BACHELOR OF INFORMATION TECHNOLOGY

Curriculum Summary
Bachelor of Information Technology

Elective Summary

YEAR 1

YEAR 1
SEMESTER I

UMB 1011 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. n.a (2004). *Koleksi Kertas Soalan MUET* Oktober 2003. Kuala Lumpur : Pearson Malaysia
2. Ng. K. S. et al. (2000). *Study Skills for the Malaysian University English Test*. Kuala Lumpur : Federal Publication.
3. Pfeiffer, W. S. (2000) Technical Writing : *A Practical Approach. New Jersey*. Prentice Hall.
4. Teoh, S. A. & Zainab Mohd. Noor (2000). *Test-Taking Strategies for MUET*. Kuala Lumpur : Penerbit Fajar Bakti.

UMB 1052 EFFECTIVE COMMUNICATION

SYNOPSIS:

This course emphasizes upon 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 meeting, including writing of meeting documents. Students will be exposed to the techniques of writing good application letters and resumes. They are also expected to anticipate and deal with questions during a job interview session.

REFERENCES:

1. Cheesebro, T, O'Connor, L. & Rios, F. (2007). *Communation 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.

UQ* 11 CO-CURICULUM I**

SYNOPSIS:

This subject is offered in the form of various activities selected by diploma and degree students. Three types of activities offered are Sports & Recreation, Club/ Association and Uniformed Association.

UMA 1162 ISLAMIC AND ASIAN CIVILISATION

SYNOPSIS:

This course discusses about the introduction to knowledge of civilisation; development of civilization; Interaction between civilizations, Islamic Civilization; Islam in Malay Civilization; Indian Civilization; Chinese Civilization and civilization's contemporary issues.

REFERENCES:

1. Ahmad Hakimi Khairuddin dan Faridah Che Husain. 2006, *Isu-isu Kontemporari Dalam Tamadun Islam dan Tamadun Melayu*. Siri Teks Pengajian Tinggi. Kuala Lumpur: Penerbit Universiti Malaya
2. Ibnu Khaldun, *Muqaddimah Ibnu Khaldun.(trj)* Mukadimah Khaldun (1993), Kuala Lumpur: DBP
3. Huntington, Samuel, P., 1996. *The Clash of Civilization and the Remarking of World Order*. New Haren : Yale University Press.
4. Mahyuddin Hj. Yahaya, (1998) *Tamadun Islam*, Shah Alam: Penerbit Fajar Bakti Sdn. Bhd.

BIT 1013 SOFTWARE ENGINEERING

SYNOPSIS:

Explaining the importance of software engineering and system development crisis. Introduction to software development life cycle by using software development models, development proposal and project management. Development life cycle: Requirement Analysis, specification, design, testing and program estimation.

REFERENCES:

1. Ghezzi, C., Jazayeri, M. dan Mandrioli D (2003). *Fundamentals of Software Engineering*. New Jersey : Pearson Education, Inc.
2. Ian, S. (2001). *Software Engineering,* New Jersey : Pearson Education
3. Pressman, R.S. (2001). *Software Engineering: A Practitioner's Approach*, New York : McGraw-Hill.
4. Schach, Stephen. (2005). *Object Oriented and Classical Software Engineering (6th Edition),* New York : McGraw-Hill.

BIT 1023 INTRODUCTION TO INFORMATION TECHNOLOGY

SYNOPSIS:

This course introduces information technology, computer hardware, computer software, file and data management, information system, telecommunication, telecommunication technology, internet and current information technology issues.

REFERENCES:

1. O'Leary T.J. dan 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. et al. (1998). *Computers, Communications and Information*, New York : McGraw-Hill.
4. Turban et. al. (1999). *Information Technology for Management : Making connections for strategies advantages*, New York : Wiley.

BIT 1033 COMPUTER PROGRAMMING

SYNOPSIS:

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

REFERENCES:

1. Byron S. Gottfried, (1990). *Programming with C,* New Jersey : McGraw-Hill.
2. Mohd Zainuri Saringat et. al., (2006). Pengaturcaraan C, Batu Pahat : UTHM.
3. Nor Haizan Mohamed Radzi, (1998). *Pengaturcaraan C*, Batu Pahat : UTHM
4. Marini Abu Bakar et al., (1999). *Struktur Data Menggunakan C*, Kuala Lumpur : Prentice Hall.

BSM 1413 STATISTICS

SYNOPSIS:

This course covers the aspects of random variables, special probability distribution, sampling distribution, estimation, hypothesis test, simple linear regression, multiple linear regression and non parametric statistics.

REFERENCES:

1. Larson, R. And Farber, B. (2006). *Elementary Statistics : Picturing The World,* Third Edition. Singapore : Pearson Prentice Hall.
2. Mann, P.S. (2004) *Introductory Statistics,* 5th Edition. Wiley International Edition.
3. Levine, D.M., Ramsey, P.P. and Smidt, R.K. (2001). *Applied Statistics for Engineers and Scientists. Using Microsoft Excel and Minitab.* Upper Saddle-River : Prentice-Hall.
4. Bluman, A.G. (2004). *Elementary Statistics : A Step by Step Approach,* 5th Edition. McGraw-Hill.

YEAR 1
SEMESTER II

UQ* 11 CO-CURICULUM II**

SYNOPSIS :

This subject is offered in the form of various activities selected by diploma and degree students. Three types of activities offered are Sports & Recreation, Club/ Association and Uniformed Association.

UMB 1042 TECHNICAL WRITING

PRE REQUISITE: UMB 1052 (EFFECTIVE COMMUNICATION)

SYNOPSIS:

This course introduces students to report writing skills needed at tertiary level. Students will learn basic report writing skills involving proposals, progress report and analytical report. 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. Prior to that, students will also be trained to polish up their skills in narrative and descriptive essays using accurate grammar, vocabulary and sentence structure.

REFERENCES:

1. Finkelstein, J. (2008). *Pocket Book of technical writing.* 3rd 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 your report : From start to finish.* Singapore : Prentice Hall.

UMS 1122 ETHNIC RELATIONS

SYNOPSIS:

This subject focuses about the conceptual and practicality of ethnic relations in Malaysian society framework. Discussions include basic concepts of ethnic relations and the history of development of plural society. Besides that, the constitution as the core of society life is also mentioned. Discussions also examine the relationship of development and ethnicity from the economic, politic and social aspects based on top-down dan bottom-up approach by 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. John Rex (1985). "Hubungan Ras Dalam Teori Sosiologi." Kuala Lumpur : Dewan Bahasa dan Pustaka.
4. Lembaga Penyelidikan Undang-undang (2003). "Perlembagaan Persekutuan: (hingga 15hb Ogos 2003)." Petaling Jaya: International Law Book Services.

BPK 1043 BASIC ACCOUNTING

SYNOPSIS:

The content of the course includes the introduction to accounting, acccounting information recording and processing, balancing and closing process, commerce operation, financial reports, financial statement analysis, introduction to management accounting, cost-volume-profit analysis and budget as 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 1043 INTRODUCTION TO MULTIMEDIA

SYNOPSIS:

This course introduces 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. Vaughan,T. (2001). *Multimedia Making It Work*, New York : McGraw-Hill.
2. Agnew, P.W. (1996). *Technologies, Applications and Opportunities in the Digital Information Industry,* New Jersey : Addison Wesley Publisher Company.
3. Burses, J. (1993). *The Desktop Multimedia Bible,* New Jersey : Addison Wesley Publisher Company.
4. Hillman, D. (1998). *Multimedia Technology and Applications,* USA : Delmer Publisher.

BIT 1073 DATA STRUCTURE AND ALGORITHM

PRE REQUISITE: BIT 1033 (COMPUTER PROGRAMMING)

SYNOPSIS:

This course introduce about 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. S. Lipschutz, (1986). *Theory And Problems of Data Structures,* New York : McGraw-Hill.
3. Marini Abu Bakar et. al (2004). *Data Structures Using C,* Prentice-Hall.
4. Tenembaum, A.M., Angenstein, M.J.& Langsam Y. (1990). *Data Structures Using C,* New York : Prentice Hall.

BIT 1113 DISCRETE STRUCTURE

SYNOPSIS:

This course discusses the concept of discrete mathematics and how to use it in ICT in practical. This course includes topics in Principles of Propositional Logic and Proof, Set, Mathematical Induction, Relations and Functions, Recurrence Relations, Algorithm and Graph Theory.

REFERENCES:

1. Rosen K. (2003) *Discrete Mathematics and its Application,* Fifth Edition. New York : Mc Graw-Hill Inc.
2. Kolman, B., Busby, R., Ross, S. (1996). *Discrete Mathematical Structures.* New Jersey : Prentice Hall, Inc,.
3. Johnsonbaugh R, (2005). *Discrete Mathematics*. Fifth Edition. Singapore : Prentice Hall, Inc.
4. James L.H. (2002). *Discrete Structures, Logic, and Computability.* Second Edition. John and Bartlett Pub. Co.

YEAR 1
SEMESTER III

BIT 1083 INFORMATION TECHNOLOGY SKILLS

SYNOPSIS:

This course offers student skills in computer troubleshooting for computer maintenance. Student is expose to safety steps and right computer cares. Techniques learns are assemble and disassemble computer, the safety steps taken and protection method. In introducing computer network basic concept, hardware computer network maintenance, network hardware maintenance, computer network cabling and cable testing. In multimedia, student will be expose in digital camera handling technique, video camera and NLE machine together with the use of editing software. Techniques learn includes shooting, editing, composing, testing and producing a product.

REFERENCES:

1. Clint, Saxton, (2000). *"A+ Lab Manual for Guide to Managing & Maintaining Your PC".* Thompson Learning.
2. S.Grodzinsky, Frances, (1999). *"Networking & Data Communications Laboratory Manual",* Prentice Hall.
3. Lozano, J., (2000).*"Multimedia: Sound and Video", Que E & T.*
4. Derfler, Frank & Freed, Les,(2000). *"Practical Network Cabling". Que.*

BIT 2102 COMPUTER, ETHICS AND SOCIAL

SYNOPSIS:

This course introduce student about analysis computing ethics in cyber era. Topics covered in this course are Introduction to Information Technology Professional Ethics, Ethics and Responsibilities of Information Technology Professionals, Privacy in Computing Ethics, Security and Control, Copyright and Intellectual Property, Freedom of Speech, Good Manners, Pornography and Censorship and Cyber and Media Laws in Malaysia.

REFERENCES:

1. Deborah G. Johnson. (2001). *Computer Ethics.* 3rd Edition. New York : Prentice Hall.
2. Barbara MacKinnon.(2001). *"Ethics: Theory and Contemporary Issues. 3rd edition".* Thomson Learning.
3. Deborah G. Johnson. (1995). *"Computer, Ethics. & Social Values".* New York : Prentice Hall.
4. Sara Baase. (2003). *"A Gift of Fire. Social, legal and ethical issues for computer and the Internet. 2nd edition"*. London : Prentice Hall.

YEAR 2

YEAR 2
SEMESTER I

UMA 1182 ISLAMIC STUDIES

SYNOPSIS:

This course explains the concept of Islam as al-Din. The scope of the discussions includes the study of al-Quran and al-Sunnah; Aqidah of Ahlus Sunnah wal Jamaah; aqidah thinking pattern; progress of Fiqh madhhab; muamalah principles; Islamic Crime Laws; work ethics in Islam; issues in Islamic Family laws and current issues.

REFERENCES:

1. Harun Din, (Dr.), (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 Bahasa dan Pustaka.

UMA 1142 MORAL STUDIES

SYNOPSIS:

This course explains the introduction to moral concept, moral aspects and the importance in daily lives. Western moral theories and good values of world's major religions. Moral in occupations and lastly the current 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. Mohd Janib Johari. 1994. *Moral; Teori, Aplikasi dan Permasalahan*. Johor Bharu. Penerbitan UTM.

UMC 1022 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. Students will also be participating in exhibition and competition.

REFERENCES:

1. Bernacki, E. 2002. *Wow! That's a Great Idea*!. Singapore : Prentice Hall.
2. De Bono, E. (2003). *Serious Creativity 1 : Lateral Thinking Tools, Techniques and Application*. Singapore : Allscript Books.
3. De Bono, E. (2003). *Serious Creativity 2 : Lateral Thinking Tools, Techniques and Application*. Singapore : Allscript Books.
4. Ceserani, J. & Greatwood, P. 1995. *Innovation and Creativity*. London : Kogan Page.

UMF 1312 FRENCH LANGUAGE

SYNOPSIS:

This course is offered to students focusing on the learning of the basic of French. Students are exposed to the skills of listening, reading, speaking and writing with basic vocabulary, grammar and structure. Students are also provided with a lot of opportunities to practice their communication and writing skills.

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.

UMG 1312 GERMAN LANGUAGE

SYNOPSIS:

This course is designed for students to learn the basic of 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 der deutschen sprache, 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, Textbook. Muenchen: Max Hueber Verlag.
4. Dr. Albert H. Small. 1991. *German â la Cartoon.* German Grammar through Cartoons. Passports Books

UMJ 1312 JAPANESE LANGUAGE

SYNOPSIS:

This course is designed for students to learn basic Japanese language such as speaking, listening, reading, and writing. Students will be exposed to the real daily conversations which will enable them to communicate in basic Japanese language.

REFERENCES:

1. Kodansya`s Furigana Japanese Dictionary(2005)
2. Minna no Nihongo Listening (2006) Second Published :3A Corporation Tokyo
3. Minna no Nihongo Jap-English (2006) Second Published :3A Corporation Tokyo
4. Japanese Conversation for Beginners (2006) Bonjinsha,Tokyo Japan

UMK 1312 KOREAN LANGUAGE

SYNOPSIS:

This course is designed for students to learn basic Korean language such as speaking, listening, reading, and writing. Students will be exposed to the real daily conversations which will enable them to communicate in basic Korean language.

REFERENCES:

1. *Korean 1 (1993)* Seoul National University Korea Language Research Institute,
2. *Speaking Korean Revised Edition Book 1 (1994)* Francis Y.T Park, Hollym Internation Corp.
3. *Korean 2 (1993)* Seoul Nation University Korea. Language Research Institute
4. Dong-As *New Little English Dictionary (1981)*

UMM 1312 MANDARIN LANGUAGE

SYNOPSIS:

This course is offered to students focusing on the learning of the basic of mandarin. Students are exposed to the skills of listening, reading, speaking and writing with basic vocabulary, grammar and structure. Students are also provided with a lot of opportunities to practice their communication and writing skills.

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.

UMP 1312 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: *Español, Aprender y Usarla* 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* Second Edition.

UMR 1312 ARABIC LANGUAGE

SYNOPSIS:

This course is designed for students to learn the basic Arabic. 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; Rabiyah 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.

UMT 1312 TAMIL LANGUAGE

SYNOPSIS:

This course is designed for students to learn the basic Tamil 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 Tamil language.

REFERENCES:

1. Tamil Akara 1. Beach, L.W. and Creamer, Feder Chris et.., 1984: *Language; Skills and Use 2nd. Illinois Edition.* Scott, Foresman and Company.
2. Tann, Sarah. 1991. Devoloping Language in the Primary Classroom, United Kingdom; Cassel
3. Roberts. 1992. Teaching Children to Read and Write. New York; Simon and Schuster Education.
4. A.K Paranthamanar, 1992: *Nalla Tamil Ezhuta Venduma. Madras India :* Orient Longman.

BPK 2052 PRINCIPLES OF MANAGEMENT

SYNOPSIS:

Introduction: Introduction to management, management evolutionm management environment, ethics and social responsibilities. Planning: Basic planning, decision making and strategic management. Organization: Organization structure and design, human resource management and managing change. Leadership: Motivation, leadership, communication, group and team. Control: Basic control.

REFERENCES:

1. Robbins, S.P. dan Coulter, M. (2002). *"Management." 7th edition.* New Jersey : Prentice Hall
2. Robbins, S.P. dan Decendo, D.A. (2001). *"Fundamental of Management: Essential, Concepts And Applications." 3rd edition.* New Jersey : Prentice Hall.
3. Malaysian Institute of Management (Ed.) (2003). " *Management In Malaysia." 2nd 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 2013 **SYSTEM ANALYSIS AND DESIGN**

PRE REQUISITE: **BIT 1033**
(PENGATURCARAAN KOMPUTER)

SYNOPSIS:

The goals for this course is to introduce students to system development methodology, focusing into system analysis and design in developing system with efficient and effective method. This course introduces students to Software Life Cycle Model such as analysis, logical design, physical design, implementation and maintenance. Technique and system development method such as decomposition diagram, ER diagram, DFD and modeling procedure. Moreover, student will be able to identify system analysis such as literature, economy, technical, skill and role in workgroup and automation role in analysis and designing the system.

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REFERENCES:

1. Dennis, A. et al (2003). *System Analysis Design.* London : John Wiley.
2. Jeffrey A Hoffer et. al. (2002). *System Analysis and Design*, New York : Prentice-Hall.
3. Kendall & Kendall. (2005). *System Analysis and Design, New York :* Prentice-Hall.
4. Sommerville, I. (2001). *Software Engineering.* New York : Addison Wesley.

BIT 2023 GRAPHIC PROGRAMMING

PRE REQUISITE: BIT 1033 (COMPUTER PROGRAMMING)

SYNOPSIS:

This course provides the students understanding on introduction to computer graphic, interactive graphic, basic algorithm two dimension graphic, vector based algorithm, object movement, object modeling and three dimensional graphic.

REFERENCES:

1. Hearn, D. & Baker, M.P. (1997). *Computer Graphic : C Version,*. New York : Prentice-Hall.
2. Burses, J (1993). *The Desktop Multimedia Bible,* New Zealand : Addison Wesley.
3. Foley, V.D., Feiner, H., Philips (1996). *An Introduction To Computer Graphics,* London : Addison Wesley.
4. Hill, F. S. (1990). *Computer Graphics,* London : Maxwell Macmillan International.

BIT 2033 COMPUTER ARCHITECTURE

SYNOPSIS:

This course provides the theory and practical knowledge about computer organization and the functions in a computer system. Topics covered in this course are Introduction to Computer Systems, Bus System, Memory Organization, Input/Output, Computer Arithmetic, Instruction Sets, Central Processing Unit (CPU) And Control Unit.

REFERENCES:

1. Stallings, W. (2006). Computer Organization and Architecture (7th Edition). New York : Prentice Hall.
2. Hayes, John P. (1997). Computer System Architecture and Organization,. Boston : McGraw-Hill.
3. Patterson, David A and Hennessy, John L. (2005). *Computer Organization and Design The Hardware/Software Interface,* New York : Elsevier.
4. Bartee, Thomas C. (1991) *Computer Architecture and Logis Design,* New Jersey : Mc Graw-Hill.

YEAR 2
SEMESTER II

UMS 1113 NATIONHOOD AND CURRENT DEVELOPMENT OF MALAYSIA

SYNOPSIS:

This subject discusses the basic concept, formation and development of Malaysia. It includes the Malay Sultanate of Malacca Empire, imperialism and colonialism, patriotism and nasionalisme and independence and formation of Malaysia. Besides that, it also mentioned the constitution and government of Malaysia system, and national development policy. Other than that, role and responsibilities of citizens are enforce upon besides the success and challenges of Malaysia.

REFERENCES:

1. 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.
2. Kassim Thukiman (2002). *"Malaysia: Perspektif Sejarah dan Politik."* Skudai: Penerbit Universiti Teknologi Malaysia.
3. Nazaruddin Mohd Jali, Ma'rof Redzuan, Asnarulkhadi Abu Samah dan Ismail Mohd Rashid (2005). *"Pengajian Malaysia."* Petaling Jaya: Prentice Hall.
4. Rohani Ab. Ghani (2002). *"Kenegaraan Malaysia: Isu-isu dan Perkembangan."* Bentong: PTS Publication and Distributors.

BPK 2062 ENTREPRENEURSHIP

SYNOPSIS :

Economy and business environment, types of rules and business support facilities entrepreneur and entrepreneurship, identifying techniques, explore and choose business opportunities, types, rules and business support facilities, business planning, small medium enterprise planning, marketing plan, operational plan, financial plan, issues in 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.

BIT 2043 OPERATING SYSTEMS

SYNOPSIS:

This course provides 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, (6th Edition).* London : Addison Wesley.
2. Stalling, W. (2005). *Operating Systems Internal and Design Principles, (5th Edition),* New York : Pearson Education International.
3. Davis & Rajkumar, (2005). *Operating System, (6th Edition).* New York : Pearson Education International.
4. Deitel, Deitel & Choffnes, (2004). *Operating Systems, (3rd Edition).* New York : Pearson Education International.

BIT 2063 OBJECT ORIENTED PROGRAMMING

PRE REQUISITE: BIT 1033 (COMPUTER PROGRAMMING)

SYNOPSIS:

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

REFERENCES:

1. Martin Kalin (2001). *Object Oriented Programming in JAVA*, New York : Prentice Hall.
2. P. Sellapan (1999). *Programming In Java*. Kuala Lumpur : Sejana Publishing.
3. Douglas Bell, Mike Parr (1999). *Java for Students.* New York Prentice Hall.
4. Deitel, H.M , Deitel, P.J. (2002). *JAVA How To Program*. New York : Prentice Hall.

BIT 2073 NETWORK AND DATA COMMUNICATION

SYNOPSIS:

This course provides 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 : CCNA 1 and 2 Companion Guide (Revised 3rd Edition)*. Cisco Press, (2004).
2. Forouzan, Behrouz A. (2004). *Data Communications and Networking (2nd Edition)*. New Jersey : McGraw-Hill.
3. Stallings, W. (2004). *Data and Computer Communications (7th Edition).* New York : Pearson Prentice-Hall.
4. Comer, D.E. (1997). *Computer Networks and Internets*, New York : Prentice-Hall

BIT 2083 DATABASE SYSTEM

SYNOPSIS:

Database concept: Introduction to file and file system, database approach, types of database, history of database management system and database models. Relational database model :History and data relational structure terminology, mathematical relation, database relation, relational attributes, relational keys, relational datavase schematic representation, relational integrity and relational language. Introduction to structured query language and its criteria. Concept and data modelling components. Table and normalisation. Database design: Techniques, model and strategy. Database technology: Network and web integration with database.

REFERENCES:

1. Robb, P., Coronel, C. (1997). *"Database System : Design Implementation and Management"*. International Thomson Publishing Company ITP.
2. Atzemi, P., Para Boschi, S., Torlon, R. (1999). *"Database System : Concept, Language and Architectures".* New York : Mc Graw Hill.
3. Connoly, 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.

YEAR 2
SEMESTER III

BIT 1053 CYBER ENTREPRENEURSHIP

SYNOPSIS:

Business environment changes in line with the progress, development and wide usage of information technology and communication. In this course, students are exposed to the basic knowledge of cyber entrepreneurship including definition, concept and related issues. Students are exposed to operational processes, financing and product marketing.

REFERENCES:

1. Amat Taap et al. (2001). *"Introduction to Cyberpreneurship"*. New York : McGraw-Hill.
2. Peggy A. Lambing. (1999). *"Entrepreneurship".2nd Edition*. New Jersey : Prentice Hall.
3. David Carson, Stanley Cromie & Pauric McGowan. *"Marketing and Entrepreurship in SME's: An Innovative Approach". 1st Edition.* New York : Prentice Hall.
4. Donald E Vaugh. (1997). *"Financial Planning for the Entrepreneur".1st Edition.* New York : Prentice Hall.

BIT 3103 INFORMATION TECHNOLOGY APPLICATION

SYNOPSIS:

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

REFERENCES:

None

YEAR 3

YEAR 3
SEMESTER I

BPK 3072 WORK AND ENVIRONMENT SAFETY

SYNOPSIS:

This course will exposed the students to various issues in managing the work safety and health. Among topics covered are The Development of management of work safety and health, Ethics and Safety, Introduction to Work and Environment Safety, Work and Environment Safety Laws (Act 514, OSHA 1994), Accident and it Effects, Loss Avoidance Principles and Management Control, Work Safety Risks Management, Planning and Accidents Preparedness, Work Safety, Workers' Compensation, Worker Accidents Investigation System, Work 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 3383 JAVA PROGRAMMING

SYNOPSIS:

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, 6th Edition.* New York; Prentice Hall.
2. Deitel, I & Deitel J. (2007). *Java How to Program, 7th Edition.* New York; Prentice Hall.
3. Lewis J. & Loftus W. (2007). *Java Software Solution; Foundations of Program Design, 5th Edition.* New York; Prentice Hall.
4. Sanders K.E & Dam A. V. (2006). *Object-Oriented Programming in Java; A Graphical Approach, Preliminary Edition*; Harlow Addison-Wesley.

BIT 3343 PROJECT RESEARCH METHODOLOGY

PRE REQUISITE: BIT 1413 (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. Dawson, C.W (2005). *Projects in Computing and Information System; A Student's Guide.* Singapore; Pearson Education Limited.
2. Cornford, T. & Smithson, S. (1996). *Project research in information systems:* A student's guide. London: Macmillan.
3. Sekaran, U. (20003). *Research methods for business: A skill-building approach. Fourth edition.* Singapore: John Wiley.
4. Galliers, R. D. (1992). *Choosing information systems research approaches in information systems research:* Issues, methods and practical guidelines, Robert Galliers (Ed). Oxford: Blackwell Scientific Publications.

BIT ***3 Elective 1

BIT ***3 Elective 2

BIT ***3 Elective 3

YEAR 3
SEMESTER II

BIT 3353 DEGREE PROJECT

SYNOPSIS:

Students implements the methodology and capable of implementing the project successfully. They also have to produce and present their final product with complete documentation at each project development phase.

REFERENCES:

1. Field M. Keller, *"Project Management",* Lib London International Thompson Business Press, 1998.
2. Gido, J. Clements, J.P, *"Successful Project Management",* Ohio, International Thompson Business Press Spineer, M.P., 1999.
3. Jack R. Meredith, *"Project Management A Managerial Approach",* John Wiley & Sons Ins., U.S., 2000

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

BIT ***3 Elective 4
BIT ***3 Elective 5
BIT ***3 Elective 6

ELECTIVE SUBJECTS

ELECTIVES FOR SOFTWARE ENGINEERING

BIT 3113 SOFTWARE QUALITY ASSURANCE

SYNOPSIS:

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

REFERENCES:

1. Galin, D. (2004). *Software Quality Assurance : From Theory to Implementation.* 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 Second Edition.* Boston;Artech House.
4. Daughtrey, T. (2002). *Fundamental Concepts for the Software Quality Engineer.* Milwaukee; ASQ Quality Press.

BIT 3133 COMPUTER SECURITY

PRE REQUISITE: BIT 2073 (NETWORK AND DATA COMMUNICATION)

SYNOPSIS:

This course emphasizes on introduction to computer security, objective, ethic, threat and computer security. Physical protection: software and hardware security control, access control, encryption and cryptography techniques. Computer security development: security model, computer security authentication. Network and telecommunication security: threats, security services, database security, defend method, computer security design.

REFERENCES:

1. Fleeger, Charles P. (1997). *Security in Computing, Second Edition.* 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.

BIT 3143 REQUIREMENT ANALYSIS AND SOFTWARE SPESIFICATION

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",* New York : 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, Second Edition",* New Jersey : Prentice Hall PTR.

BIT 3123 LANGUAGE PROCESSING TECHNIQUE

SYNOPSIS:

This course introduces on 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. Kenneth C, (1997). *" Compiler Construction* : Principles And Practice", London : Pws Publishing Company.
2. Sebesta R. W., (1996). *"Concepts Of Programming Languages",* Toronto : Addison Wesley,
3. Ravi Sethi, (1996) *"Programming Languages-Concept And Constructs",* Toronto : Addison Wesley,.
4. Fischer A.E., (1993) *"The Anatomy Of Programming Languages",* New York : Prentice Hall,.

BIT 3153 WEB PROGRAMMING

SYNOPSIS:

This course introduces on three tier programming architecture, advantages and disadvantages of two tier programming architecture, 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. Welling, L. and Thompson, L. (2005). *PHP and MySQL Web Development,* Sixth Edition, Indiana : Developer's Library.
2. Harvey M. Deitel, Paul J. Deitel, Tem R. Nieto (2002). *Internet and World Wide Web : How to Program* (2nd Edition*)*, New Jersey : Prentice-Hall.
3. Hilton, C. and Willis, J. (2000). *Building Database Applications on the Web Using PhP 3,* Massachusetts : Addison Wesley
4. Turban, E. (2004). *Electronic Commerce : A Managerial Perspective,* Third Edition, New Jersey : Prentice-Hall.

BIT 3173 ALGORITHM ANALYSIS

PRE REQUISITE: BIT 1073
(DATA STRUCTURE AND ALGORITHM)

SYNOPSIS:

This course introduces on introduction to algorithm analysis and design, function improvement, recursive equivalent, divide and concur algorithm, graph algorithm and complexity calculation.

REFERENCES:

1. Johnsonbaugh, R. and Sohaefer, M. (2004). *Algorithms*, New Jersey : Pearson Education Inc.
2. Cormen, Thomas H. et. al (2001). *Introduction to Algorithms (2nd Edition)*. Massachussets : McGraw-Hall.
3. Goodrich, Michael T. and Tammassia, Roberto (2002). *Algorithm Design-Foundation, Analysis and Internet Examples*, New York : John Wiley & Sons,Inc.
4. Hanly, R.J. and Koffman, B.E (2003). *Problem Solving and Program Design in C,.* Singapura : McGraw-Hill.

ELECTIVES FOR INFORMATION SYSTEM

BIT 3033 DECISION SUPPORT SYSTEM

SYNOPSIS:

Introduction to Decision Support System, Data and Model Management, Decision Making, Decision Making Process, Decision Making Modeling, Decision Support System Design and Development, User Interface Component, Decision Support System Integration and Implementation, Group Decision Support System.

REFERENCES:

1. George M. Marakas (2004). *Decision Support System in the 21st Century*, New York : Prentice Hall.
2. Efraim, T. and Jay, E. Aronson, (2001). *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. Efrem G. Mallach. (2000). *Decision Support and Data Warehouse Systems*. New York : McGraw Hill.

BIT 3043 PROJECT MANAGEMENT

PRE REQUISITE: BIT 2013 (SYSTEM ANALYSIS AND DESIGN)

SYNOPSIS:

Introduction, 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. Schwalbe, K. (2002). *Information Technology Project Management.(2nd Edition).* New York : Course Technology.
2. Philips, J. (2002). *IT Project Management on Track from Start to Finish*. New jersey ; McGraw Hill, Osborne.
3. Marchewka, J.T. (2003). *Information Technology Project Management: Providing Measurable Organizational Value.* Hoboken, New Jersey : Wiley.
4. Henry, J. (2004). *Software Project Management: A Real World Guide to Success*. London : Addison Wesley.

BIT 3053 ENTERPRISE RESOURCE PLANNING (ERP)

SYNOPSIS:

Background and Introduction, ERP System, ERP Life Cycle, Marketing Information System and Sales Order Process, Manufacturing and Information Management System, Accounting and Finance, E-Commerce and Risk.

REFERENCES:

1. Joseph B., Ellen F. M., Bret J. Wagner. (2001). *Concepts in Enterprise Resource Planning (1st Edition).* Boston : Thomson Learning.
2. Daniel E. O'Leary. (2000). *Enterprise Resource Planning: Systems, Life Cycle, Electronic Commerce and Risk.* Cambridge : Cambridge University Press.
3. Brian J. Carroll. (2002). *Lean Performance ERP Project Management: Implementing The Virtual Supply Chain.* St. Lucie Press.
4. Robert B. Handfield, Ernest L. Nichols, Jr. (1999). *Introduction to Supply Chain Management.* New York : Prentice Hall.

BIT 3063 CUSTOMER RELATIONSHIP MANAGEMENT

SYNOPSIS:

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 (2nd Edition)*. New York ; McGraw-Hill.
3. Buttle F., (2004). *Customer Relationship Management concept an tools.* New York : Elsevier.

BIT 3073 DIGITAL LIBRARY

SYNOPSIS:

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

REFERENCES:

1. Beschloss, M.R, (1996). *The Digital Libraries In Our Future : Perils And Promise,* Washington : Northwestern University.
2. Bharat K.B. Ed, (1997). *Digital Libraries : Researched Anf Technology Advances.* Berlin : Springer-Verlag.
3. Lesk M. (1997). *Practical Digital Libraries : Books, Bytes and Bucks,* San Francisco : Moragn Kauftmann.
4. Pastine M., *Collection Development : Access Virtual Library,* New York : Howorth Press

BIT 3083 MANAGEMENT INFORMATION SYSTEM

SYNOPSIS:

Introduction to Management Information System, 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. Gerald V. Post & David L. Anderson. (2003). *Management Information Systems : Solving Business Problems with Information Technology.* New York : McGraw-Hill.
2. Effy O. (2002). *Management Information Systems.* New Jersey : Course Technology.
3. Kenneth C. Laudon & Jane P. Laudon (2004). *Management Information System : Managing the Digital Firm,* 8th Edition. New York : McGraw-Hill.
4. James A. O, Brien. (2004) *Management Information System : Managing Information Technology in the Business Enterprise,* Boston : McGraw-Hill.

BIT 3093 BUSINESS DATA PROCESSING

SYNOPSIS:

Introduction to 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 3363 DATA MINING

SYNOPSIS:

Introduction to Data Mining, History and Evolution of Data Mining, Data Mining Concept, Data Mining Technique, Classification, Clustering, Association Rules, Web Mining, Data Mining Application.

REFERENCES:

1. Dunham, M.H. (2003). *Data Mining – Introductory and Advanced Topics.* New Jersey : Prentice Hall.
2. Roiger R. J. and Geatz M. W (2003). *Data Mining : A Tutorial-Based Primer.* United State of America : Addison Wesley
3. Witten, I.A. and Frank, E. (2000). *Data Mining - Practical Machine Learning Tools and Techniques with Java Implementations.* San Francisco : Morgan Kaufmann.
4. Groth, R. (2000). *Data Mining – Building Competitive Advantage.* New Jersey : Prentice-Hall.

BIT 3373 FUZZY SYSTEM DEVELOPMENT

SYNOPSIS:

Introduction to Fuzzy Logic Theory, Fuzzy Logic Design, Fuzzification Method, Fuzzy Inference, Fuzzy System Application.

REFERENCES:

1. Karray, F.O dan Silva, C.W., (2005). *Soft Computing and Intelligent Systems Design: Theory, Tools and Applications*, Addison-Wesley.
2. Negnevitsky, M. (2002). *Artificial Intelligence: A Guide to Intelligent Systems", Addison-Wesley Harlow*, England.
3. Riza C. Berkan, Shaldon L. Trubatch. (1997). *Fuzzy Systems Design Principles: Building Fuzzy IF-THEN Rule Bases,* Piscataway, New Jersey, IEEE Press.
4. Chen, G., dan Pham T.T., (2001). *Introduction To Fuzzy Sets, Fuzzy Logic, And Fuzzy Control Systems*, Boca Raton, FL: CRC Press.

BIT 2093 ARTIFICIAL INTELLIGENCE

SYNOPSIS:

Introduction, 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, 3rd Edition*. London : Addison Wesley.
2. Moss, C. (1994). *PROLOG ++ : The Power of Object Oriented and Logic Programming,.* London : Addison-Wesley.
3. Rich, E. and Knight, K. (1991). *Artificial Intelligence, 2nd Edition*. New York : Mc Graw-Hill.
4. Turban, E. and Aronson, J. (1998). *Decision Support Systems and Intelligent Systems.* Boston : Prentice-Hall.

BIT 3163 HUMAN MACHINE INTERFACE

SYNOPSIS:

Introduction to User Interface, Interface Design Guideline, Dialog Document Design, Windows Form Design Guideline, Web Page Dialog Design.

REFERENCES:

1. Bass, L (1991). *Developing User Interfaces*. Addison-Wesley.
2. Eberts, R.E (1994). *User Interface Design.* Prentice-Hall.
3. Preece, J, et. Al (1994). *Human-Computer Interaction*. Addison-Wesley.
4. Barfield, L (1993). *The User Interface : Concepts & Design.* Addison-Wesley.

ELECTIVES FOR NETWORK

BIT 3263 NETWORK OPERATING SYSTEM

PRE REQUISITE: BIT 2073 (NETWORK AND DATA COMMUNICATION)

SYNOPSIS:

This course introduces on network operating system, client server, network user and group, network services, network security, authentication, access authorization.

REFERENCES:

1. Minasi, Mark et. al. (2003). *Mastering Windows Server 2003.* Canada : Sibex International.
2. King, Robert R., (2003). *Mastering Active Directory for Windows Server 2000,* Canada : Sibex International.
3. Nowshadi, Farshad, (1999). *Managing Windows NT/Netware Intergration,.* Boston : Addison Wesley
4. Simpson, Ted L. (1997). *Network Administrator : Netware 4.1 with coverage of Intranetware 4.11,.* London : Course Technology.

BIT 3273 DISTRIBUTED SYSTEM

SYNOPSIS:

This course introduces on type 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. Coulouris, Dollimore & Kindberg, (2001). *Distributed Systems,* New Jersey : Addison-Wesley.
2. S. Tanenbaum, Andrew & van Steen, Maarten, (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 Distrubuted Systems,* New York : Wiley.

BIT 3283 CLIENT SERVER PROGRAMMING

PRE REQUISITE: BIT 1033 (COMPUTER PROGRAMMING)

SYNOPSIS:

This course introduces on introduction to client server and operating system. Middleware: stack and network operating system, database. Client-server distributed object. Client-server transaction processing, client-server and internet environment. Distributed system management. Client-server application development.

REFERENCES:

1. Orfali, Robert and Harkey, Dan. (1999). *Client/Server Survival Guide, (3rd Edition).* New York : Wiley.
2. Linthicum, D.S. (1997). *David Linthicum's guide to Client / Server and Intranet Development.* New York : Wiley.
3. Farley, Jim. (1998). Java : *Distributed Computing. Sebastopol.* Boston : O'reilly.
4. Hart, J. M. and Rosenberg, Barry. (1995). *Client-Server Computing for Technical Professionals : Concepts and Solutions.* Massachusetts. Addison-Wesley.

BIT 3293 HIGH SPEED NETWORK

PRE REQUISITE: BIT 2073 (NETWORK AND DATA COMMUNICATION)

SYNOPSIS:

This course introduces on network technologies. Internetwork hardware. LAN and WAN technologies, network cabling.

RUJUKAN:

1. Tannenbaum. (2000). *Network Technology.* New York : CISCO Press.
2. Charles P Pfleeger (2001). *Internetworking Technology Handbook.* New York : Cisco Press.
3. Dean, Tamara (2002). *Network + Guide to Networks (2nd Edition)*. New York. Course Technology.
4. Hallberg Bruce (2001). *Networking : A beginner's Guide*. New York. Osborn.

BIT 3303 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. Oppenheimer, Priscilla (1999). *Top Down Network Design,* Indiana : Macmillan Technical Publishing.
2. Netprep. (2000). *Course :* Network Design*. (1st Edition)* Indiana : WestNet Learning Technology.
3. Kane, John et al. (2001). *Internetworking Technology Handbook.* New York : CISCO Press.
4. Dean, Tamara. (2002). *Network+ Guide to Networks, (2nd Edition).* Canada : Thompson Learning.

BIT 3323 NETWORK SECURITY

PRE REQUISITE: BIT 2073 (NETWORK AND DATA COMMUNICATION)

SYNOPSIS:

This course introduces on introduction to network security, attack: malware, DoS, reconnaisance, scanning, gaining access, maintaining access, cover tracks, and improvement for future network security.

REFERENCES:

1. Skoudis, E. (2006) *Counter Hack Reloaded,* Second Edition. New Jersey : Prentice Hall.
2. Eastomm, C. (2006). *Computer Security Fundamentals,* New Jersey : Prentice-Hall.
3. Kaufman, Charlie, Perlman, Radia, Speciner, Mike (2002) *Network Security: Private Communication in a Public World*, *(2nd Edition),* New York : Prentice Hall.
4. Anderson, R. (2001). *Security Engineering : A guide to building dependable distributed systems, (1st Edition)*. Toronto : Wiley Computer Publishing.

BIT 3333 REAL TIME SYSTEM

SYNOPSIS:

This course introduces on 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. dan Wellings, A. (2001). *Real Time Systemand 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 dan Shin, K.G. (1997). *Real-Time System,* London : Mc Graw Hill

ELECTIVES FOR MULTIMEDIA

BIT 3183 MULTIMEDIA AUTHORING

PRE REQUISITE: BIT 1043 (INTRODUCTION TO MULTIMEDIA)

SYNOPSIS:

Introduction to Multimedia Authoring, Multimedia Authoring Processes, Multimedia Content Designing, Authoring Package and Selection, Web Page Authoring.

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 (1998). *The Desktop Multimedia Bible,* London : Addison Wesley.
4. Hillman, D (1998). *Multimedia Technology and Applications,* London : Delmer Publisher.

BIT 3193 MULTIMEDIA DATABASE

PRA SYARAT: BIT 2083 (DATABASE SYSTEM)

SYNOPSIS:

Introduction to Multimedia Database, Multimedia Storage and Retrieval, Multimedia Information Design, Multimedia Database Query, Multimedia Database Management System Architecture.

REFERENCES:

1. Prabakaran, B (1997). *Multimedia Database Management Systems,* London : Kluwer Academic Publishers.
2. Furht,B. *Handbook of Multimedia Computing,* Washington : CRC Press.
3. Chang H.J. and Chang (1996). *Temporal Modelling and Intermedia Synchronization for Presentation of Multimedia,* London : Kluwer Academic Publishers.
4. Kim, W (1995). *Modern Database Systems.* Boston : Addison-Wesley.

BIT 3203 MULTIMEDIA PROJECT MANAGEMENT

SYNOPSIS:

Introduction to Multimedia Project Management, Introduction to Project Life Cycle, Multimedia Project Foundation, Multimedia Project, Multimedia Development Process.

REFERENCES:

1. Casanova, J.V. & Molina, L. (1997). *Multimedia: Production, Planning and Delivery*, USA: Miamidade 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 and Service Center (1996). *Dale Carnage Tips For Success.*

BIT 3213 **GRAPHICS TECHNOLOGY AND 3 DIMENSIONAL ANIMATIONS**

PRE REQUISITE: **BIT 1043 (INTRODUCTION TO MULTIMEDIA)**

SYNOPSIS:

Introduction to 3 Dimensional Animations, Basic Principle of 3D Graphics, Modeling Basics, Advanced Modeling, Low-Poly Modeling, Image/Texture Mapping, Object Lighting, Camera Usage, 3D Object Animation, Output and Rendering, 3D Animation Film Production.

REFERENCES:

1. Lab. C. & Keller. K, (1997). *Multimedia Animation, (2nd Edition)*. London :Macmillan Computer Publishing.
2. Backer R.M, (1998). *Picture Driven Animation,* Canada : Montvale Inc.
3. Casanova, J.V. & Elias, L.F., (1997). *Multimedia Graphics,* London : Macmillan Computer Publishing.
4. Casanova, J.V. & Molina, L (1997). *An Interactive Guide to Multimedia,* Boston : Miamidade Community College.
5. Steinmetz, & Nashrstedt (1997). *Multimedia: Computing, Communications and Applications,* New York: Prentice Hall International Inc.

BIT 3233 AUDIO AND VIDEO PRODUCTION

PRE REQUISITE: BIT 1043 (INTRODUCTION TO MULTIMEDIA)

SYNOPSIS:

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.Henry B. Aldrige & Lucy A. Ligget(1990). Audio/Video Production: Theory and Practice, New York: Prentice Hall.
4. Leathers, D (2003). *Pro Tools Bible*: *The Complete Digital Music Production Reference (Digital Video/Audio),* New York: McGraw-Hill.

BIT 3243 MULTIMEDIA EXPERT SYSTEM

PRE REQUISITE: BIT 1043 (INTRODUCTION TO MULTIMEDIA)

SYNOPSIS:

Introduction to Expert System, Knowledge Representation, Expert System Development, Multimedia Environment, Current Multimedia Expert System.

REFERENCES:

1. Stuart, R. And 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. and Caglayan. (1997). *Agent Sourcebook: A Complete Guide to Desktop Internet, and Internet Agents*, Boston: John Wiley and Sons.
4. Jennings, N.R. and Woolridge, M.J. (1998). *Agent Technology Foundations, Applications and Markets,* Canada: Spriner-Verlag.

BIT 3253 VIRTUAL REALITY

PRA SYARAT: BIT 2023 (GRAPHICS PROGRAMMING)

SYNOPSIS:

Introduction to Virtual Reality, Virtual Reality System, Virtual Reality Hardware, Virtual Reality Software, 3D Computer Graphics, Geometrics Transformations, Animating Virtual Reality, Human Factors, Physical 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.
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YEAR 4

YEAR 4
SEMESTER I

BIT 4019 INDUSTRIAL TRAINING

SYNOPSIS:

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

REFERENCE:

None