Universiti Tun Hussein Onn Malaysia
86400 Batu Pahat, Johor

Academic Proforma 2012/2013

Bachelor of Aeronautical Engineering Technology (Aircraft Maintenance) with Honours
Faculty of Mechanical and Manufacturing Engineering

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Universiti Tun Hussein Onn Malaysia
August 2012

Contents

Welcoming Address from the Vice Chancellor

Assalammualaikum Warahmatullahi Wabarakatuh and Warm Greetings

I would like to take this opportunity to welcome the new students of Academic Session 2012/2013 to Universiti Tun Hussein Onn Malaysia (UTHM). Thank you for your interest in pursuing further studies for a success and better life. You should be thankful for being fortunate in comparison to other friends whom do not have the chance to continue their studies in an institution of higher learning. Therefore, utilize this good opportunity to instill the spirit and will power in pursuing knowledge for the success and prosperity of oneself, family, religion, race and the Nation.

UTHM is determined to be one of the well-known higher learning institutions in the Nation and and worldwide. Having well-planned academic system whilst supported with the latest and modern teaching and learning facilities, UTHM is capable of producing excellent graduates to meet the needs of national workforce.

As one of the Public Higher Learning Institutions in the country, UTHM offers a variety of academic programmes at Diploma, Bachelor, Master and Doctorate levels. UTHM is the best choice for science, technology and engineering courses. UTHM also offers courses in the fields of technology management, information technology, and technical and vocational education. The academic programmes of UTHM focus on student-centered hands-on aspect to ensure that the knowledge and skills acquired can be readily applied especially in national industries. High quality co-curricular programmes will provide you the opportunity to strengthen on your honorable personality and competence.

I put my trust that you will become a member of the University that will continue the excellent tradition of the University in becoming graduates whom are capable in applying and translating the science, engineering and technology knowledge in accordance with the national needs.

Wishing You Success

Professor Dato' Dr. Mohd Noh bin Dalimin
Vice Chancellor
Universiti Tun Hussein Onn Malaysia

Welcoming Address from the Deputy of Vice Chancellor (Academic and International)

Assalammualaikum Warahmatullahi Wabarakatuh and Warm Greetings

I would like to take this opportunity to express my warmest congratulations and well done to you as the new students whom have successfully been selected to pursue studies at Universiti Tun Hussein Onn Malaysia for this 2012/2013 session.

I would also like to congratulate the Centre for Academic Development for successfully publishing the proforma which will serve as the students guide in planning the learning beginning the first semester till the completion of studies at this University.

Detailed planning and effective implementation in each semester coupled with preparedness before attending the lectures are very important to ensure you are prepared for the learning process. In addition, preparedness for the co-curricular programmes also is important to ensure that the knowledge gained is beneficial and helps in upholding your profession in the future.

I hope the publication of this proforma can be fully utilised in planning for your learning in this University and you are able to make the best decision in achieving success with flying colours.

Last but not least, I would like to wish All the Best and pray that you will be successful in your studies at this University and thus be able to contribute towards talented human capital for the development of the religion, society and Nation.

Thank you.

Profesor Ir. Dr. Abdul Aziz bin Dato' Abdul Samad
Deputy of Vice Chancellor (Academic and International)
Universiti Tun Hussein Onn Malaysia

Welcoming Address from the Dean of Faculty of Mechanical and Manufacturing Engineering

Assalamualaikum Warahmatullahi Wabarakatuh and Warm Greetings

I would like to express my congratulations to you as a new member of the Faculty of Mechanical and Manufacturing Engineering (FKMP), UTHM for the 2012/2013 academic session. You are fortunate to be chosen among other applicants who have applied to the University. In fact, you already are a student of this University, compared with many other friends who are still looking for opportunity to further their study. Thus, you should be aware that this is an honour that should not be taken for granted. This is an opportunity in extending the efforts that require undivided attention for student to seek knowledge and be the best.

In line with the University's mission to produce and train professionals and technologists with competitive and noble attitude, students will be guided by professional and dedicated lecturers. Programmes offered by FKMP will satisfy the core of mechanical and manufacturing engineering by focusing on specific areas such as mechanical, plant and automotive, manufacturing and industrial, material and design, and mechanical technology engineering as well as aeronautical engineering technology. To enhance students' understanding and creativity, Faculty's laboratories are equipped with the latest technology equipments and well trained technicians. Students will also undergo practical work in the field related to the needs of industry.

Therefore, students should take this opportunity to work hard to fulfill the expectation from parents, industry and nation. Systematic study planning together with careful preparation during the study will produce excellent graduates.

Thank you.

Associate Professor Dr. Yusri bin Yusof
Dean, Faculty of Mechanical and Manufacturing Engineering
Universiti Tun Hussein Onn Malaysia

Vision

Towards a world class university in engineering, science and technology for sustainable development

Mission

UTHM is committed to generate and disseminate knowledge, to meet the needs of industry and community and nurturing creative and innovative human capital, based on tauhidic paradigm

Education Philosophy of University

The education and training in this university is a continuous effort to lead in the market oriented academic programmes. These programmes are student-focused and are conducted through experiential learning in order to produce well trained human resource and professionals who are catalysts for a sustainable development

Logo of the University

Logo of Universiti Tun Hussein Onn Malaysia (UTHM) is the pride, identity and idealism of the members of UTHM community. UTHM logo displays a Proton, Book, Tiered Mortar Board, Book Rest and Shield.

The whole concept of the logo symbolises UTHM as an Institution of Higher Learning which supports the growth and development of knowledge at all levels in fields of Science and Technology.

Blue represents a close-knit circle of members of UTHM community which ensures the success and enhancement of its educational and research programmes and activities for the benefits of mankind.

Red symbolises the courage of UTHM in the exploration of new fields as the pioneer in science and technology applications, which reflects the spirit and self-esteem of the members of UTHM community.

Symbolism

Red	Courage
Blue	Co-operation/Loyalty
Silver	Quality/Prestige
Book Rest	Repository of knowledge
Proton	Science and technology
Book	Knowledge
Mortar board	Levels of study
Circle	Resilience and its relation to global characteristics
Shield	Confidence

University Board of Directors

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Tan Sri Dato' (Dr.) Ir. Jamilus bin Md Hussin
Chairman
KLIA Premier Holdings Sdn. Bhd.

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Vice-Chancellor
Universiti Tun Hussein Onn Malaysia

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Executive Chairman
TRC Synergy Berhad

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Managing Director
TALHIS-K Sdn. Bhd.

Dato' Abd. Shukor bin Ibrahim
Project Manager
e-Procurement Unit
Ministry of Finance Malaysia

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Ministry of Higher Education

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Director
Department of Skills Development
Ministry of Human Resources Malaysia

Professor Ir. Dr. Hj. Abas bin Abdul Wahab
Professor Faculty of Mechanical and Manufacturing Engineering,
Universiti Tun Hussein Onn Malaysia

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Division of Student Affair and Development
Ministry of Higher Education Malaysia

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Dean Faculty of Electrical and Electronic Engineering

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Dean Faculty of Mechanical and Manufacturing Engineering

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Acting Dean Faculty of Technical and Vocational Education

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Dean Faculty of Computer Science and Information Technology

Associate Professor Dr. Azme bin Khamis
Dean Faculty of Science, Technology and Human Development

Associate Professor Dr. Ishak bin Baba
Dean Faculty of Engineering Technology

Professor Ab. Aziz bin Abd. Latiff
Dean Centre for Diploma Studies

Dr. Sh Salleh bin Sh Ahmad
Dean Centre for Academic Development

Associate Professor Hj. Kamarudin bin Khalid
Director Centre for Co-Curriculum and Culture

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Faculty of Civil and Environmental Engineering

Professor Dr. Mohammad Zarar bin Mohamed Jenu
Faculty of Electrical and Electronic Engineering

Professor Hj. Mohd. Imran bin Hj. Ghazali
Faculty of Mechanical and Manufacturing Engineering

Professor Ir. Dr. Saparudin bin Ariffin
Faculty of Mechanical and Manufacturing Engineering

Professor Ir. Dr. Hj. Abas bin Ab Wahab
Faculty of Mechanical and Manufacturing Engineering

Professor Dr. Hj. Sulaiman bin Yamin
Faculty of Technical and Vocational Education

Professor Dr. Wan Mohd Rashid bin Wan Ahmad
Faculty of Technical and Vocational Education

Professor Dr. Hj. Mustafa bin Mat Deris
Faculty of Computer Science and Information Technology

Professor Dr. Noraini binti Kaprawi
Director Strategic and Quality Management Office

Associate Professor Dr. Abd Halid bin Abdullah
Director Development and Property Management Office

Pn. Azizah binti Nasri
Acting Bursar

En. Bharun Narosid bin Mat Zin
Chief Librarian

Tn. Hj. Sulam bin Hamid
Registrar / Secretary

Faculty Visiting Professors

Professor Ir. Dr. Hj. Wan Ramli bin Wan Daud
Faculty of Engineering and Built Environment
Universiti Kebangsaan Malaysia
Selangor, Malaysia

Faculty External Examiner

Professor Ir. Dr. Hj. Abdul Rahman bin Omar
Faculty of Mechanical Engineering
Universiti Teknologi MARA
Shah Alam, Selangor, Malaysia

Faculty Industrial Advisors

Dr. Samad Solbai
President/CEO
Pt Gunanusa Utama Fabricators
Jakarta, Indonesia

Dr. Abdul Kadir bin Masrom
General Manager
Industrial Nano Technology Research Centre
SIRIM
Kulim Hi Tech Park, Kedah

En. Abdul Razak bin Omar
Mechanical Manager
Broadtec TV R&D Centre Sdn. Bhd.
Pasir Gudang, Johor

En. Shaharizal bin Arif Fadilla
Manager
Asian Composites Manufacturing Sdn. Bhd.
Lot 224, Bukit Kayu Hitam Industrial Estate
Bukit Kayu Hitam, Kedah

Tn. Hj. Khadmudin bin Hj. Mohd. Rafik
Managing Director
Maple Tricot Industries Sdn. Bhd.
Batu Pahat, Johor

Faculty of Mechanical and Manufacturing Engineering

Faculty of Mechanical and Manufacturing Engineering (FKMP), Universiti Tun Hussein Onn Malaysia (UTHM) was established on 1 May 2004 during the restructuring of Faculty of Engineering and Faculty of Technology Engineering. FKMP vision is to lead the application of science and technology in mechanical and manufacturing engineering for universal prosperity. Meanwhile, the mission of FKMP is producing and train responsible, competent, creative and innovative professionals in the field of Mechanical and Manufacturing Engineering through world-class academic programmes. The aims of FKMP are to provide competitive academic programmes to produce technologists and professionals for national and global needs, to be a centre for reference, research and consultation through smart partnership with industries and stakeholders, and to nurture life-long learning as a culture among graduates, staff and the society.

The faculty is always aware of the current technology development to fulfill the requirements of the Board of Engineers Malaysia (BEM) and Institute of Engineers Malaysia (IEM). The academic programme offered by FKMP is monitored and advised by the external examiner and advisor from local and overseas. The programmes are approved and recognized by the Public Service Department of Malaysia (JPA).

The management of the faculty is led by a Dean, two (2) Deputy Dean and six (6) department heads. FKMP organization chart is shown in Figure 1.

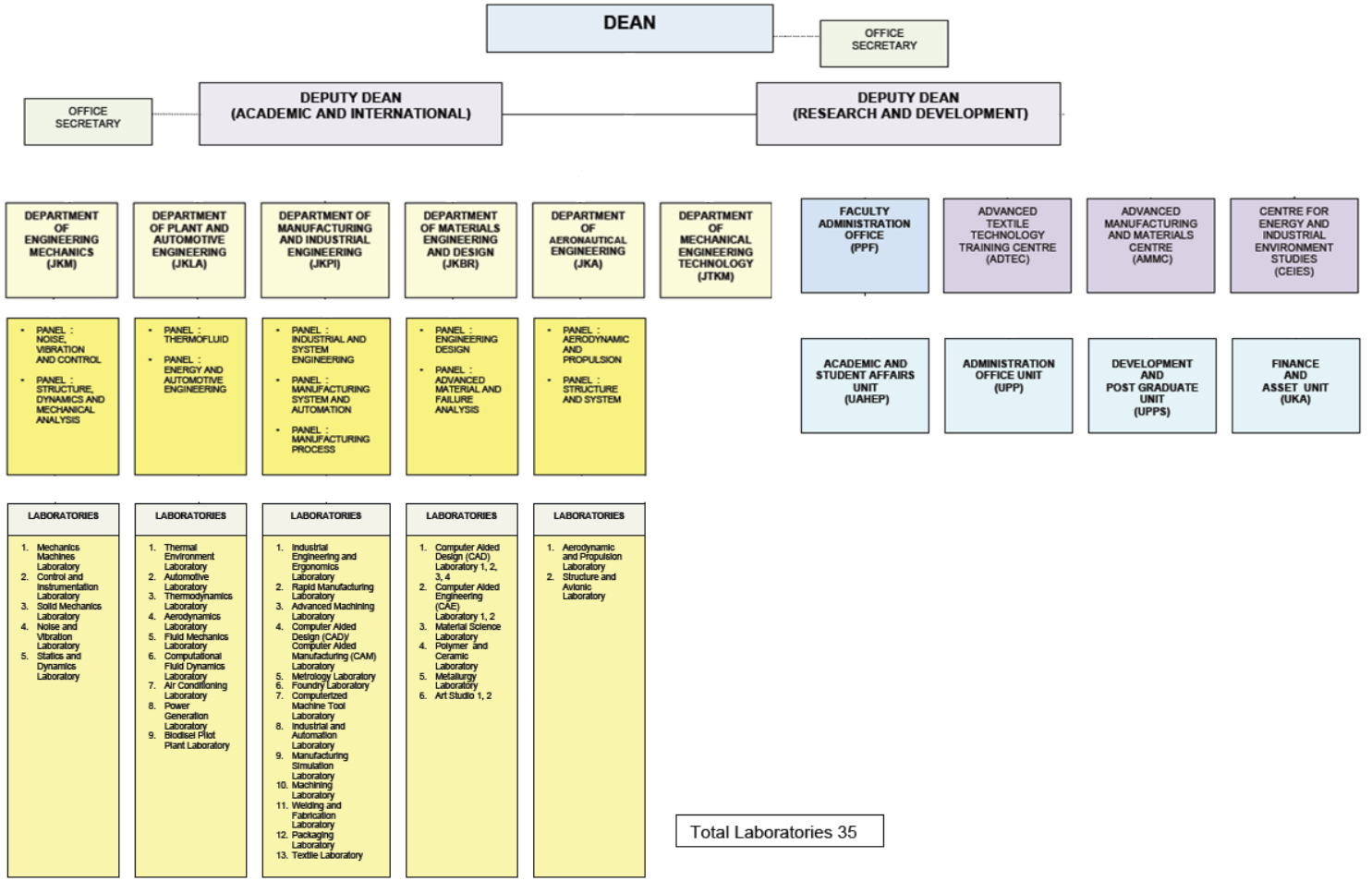

Figure 1: Organisation chart of Faculty of Mechanical and Manufacturing Engineering

Directory of Faculty of Mechanical and Manufacturing Engineering Staff

Administration

Dean
Assoc. Prof. Dr. Yusri bin Yusof
Ph.D (Manufacturing Eng.) (Loughborough Univ., UK), MSc. (Mech. Eng.) (UTM), Dip. Ed. (UTM/ITTHO), BSc. (Hons) (Mech. Eng.) (UTM/ITTHO)

Deputy Dean (Research and Development)
Dr. Ahmad Jais bin Alimin
Ph.D (Automotive Emissions) (Coventry Univ.), MEng. (Mech. Eng.) (UTM), BEng. (Mech. Eng.) (Imperial College London)

Deputy Dean (Academic and International)
Dr. Shahruddin bin Mahzan @ Mohd Zin
Ph.D (Mech. Eng.) (Univ. Sheffield), BEng. (Hons) (Mech. & Material) (UKM)

Office Secretary
Pn. Zarina binti Atan
Pn. Nurulhuda binti Abdul Latip
Dip. (Office Mgmt. & Technology) (UiTM)

Senior Assistant Registrar
Pn. Hazifa Hani binti Ramli
Bachelor (UM)

Assistant Registrar (Academic & Student Affairs)
Pn. Fazrina binti Mohd Masrom
BEng. (Chemical) (UTM)

Senior Administrative Officer Assistant (Academic & Student Affairs)
En. Zuikarnain bin Daud

Assistant Information Technology Officer
En. Noor Nasriq bin Selamat
Dip. (Information Technology) (Kolej Polytech MARA)

Administrative Assistant (Finance & Asset)
En. Fatahullah bin Bachok
Dip. (Architect Technology) (UTM)

Senior Administrative Officer (Development & Graduate Studies)
En. Mohd Izham bin Ramli
Dip. (Hotel Management) (UTM)

Head Administrative Assistant (Office Administration)
Pn. Halimah Jan binti Fakir
STPM Science

Accountant Assistant (Finance & Asset)
Pn. Nurhuda binti Abdul Samad
SPM Accounting

Administrative Assistant (Development & Graduate Studies Unit)
Pn. Azlin binti Masah
SPM Sastera

Administrative Assistant (Finance & Asset Unit)
En. Zamri bin Ahmad
Dip. (Electronic Eng.) (Institut Teknologi MiDAS)

Administrative Assistant (Office Administration Unit)
Pn. Zalina binti Omar
Dip. (IT) (SAL College)

Administrative Assistant (Academic & Student Affairs Unit)
Pn. Norain binti Azal
Dip. (IT) (YPJ Community College)

Office Assistant (Office Administration Unit)
En. Norhuda bin Bunawar

Office Assistant (Academic & Student Affairs Unit)
En. Syahril bin Suleiman

Academic Staff

Head of Department
Prof. Ir. Dr. Hj. Abas bin Ab. Wahab
Ph.D (Aerodynamics) (Univ. Salford, UK), MSc. (Aerospace Eng.) (West Virginia Univ.) (USA), BSc. (Hons) (Mech. Eng.) (Univ. Strathclyde, UK), Dip. (Mech. Eng.) (Institut Teknologi Kebangsaan)

Prof. Mohammad Zainal bin Md. Yusof
MSc. (Building Services) (Univ. Strathclyde, UK), BSc. (Mech. Eng.) (Univ. Strathclyde, UK)

Assoc. Prof. Adnan bin Husain
MSc. (Mech. Eng.) (UTM), BEng. (Hons) (Mech.) (UTM)

Dr. Ir. Bambang Basuno
Ph.D (Aerospace Eng.) (Glasgow Univ., Scotland), BEng. (Mech.) (Hons) (Bandung Inst. Tech., Indonesia)

Dr. Zamri bin Omar
Ph.D (Aerospace Eng.) (RMIT Univ., Australia), MEng. (Mech.) (UTM), BEng. (Aeronautical) (Hons) (UTM)

Dr. Mohammad Fahmi bin Abd Ghafir
PhD. (Mech. Eng.) (Cranfield Univ., UK), MEng. (Mgt.) (UTM), BEng. (Aeronautical) (UTM)

Dr. Aslam bin Abdullah
Ph.D (Mech. Eng.) (Cranfield Univ., UK), MSc. (Quanta & Spacetime) (UPM), BEng. (Aerospace) (UPM)

En. Sofian bin Mohd
MEng. (Mech.) (UTM), BEng. (Aeronautical) (Hons) (UTM)

En. Syariful Shafiq bin Shamsudin
MEng. (Mech.) (UTM), BEng. (Aeronautical) (Hons.) (UTM)

En. Mohd Fadhli bin Zulkafli
MEng. (Aerospace) (Nagoya Univ., Japan), BEng. (Mech.) (Hons) (Nagoya Univ., Japan)

Pn. Siti Nur Mariani binti Mohd Yunos
MEng. (Mech.) (UTHM), BEng. (Aerospace) (Hons) (USM)

En. Mohd Fauzi bin Yaakub
Master (Mechanical Eng.) (UTHM), BEng. (Aeronautical) (Hons) (UTM)

Pn. Siti Juita Mastura binti Mohd Saleh
MEng (Aerospace) (Univ. Sheffield, UK), Dip. (Aerospace Eng.) (UiTM)

Pn. Nurhayati binti Rosly
MSc. (Mech. Eng.) (Univ. Munich, German), European Master (Aeronautics and Space Tech.) (Polytechnics Madrid, Spain), BEng. (Aerospace) (Hons) (USM)

En. Abdul Karim bin Abd Halim
BEng. (Aeronautical) (Hons) (UTM)

En. Qamarul Ezani bin Kamarudin
BEng. (Aeronautical) (Hons) (UTM)

En. Zulkhairi bin Subari @ Rahmat
BEng. (Aeronautical) (Hons) (UTM)

En. Mohd Fikri bin Mohd Masrom
Dip. (Aircraft Maintenance Tech.) (MIAT)

Table 1. Summary of curriculum of Bachelor of Aeronautical Engineering Technology (Aircraft Maintenance) with Honours

Year	Semester	Code of courses	Courses	Credit	Total
1	I	UWB10102	Academic English	2	18
		UWA10102/UWA10202	Islamic Studies/ Moral Studies	2	
		BDU10903	Engineering Technology Mathematics I	3	
		BDU10103	Computer Programming	3	
		BDU10202	Introduction to Aircraft	2	
		BDU10303	Engineering Drawing	3	
		BDU18001	Aeronautical Engineering Technology Practice I	1	
		UWB10x02	Foreign Language	2	
	II	UQ*1xxx1	Co-Curriculum I	1	18
		UWB10202	Effective Communication	2	
		BDU11003	Engineering Technology Mathematics II	3	
		BDU10403	Thermofluids	3	
		BDU10503	Engineering Mechanics	3	
		BDU10603	Engineering Technology Material	3	
		BDU17001	Engineering Technology Laboratory I	1	
		UWS10202	Ethnic Relations	2	
	III	BDU17101	Engineering Technology Laboratory II	1	7
		BDU10703	Aircraft Aerodynamics	2	
		BDU10803	Electrical and Electronics Technology	1	
2	I	UWB20302	Technical Writing	2	18
		BDU21103	Engineering Technology Mathematics III	3	
		BDU20103	Aircraft Structure	3	
		BDU20203	Aircraft Propulsion	3	
		BDU20302	Electromechanical and Control Systems	2	
		BDU20402	Aircraft Systems	2	
		BDU28001	Aeronautical Engineering Technology Practice II	1	
		BDU40102	Aviation English	2	
	II	BDU20902	Creativity and Innovation	2	18
		UWA10302	Islamic and Asian Civilizations	2	
		BDU20503	Management and Professional Ethics	3	
		BDU20802	Solid Mechanics	2	
		BDU20703	Aircraft Design	3	
		BDU29002	Bachelor Degree Project I	2	
		BDU21002	Occupational Safety and Health	2	
		BDS20102	Human Factors	2	
	III	BDS20203	Aircraft Electronics and Electrical System	3	6
		BDS20303	Digital Techniques/ Electronic Instrument Systems	3	
3	I	UWS10103	Nationhood and Current Development of Malaysia	3	18
		BDU39004	Bachelor Degree Project II	4	
		BDU30102	Airport Management	2	
		BDU30302	Aircraft Maintenance Management	2	
		BPK20802	Entrepreneurship	2	
		BPK30902	Engineering Economy	2	
		BDS30102	Aviation Legislation	2	
		UQ*1xxx1	Co-Curriculum II	1	
	II	BDS30203	Aeroplane Aerodynamics, Structure and Systems	3	14
		BDS30303	Material and Hardware	3	
		BDS30403	Gas Turbine Engine	3	
		BDS30703	Maintenance Practices	3	
		BDS30602	Propeller	2	
	III	BDU28106	Industrial Training	6	6
4	I	BDS40109	On Job Training I	9	9
	II	BDS40209	On Job Training II	9	9
	III	BDS40305	On Job Training III	5	5
5	I	BDS50109	On Job Training IV	9	9
				Overall Total Credit	**155**

UWB10102 Academic English

Synopsis

This course focuses on fulfilling students' academic requirements such as the acquisition of reading, writing, listening and speaking skills in English. The course also concurrently provides opportunities for students to acquire basic grammar knowledge to complement the acquisition of English language. 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 a wide range of academic activities.

References

1. Abd. Aziz, A. et al. (2005). *English for Academic Communication*. Kuala Lumpur: McGraw Hill. *PE1128.A2 .E53 2005*
2. Kaur, H. (2005). *Explore MUET.* Kuala Lumpur: Fajar Bakti Sdn. Bhd.
3. Koh, S.L. (2005). *MUET Moments: Malaysia University English Test*. Selangor: Pearson. *PE1128.K63 2005*
4. Richards, C. (2009). *Longman Text MUET: A Strategic Approach*. Petaling Jaya: Pearson Malaysia. *PE1128 .K97 2009*

UWA10102 Islamic Studies

Synopsis

This course focuses on fulfilling students' academic requirements such as the acquisition of reading, writing, listening and speaking skills in English. The course also concurrently provides opportunities forstudents to acquire basic grammar knowledge to complement the acquisition of English language. Students will be reinforced on aspects of English language oral and written skills that are most relevant tothem in their academic work. By the end of the course, students should be able to use English for a wide range of academic activities.

References

1. Harun Din (Dr.) (2001), *Manusia Dan Islam,* cetakan pertama, Kuala Lumpur: Dewan Bahasa dan Pustaka. *BP174. M36 1990*
2. Ismail Haji Ali, (1995), *Pengertian dan Pegangan Iktikad yang benar: Ahli Sunnah Wal Jamaah:* Kuala Lumpur: Penerbitan al-Hidayah. *BP166.78. P46 1995*
3. Mustafa Abdul Rahman (1998), *Hadith 40*, Kuala Lumpur: Dewan Pustaka Fajar. *BP135. A2 M87 1998*
4. Mustafa Haji Daud (1989), *Institusi Kekeluargaan Islam,* Kuala Lumpur: Dewan Pustaka dan Bahasa. *BP188.3. F3.M87 1989*
5. Paizah Haji Ismail (1991), *Undang-undang Jenayah Islam*, Kuala Lumpur: Dewan Pustaka Islam, Angkatan Belia Islam Malaysia. *BP144. P35 1991*

UWA10202 Moral Studies

Synopsis

This course explores the 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. Ahmad Khamis (1999). *Etika Untuk Institusi Pengajian Tinggi*. Kuala Lumpur. Kumpulan Budiman. *LC 315 .M3 .A35 1999*
2. Eow Boon Hin (2002). *Moral Education*. Longman. *LC 268 .E48 2008*
3. Hussain Othman, S.M. Dawilah Al-Edrus, Berhannudin M. Salleh, Abdullah Sulaiman (2009). *PBL untuk Pembangunan Komuniti Lestari,* Batu Pahat, Penerbit UTHM. *LB1027.42 P76 2009a*

4. Hussain Othman (2009). *Wacana Asasi Agama dan Sains*, B. Pahat. Penerbit UTHM. *BL240.3 H87 2009a*
5. Mohd Nasir Omar (1986). *Falsafah Akhlak*. Bangi: Penerbit UKM. *BJ 1291 .M524 2010*

BDU10903 Engineering Technology Mathematics I

Synopsis

Limits and Continuity: Techniques of finding limits. L'Hopital's rule: indeterminate form of type 0/0, ∞/∞, 0 • ∞, 00, ∞0, 1∞, ∞ – ∞. Continuity. Differentiation and Applications: Techniques of differentiation: product rule, quotient rule, chain rule. Implicit differentiation. Higher derivatives. Differentiation of implicit functions and parametric equations. Numerical differentiation. Integration: Techniques of integration: integration by substitution, integration by parts, integrating rational functions, integrating power of trigonometric functions, integrating rational functions of sine and cosine and integration by trigonometric substitution. Further Differentiation and Integration by mathematical software. Power Series: Convergence test. Taylor and Maclaurin series. Differentiation and integration of power series. Applications of power series. Vector-valued Functions: Definition and graphs. Differentiations and integrations. Tangent vectors, normal vectors, arc length and curvature. Motion in a plane curve. Directional derivatives and gradients of functions of two variables. Introduction to a complex variables.

References

1. Abd. Wahid Md. Raji, Hamisan Rahmat, Ismail Kamis, Mohd Nor Mohamad, Ong Chee Tiong (2003). *Calculus for Science and Engineering Students*. Malaysia: UTM Publication.
2. Anton, H., Bivens, I., Davis, S. (2005). *Calculus*. 8th Ed. USA: John Wiley & Sons, Inc.
3. Larson, R. E., Hostetler, R. P. and Edward, B. H. (1998). *Calculus with Analytic Geometry*. 6th ed. Boston: Houghton Mifflin.
4. Nafisah Md Kamaruddin, Phang, C., Phang, P. & Tay, K. G. (2004). *Numerical Method*. Malaysia: UTHM.
5. Smith, R. T. & Minton, R. B. (2006). *Calculus: Concepts & Connections*. Boston: McGraw-Hill.
6. Stroud, K. A. (2005). *Engineering Mathematics*. 5th ed. London: Macmillan Press Ltd.

BDU10103 Computer Programming

Synopsis

This course introduces the basic programming by using a high level programming language, C. History and programming languages evolution, data types, input and output operations. Structured dan controlled programming; while, for, switch, if-else loops. The use of function, arrangement, structure, and indicator.

References

1. V. Rajaraman (2006). *Computer programming in FORTRAN 90 and 95,* Prentice-Hall. *QA76.73.F25.R34 2006*
2. D. Zak (2008). *An Introduction to programming with C++, Course Technology,* Boston, MA. *QA76.73.C153 .Z34 2008*
3. R. Schlesinger (2008). *Visual Basic.NET: the programming language,* Jones and Bartlett, Sudbury, MA. QA76.73.B3 .S34 2008
4. S. Attaway (2009). *MATLAB: A practical approach,* Butterworth-Heinemann, Burlington, MA. *QA29 .A87 2009*

BDU10202 Introduction to Aircraft

Synopsis

This course covers the visualizations of aircraft anatomy, control surfaces, cockpit instruments, electrical systems, hydraulic systems, engine and lubrication systems, operation and flying exposure.

References

1. Jarrett, D. N. (2005) *Cockpit Engineering*, Ashgate, Aldershot, UK. *TL681.C6 .J37 2005*
2. David Harris (2004) *Flight Instruments and Automatic Flight Control Systems*, 6th ed. Blackwell Science, Oxford. *TL589 .H37 2004*
3. Thomas P. Turner (2001). *Instrument Flying Handbook*. New York: McGraw-Hill. *TL711.B6 .T87 2001*
4. Anderson, Fletcher (2003) *Flying the Mountains: A Training Manual Flying Single-Engine Aircraft*. New York: McGraw-Hill. *TL711.M68 .A52 2003*
5. Blatner, David (2003) *The Flying Book: Everything You've Ever Wondered about Flying on Airlines*. New York: Penguin Books. *TL546.7 .B52 2003*

BDU10303 Engineering Drawing

Synopsis

Introduction of engineering drawing: Equipment and material uses. Drawing standard. Lettering and lines. Dimension lines. Plane geometry. Orthographic projection view. Cross section view. Drawing of isometric, oblique and perspective. Mechanical drawing of single component. Ordinary routines and convention. Bolt, screw and nut. Tolerance, limit and assembly. Surface texture. Welding. Introduction of computer-aided-design. Drawing command and 2D drawing.

References

1. A Gieseckle, Mitchel (2004), *Engineering Graphics*, 7th ed. Prentice Hall. *T353 .E53 2004*
2. Ong Kok Seng (1989), *Lukisan Mesin*, Penerbitan Fajar Bakti.*T353 .O53 1989*
3. Mohd. Fadzil Daud, Khairul Anuar Hanafiah (2005) *Panduan Asas Lukisan Kejuruteraan,* Universiti Teknologi Malaysia. *T353 .M63 2005*
4. Khairul Anuar Hanafiah (2006) *Lukisan Kejuruteraan Berbantu Komputer,* Universiti Teknologi Malaysia. *TA174 .K42 2006*
5. Thomas P. Zurflieh (2005), *AutoCAD 2004: 2D Drawing and Dimensioning*. Pearson. *T385 .Z87 2005*

BDU18001 Aeronautical Engineering Technology Practice I

Synopsis

Aero Practice I is basically a course of an Aircraft Structural & Composite Repair Practices Module where students will be exposed to a practical hands-on laboratory experience by allowing the aeronautics student to inspect, repair and maintenance aircraft's structure and composites components along with welding and riveting practices, composites hand lay-up process, and required forms before and after the repair practices.

References

1. Aubin, Bruce R., (2004), *Aircraft Maintenance: The Art and Science of Keeping Aircraft Safe*, SAE International, Warendale, PA. *TL671.9 .A92 2004*
2. FAA, (2009), *Aircraft Inspection And Repair: Acceptable Methods, Techniques and Practices-Aircraft Inspection And Repair*, Aviation Supplies & Academics, Inc. *TL671.7 .A38 2009*
3. Alan Baker, Stuart Dutton, Donald Kelly, (2004), *Composite Materials for Aircraft Structures*, 2nd Edition, American Institute of Aeronautics and Astronautics, Reston, VA. *TL699.C57 .B34 2004*

4. Reithmaier, Larry, (1999), *Standard Aircraft Handbook For Mechanics And Technicians*, 6th Edition McGraw-Hill Professional. *TL671.28 .R44 1999 r*
5. Klein, Vladislav, (2006), *Light Sport Aircraft Inspection Procedures*, Avotek Information.

UWB11202 Malay Language

Synopsis

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

References

1. Asmah Hj. Omar (1985). *Kamus Ayat* .Eastview. PL5091 .A85 1985 rd
2. Asmah Hj. Omar. (1993). Susur Galur Bahasa Melayu. DBP : KL. PL5127 .A85 1993 N1
3. Asmah Hj. Omar. (1993). *Nahu Melayu Mutakhir*. DBP : KL. PL5137 .A85 1993
4. Ainun Mohd.(2011). *Tesaurus Bahasa Melayu.* PTS Professional Publishing. PL5123 .A364 2011
5. Nik Safiah Karim (2008). *Tatabahasa Dewan.* DBP. PL5108 .T37 2008 r
6. Kamaruddin Saad. (2009). *105 karangan bahasa melayu UPSR.* Minerva Publishing. PL 5108 KAM 2009

UWB10602 French Language

Synopsis

This course is designed for students to learn 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 exposed to the real daily situations which will help them to communicate using French.

References

1. Booth, Trudie Maria, 2008. French Verbs Tenses. Mc Graw-Hill. [PC 2271, U66 2008]
2. Heminway, Annie, 2008. Complete French Grammar. Mc Graw-Hill. [PC2112, H45 2008]
3. Price, Glanville, 2003. A Comprehensive French Grammar. Blackwell Publishing. [PC2112. P74, 2003]
4. Hatier, 1995. Le Nouveau Bescherelle Complete Guide 12 000 French Verbs. Paris: Librairie Hatier.
5. Kaneman-Pougatch, Massia et al, 1997. Méthod de français: Café Crème 1. Paris: Hachette F.L.E.

UWB10702 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. Astrid Henschel, 2006. German Verb Tenses. New York: McGraw-Hill.
2. [PF3301. H46 2006]
3. Gabriele Kopp, Siegfried Büttner, 2004. Planet 1: Deutsch für Jugendliche: Kursbuch. Ismaning: Germany: Hueber Verlag. [PF3129. K664 2004]
4. Gabriele Kopp, Siegfried Büttner, 2004. Planet 1: Deutsch für Jugendliche: Arbeitsbuch. Ismaning: Germany: Hueber Verlag. [PF3129. K664 2004)]

5. Heiner Schenke, 2004. Basic German: a grammar and workbook. London: Routledge. [PF3112.5. 35 2004]
6. Robert Di Donato 2004. Deutsch, Na Klar! Boston: McGraw-Hill. [PF3112. D36 2004]

UWB10802 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. M. Rajendran, (1991): Malay Japanese English Dictionary**,** Petaling Jaya: Pelanduk Publications. [PL5125 .R34 1991rd]
2. Rosmahalil Azrol Abdullah, (2008): Bahasa Jepun (UMJ 1312): Learning Module (2nd Edition), Batu Pahat : Penerbit UTHM. [PL539.3 .R67 2008a]
3. Surie Network, (2000): Minna no Nihongo: Kaite Oboeru, Tokyo: 3A Corporation. [PL539.3 .M56 2000].
4. Surie Network, (1998): *Minna no Nihongo: Main Textbook - Shokyu 1,* Tokyo: 3A Corporation. [PL539.3 .M574 1998]
5. Surie, Network (2010): *AE Minna no Nihongo 1-1 Elementary: Main Textbook,* Tokyo: 3A Corporation. [TK7885.7 .V44 2000r]

UWB10902 Mandarin Language

Synopsis

This course is designed for students to learn 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 exposed to the real daily situations which will help them to communicate using Mandarin Language.

References

1. Lim Hong Swan, Yeoh Li Cheng, 2010. *Mandarin Made Easy Through English.* Batu Pahat: Penerbit UTHM. [PL1129.E5 .L554 2009 a]
2. Liping Jiang, (2006). *Experiencing Chinese***.** China: Higher Education Press. [PL1129.E5 .T59 2006]
3. Kang Yuhua (2005). *Conversational Chinese 301*. China: Beijng Language and Culture University Press. [PL1121.C5 .K36 2005]
4. Kang Yuhua (2007). *Conversational Chinese 301: Vol. 2*. China:Beijng Language and Culture University Press. [PL1121.C5 .K364 2007]
5. Liu Xun (2010). *New Practical Chinese Reader: textbook*. China: Beijng Language and Culture University Press. [PL1129.E5 .L58 2010]

UWB11102 Spanish Language

Synopsis

This course is designed for students to learn 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, (2010). *Hola! Hablo español.* First Edition Batu Pahat: Penerbit UTHM. PC4445 .N72 2010 a
2. Salina Husain, (2005). *Vamos a aprender español lengua extranjera.* Batu Pahat: Penerbit UTHM. PC4121 .S24 2005 a
3. Bey, Vivienne (2004). *Spanish verbs drills*. Mc. Graw Hill. PC4271 .B49 2004
4. Terrell, Tracy D. (2003). *Dos mundos*. Mc. Graw Hill. PC4129.E5 .D67 2003
5. O'Connor, Niobe (2002). *Caminos 1.* Nelson Thornes. PC4121 .O36 2002

UWB11202 Arabic Language

Synopsis

This course is designed for students to learn the basic of 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.

References

1. Mohd Hisyam Abdul Rahim; Ahmad Sharifuddin Mustapha; Mohd Zain Mubarak. 2008.
2. *Bahasa Arab UMR 1312*. Batu Pahat: Penerbit UTHM. [PJ6115 .M445 2008 a]
3. Mohd Hisyam bin Abdul Rahim. 2005. *Senang Berbahasa Arab*. Batu Pahat: Penerbit KUiTTHO. [PJ6115 .M44 2005 a]
4. Ab. Halim Mohammed; Rabiyah Hajimaming; Wan Muhammad Wan Sulong. 2007. *Bahasa Arab Permulaan.* Serdang: Penerbit UPM. [PJ6065 .A32 2007]
5. Fuad Ni'mat. 1973. *Mulakhass qawa'id al-lughatul 'arabiyyah.* Damsyik: Darul Hikmah. [PJ5161 .F62 1973]

UWB11302 Javanese Language

Synopsis

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

References

1. Majendra, Maheswara (2010). *Kamus lengkap Indonesia-Jawa, Jawa-Indonesia / Majendra Maheswara*. Pustaka Mahardika. XX(131732.1)
2. Yrama, Widya (2008). *Cara belajar membaca dan menulis huruf jawa, jilid 1* . Yrama Widya. Publication info:, 2008 XX(131738.1)
3. Yrama, Widya (2008). *Cara belajar membaca dan menulis huruf jawa, jilid 2.* Yrama Widya .Publication info:, 2008 XX(131739.1)
4. Budhi Santosa, Iman. (2010). *Nguri-uri paribasan Jawi = Melestarikan peribahasa Jawa.* Intan Pariwara. XX(131751.1)
5. Purwanto, Eko (2011). Pepah Bahasa Jawi. Cara mudah belajar cepat dan tuntas bahasa Jawa. Diva press. XX(131748.1)

UQ*1xxx1 Co-Curriculum I

Synopsis

The course offers various options of co-curriculum activities for diploma and bachelor degree Students. Three types of activities are offered; Sport and Recreation, Clubs and Associations and Uniform-dressed Teams.

UWB10202 Effective Communication

Synopsis

This course emphasizes on task-based approach and focuses on developing students' delivery of speech in oral interactions and presentations. Importance is given on mastery of selfdirected learning, teamwork, 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 interviews.

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.

BDU11003 Engineering Technology Mathematics II
Pre-Requisite Engineering Technology Mathematics I

Synopsis

First Order Differential Equation: Formation. Initial-value problem. Methods of solution: separating the variables, homogeneous, linear, exact and 4th order Runge-Kutta. Applications: Newton's Law ofcooling. Second Order Linear Differential Equation with Constant Coefficients: Homogeneousand non-homogeneous equation. Initial and boundary value problems Methods of solution: method of undetermined coefficients, method of variation of parameters and finite-difference method. Applications in mechanical motions includes free oscillations and force oscillations. Laplace Transforms: Definition.Linearity. First shift theorem. Multiplying by *t***.** Unit step functions. Delta functions. Second shift theorem. Inverse Laplace transform: Definition and its properties. Convolution theorem. Solve initial and boundary value problems for linear differential equations with constant coefficients which involve unit step functions, Dirac Delta functions and periodic functions. Fourier Series: Odd and even functions. Fourier series in interval (–*l*, *l*). Half range Fourier series. Partial Differential Equation: Heat equations. Wave equations. Separable method and finite-difference method.

References

1. Abd. Wahid Md. Raji, Mohd Nor Mohamad (2009). *Differential Equations for Engineering Students*. Malaysia: Comtech Marketing Sdn. Bhd.
2. James, Glyn (2004). *Advanced Modern Engineering Mathematics*. 3rd ed. England. Prentice Hall.
3. Kuldeep Singh (2003). *Engineering Mathematics through Applications*. New York: Industrial Press.
4. Peter V. O'Neil (2003). *Advanced Engineering Mathematics*. Thomson Brooks/Cole.
5. Robert J. Lopez (2001). *Advanced Engineering Mathematics*. Boston: Addision Wesley.

6. Stroud, K. A. & Booth, D. J. (2007). *Advanced Engineering Mathematics*. 4th ed. USA: Palgrave Macmillan.
7. Stroud, K. A., Booth, D. J. (2007). *Engineering Mathematics*. 6th ed. USA: Palgrave Macmillan.
8. Chapra, S. C. & Canale R. P. (2005). *Numerical Methods for Engineers*. 5th ed. Boston. McGraw-Hill.

BDU10403 Thermofluids

Synopsis

This course will cover the basic concepts of thermodynamics; properties of pure substances; energy transfer by heat, work, and mass; the law of thermodynamics and the thermodynamics cycle.

References

1. Yunus A. Cengel and Micheal A. Boles, 2006, Thermodynamics: An Engineering Approach, 7th ed, McGraw Hill, New York. *TJ265 .C46 2011*
2. Richard E. Sonntag and Claus Borgnakke, 2007, Introduction to Engineering Thermodynamics, New York: John Wiley. *TJ265 .S66 2007*
3. Michael J Moran and Howard N Shapiro, 2010, Fundamentals of Engineering Thermodynamics, 6th ed, John Wiley, Hoboken, NJ. *TJ265 .M67 2010*
4. A. K. Mohanty, 2007, Fluid Mechanics 2nd ed. Prentice-Hall, New Delhi. *TA357 .M65 1994*
5. B. Massey and J.W Smith, 2006, Mechanics of Fluid; 8th ed. Taylor & Francis, Oxon. *TA357 .M36 2005*
6. F.M.White; 2011, Fluid Mechanics 7th ed. McGraw-Hill, USA. *TA357 .W44 2011*

BDU10503 Engineering Mechanics

Synopsis

Introduction to mechanics; force system, vector and resultant, moment and couple, member and structure. Introduction to dynamics; kinematics of particle, kinetics of particle, and kinetics of particles system.

References

1. R.C.Hibler, Engineering Mechanics: Static and Dynamic, Macmillan Publishing Company, 2006, *TA351 .H523 2004 ca.*
2. J.L. Meriam, L.G.Kraige, Engineering Mechanics: Statics and Dynamic, Prentice Hall, 2006, *TA350 .M47 2008 v.1*
3. Keith M.Walker, Applied Mechanics for Engineering Technology, Prentice Hall, 2007, *TA350.W34 2008.*
4. Ghazali M.I, Mekanik Kejuruteraan, Penerbit KUiTTHO, 2002, *TJ145 .M55 2002 v.2*
5. Mohamad A.G, Mekanik Badan Tegar Dinamik, Penerbit UTM, 1992, *TJ170 .A33 996.*
6. Yusof Ahmad, Mekanik Statik, Penerbit UTM, 1999, *TA350 .Y87 1996.*

BDU10603 Engineering Technology Material

Synopsis

In general this course is divided into eight chapters including: introduction; materials structure; crystal imperfections and diffusion; mechanical properties of materials; phase diagram and heat treatment; metal, ceramic, polymer and alloy; composite; introduction to electrical, optical and magnetic properties.

References

1. Callister, W.D. Jr, (2010), *Materials Science and Engineering: An Introduction,* 8th ed. John Wiley, NJ. *TA403 .C33 2011*
2. Smith, W.F., (2010), *Foundations of Materials Science and Engineering,* 5th ed. McGraw-Hill, Dubuque, QA. *TA403 .S64 2010*
3. Shackelford, J.F., (2005), *Introduction to Materials Science for Engineers,* 6th ed. Prentice Hall. *TA403 .S52 2005*
4. Schaffer, J.P., Saxena et al, (1999), *The Science and Design of Engineering Materials,* 2nd ed. McGraw-Hill, Boston. *TA403 .S34 1999*

BDU17001 Engineering Technology Laboratory I

Synopsis

This course covers several topics including Fluid Mechanics, Thermodynamics, Applied Mechanics and Engineering Technology Materials.

References

1. Munson B. R. et al., 2010, *Fundamental of Fluid Mechanics*, *6rd Edition*, John Wiley & Sons. *TA357 .M86 2010*
2. Moran, Michael J., 2010, *Fundamentals of Engineering Thermodynamics 6th Edition*, John Wiley & Sons.*TJ265 .M67 2010*
3. Hibbeler, R.C, 2004, *Engineering Mechanics- Statics*, *SI 12th Edition*, Prentice Hall. *TA351 .H52 2009*
4. Callister, W.D. Jr., 2011, *Materials Science and Engineering: An Introduction*, 8th Edition, John Wiley & Sons. *TA403 .C33 2011*
5. Rizza, Robert, 2001, *Introduction To Mechanical Engineering*, Prentice Hall. *TJ145 .R59 2001 n.l*

UWS10202 Ethnic Relations

Synopsis

This subject focuses on the conceptual and practical of the ethnic relation in Malaysia's community. The discussions will comprise the concepts of ethnic relation and the history of plural society construction. The matter of constitution as the core of the societal life will also be covered. Discussions will also look at the relation ship between the development and the ethnicity in the aspect of economy, politics and social based on the approach of top-down and bottom-up by the government and the society.

References

1. Lembaga Penyelidikan Undang-undang (2003).*Perlembagaan Persekutuan*. Petaling Jaya: International Law Book Services. *KPG 1744.51963.A3.A4 2003 rw*
2. Mansor Mohd. Noor, Abdul Rahman Abdul Aziz dan Mohamad Ainuddin Iskandar Lee (2006). *Hubungan Etnik di Malaysia*. Petaling Jaya: Prentice Hall. *DS595.m37 2006*
3. Nazri Muslim& Nasruddin Yunus. (2006). *Hubungan Etnik*. Selangor: Fulson Trading Co.
4. Shamsul Amri Baharuddin (2007). *Modul Hubungan Etnik*. Shah Alam: Universiti Teknologi MARA.
5. 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.
6. Wan Hashim. (2011). *Hubungan Etnik di Malaysia.* Kuala Lumpur: Institut Terjemahan Negara Malaysia. *XX 1302391*

BDU17101 Engineering Technology Laboratory II

Synopsis

This course covers several topics including Control, Electrical Engineering Technology, and Aerodynamics.

References

1. Norman S. Nise (2011), *Control Systems Engineering*, 6th Edition, John Wiley & Sons Inc. *TJ213 .N57 2011*
2. Flyod (2007) *Principles of Electric Circuits*, *Conventional Current Version,* 8th Edition, Prentice Hall. *TK454 .F564 2007*
3. John Bird (2003) *Electrical and Electronic Principles and Technology*, 6th Edition, Elsevier Science & Technology. *TL146 .B57 2003*
4. Houghton, E. L., 2003, *Aerodynamics for Engineering Students.* Butterworth-Heinemann, 5th Edition Oxford. *TL570 .H68 200*
5. Jewel B. Barlow, William H. Rae, Alan Pope, 1999, *Low-speed Wind Tunnel Testing,* 3rd Edition, John Wiley & Sons. *TL567.W5 .B37 1999*

BDU10703 Aircraft Aerodynamics

Synopsis

The course is divided into eight chapters. The chapters include Introduction & Fundamental Principles, Flows and Boundary Layers, Fundamental of Inviscid Incompressible Flow, Incompressible Flow Over Airfoils, Incompressible Flow Over Finite Span Wings, High Speed Aerodynamics, Theory of Flight, Flight Stability and Dynamics.

References

1. Anderson J.D. 2007, Fundamentals of Aerodynamics, 4th ed. McGraw-Hill, Boston. *TL570 .A62 2007*
2. Bertin, John J. Cummings, Russell M. 2009, Aerodynamics for Engineers, 5th ed. Pearson, Upper Saddle River, NJ. *TL570 .B47 2009*
3. Anderson J.D. (1999), Aircraft Performance and Design, McGraw Hill. *TL671.4 .A52 1999*
4. Hull, David G. 2007, Fundamentals of airplane flight mechanics, Springer, New York. *TL710 .H84 2007*
5. McCormick, Barnes W. 1995, Aerodynamics, aeronautics and flight mechanics, 2nd ed. John Wiley, Hoboken, NJ

BDU10803 Electrical and Electronics Technology

Synopsis

Basic definition; current, voltage, power, energy, and poles. Characteristis of ideal circuit, Kirchhoff laws for current and voltage. Methof to anayse a.c current; currents at junction, curents at loops, voltage at nodes. Circuit theorems; Millman, Thevenin, and Norton. Energy storage; capacitor, inductor. Single phase circuit analysis. Electrical regulator.

References

1. Megson, T.H.G., (2007), *Aircraft Structures for Engineering Students*, Butterworth-Heinemann. *TL671.6 .M43 2007*
2. West, H. H. and Geschwindner, L. F. (2002), *Fundamentals of Structural Analysis* J. Wiley & Sons, New York. *TA 645 . W48 2002*
3. Boresi, A. P. and Chong, K. P., (2011), *Elasticity in Engineering Mechanics.* J. Wiley & Sons, New York. *TA418 .B67 2011*
4. R.C. Hibbeler, (1997), *Mechanics of Materials*, 3rd ed. Prentice-Hall., Inc., Upper Saddle River, New Jersey. *TA405 .H43 2005* Peery, D.J., and Azar, J.J., (1982), *Aircraft Structures*, 2nd ed. McGraw Hill Co., New York

UWB20302 Technical Writing

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 report. In order 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. Dorothy Cheung et. al. (1999). *Report writing for engineering students.* 2nd ed. Singapore: Prentice Hall. *PE1475 .R46 1999 N3*
2. Finkelstein, J. (2008). *Pocket Book of technical writing.* 3rd ed. Singapore: McGraw Hill. *T11 .F56 2008*
3. Gerson, S. J. & Gerson, S. M. (2003). *Technical writing: Process and product.* 3rd ed. New Jersey: Prentice Hall. *PE1475 .G47 2000*
4. Kolin, P. C. (2006). *Successful writing at work.* Concise ed. USA: Houghton Mufflin Company. *PE1408 .K64 2009*
5. Lakshmy Anantha Krishnan et al. (2003). *Engineering your report: From start to finish.* Singapore: Prentice Hall. *T11 .E64 2006*

BDU21103 Engineering Technology Mathematics III
Pre-Requisite Engineering Technology Mathematics I

Synopsis

Functions of Several Variables: Domains, ranges, contour line, level curves and 3D-graphs. Partial derivatives and chain rules. Mixed derivatives. Total differentials and exact differentials. Local and absolute extreme values of functions of two variables. Multiple Integrations: Double integrals: Areas and volumes. Double integrals in polar coordinates. Surface areas. Triple integrals: Volumes. Triple integrals in cylindrical and spherical coordinates. Center of mass, center of gravity and inertial moments. Solution of nonlinear equations: Bisection, secant, and Newton Raphson method. Solution of linear systems of equations: Gaussian elimination, LU decomposition, Thomas, and Gauss-Seidel method. Interpolation and polynomial approximation: Newton's divided-difference, Lagrange and cubic spline. Numerical Differentiation: Taylor series expansion. Numerical Integration: Simpson and Gauss quadrature method. Eigen Values: Power method. Ordinary Differentiation Equations: Solution of Initial-Value Problems by Taylor Series, Euler, Huen, Runge-Kutta methods. Solution of Boundary-Value Problems by finite difference method. Partial Differentiation Equations: Explicit and implicit method using finite difference method.

References

1. Anton, H., Bivens, I. and Davis, S. (2005). *Calculus: Multivariable*. 8th Ed. New Jersey. John Wiley.
2. Anton, H., Bivens, I. and Davis, S. (2002). *Calculus*. 7th Ed. New York. John Wiley.
3. Nafisah Md Kamaruddin, Phang, C., Phang, P. & Tay, K. G. (2004). *Numerical Method*. UTHM.
4. Smith, R. T. and Minton, R. B. (2002). *Calculus: Multivariable*. Boston. McGraw-Hill.
5. Smith, R. T. and Minton, R. B. (2006). *Calculus: Concepts & Connections*. Boston. McGraw-Hill.
6. D. V. Griffiths, I. M. Smith. 2006. *Numerical methods for engineers*, 2th ed. Boca Raton, FL: Chapman & Hall.
7. J. N. Sharma. 2004. *Numerical methods for engineers and scientists*, Pangbourne: Alpha Science International.

BDU20103 Aircraft Structure

Synopsis

This course gives students an exposure to the knowledge of aircraft structure. The course will further discuss about the basic static analysis on the structures, basic sheet metal structures, basic theory of airframe inspection, and instability of aircraft components, introduction to analysis of composite materials and introduction to basic concepts in aeroelasticity.

References

1. Megson, T.H.G., (2007), *Aircraft Structures for Engineering Students*, BH, Amsterdam. *TL671.6 .M43 2007*
2. James Gere, P. Timoshenko, (2004), Mechanics of Materials, Stanley Thornes, London. *TA405G47 2004*
3. R.C. Hibbeler, (2005), *Mechanics of Materials*, Prentice-Hall., Inc., New Jersey. *TA405 .H43 2005*
4. Peery, D.J., and Azar, J.J., (1982), *Aircraft Structures*, McGraw Hill Co., New York.
5. B.K Donaldson, (2008), Analysis of Aircraft Structures, Cambridge Univ. Press, New York. *TL671.6 .D66 2008*
6. Howard D. Curtis, (1997), Fundamental of Aircraft Structural Analysis, McGraw-Hill, Boston.

BDU20203 Aircraft Propulsion
Pre-Requisite Thermofluids

Synopsis

This course covers an introduction to propulsion which includes steady-one-dimensional flow, thrust and efficiencies, basic thrust equations and air breathing system. This course also covers the following chapters: review of fundamentals; Aircraft Gas Turbine Engine; Parametric Cycle Analysis of Ideal Engines, Component Performance, Parameter Cycle Analysis of Real Engines; Engine Performance Analysis, Inlet and Nozzle and Combustion Systems.

References

1. Mattingly, J.D. (2006). *Element of Propulsion: Gas Turbines and Rockets,* AIAA Education Series. *TL709.M374 2006*
2. Babu, V. (2009). *Aircraft Propulsion*, CRC Press. *TL709. B32 2009*
3. Farokhi, S. (2009). Aircraft Propulsion, John Wiley. TL709. F37 2009
4. Saravanamuttoo, H.I.H. (2009). *Gas Turbine Theory,* 6th Edition, Prentice Hall. *TJ778 .G37 2009*
5. Oates G.C. (1997). *Aerothermodynamics of Gas Turbine and Rocket Propulsion,* AIAA Press. TL574.A45.027 1997.

BDU20302 Electromechanical and Control Systems
Pre-Requisite Engineering Technology Mathematics II

Synopsis

This course starts with some applications of mechanical-electrical system and systems in the first chapter, and then proceeds with the rigorous approach to give the students appropriate foundation.

References

1. Robert N. Bateson (1999), *Introduction to Control System Technology*, 6th ed. Prentice Hall. *TJ213 .B37 1999*
2. Ogata, K. (2002), *Modern Control Engineering,* 5th ed. Prentice-Hall. *TJ213 .O32 2010*
3. Dorf R.C. & Bishop R.H. (2008), *Modern Control Systems,* 11th ed. Prentice Hall. *TJ216 .D67 2008*

4. Franklin G.F. (2006), *Feedback Control of Dynamic Systems,* 5th ed. Pearson Higher Education. *TJ216 .F72 2006*
5. D'Azzo J.J., Houpis C.H. & Sheldon, S.N. (2003), *Linear Control System Analysis and Design with Matlab,* 5th Edition, Marcel Dekker. *TJ213 .D39 2003*
6. Close C.M., Frederick, D.H. & Newell, J.C. (2002), *Modeling and Analysis of Dynamic Systems,* 3rd Edition, John Wiley and Sons. *TA331 .C56 2002 N2*

BDU20402 Aircraft Systems
Pre-Requisite Introduction to Aircraft

Synopsis

Aircraft are complex products comprised of many subsystems which must meet demanding customer and operational lifecycle value requirements. This course adopts a holistic view of the aircraft as a system, covering: basic systems engineering; cost and weight estimation; safety and reliability; lifecycle topics and aircraft subsystems. Small student teams will analyze an existing aircraft covering: key design drivers and decisions; aircraft attributes and subsystems; and operational experience. Finally, the student teams deliver oral and written versions of the case study.

References

1. Moir, I. & A. Seabridge. (2008). *Aircraft Systems: Mechanical, Electrical, and Avionics Subsystems Integration*, Willey. *TL671 .M64 2008*
2. Lombardo, D.A (1999) *Aircraft Systems,* 2nd ed. McGraw-Hill Professional. *TL670 .L65 1999*
3. Jackson, S. (1997) *Systems Engineering for Commercial Aircraft*, Ashgate, Aldershot, UK. *TL671.2 .J32 1997*
4. Stinton, D. (1998) *The Anatomy of the Airplane,* 2nd ed. AIAA Education Series, Reston, VA. *TL671.2 .S744 1998*
5. Vink, P. (2011) *Aircraft Interior Comfort and Design,* AIAA Education Series, Reston, VA. CRC Press

BDU28001 Aeronautical Engineering Technology Practice II
Pre-Requisite Aeronautical Engineering Technology Practice I

Synopsis

Aero Practice II is basically an introduction to Engine Maintenance and Servicing Module where students will be exposed to the operation, inspection, maintenance and trouble shooting of piston engine and turbine engine. This course includes a practical hands-on laboratory experience especially in piston type aircraft's engine and be acquainted to required forms.

References

1. Aubin, Bruce R. (2004), *Aircraft Maintenance: The Art and Science of Keeping Aircraft Safe*, SAE International, Warendale, PA. *TL671.9 .A92 2004*
2. FAA (2009), *Aircraft Inspection and Repair: Acceptable Methods, Techniques and Practices-Aircraft Inspection and Repair*, Aviation Supplies & Academics, Inc. *TL671.7 .A38 2009*
3. Pulkrabek, Willard W. (2004), *Engineering Fundamentals of the Internal Combustion Engine*, 2nd ed. Prentice Hall. *TJ785 .P84 2004*
4. El-Sayed, Ahmed F. (2008), *Aircraft Propulsion and Gas Turbine Engines*. CRC Press. *TL709 .E82 2008*
5. Reithmaier, Larry (1999), *Standard Aircraft Handbook for Mechanics and Technicians*, 6th ed. McGraw-Hill Professional. *TL671.28 .R44 1999r*
6. Vink, P. (2011) *Aircraft Interior Comfort and Design,* AIAA Education Series, Reston, VA. CRC Press

BDU40102 Aviation English

Synopsis

The course contains questions, new vocabulary, reading and listening paragraphs, grammar items, and pronunciation exercises to improve speaking skills. Besides that, students will have reading comprehension quiz questions with feedback, listening comprehension quiz questions with feedback, grammar quiz questions with feedback, and ATC quiz questions with feedback.

References

1. Fletcher Anderson, *Aviation English: For ICAO Compliance*, Macmillan, 2008.
2. Henry Emery, *Aviation English*, Macmillan, 2008, *TL509 .E43 2008*
3. Sue Ellis and Terence Gerighty, *English for Aviation Student*, Oxford University Press, 2008, *XX(132401.1)*
4. Henry Emery and Andy Roberts, *Aviation English Class Audio CD*, MacMillan, 2008.
5. Liz Mariner, *Cleared for Takeoff: English for Pilot*, AE Link Publications, 2007.

BDU20902 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 that will 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. De Bono, Bernacki, E. (2002). Wow! That's a Great Idea! Prentice Hall, Singapore. *HD53 .B47 2002*
2. De Bono, E. (2003). Serious Creativity 1: Lateral Thinking Tools, Techniques and Application. Allscript Books, Singapore. *BF408 .D366 2003*
3. De Bono, E. (2003). Serious Creativity 2: Lateral Thinking Tools, Techniques and Application. Allscript Books, Singapore. *BF408 .D367 2003*
4. Ceserani, J. & Greatwood, P. (1995). Innovation and Creativity. Creast Publishing House, New Delhi. *HD58.8 .C47 1995*
5. Clegg, B. & Birch, P. (2002). Crash Course in Creativity. Kogan Page, London. *HD53. C534 2002*

UWA10302 Islamic and Asian Civilizations

Synopsis

This course provides an introduction to the human civilization; a relation between Malay, China, and India civilizations, Islam in Malay regions and its roles in building the Malaysia civilization, contemporary issues and globalization, and nation development process.

References

1. Saifullah Mohd *Sawi* (2009), *Sejarah dan tamadun Islam di Asia Tenggara*, Shah Alam Karisma Publications. *BP63.A785 .S24 2009*
2. Sazelin Arif, (2007), *Tamadun Islam dan tamadun Asia,* Shah Alam, Selangor: McGraw Hill. *BP190.5 .T35 2007*
3. Abu al-Fida al Hafiz Ismail ibn Kathir ; penterjemah Zaidah Mohd Nor et al. (2005), *Sejarah tamadun Islam Ibn Kathir*, Kuala Lumpur: Dewan Bahasa dan Pustaka. *DS36.85.I32 2005 v.1*
4. Mohd Liki Hamid, (2003), *Pengajian tamadun Islam*, Bentong: PTS Publications and Distributors. *DS36.85 .P46 2003*
5. Lok, Chong Hoe, (1998), *Tamadun Cina: falsafah, pandangan hidup dan aspek-aspek kesenian*, Kuala Lumpur: Pusat pembangunan dan Pendidikan Komuniti (CEDC) dan Sekretariat Falsafah dan Sains Islam. Universiti Sains Malaysia. *DS721 .L64 1998*
6. Rajakrishnan Ramasamy, M Rajantheran, (1994), *Pengantar tamadun India,* Kuala Lumpur: Penerbit Fajar Bakti. *DS425 .R34 1994*
7. Arkoun, Mohammed Ruslani, (2001), *Kontemporer: Menuju dialog antara agama*, Yogyakarta: Pustaka Pelajar. *BP163 .A74 2001 N*

BDU20503 Management and Professional Ethics

Synopsis

Introduction and exposure of the management and professional ethics, philosophy and theory of ethics, values in professional ethics, responsibility of servicing, obligation to clients and third party, obligation of profession, professionals rights, observation of behavior among the professionals and the issues regarding to the professionals ethics, theory of technology management.

References

1. Mike W. Martin, Roland Schinzinger (2005). Ethics in Engineering. McGraw Hill, *HF5387 .M97 1996*
2. Mohd Janib Johari (2001), Etika Profesional, Penerbit UTM, *KE6533.4 .M63 2001*
3. Mustafa Hj. Daud (2001). Etika Pengurusan. Utusan Publication, *HF5387 .M97 1996*
4. Raymond Spier (2001). Ethic, Tools and the Engineer, CRC Pres LLC.
5. Payne, Andrew C. (1996). Management for Engineers, John Wiley & Sons.

BDU20802 Solid Mechanics

Synopsis

Flight mechanics is the course dealing with aircraft performance, its stability and control. This course emphasizes on fixed-wing aircraft flying in atmosphere. The content includes introduction to flight mechanics, overview of aerodynamics, overview of propulsion, aircraft performance, level flight, gliding and landing and aircraft controls and maneuverability.

References

1. Kermode, A. C. (2006), Mechanics of Flight, Pearson Education Limited, *TL570 .K47 2006*
2. Phillips W. F. (2004), Mechanics of Flight, John Wiley & Sons, *TL570 .P44 2010*
3. John D. Anderson Jr., (2005), Introduction to Flight, McGraw-Hill, *TL570 .A52 2008*
4. Raol, Jitendra R. (2009), Flight Mechanics Modeling And Analysis, CRC Press,
5. John D. Anderson Jr. (1999), Aircraft Performance and Design, McGraw-Hill.

BDU20703 Aircraft Design

Pre-Requisite Aircraft Structure & Engineering Technology Material

Synopsis

This is an introduction course that exposed students to the philosophy of aircraft design. Airplane conceptual design principles are developed to meet modern aerodynamic, propulsion, structural and performance specifications. The contents of the course will mainly discussed in detailed about several major topics in aircraft design process such as the aircraft parametric study, general arrangement drawing, aerodynamic study, flight performance analysis and wing loading distribution. Students were divided into groups and each group will be given different design task according to mission and requirement.

References

1. Torenbeek, E. (1982), *Synthesis of Subsonic Airplane Design: An Introduction to the Preliminary Design, of Subsonic General Aviation and Transport Aircraft, with Emphasis on Layout, Aerodynamic Design, Propulsion, and Performance,* Delft, Holland: Delft University Press. *TL671.2 .T67 1982*
2. Stinton, D. (2001), *The Design of The Aeroplane,* 2nd Edition, London: Blackwell Science. *TL671.2 .S74 2001*
3. Roskam, J. (2008), *Airplane Design Part 1 to 8, Lawrence, KS: DARcorporation*. *TL671.2 .R674 2008*
4. Raymer, D. P. (2006), *Aircraft Design: A Conceptual Approach,* 4th Edition, Reston, VA: American Institute of Aeronautics and Astronautics. *TL671.2 .R39 2006*
5. Anderson, J.D. (1998), *Airplane Performance and Design,* McGraw-Hill Science/ Engineering/ Math.D, *TL671.4.A52 1999.*

BDU29002 Bachelor Degree Project I
Pre-Requisite Engineering Mechanics, Thermofluids & Aircraft Aerodynamics

Synopsis

Thesis I is a systematic practice in teaching and learning because it integrates all subjects acquired in engineering. Given to a topic on a project, students have to identify a problem, gather relevant information to the problem and propose solution to problems. In this course, students are required to handle research which contains: (1) research on phenomena / process / system, (2) designing / developing component / product / system, (3) software development, or (4) case study/surveying. This project is based on *industrial based* or *lab based* which divide into 2 parts; Thesis I and Thesis II. Thesis I is a prerequisite subject to Thesis II.

References

1. *Thesis Writing Directory Book*, UTHM.
2. *Panduan Pelaksanaan Projek Sarjana Muda*, UTHM.
3. Books, journal and other information which relates with project research

BDU21002 Occupational Safety and Health

Synopsis

This course introduces students to knowledge and skills in occupational safety and health in workplace. Scope of study includes Health, Safety and Environment Managements: introduction to OSH, OSHA 1994 (Act 514), FMA 1967, EQA 1974, occupational safety and health management system, safety, health and environment culture; Risk Management and Assessment: introduction to risk management, risk assessment techniques, HIRARC; Physical Injury & Controls: introduction to physical injury, construction work, electrical work, mechanical work, chemical work; Health Hazards: introduction to health hazards & hygiene, chemical hazards, physical hazards, biological hazards, hygiene; Accident Investigation & Reporting: introduction, accident investigation, investigations and causes of incident, incident analysis and data collection method.

References

1. *Occupational Safety and Health Act and Regulations*. MDC Publishers Printer Sdn. Bhd. 2001. *KPG1390.M34 2001 rw N2.*
2. *Factories and Machinery Act & Regulations*. MDC Publishers Printer Sdn. Bhd. 2001..*A31967 .A4 2001 rw N1.*
3. Ismail Bahari (2006). *Pengurusan Keselamatan dan Kesihatan Pekerjaan*. Edisi ke-2. McGraw Hill Education (Malaysia). *T55.I85 2006.*
4. Davies, V. J. and Tomasin K. (2006). *Construction Safety Handbook. 2nd ed. London:* Thomas Telford. *TH443.R43 2006.*
5. Anton, Thomas J. (2009). *Occupational Safety and Health Management. 3rd ed. New York:* McGraw-Hill. *T55.A57 1989.*

BDS20102 Human Factors

Synopsis

This course explains human performance performance and limitations, social psychology, factors affecting performance, physical environment, human error, communication and hazards in the workplace.

References

1. Department of Civil Aviation Malaysia, 2011, DCAM Part-66 Aircraft Maintenance Licence (AML): Airworthiness Notice AN 1101 (Module 9)
2. R.G Green, 1996, Human factors for pilots (2nd ed), Ashgate, Burlington, VT. *RC1077 .H85 1996*

3. H. Don, 2004, Human factors for civil flight deck design, Ashgate, Aldershot. *TL681.C6 .H85 2004*
4. S. Carl, R.S. Harvey, 2004, Human factors for engineers, Institution of Electrical Engineers, London. *TA167 .H85 2004*
5. R.W. Proctor, V.Z. Trisha, 2008, Human factors in simple and complex systems (2nd ed), CRC Press, Boca Raton, FL. *TA166 .P76 2008*

BDS20203 Aircraft Electronics and Electrical Systems

Synopsis

This course is made up of seventeen chapters. Topics include Electron Theory, Static Electricity and Conduction, Electrical Terminology , Generation of Electricity, DC Sources of Electricity and DC Circuits, DC Sources of Electricity and DC Circuits, Resistance / Resistor, Power, Capacitance / Capacitor, Magnetism, Inductance / Inductor, DC Motor / Generator Theory, AC Theory Control, Resistive (R), Capacitive (C) and Inductive (L), Transformers and Filters, AC Generators and Motors, Semiconductors, Printed Circuit Boards and Servo-mechanism.

References

1. EASA IR Part 66 (2007), Module 4: Electronic Fundamental, ICAT.
2. Thomas K. Eismin (1994), Aircraft Electricity and Electronics, McGraw Hill.
3. J. E. Bygate (1990), Aircraft Electrical Systems: Single and Twin Engine, Jeppesen Sanderson.
4. Albert D. Helfrick (2000), Principles of Avionics, Avionics Communication.

BDS20303 Digital Techniques / Electronic Instrument Systems

Synopsis

This course explains the electronic instrument system, digital numbering system, data conversion, data buses, logic circuits, basic computer terminology, microprocessor, integrated circuits, multiplexing, fibre optics, electronic display, electronic sensitive devices, software management control, electromagnetic environment and type of typical electronic digital aircraft systems.

References

1. Department of Civil Aviation Malaysia, 2011, DCAM Part-66 Aircraft Maintenance Licence (AML): Airworthiness Notice AN 1101 (Module 5)
2. I. Moir, A.G. Seabridge, 2008, Aircraft systems: mechanical, electrical and avionics subsystems integration, John Wiley, Chichester. *TL671 .M64 2008*
3. J. Malcolm, 2004, Aircraft display systems, Professional Engineering Publishing, London. *TL507 .J84 2004*
4. Crane, Dale, 2007, Aviation Maintenance Technician: General, Aviation Supplies & Academics, Newcastle WA. *TL671.9 .C72 2007*
5. Larry Reithmaier, 1999, Standard aircraft handbook for mechanics and technicians (6th ed), McGraw-Hill, New York. *TL671.28 .R44 1999 r*
6. Kroes, Michael J. Watkins, William A. Delp, Frank, 1993, Aircraft maintenance and repair, McGraw-Hill, Berkshire. *TL671.9 .K76 1993*

UWS10103 Nationhood and Current Development of Malaysia

Synopsis

This course discusses the basic concept, formation and development of Malaysia. It includes the Malay Sultanate of Malacca Empire, imperialism and colonialism, patriotism and nationalisme 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 enforced upon besides the success and challenges of Malaysia.

References

1. Mohd. Ashraf Ibrahim (2004).*Gagasan Bangsa Malayan yang Bersatu 1945-57*. Bangi: Penerbit UKM. *DS597 .M37 2004*
2. Nazaruddin Mohd Jali, Ma'rof Redzuan, Asnarulkhadi Abu Samah & Ismail Mohd Rashid (2005). *Pengajian Malaysia*. Petaling Jaya: Prentice Hall. *DS596.6 .P46 2001 N2*
3. Noor Aziah Mohd. Awal (2003). *Pengenalan kepada Sistem Perundangan di Malaysia*. Petaling Jaya: International Law Book Services. *KPG68 .N66 2003*
4. Ruslan Zainudin, Mohd Mahadee Ismail & Zaini Othman (2005). *Kenegaraan Malaysia*. Shah Alam: Fajar Bakti. *JQ715 .R87 2005*
5. 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 & Mohd Akbal Abdullah (2009). Kenegaraan & Pembangunan Malaysia. Batu Pahat: Penerbit UTHM. (Modul Kenegaraan dan Pembangunan Mutakhir Malaysia)
6. Andaya, B.W. & Andaya, L.Y. (1982). *A History of Malaysia*. London: Macmillan. *DS 596.A52 2001*
7. Abdul Aziz Bari (2002). *Majlis Raja-Raja: Kedudukan dan Peranan dalam Perlembagaan Malaysia*. Kuala Lumpur: Dewan Bahasa dan Pustaka. *JQ1062.A58 .A39 2002*
8. Aziz Deraman (1992). *Tamadun Melayu dan Pembinaan Bangsa Malaysia*. Kuala Lumpur: Arena Ilmu Sdn. Bhd. *HN700.6 .A952 2000*
9. Francis Loh Kok Wah & Khoo Boo Teik (2002). *Democracy in Malaysia*. Cornwall: Curzon Press.
10. Jurij Jalaludin (1991). *Wawasan 2020: Aspek Politik dan Sosial.* Kuala Lumpur: Arena Ilmu Sdn. Bhd.
11. Lembaga Penyelidikan Undang-undang (2010). *Perlembagaan Persekutuan*. Petaling Jaya: International Law Book Services.

BDU39004 Bachelor Degree Project II
Pre-Requisite Bachelor Degree Project I

Synopsis

Bachelor Degree Project II is the continuation of the Bachelor Degree Project I. It is an important mechanism in teaching and learning because it integrates all subjects acquired in engineering. This course will also develop the student's capability to present, discuss and analyze results of the research clearly, effectively and confidently in both oral presentation and in dissertation.

References

1. *Thesis Writing Directory Book*, UTHM.
2. *Panduan Pelaksanaan Projek Sarjana Muda*, UTHM.
3. Books, jurnal and other information which relates with project research

BDU30102 Airport Management

Synopsis

This is a course that introduces students to the management of airports with an emphasis on the facilities that make up an airport system, including airspace, airfield, and terminal and ground access operations.

References

1. Julie F. Rodwell, (2003), *Essentials of Aviation Management: A Guide for Aviation Service Businesses*, Kendall/Hunt Publishing Company. *HE9781 .R62 2003*
2. Stephen P. Robbins & Mary Coulter, (2005), *Management*, Prentice Hall. *HD31 .R62 2005*
3. Civil Aviation Regulations 1996
4. De Neufville, Richard (2003) *Airport Systems: Planning, Design and Management*. McGraw-Hill Professional. *TL725.3.P5 .D46 2003*
5. Well, A.T. & Young, S., (2011) *Airport Planning and Management,* 6th ed. McGraw-Hill. *TL725.3.P5 .Y68 2011*

BDU30302 Aircraft Maintenance Management

Synopsis

This course discusses essential aspects in management of aircraft maintenance activities and development of maintenance programs. It also introduce students to the aviation industry certification requirements, maintenance documentation and the management of maintenance and engineering organization.

References

1. Harry A. Kinnison, (2004), *Aviation Maintenance Management*, McGraw Hill. *TL671.9 .K56 2004*
2. Nyman, Don, (2001), *Maintenance Planning, Scheduling, and Coordination*, New York: Industrial Press. *TS176 .N95 2001*
3. Dhillon, B. S, (2009), *Human Reliability, Error and Human Factors in Engineering Maintenance: With Reference to Aviation and Power Generation*, McGraw Hill. *TA167 .D44 2009*
4. Patankar, Manoj S., (2004), *Applied Human Factors in Aviation Maintenance*, Ashgate Publishing. *TL671.9 .P37 2004*

BPK20802 Entrepreneurship

Synopsis

This course cover various topics related to basic entrepreneurship including introduction to entrepreneurship, entrepreneurs characteristics and motivation, screening business environment and opportunity, formation of business and managing business. Students will also be exposed to real business.

References

1. Charles E. Bamford, Garry D. Bruton (2011). Entrepreneurship: A small business approach. New York: McGraw-Hill. *HD62.5 .B35 2011*
2. Schaper M., Volery, T, Weber, P., Lewix, K. (2011). Entrepreneurship and small busiess; 3rd Asia-Pacific ed. John Wiley & Son. *HD2341 .E57 2011*
3. Hisrich, R.D., Peter, M.P., Shepherd, D.A. (2010). Entrepreneurship, 8th ed. McGraw Hill. *HD62.5 .H57 2010*
4. Donald F. Kuratko, Richard M. Hodgetts (2007). Entrepreneurship: theory, process, practice, 7th ed. Mason: Thomson South-Western. *HB615 .K87 2007*
5. John. B., Tidd. J. (2011). Innovation and entrepreneurship. 2nd ed. Chichester, West Sussex, UK. *HD53 .B48 2011*

BPK30902 Engineering Economy

Synopsis

Engineering economy consists of: Introduction to Engineering Economics, fundamental cost concepts, cost estimation techniques, time value of money, project evaluation with the benefitcost ratio method, risk analysis and project financing and allocations.

References

1. Blank, L.T., A. Tarquin (2008): *Basics of Engineering Economy*, International ed., McGraw-Hill, New York. TA *177.4 B524 2008*
2. Mohamad Sirin, R. (2007): *Teori Asas Ekonomi Kejuruteraan*, Faculty of Technology Management KUiTTHO. Malaysia. *TA177.4 R67 2007*
3. Sullivan W.G, Wicks E.M. and Koelling C.P, (2009). *Engineering Economy*, 14th ed. Upper Saddle River, New Jersey, Pearson. *TA 177.4 S94 2009*
4. Park, C. S. (2007).*Contemporary Engineering Economics*, 4th Edition,Upper Saddle River: New Jersey, Prentice Hall. *TA177.4 P372 2007*
5. John A.W, Kenneth E.C, David B.Pratt (2010), *Principles of engineering economic analysis*, 5th ed. Hoboken, NJ : John Wiley. *TA177.4 .W44 2010*

BDS30102 Aviation Legislation

Synopsis

This course describes the regulatory framework of aviation legislation that relate to certifying maintenance staff, approved maintenance organization, commercial air transportation, aircraft certification and aircraft national and international requirements.

References

1. Department of Civil Aviation Malaysia, 2011, DCAM Part-66 Aircraft Maintenance Licence (AML): Airworthiness Notice AN 1101 (Module 10)
2. C.F Spence, 2008, AIM/FAR 2008: aeronautical information manual/federal aviation regulations, McGraw-Hil, New York. *TL501 .A37 2008*
3. D.L. Rhoades, 2003, Evolution of international aviation: phoenix rising, Ashgate, Burlington, VT. *HE9774 .R46 2003*
4. Oxford Aviation Training, 2007, Air law: international air law, UK air law, operational procedures, Oxford Aviation Training, Oxford. *TL710 .G766 2007*
5. R.C. Speciale, 2006, Fundamentals of aviation law, McGraw-Hill, New York. *KF2439 .S63 2006*

UQ*1xxx1 Co-Curriculum II

Synopsis

This course is the continuation of the Co-curriculum I. It also offers various options of cocurriculum activities for diploma and bachelor degree students. Three types of activities are offered; sport and recreation, clubs and associations and uniform-dressed teams.

BDS30203 Aeroplane Aerodynamics, Structures and Systems

Synopsis

This course covers both piston engine and gas turbine engine aircrafts. It explains the aeroplane aerodynamics and flight controls, high speed flight, airframe structures, air con- ditioning and cabin pressurization, instrument and avionic systems, electrical power, equipment and furnishings, fire protection, fuel systems, hydraulic power, ice and rain protection, landing gear, lights, oxygen supply, pneumatic and vacuum, water and waste, and on-board maintenance systems.

References

1. EASA IR Part 66, (2007), Module 11a: Aeroplane Aerodynamics, Structures and Systems (Turbine), ICAT.
2. Department of Civil Aviation Malaysia, 2011, DCAM Part-66 Aircraft Maintenance Licence (AML): Airworthiness Notice AN 1101 (Module 11A)
3. J.D. Anderson, 2011, Fundamentals of aerodynamics (5th ed), McGraw-Hill, New York. *TL570 .A525 2011*
4. Hull, David G., 2007, Fundamentals of airplane flight mechanics, Springer, New York. *TL710 .H84 2007*
5. I. Moir, A.G. Seabridge, 2008, Aircraft systems: mechanical, electrical and avionics subsystems integration, John Wiley, Chichester. *TL671 .M64 2008*
6. D.A. Lombardo, 1999, Aircraft systems, McGraw-Hill, New York. *TL670 .L65 1999*

BDS30303 Material and Hardware

Synopsis

The course describes the detail of aircraft material (ferrous and non-ferrous), aircraft composite material, corrosion, fasteners, pipes and unions, springs, bearing, transmissions, control cables, and electrical cables and connectors.

References

1. EASA IR Part 66, (2007), Module 6: Material and Hardware, ICAT.
2. Department of Civil Aviation Malaysia, 2011, DCAM Part-66 Aircraft Maintenance Licence (AML): Airworthiness Notice AN 1101 (Module 6)
3. A.A. Baker, D.W. Kelly, S. Dutton, 2004, Composite materials for aircraft structures, AIAA, Reston, VA. *TL699.C57 .B34 2004*
4. A. Forbes, 2006, Fiberglass and other composite materials: a guide to high performance non-metallic materials for race cars, street rods, body shops, boats and aircraft, HP Books, NY. *TA455.P55 .A37 2006*

BDS30403 Gas Turbine Engine

Synopsis

This course includes the fundamental and details of aircraft gas turbine engine. Several types of gas turbine engines are considered and the course also includes the practical of the installation, monitoring, storage and preservation of gas turbine engines.

References

1. EASA IR Part 66 (2007), Module 15: Gas Turbine Engines, ICAT.
2. Giampaolo, Tony (2009), Gas Turbines Handbook, AIAA Education Series, *TJ778 .G52 2009*
3. Ahmed El-Sayed (2008), Aircraft Propulsion and Gas Turbines, CRC Press, *TL709 .E82 2008*
4. I.E. Treager (2001), Aircraft Gas Turbine Engine Technology, McGraw Hill, *TL709.5.T87 .T73 2001*

5. Boyce Maherwan. (2002), Gas Turbine Engineering Handbook, Gulf Professional Publishing.

BDS30703 Maintenance Practices

Synopsis

This course describes the safety precautions on aircraft and workshop, workshop practices, tools, avionic general test equipments, engineering drawing, diagram and standards, fits and clearance, cables and connectors, riveting, pipes and hoses, springs, material handling, aircraft weight and balance, assembly, inspection, and maintenance procedures.

References

1. Department of Civil Aviation Malaysia, 2011, DCAM Part-66 Aircraft Maintenance Licence (AML): Airworthiness Notice AN 1101 (Module 7)
2. B.R. Aubin, 2004, Aircraft Maintenance: The Art and Science of Keeping Aircraft Safe, Society of Automotive Engineers, Warrendale, PA. *TL671.9 .A92 2004*
3. L. Reithmaier, 1999, Standard aircraft handbook for mechanics and technicians, McGraw-Hill, NY. *TL671.28 .R44 1999 r*

BDS30602 Propeller

Synopsis

This course explains the fundamental of propeller, pitch control, propeller synchonizing, propeller ice protection and maintenance, and propeller storage and preservation. It also discusses the methods used to construct a propeller such as wooden works, composite propeller, and metal propeller.

References

1. Department of Civil Aviation Malaysia, 2011, DCAM Part-66 Aircraft Maintenance Licence (AML): Airworthiness Notice AN 1101 (Module 17)
2. B.R., Aubin, 2004, Aircraft maintenance: The art and science of keeping aircraft safe, Society of Automotive Engineers, Warrendale, PA. *TL671.9 .A92 2004*
3. L. Reithmaier, 1999, Standard Aircraft Handbook for Mechanics and Technicians, McGraw-Hill NY. *TL671.28 .R44 1999 r*

BDU28106 Industrial Training
Pre-Requisite Bachelor Degree Project I

Synopsis

Students are required to perform industrial training as a trainee engineer in aeronautical engineering areas for 1 semester. They will be given tasks by the potential inductries such as planning, management, designing, assessment, specialization and supervising aeronautical engineering project. At the end of this course, student's performance will be assessed by supervisors from Faculty and industry.

References

1. Industrial Training Committees (2000). Industrial Training's Log Book, FKMP UTHM.

BDS40109 On Job Training I

Synopsis

Students are required to perform on job training as an aircraft maintenance engineer in aviation industry. They will work with real aircraft as planned by the industry.

References

1. CAP 741 Aircraft Maintenance Engineer's Log Book
2. Department of Civil Aviation Malaysia, 2011, DCAM Part-66 Aircraft Maintenance Licence (AML): Airworthiness Notice AN 1101
3. Aubin, Bruce R, 2004, Aircraft maintenance: The art and science of keeping aircraft safe, Society of Automotive Engineers, Warrendale, PA. *TL671.9 .A92 2004*
4. Crane, Dale, 2007, Aviation maintenance technician: general, Aviation Supplies & Academics, Newcastle WA. *TL671.9 .C72 2007*
5. Larry Reithmaier, 1999, Standard aircraft handbook for mechanics and technicians (6th ed), McGraw-Hill, New York. *TL671.28 .R44 1999 r*
6. Kroes, Michael J. Watkins, William A. Delp, Frank, Aircraft maintenance and repair, 1993, McGraw-Hill, Berkshire. *TL671.9 .K76 1993*

BDS40209 On Job Training II
Pre-Requisite On Job Training I

Synopsis

Students are required to perform on job training as an aircraft maintenance engineer in aviation industry. They will work with real aircraft as planned by the industry.

References

1. CAP 741 Aircraft Maintenance Engineer's Log Book
2. Department of Civil Aviation Malaysia, 2011, DCAM Part-66 Aircraft Maintenance Licence (AML): Airworthiness Notice AN 1101
3. Aubin, Bruce R, 2004, Aircraft Maintenance: The art and science of keeping aircraft safe, Society of Automotive Engineers, Warrendale, PA. *TL671.9 .A92 2004*
4. Crane, Dale, 2007, Aviation maintenance technician: General, Aviation Supplies & Academics, Newcastle WA. *TL671.9 .C72 2007*
5. Larry Reithmaier, 1999, Standard aircraft handbook for mechanics and technicians (6th ed), McGraw-Hill, New York. *TL671.28 .R44 1999 r*
6. Kroes, Michael J. Watkins, William A. Delp, Frank, Aircraft maintenance and repair, 1993, McGraw-Hill, Berkshire. *TL671.9 .K76 1993*

BDS40305 On Job Training III
Pre-Requisite On Job Training II

Synopsis

Students are required to perform on job training as an aircraft maintenance engineer in aviation industry. They will work with real aircraft as planned by the industry.

References

1. CAP 741 Aircraft Maintenance Engineer's Log Book
2. Department of Civil Aviation Malaysia, 2011, DCAM Part-66 Aircraft Maintenance Licence (AML): Airworthiness Notice AN 1101
3. Aubin, Bruce R, 2004, Aircraft maintenance: The art and science of keeping aircraft safe, Society of Automotive Engineers, Warrendale, PA. *TL671.9 .A92 2004*
4. Crane, Dale, 2007, Aviation maintenance technician: General, Aviation Supplies & Academics, Newcastle WA. *TL671.9 .C72 2007*
5. Larry Reithmaier, 1999, Standard aircraft handbook for mechanics and technicians (6th ed), McGraw-Hill, New York. *TL671.28 .R44 1999 r*
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BDS50109 On Job Training IV
Pre-Requisite On Job Training III

Synopsis

Students are required to perform on job training as an aircraft maintenance engineer in aviation industry. They will work with real aircraft as planned by the industry.

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Centre for Academic Development
Universiti Tun Hussein Onn Malaysia
86400 Batu Pahat, Johor Darul Ta'zim
www.uthm.edu.my