rafi M., Fisher R. J., Jaworski B. J., & Paddison G. 2002. *Internet marketing: Building advantage in networked economy*. Boston: McGraw-Hill.
6. Terri, C. & William, B. 2003. *E-business. Marketing*. New York: Prentice Hall.

## **BIT 31003 INFORMATION TECHNOLOGY APPLICATION**

### **SYNOPSIS:**

Students will be divided into groups and assigned to supervisors. Every group must submit a proposal for assessment by the supervisors. Every group must produce a product which has a potential to be commercialized, with the supervisor's consent. All products will be evaluated by panel of evaluators.

**YEAR 3**  
**SEMESTER 1**

## **BPK 30702 ENVIRONMENTAL AND OCCUPATIONAL SAFETY**

### **SYNOPSIS:**

This course discusses different issues in Safety Management and Health of Workmen. Topics covered include the development of safety management and health of workers, Ethics and Safety, Introduction to Safe Environment and Employment, Occupational Safety and Health Act (Act 514, OSHA 1994), Accidents and Impact, Principle of Lost Prevention and Control Management, Work-related Risk Management, Planning and Emergency Planning, Occupational Safety, Compensation, Investigation of Accidents at Work, Occupational Safety Audit and Total Safety Management.

### **REFERENCES:**

1. Ismail Bahari (2002). *Peraturan Sendiri Di Dalam Pengurusan Keselamatan dan Kesihatan Pekerjaan*, McGraw-Hill (Malaysia) Sdn. Bhd.
2. Hughes, Phil dan Ferrentt E. (2003). *Introduction to Health and Safety at Work*. Oxford, Butterworth, Heinemann.
3. Willie Hammer (1989), *Occupational Safety management & Engineering, (4th Edition)*, Prentice Hall.
4. David L. Geotch (1999), *Occupational Safety and Health: for Technologist, Engineers and Managers,(3th Edition)*, Prentice Hall.

## **BIT 33803 JAVA PROGRAMMING**

### **PREREQUISITE SUBJECT: BIT 10303 COMPUTER PROGRAMMING**

### **SYNOPSIS:**

This course provides an understanding on introduction to program and Java, primitive data types and operations, Control Statement Methods and Arrays.

### **REFERENCES:**

1. Liang, Y.D. 2007. *Introduction to java programming-comprehensive*. Version 6<sup>th</sup> ed. New York: Prentice Hall.
2. Deitel, I. & Deitel, J. 2007. *Java how to program. 7th ed.*, New York: Prentice Hall.
3. Lewis J. & Loftus W. 2007. *Java software solutions: Foundations of program design, 5<sup>th</sup> ed.*, New York: Prentice Hall.
4. Sanders, K. E. & Dam A. V. 2006. *Object-oriented programming in java: A graphical approach, preliminary ed.*, Harlow: Addison-Wesley.
5. Morelli, R. & Walde R. 2007. *Java, java, java: Object-oriented problem solving*. New York, USA: Prentice Hall.

## BIT 33403 PROJECT RESEARCH METHODOLOGY

PREREQUISITE SUBJECT: BWM 11603 STATISTICS

### SYNOPSIS:

This course covers various aspects on research projects in information technology such as types of computing/research project, strategy and research methods, data collection methods, data analysis, journal critic, project planning, risks management, proposal writing and research reports.

### REFERENCES:

1. Wayne, G. & Stuart, M. 2004. *Research methodology: An introduction*. 2<sup>nd</sup> ed., New York: McGraw Hill Inc.
2. Ranjit Kumar, R. 2005. *Research methodology :A step-by-step guide for beginners*. New Jersey: Prentice Hall, Inc.
3. Kothari, C. 2005. *Research methodology: Methods and technique*. New Delhi: New Age International.
4. Dawson, C. 2005. *Projects in computing and information systems: A student's guide*. Singapore: Pearson Education Limited.
5. Avison, D. & Fitzgerald, G. 2006. *Information systems development: Methodologies, techniques and tools*. 4<sup>th</sup> ed., Kuala Lumpur: McGraw Hills.

### ELECTIVE SUBJECTS

BIT \*\*\*\*3 Elective 1

BIT \*\*\*\*3 Elective 2

BIT \*\*\*\*3 Elective 3

**YEAR 3**  
**SEMESTER 2**

## BIT 33503 DEGREE PROJECT

### SYNOPSIS:

Students are to implement the methodology learned and to produce as well as to present their final product with a complete documentation format at each project development phase successfully.

### REFERENCES:

1. Keller, F.M., 1998. *Project management*. Lib London international: Thompson Business Press.
2. Gido, J. & Clements, J.P. 1999. *Successful project management*. Ohio: International Thompson Business Press Spineer, M.P.
3. Meredith, J.R., 2000. *Project management a managerial approach*. U.S: John Wiley & Sons.

Note: Students are encouraged to refer to any research materials including journal, proceeding and articles related to their research.

### ELECTIVE SUBJECTS

BIT \*\*\*\*3 Elective 4

BIT \*\*\*\*3 Elective 5

BIT \*\*\*\*3 Elective 6

## **ELECTIVE SUBJECTS**



# SOFTWARE ENGINEERING ELECTIVE SUBJECTS

## BIT 31103 SOFTWARE QUALITY ASSURANCE

### SYNOPSIS:

This course introduces modern methods on producing the highest quality software based on pragmatic issues and examples from real applications. This course also emphasizes on process definition, measurement and continues correction as a part of quality engineering, the use of specific measurement, risks and also disadvantages of measurements.

### REFERENCES:

1. Galin, D. 2004. *Software quality assurance: From theory to implementation*. Harlow: Addison Wesley.
2. Regan, G.O. 2000. *A practical approach to software quality*. Berlin: Springer.
3. Horch, J.W. 2003. *Practical guide to software quality management*. 2<sup>nd</sup> ed., Boston: Artech House.
4. Daughtrey, T. 2002. *Fundamental concepts for the software quality engineer*. Milwaukee: ASQ Quality Press.

## BIT 31203 LANGUAGE PROCESSING TECHNIQUES

### SYNOPSIS:

This course introduces students to language and translator, input and lexical analysis, syntax analysis. Semantic analysis, direct syntax definition, execute environment and type of test, code generation and instruction selection.

### REFERENCES:

1. Aho Lam & Sethi Ullman. 2006. *Compilers: Principles, techniques & tools*. 2<sup>nd</sup> ed., Addison Wesley.
2. Kenneth C. 1997. *Compiler construction: Principles and practice*. London: Pws Publishing Company.
3. Sebesta, R.W. 1996. *Concepts of programming languages*. Toronto: Addison Wesley.
4. Ravi Sethi. 1996. *Programming languages-concept and constructs*. Toronto: Addison Wesley.
5. Fischer A.E. 1993. *The anatomy of programming languages*. New York: Prentice Hall.

## **BIT 31303 COMPUTER SECURITY**

**PREREQUISITE SUBJECT: BIT 20703 NETWORK AND DATA COMMUNICATION**

### **SYNOPSIS:**

This course introduces topics such as introduction to Computer Security, Physical Protection, Computer System Security Development and Telecommunication, Database Security and Security Issue.

### **REFERENCES:**

1. Fleeger, Charles P. 1997. Security in computing. 2<sup>nd</sup> ed., New York: Prentice Hall.
2. Karen A.F. 1994. Computer security management. New York: Prentice Hall.
3. Gregory B.W., Eric A.F. & Udo W.P. 1996. Computer system and network security. Washington: CRC Press Ind.
4. David A.C. 1992. UNIX system security: A guide for user & system administrator. Boston: Addison-Wesley.
5. Deborah R. 1991. Computer security basics. London: O'Reilly Associates Inc.

## **BIT 31403 REQUIREMENT ANALYSIS AND SOFTWARE SPECIFICATION**

### **SYNOPSIS:**

This course introduces on software process, requirement analysis, requirement decision, requirement specification, advanced analysis.

### **REFERENCES:**

1. Leszek Maciaszek. 2001. *Requirements analysis and system design, developing information systems with UML*. Harlow: Addison-Wesley.
2. Dean Leffingwell. 1999. *Managing software requirements: A unified approach*. London: Addison-Wesley Pub Co.
3. Alan, M. Davis. 1993. *Software requirements: Objects, functions and states*. 2<sup>nd</sup> ed., New Jersey: Prentice Hall PTR.

## **BIT 31503 WEB BASED PROGRAMMING**

### **SYNOPSIS:**

This course introduces on three tier programming architecture, the advantages and disadvantages of two tier programming architecture, and also the advantages and disadvantages of three tier programming architecture. Introduction to web programming components: hardware, software and database requirement. Access techniques: instruction of inserting and accessing data from database. Used of variable, operator and phrase. Function and control: if, if..else, switch, for and function. Used of stack: parsing value or parameter and function.

### **REFERENCES:**

1. Leon Atkinson. 2001. *Core PHP programming*. New Jersey: Prentice Hall.
2. Roger Fournier. 1998. *Web application development*. New York: Prentice Hall.
3. Craig Hilton & Jeff Willis. 2000. *Building database applications on the web using PHP*. London: Addison Wesley.

## **BIT 31603 HUMAN COMPUTER INTERFACE**

### **SYNOPSIS:**

This course introduces topics such as Interface Design Guideline, Dialog Document Design, Windows Form Design Guideline and Web Page Dialog Design.

### **REFERENCES:**

1. Bass, L. 1991. *Developing user interfaces*. London: Addison-Wesley.
2. Eberts, R.E. 1994. *User interface design*. New York: Prentice-Hall.
3. Preece, J., et.al. 1994. *Human-computer interaction*. Berlin: Addison-Wesley.
4. Barfield, L. 1993. *The user interface: Concepts & design*. London: Addison-Wesley.
5. Faulkner, C. 1998. *The essence of human-computer interaction*. New Jersey: Prentice-Hall.

## BIT 31703 ALGORITHMS ANALYSIS

PREREQUISITE SUBJECT: BIT 10703 DATA STRUCTURE AND ALGORITHM

### SYNOPSIS:

This course introduces on algorithm analysis and design, function improvement, recursive relation, divide and conquer algorithms, graph algorithms and computational complexity.

### REFERENCES:

1. Johnsonbaugh, R. & Schaefer, M. 2004. *Algorithms*. New Jersey: Pearson Education.
2. Cormen, T. H. 2001. *Introduction to algorithms*. 2<sup>nd</sup> ed., Massachussets: MIT Press.
3. Goodrich, M. T. & Tamassia, R. 2002. *Algorithm design - foundation, analysis and internet examples*. New York: John Wiley and Sons.
4. Levitin, A. 2007. *Introduction to the design and analysis of algorithms*. 2<sup>nd</sup> ed., Boston: Pearson Education.
5. Weiss, M.A. 2006. *Data structures and algorithms analysis in C++*. Harlow: Addison Wesley.

# NETWORKING ELECTIVE SUBJECTS

## BIT 32603 NETWORK OPERATING SYSTEM

PREREQUISITE SUBJECT: BIT 20703 NETWORK AND DATA COMMUNICATION

### SYNOPSIS:

This course introduces students to topics such as network operating system, client server, network user and group, network services, network security, authentication, and access authorization.

### REFERENCES:

1. Minasi, Mark et.al. 2003. *Mastering windows server 2003*. Canada: Sibex International.
2. Robert, K.R. 2003. *Mastering active directory for windows server 2000*. Canada: Sibex International.
3. Nowshadi, F. 1999. *Managing windows NT/Netware integration*. Boston: Addison Wesley.
4. Simpson, T. L. 1997. *Network administrator: Netware 4.1 with coverage of intranetware 4.11*. London: Course Technology.
5. Tanenbaum, A. S. 1996. *Computer Networks*. New York: Prentice Hall.
6. Nutt, G. 2001. *Operating Systems: A Modern Perspective*. New Jersey: Addison Wesley.

## BIT 32703 DISTRIBUTED SYSTEM

### SYNOPSIS:

This course introduces on the types of distributed system, system model, communication between process, distributed object and remote invocation, file distributed system, global time and condition, transaction and concurrent control.

### REFERENCES:

1. Dollimore, C. & Kindberg. 2001. *Distributed system*. New Jersey: Addison-Wesley.
2. Tanenbaum, S. A & Maarten, V. S. 2001. *Distributed systems: Principles & paradigms*. New Jersey: Prentice Hall.
3. Liu, M. L. 2003. *Distributed computing: Principles & application*. Toronto: Addison-Wesley.
4. Emmerich, W. 2000. *Engineering distributed systems*. New York: Wiley.
5. Andrews, G. R. 2000. *Multithreaded, parallel & distributed programming*. New York: Addison-Wesley.
6. Henning, M. & Vinoski, S. 1999. *Advanced CORBA programming with C++*. Toronto: Addison Wesley Logman.
7. Rosen, M. & Curtis, D. 1998. *Integrating CORBA & COM applications*. New Jersey: Wiley.

8. Student Workbook. 2001. *CORBA/C++ Programming With ORBacus*. Washington: IONA Technologies Inc.

## **BIT 32803 CLIENT SERVER PROGRAMMING**

### **PREREQUISITE SUBJECT: BIT 10303 COMPUTER PROGRAMMING**

#### **SYNOPSIS:**

This course introduces topics such as client-server and operating system. It covers stack and network operating system, database in middleware. It also provides client-server distributed object, client-server transaction processing, client-server and internet environment. Distributed system management and client-server application development.

#### **REFERENCES:**

1. Orfali, R. & Harkey, D. 1999. *Client/server survival guide*. 3<sup>rd</sup> ed., New York: Wiley.
2. *Linthicum, D. S. 1997. David linthicum's guide to client/server and intranet development*. New York: Wiley.
3. Farley, J. 1998. *Java: Distributed computing*. Sebastopol. Boston: O'reilly.
4. Hart, J. M. & Rosenberg, B. 1995. *Client-server computing for technical professionals: Concepts and solutions*. Massachusetts: Addison-Wesley.
5. Orfali, R. and Harkey, D. 1998. *Client/server programming with Java and Corba*. New York: Wiley.

## **BIT 32903 HIGH SPEED NETWORK**

### **PREREQUISITE SUBJECT: BIT 20703 NETWORK AND DATA COMMUNICATION**

#### **SYNOPSIS:**

Network technology, internetworking devices, LAN technology, WAN technology and cabling technology.

#### **REFERENCES:**

1. Tannenbaum, S. 2000. *Network technology*. CISCO Press.
2. Pfleeger, C. P. 2001. *Internetworking technology handbook*. CISCO Press.
3. Dean, T. 2002. *Network+ guide to networks*. 2<sup>nd</sup> ed., New York: Course Technology.
4. Hallberg, B. 2001. *Networking: A beginner's guide*. New York: Osborne.
5. Derfler, F. & Freed, L. 2000. *Network cabling*. Indiana: Que.

## **BIT 33003 NETWORK DESIGN**

### **SYNOPSIS:**

This course introduces on network design, network analysis, requirement specification document, logical network design, physical network design, interconnection device, LAN and WAN technologies.

### **REFERENCES:**

1. Netprep. 2000. *Course: Network design*. 1<sup>st</sup> ed., Indiana: WestNet Learning Technology.
2. Kane, J. et. al. 2001. *Internetworking technology handbook*. New York: CISCO Press.
3. Dean, T. 2002. *Network+ guide to networks*. 2<sup>nd</sup> ed., Canada: Thompson Learning.
4. Louis, R., Louis, D. & Rossi, T. 2000. *CISCO Catalyst LAN switching*. New York: McGraw Hill.

## **BIT 33203 NETWORK SECURITY**

### **PREREQUISITE SUBJECT: BIT 20703 NETWORK AND DATA COMMUNICATION**

### **SYNOPSIS:**

This course introduces on introduction To Network Security, Attack: Malware, Attack: Dos, Reconnaissance, Scanning, Gaining Access, Maintaining Access, Cover Tracks and Strengthen Future Security Network.

### **REFERENCES:**

1. Skoudis, E. 2006. *Counter hack reloaded*. 2<sup>nd</sup> ed., New Jersey: Prentice Hall.
2. Eastomm, C. 2006. *Computer security fundamentals*. New Jersey: Prentice Hall.
3. Kaufman, et. al., 2002. *Network security: Private communication in a public world*. 2<sup>nd</sup> ed., New York: Prentice Hall.
4. Anderson, R. 2001. *Security engineering: A guide to building dependable distributed systems*. 1<sup>st</sup> ed., Toronto: Wiley Computer Publishing.
5. Garfinkel, S. & Spafford, G. 2000. *Web security, privacy & commerce*. 2<sup>nd</sup> ed., Boston: O'Reilly.

## BIT 33303 REAL TIME SYSTEM

### SYNOPSIS:

This course introduces an introduction to real time system: class, time based system, history and interface based system, Petri net analysis, type of real time system, system control, hardware requirement for real time system, real time system design, real time system scheduling, operating system language for real time system, problem in real time system development.

### REFERENCES:

1. Burns, A. & Wellings, A. 2001. *Real time system and programming languages: Ada 95, real time java and real time POSIX*. New York: Addison Wesley.
2. Shaw, A. C. 2001. *Real time system and software*. New Jersey: John Wiley & Sons.
3. Leedham, G. 2004. *Embedded real time systems: Introductory concepts and tools*. Singapore: Pearson Prentice Hall.
4. Krishna, C. M & Shin, K. G. 1997. *Real-time system*. London: Mc Graw Hill.



# MULTIMEDIA ELECTIVE SUBJECTS

## BIT 31803 MULTIMEDIA AUTHORING

PREREQUISITE SUBJECT: BIT 10403 INTRODUCTION TO MULTIMEDIA

### SYNOPSIS:

This course introduces on multimedia concept, hypertext and hypermedia, proposal preparation method, simple storyboard method, preparation media such as graphic, sound of music, animation and applying all media in building multimedia application such as Director.

### REFERENCES:

1. Fenrich, P. 1997. *Practical guidelines for creating instructional multimedia applications*. USA: Harcourt Brace College Publishers.
2. Vaughan, T. 2001. *Multimedia making it work*. New York: McGraw Hill.
3. Burses, J. 1993. *The desktop multimedia bible*. London: Addison Wesley.
4. Hillman, D. 1998. *Multimedia technology and applications*. London: Elmer Publisher.
5. Keyes, J. 1994. *The McGraw hill multimedia handbook*. New York: McGraw Hill.

## BIT 31903 MULTIMEDIA DATABASE

PREREQUISITE SUBJECT: BIT 20803 DATABASE SYSTEM

### SYNOPSIS:

This course introduces on multimedia database, multimedia storage and retrieval, multimedia information design, multimedia database query and multimedia database management system architecture.

### REFERENCES:

1. Prabakaran, B. 1997. *Multimedia database management systems*. London: Kluwer Academic Publishers.
2. Kosch, H. 2003. *Distributed multimedia database technologies supported by MPEG-7 and MPEG-21*. Washington: CRC Press.
3. Lu, G. 1999. *Multimedia database management system*. Massachusetts: Artech House Publishers.
4. Furht, B. 1998. *Handbook of multimedia computing*. Washington: CRC Press.
5. Chang, H.J. & Chang. 1996. *Temporal modelling and intermedia synchronization for presentation of multimedia*. London: Kluwer Academic Publishers.
6. Kim, W. 1995. *Modern Database Systems*. Boston: Addison-Wesley.

## **BIT 32003 MULTIMEDIA PROJECT MANAGEMENT**

### **SYNOPSIS:**

This course introduces on project life cycle, project definition, project specification, project scheduling (Gantt, Chart, Pert and Milestone), project implementation and project valuing.

### **REFERENCES:**

1. Casanova, J.V. & Molina, L. 1997. *Multimedia: Production, planning and delivery*. USA : Miami Dade Community College.
2. Burnett, K. *Project management*. New York: McGraw Hill.
3. Hillman, D. 1998. *Multimedia technology & applications*. Berlin: Delmar Publishers.
4. Dale-Carnegie Training & Service Center. 1996. *Dale Carnegie tips for success*. New York: Prentice Hall.
5. Demsey, J.V. 1993. *Interactive instruction and feedback*. New York: Prentice Hall.

## **BIT 32103 GRAPHICS TECHNOLOGY AND 3D ANIMATION**

### **PREREQUISITE SUBJECT: BIT 10403 INTRODUCTION TO MULTIMEDIA**

### **SYNOPSIS:**

This course introduces on 3D animation, 3D graphics basic principles, modelling basics, advanced modelling, low-polygon modelling, image/texture mapping, object lighting, camera usage, 3D object animation, rendering and output.

### **REFERENCES:**

1. Giambruno, M. 2002. *3D graphics & animation*. 2<sup>nd</sup> ed., New Riders Press.
2. Kerlow, I. V. 2009. *The art of 3D computer animation and effects*. 4<sup>th</sup> ed., Wiley.
3. Lab, C. & Keller, K. 1997. *Multimedia animation*. London: Macmillan Computer Publishing.
4. Backer, R.M. 1998. *Picture driven animation*. Canada: Montvale Inc.
5. Casanova, J.V. & Elias, L.F. 1997. *Multimedia graphics*. London: Macmillan Computer Publishing.

## **BIT 32303 AUDIO VIDEO PRODUCTION**

**PREREQUISITE SUBJECT: BIT 10403 INTRODUCTION TO MULTIMEDIA**

### **SYNOPSIS:**

This course introduces on audio basics, analog and digital audio, audio recording and production, audio usage in multimedia application, video basics, analog and digital video, digital video production process, video usage in multimedia application.

### **REFERENCES:**

1. Lozano, J. 2000. *Multimedia: Sound and video*. New Jersey: Que E & T.
2. Burger, J. 1993. *Desktop multimedia bible* . London: Addison-Wesley.
3. Henry B. Aldrige & Lucy A. Ligget . 1990. *Audio/video production: Theory and practise*. New York: Prentice Hall.
4. Leathers, D. 2003. *Pro Tools Bible: The complete digital music production reference (Digital Video/Audio)* . New York: McGraw-Hill.
5. Rose, J. 2002. *Audio postproduction for digital video* . London: CMP Books.

## **BIT 32403 MULTIMEDIA EXPERT SYSTEM**

**PREREQUISITE SUBJECT: BIT 10403 INTRODUCTION TO MULTIMEDIA**

### **SYNOPSIS:**

This course introduces the basics of expert system, knowledge representation, expert system development, multimedia environment, current multimedia expert system.

### **REFERENCES:**

1. Stuart, R. & Norvig, P. 1995. *Artificial intelligence: A modern approach*. New York: Prentice-Hall.
2. Bradshaw, J. 1997. *Introduction to software agents*. London: AA AI Press.
3. Harrison, C.G. & Caglayan. 1997. *Agent sourcebook: A complete guide to desktop Internet, and Internet agents*. Boston: John Wiley and Sons.
4. Jennings, N.R. & Woolridge, M.J. 1998. *Agent technology foundations, applications and market*. Canada: Springer-Verlag.
5. Murch, R. & Johnson, T. 1999. *Intelligent software agent*. New York: Prentice Hall.

## BIT 32503 VIRTUAL REALITY

PREREQUISITE SUBJECT: BIT 20203 GRAPHIC PROGRAMMING

### SYNOPSIS:

This course introduces on virtual reality, virtual reality system, hardware, software, graphic 3D, geometric transformation, virtual environment movement, human factor and simulation.

### REFERENCES:

1. Vince, J. 1995. *Virtual reality systems*. New York: ACM Press.
2. Kalawsky, H. 1993. *The science of virtual reality and virtual environments*. London: Addison-Wesley.
3. Nadeau, D.R. & Moreland, J.L. 1996. *VRML 2.0 sourcebook*. London: John Wiley & Son.
4. Russel, D. 1991. *Computer security basics*. USA: O' Reilly and Associate.
5. Stuart, R. 1996. *The design of virtual environments*. New Jersey: Mc Graw Hill.
6. Tittel, E. 1996. *Building VRML worlds*. New Jersey: Mc Graw-Hill.

# INFORMATION SYSTEM ELECTIVE SUBJECTS

## BIT 20903 ARTIFICIAL INTELLIGENCE

### SYNOPSIS:

This course introduces topics such as Problem Solving, Practical Natural Language Processing, Logic, Expert System, Perception, Neural Network Learning, Fuzzy Logic, Planning, Future of Artificial Intelligence.

### REFERENCES:

1. Bratko, I. 1999. *PROLOG programming for artificial intelligence*. 3<sup>rd</sup> ed., London: Addison Wesley.
2. Moss, C. 1994. *PROLOG++: The power of object-oriented and logic programming*. London: Addison Wesley.
3. Rich, E. & Knight, K. 1991. *Artificial intelligence*. 2<sup>nd</sup> ed., New York: Mc Graw Hill.
4. Turban, E. & Aronson, J. 1998. *Decision support systems and intelligent systems*. Boston: Prentice Hall.
5. Luger, G. F. & Stubblefield, W.A. 1998. *Artificial intelligence: Structures and strategies for complex problem solving*. 3<sup>rd</sup> ed., Sydney: Cummings Publishing.

## BIT 30303 DECISION SUPPORT SYSTEM

### SYNOPSIS:

This course introduces topics such as Data and Model Management, Decision Making, Decision Making Process, Decision Making Modelling, Decision Support System Design and Development, User Interface Component, Decision Support System Integration and Implementation, Group Decision Support System.

### REFERENCES:

1. Marakas, G. M. 2004. *Decision support system in the 21<sup>st</sup> century*. New York: Prentice Hall.
2. Efraim, T., Aronson, J. E. Liang T. and McCarthy R.V. 2004. *Decision support system and intelligent systems*. New York: Prentice Hall.
3. Xinghuo, Y. et.al. 2003. *Applied decision support with soft computing*. Toronto: Springer.
4. Mallach, E. G. 2000. *Decision support and data warehouse systems*. New York: McGraw Hill.
5. Sauter, R. L. 1997. *Decision support systems: An approach managerial approach*. Boston: Wiley.

## **BIT 30403 PROJECT MANAGEMENT**

**PREREQUISITE SUBJECT: BIT 20103 SYSTEM ANALYSIS AND DESIGN**

### **SYNOPSIS:**

This course introduces topics such as Project Management Process and Context, Project Integration Management, Project Cost and Time Management, Project Quality Management, Project Communication and Human Resource Management, Risk and Purchasing Management.

### **REFERENCES:**

1. Philips, J. 2002. *IT project management on track from start to finish*. New Jersey: McGraw Hill, Osborne.
2. Marchewka, J. T. 2003. *Information technology project management: Providing measurable organizational value*. New Jersey: Wiley.
3. Henry, J. 2004. *Software project management: A real world guide to success*. London: Addison Wesley.
4. March, R. 2001. *Project management: Best practices for IT professional*. New York: Prentice Hall.

## **BIT 30503 ENTERPRISE RESOURCE PLANNING**

### **SYNOPSIS:**

This course introduces on the ERP system, ERP Life Cycle, Marketing System management and Sales Order Process. Production and Marketing Sales System. Accounting and Finance. E-Commerce and risk. Accounting and Finance.

### **REFERENCES:**

1. Joseph B., Ellen F. M. & Wagner B. J. 2001. *Concepts in enterprise resource planning*. 1<sup>st</sup> ed., Boston: Thomson Learning.
2. O'Leary, D.E. 2000. *Enterprise resource planning: Systems, life cycle, electronic commerce and risk*. Cambridge: Cambridge University Press.
3. Carroll, B. J. 2002. *Lean performance ERP project management: Implementing the virtual supply chain*. St. Lucie Press.
4. Arnold, J.R.T. & Chapman, S.N. Chapman. 2004. *Introduction to materials management*, 5/E. New York: Prentice Hall.
5. Chorafas, D. N. 2001. *Integrating ERP, CRM, supply chain management and smart materials*. Auerbach.

## **BIT 30603 CUSTOMER RELATIONSHIP MANAGEMENT**

### **SYNOPSIS:**

This course discusses the CRM Component and Terminology, CRM Definition, CRM Methods, Infrastructure Component Development, Component Integration, Customer Profile, Quality Information Management.

### **REFERENCES:**

1. Kincaid, J.W. 2003. *Customer relationship management - getting it right*. New Jersey: Prentice-Hall.
2. Greenberg, P. 2002. *CRM customer relationship management - capturing and keeping customers in internet real time at the speed of light*. 2<sup>nd</sup> ed., New York: McGraw-Hill.
3. Buttle, F. 2004. *Customer relationship management concept and tools*. New York: Elsevier.

## **BIT 30703 DIGITAL LIBRARY**

### **SYNOPSIS:**

This course discusses on Digital Library, Digital Library Technology, and Introduction to Multimedia Data Format, Information Architecture, and User Interface, Searching and Indexing: Unstructured Data, Introduction to Security, Advanced Topics in Digital Library.

### **REFERENCES:**

1. Bharat, K.B. Ed. 1997. *Digital libraries: Researched and technology advances*. Berlin: Springer-Verlag.
2. Lesk, M. 1997. *Practical digital libraries: Books, bytes and bucks*. San Francisco: Morgan Kaufmann.
3. Pastine, M., *Collection Development: Access virtual library*. New York: Howorth Press.
4. Sandore, A. *et al.* 1996. *Digital image access and retrieval*. New Jersey: Harper Collins.

## **BIT 30803 MANAGEMENT INFORMATION SYSTEM**

### **SYNOPSIS:**

This course explains on Information Technology Foundation, Network and Telecommunication, E-Commerce and Transaction, Information Integration, System Development, Information System Resource Organizations, Brief Explanation to Decision Support System, Executive Information System and Expert System. Strategic Analysis.

### **REFERENCES:**

1. Kenneth C. Laudon & Jane P. Laudon. 2009. *Management information system: Managing the digital firm*. 11<sup>th</sup> ed., Prentice Hall.
2. Gerald V. Post & David L. Anderson. 2003. *Management information systems: Solving business problems with information technology*. New York: McGraw-Hill.
3. Effy O. 2006. *Management information systems*. 6<sup>th</sup> ed., New Jersey: Course Technology.
4. James A. O, Brien. 2004. *Management information system: Managing information technology in the business enterprise*. Boston: McGraw-Hill.
5. Raymond McLeod & George Shell. 2007. *Management information systems: 10<sup>th</sup> ed.*, Prentice Hall.

## **BIT 30903 BUSINESS DATA PROCESSING**

### **SYNOPSIS:**

This course introduces topics such as Business Organization, Introduction to Data Processing, Data Processing Programming.

### **REFERENCES:**

1. Turban, E., King, D. 2003. *Introduction to e-commerce*. Indiana: Prentice Hall.
2. Deitel, Deitel & Neto. 2001. *E-business & e-commerce - how to program*. New York: Prentice Hall.
3. Deitel & Deitel. 2005. *Java how to program*. New Jersey: Prentice Hall.



## BIT 33603 DATA MINING

### SYNOPSIS:

This course provides detail explanation on data mining and machine learning, which include: classification, clustering, association rules and so on. Emphasis will be laid on performance and implementation issues, as well as on application such as web mining.

### REFERENCES:

1. Bratko, I. 1999. *PROLOG programming for artificial intelligence*. 3<sup>rd</sup> ed., London: Addison Wesley.
2. Moss, C. 1994. *PROLOG++: The power of object-oriented and logic programming*. London: Addison Wesley.
3. Rich, E. & Knight, K. 1991. *Artificial intelligence*. 2<sup>nd</sup> ed., New York: Mc Graw Hill.
4. Turban, E. & Aronson, J. 1998. *Decision support systems and intelligent systems*. Boston: Prentice Hall.
5. Luger, G. F. & Stubblefield, W.A. 1998. *Artificial intelligence: Structures and strategies for complex problem solving*. 3<sup>rd</sup> ed., Sydney: Cummings Publishing.

## BIT 33703 FUZZY SYSTEM DEVELOPMENT

### SYNOPSIS:

This course discusses on Problem Solving, Practical Natural Language Processing, Logic, Expert System, Perception, Neural Network Learning, Fuzzy Logic, Planning, Future of Artificial Intelligence.

### REFERENCES:

1. Karray, F.O & Silva, C.W. 2005. *Soft computing and intelligent systems design: Theory, tools and applications*. London: Addison-Wesley.
2. Negnevitsky, M. 2002. *Artificial intelligence: A guide to intelligent systems*. Harlow: Addison-Wesley.
3. Riza C. Berkan, Shaldon L. Trubatch. 1997. *Fuzzy systems design principles: Building fuzzy IF-THEN rule bases*. New Jersey: IEEE Press.
4. Chen, G., & Pham T.T. 2001. *Introduction to fuzzy sets, fuzzy logic, and fuzzy control Systems*. Florida: CRC Press.
5. Harris, J. 2000. *An introduction to fuzzy logic applications*. Boston: Kluwer Academic.
6. Ruan, D., & Kerre, E.E. 2000. *Fuzzy if-then rules in computational intelligence: Theory and applications*. Boston: Kluwer Academic.

**YEAR 4**  
**SEMESTER 1**

## **BIT 40112 INDUSTRIAL TRAINING**

**PREREQUISITE SUBJECT: STUDENTS HAVE TO COMPLETE AT LEAST 80 % OF THE COURSE SUBJECTS**

### **SYNOPSIS:**

Students have to undergo 24 weeks of practical training at any government or private agencies. During the training, they will be given assignments or projects, which are approved earlier by the faculty and the agencies based on their majors.