



Universiti Tun Hussein Onn Malaysia
86400 Batu Pahat, Johor



Academic Proforma

2020/2021

**Bachelor Degree in Vocational
Education (Refrigeration
and Air-Conditioning) with
honours**
**Faculty of Technical and Vocational
Education**

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Foreword from the Vice Chancellor

Assalamualaikum Warahmatullahi Wabarakatuh and Warm Greetings

Our utmost gratitude to Allah the Almighty, I am able to share and pen down a couple of words and advices to readers of this proforma especially to new students of Universiti Tun Hussein Onn Malaysia (UTHM) whom had just enrolled in this 2020/2021 Academic Session.

Congratulations and welcome to the new students and thank you for believing in UTHM for your continuing endeavour in the search of knowledge towards the success in your future career and life betterment.

For your information, University leadership continues to strive in the search of, designing, and adapting the effective and efficient approaches that would able to produce the highest impact towards making UTHM a top Higher Education Institution. The success in obtaining "QS STARS RATED FOR EXCELLENCE 2015" and UTHM was recognized as the Top 300 in the QS World University Ranking by Subject 2015 for Mechanical, Aeronautical and Manufacturing Engineering, have proven that UTHM continues creating excellence. These successes have convinced the University that these are due to the alignment of University's vision and mission which are continually strengthen and improve.

As the Vice Chancellor, I gave full confidence that UTHM is currently on the right track in the effort towards the success of the 10 Shifts identified in the Malaysia Education Blueprint (Higher Education). Based on the details outlined in the Malaysia Education Blueprint (Higher Education), UTHM is committed in producing human capital and disseminating knowledge to meet the needs of the industry and the community as well as to nurture creative and innovative human capital.

Last but not least, I believe that you will become graduates of the University that will successfully continue the University excellence tradition. When you graduated, you will become the member of society that will not only be able to apply the knowledge gained but also be able to contribute service and expertise for the importance and the needs of Religion, Race and Nation.

PROF. DATUK TS. DR. WAHID BIN RAZZALY

Vice-Chancellor
Universiti Tun Hussein Onn Malaysia

Foreword from the Deputy of Vice Chancellor (Academic and International)

Assalamualaikum Warahmatullahi Wabarakatuh and Warm Greetings

I would like to take this opportunity to express the utmost congratulations and well done to you as the new students whom have been successfully been selected to pursue studies at Universiti Tun Hussein Onn Malaysia for this 2020/2021 session.

I would also like to congratulate Centre for Academic Development and Training that has successfully produced the proforma which will be used as a guide for students in planning the studies beginning from the first semester until the end of the studies at this University.

Detailed planning which is effectively implemented at every semester as well as early preparation of students before attending lectures is very important in ensuring the readiness of learning process. Apart from that, the preparation for co-curriculum program also is important in shaping the personality and social development of students.

I hope that the publication of this proforma can be fully utilized by you in planning your studies at the University and you are capable of obtaining the best results as well as attaining excellent success.

Last but not least, I would like to wish "All the Best" and I pray that you will achieve excellent success in your studies at UTHM and thus can contribute as the human capital towards religion, race and nation development.

Thank you.

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PROF. DR. ISMAIL BIN ABDUL RAHMAN
Deputy of Vice Chancellor (Academic and
International)
Universiti Tun Hussein Onn Malaysia

Foreword from the Dean of Faculty of Technical & Vocational Education

Assalamualaikum Warahmatullahi Wabarakatuh dan Greetings

As the starting point, I would like to congratulate all new students at the Faculty of Technical and Vocational Education (FPTV) UTHM for the 2020/2021 academic session. All of you are very fortunate to be selected to enter this University compare to many other candidates who have submitted an application to enter to this university, and still seeking for the opportunity to persue their studies. Therefore, you should be grateful and remember that being selected to this university is a great privilege that should not be wasted.

In order to accomplish the University's and FPTV missions which are to produce and train competitive professionals and future teachers of high ethical values, you will be guided by qualified, committed, and responsible academic staff. FPTV offers academic programmes based on four major areas in the field of civil, electrical and mechanical engineering as well as hotel-catering programme. Various educational knowledge skills that will practice in technical and vocational education institutions, nationally and internationally. Soft skills and gereric skills will be part of the trainings to ensure that students are fully responsible to their learning and instill with the high ethical and good values. To enhance students' understanding and creativity, the faculty provides laboratories equipped with the latest equipment and assisted by well-trained technicians. Students will also have to undergo practical work in the field relevant to the current technical and vocational education needs.

Therefore, you must take this opportunity to work extremely hard in order to achieve the aspirations of not only your parents but also the community and the country. Systematic planning of teaching and learning will produce outstanding and dedicated graduates.

Thank you.

ASSOCIATE PROFESSOR TS. DR ABDUL RASID BIN ABDUL RAZZAQ
Dean
Faculty of Technical & Vocational Education
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

University Education Philosophy

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

University Logo

The 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

Shield: Confidence

Chancellor



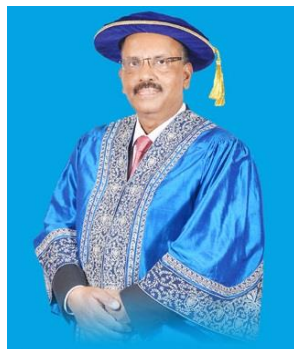
Duli Yang Maha Mulia Sultan Ibrahim Ibni Almarhum Sultan Iskandar
Sultan of Johor
D.K., D.K. (Pahang), SPMJ, SSIJ, S.M.N., S.P.M.T., S.M.P.K., P.I.S.

Pro Chancellor I



Duli Yang Amat Mulia Tunku Ismail Ibni Sultan Ibrahim
Tunku Mahkota of Johor (TMJ)
D.K., SPMJ, P.I.S

Pro Chancellor II



YBhg. Tan Sri Dr. Ali Hamsa
Chief Secretary to the Government of Malaysia

University Board of Directors

Chairman

Dato' Dr. Hj. Mohd. Sofi bin Hj. Osman
Managing Director & Vice President PEN Operations

Members

Prof. Datuk Ts. Dr. Wahid bin Razzaly
Vice-Chancellor
Universiti Tun Hussein Onn Malaysia

Tan Sri Dato' Sri Sufri Bin Hj Mohd Zin
Group Managing Director
TRC Synergy Berhad

Dato' Haji Nooh Bin Gadot
Advisor
Majlis Agama Islam Johor

Datuk Dr. Pang Chau Leong
Alumni Representative
Universiti Tun Hussein Onn Malaysia

Dato' Dr. Ir. Hj. Abdul Rashid bin Maidin
Akademi Profesional Koperasi Serbaguna Anak-anak
Selangor Berhad (KOSAS)

Ts. Dr. Mohammad Naim Bin Yaakub
Ministry of Education Malaysia

Prof. Dr. Mohd Idrus bin Mohd Masirin
Universiti Tun Hussein Onn Malaysia

Dr. Sharifah Adlina binti Syed Abdullah
Ministry of Finance Malaysia

Mr. Ahmad Luqman bin Mohd. Azmi
Chief Operations Officer Malaysia Airlines Berhad

Mr. Abdul Haris bin Hj. Lakar
Procurement Division Secretary
Ministry of Education Malaysia

Secretary

Mr. Abdul Halim bin Abdul Rahman
Registrar
Universiti Tun Hussein Onn Malaysia

Senate Members

Chairman

Professor Datuk Ts. Dr. Wahid bin Razzaly
Vice-Chancellor

Members

Professor Dr. Ismail bin Abdul Rahman
Deputy Vice-Chancellor (Academic & International)

Professor Dr. Mohd Shahir Shamsir Bin Omar
Deputy Vice-Chancellor (Research and Innovation)

Associate Professor Dr. Afandi bin Ahmad
Deputy Vice-Chancellor (Student Affairs and Alumni)

Associate Professor Ts. Dr. Mohd Kamarulzaki bin Mustafa
Provost
UTHM Pagoh Branch Campus

Professor Dr. Ahmad Tarmizi bin Abdul Karim
Assistant Vice-Chancellor (Strategic Planning and Corporate Relations)

Associate Professor Dr. Wan Fauzi @ Fauziah binti Wan Yusoff
Assistant Vice-Chancellor (Financial Sustainability)

Professor Dr. Azme bin Khamis
Dean, Centre for Graduate Studies

Professor Ir. Ts. Dr. Mohd Irwan bin Juki
Dean Faculty of Civil Engineering and Built Environment

Associate Professor Dr. Rosli bin Omar
Dean Faculty of Electrical and Electronic Engineering

Professor Dr. Shahrudin bin Mahzan @ Mohd Zin
Dean Faculty of Mechanical and Manufacturing Engineering

Associate Professor Dr. Mohd Lizam bin Mohd Diah
Dean Faculty of Technology Management and Business

Associate Professor Ts. Dr. Abdul Rasid bin Abdul Razzaq
Dean Faculty of Technical and Vocational Education

Ts. Dr. Azizul Azhar bin Ramli
Dean Faculty of Computer Science and Information Technology

Associate Professor Dr. Mohd Kamarulzaki bin Mustafa
Dean Faculty of Applied Sciences and Technology

Associate Professor Amran Bin Mohd Zaid

Dean Faculty of Engineering Technology

Associate Professor Dr. Mohamad Zaky bin Noh
Dean Centre for Diploma Studies

Associate Professor Dr. Khairul Azman bin Mohamad Suhaimy
Dean Centre for General Studies and Co-curricular

Dr. Zailin Shah binti Yusoff
Dean Centre for Language Studies

Associate Professor Ts. Dr. Ishak bin Baba
Director Centre for Academic Development and Training

Associate Professor Ts. Dr. Razali bin Hassan
Director Malaysia Research Institute for Vocational Education and Training

Professor Dr. Rosman bin Md. Yusoff
Director Institute for Social Transformation and Regional Development

Professor Ir. Dr. Abdul Aziz bin Abdul Samad
Faculty of Civil Engineering and Built Environment

Professor Dr. Mohd. Idrus bin Mohd. Masirin
Faculty of Civil Engineering and Built Environment

Professor Dr. Mohammad Faiz Liew bin Abdullah
Faculty of Electrical and Electronic Engineering

Professor Ir. Dr. Md Saidin bin Wahab
Faculty of Mechanical and Manufacturing Engineering

Professor Dr. Mohd Amri bin Lajis
Faculty of Mechanical and Manufacturing Engineering

Professor Sr. Dr. David Martin @ Daud Juanil
Faculty of Technology Management and Business

Professor Datin Ts. Dr. Noraini binti Kaprawi
Faculty of Technical and Vocational Education

Professor Dr. Rosziati binti Ibrahim
Faculty of Computer Science and Information Technology

Professor Dr. Rozaini bin Roslan
Faculty of Applied Sciences and Technology

Professor Dr. Khalid bin Hasnan
Faculty of Engineering Technology

Ir. Ts. Shamrul-Mar bin Shamsuddin
Director Development and Maintenance Office

Associate Professor Ts. Dr. Mohd Farhan bin Md. Fudzee
Director Centre Information Technology

Mr. Abdul Halim bin Abdul Rahman
Registrar / Senate Secretary

Mr. Norzaimi bin Hamisan
Bursar (Acting)

Mdm. Zaharah binti Abd Samad
Chief Librarian (Acting)

Mdm. Norliah binti Yaakub
Head of Legal Advisor Office



Faculty Vision

To become a world class resource and referral centre on Technical and Vocational Education Training through research, continuous development as well as technological based teaching and learning processes, in line with the Philosophy of the National Education system to realize the Vision 2020.

Faculty Mission

To educate and train world class, competitive professional human capital in the various discipline, within the technical and vocational education, to explore, expand and apply knowledge and modern technologies, based on the concept of Tauhid.

Faculty Background

The Faculty of Technical and Vocational Education (FPTV) of the Universiti Tun Hussein Onn Malaysia (UTHM), was formally known as the Faculty of Technical Education (FTE). Our inception began in September 27th, 2000, as the Department of Technical and Vocational Education (DTVE) under the auspices of the Faculty of Engineering Technology, Kolej Universiti Teknologi Tun Hussein Onn (KUiTTHO).

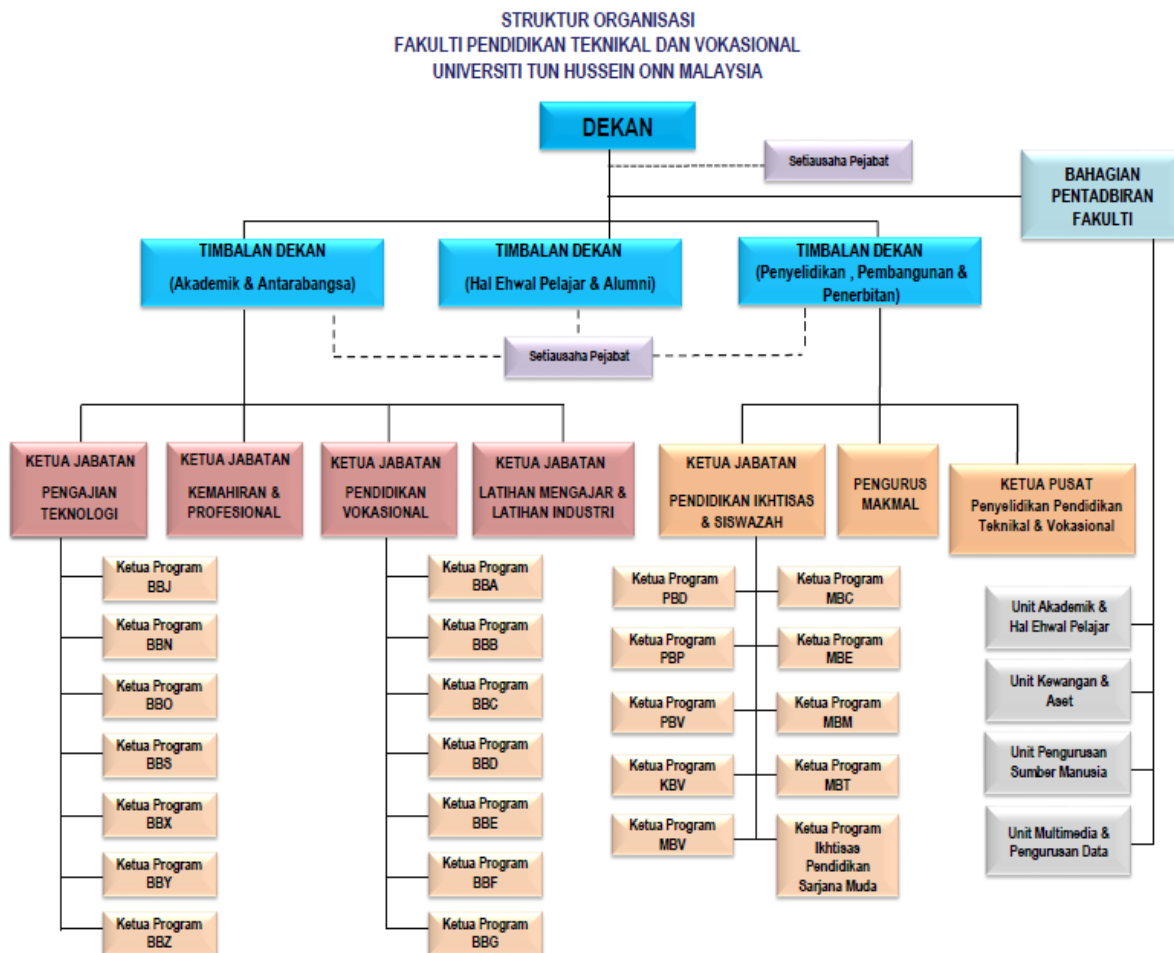
Our renowned excellences in Teachers Training in Technical and Vocational Education and Training (TT-TVET) niche areas is traceable back to the year 1993 when we started as one of the core departments of the Polytechnics Staff Training Centre (PSTC) that produced qualified polytechnics lecturers and instructors. PSTC was upgraded and renamed as Kolej Universiti Teknologi Tun Hussein Onn (KUiTTHO) on May 1998. On May 27th, 2000, the department was restructured and renamed as the Department of Technical and Vocational Education (DTVE) under the auspices of the Faculty of Engineering Technology, KUiTTHO. On May 1st, 2004, the department was upgraded as the Faculty of Technical Education with the dissolution of Department of Engineering Technology. The rebranding of the faculty to the present new name, is endorsed by the Ministry of Higher Education on June 23rd, 2011, to reflect our continuous and significant contributions to the rapid changes and transformation of the Technical and Vocational Education (TVET) Systems, both locally and abroad.

Today, FPTV has developed to become the major provider and referral centre of high quality TT-TVET programmes, researches and consultancies. Since

2002, UNESCO-UNEVOC Bonn entrusted the faculty to carry the role as UNESCO -UNEVOC Associate Centre and ultimately in 2005, the faculty has become UNESCO-UNEVOC centre in Malaysia. FPTV does not stand alone in making reputation to its credentials. Collaborations and networking with regional and international organizations such as Southeast Asian Ministers of Education Organization Regional Centre for Vocational and Technical Education and Training (SEAMEO VOCTECH), Korea Research Institute for Vocational Education and Training (KRIVET), Colombo Plan Staff College for Technician Education Philippines (CPSC), The National Centre for Career and Technical Education USA (NCCTE), European Centre for the Development of Vocational Training (CEDEFOP) and others have been made as initiatives to upgrade the quality and credibility of technical and vocational education for the benefit of all.

FPTV is the professional faculty with niche in TT-TVET. The faculty offers a range of quality academically balanced and practical-oriented programmes to meet the changing needs of the teaching and training sectors of the economy. Our programmes of study are dynamics that leads the rapidly transformation of TVET both regional and worldwide. Our qualified and experienced academics and supporting staffs are dedicated to providing a high standard and *state-of-the-art* theoretical and practical knowledge in a stimulating and innovative learning atmosphere.

The faculty, consisted of four (5) departments and a research center that is led by a Dean and assisted by three (3) Deputy Deans. Organisation chart of FPTV is depicted the diagram overleaf.





UNESCO-UNEVOC International Centre
for Technical and Vocational Education and Training
Bonn, Germany

presents this


UNEVOC CENTRE AWARD

to

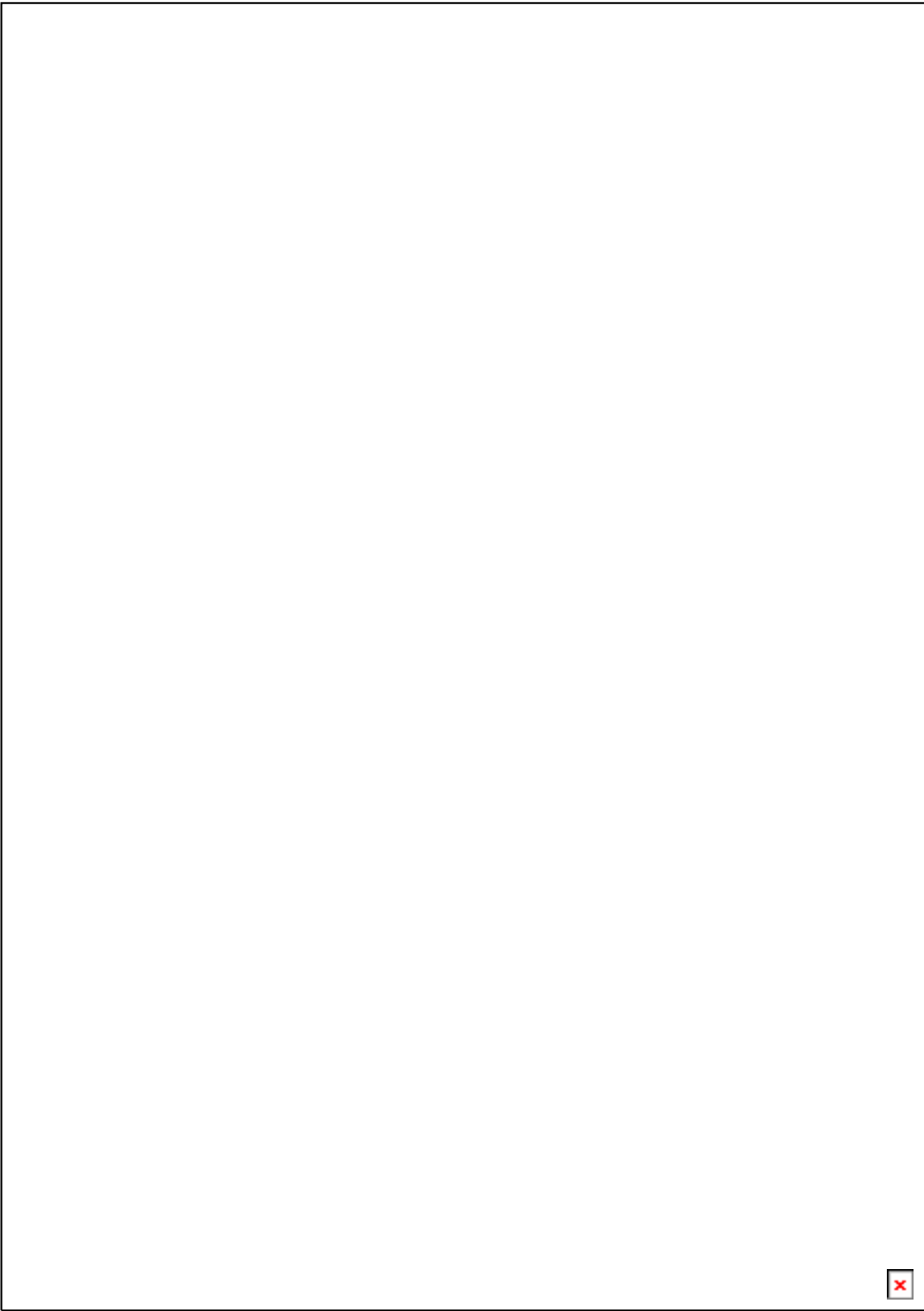
Universiti Tun Hussein Onn Malaysia

in recognition of being a UNEVOC Centre
dedicated to furthering UNESCO goals
in the area of technical and vocational education and training

Presented this 25th day of November 2007


L. Efison Munjangana
Head
UNEVOC Networks, Bonn


Rupert Maclean
Director
UNESCO-UNEVOC International Centre, Bonn



Faculty Staff Directory

Administrative

Dean

Associate Prof. Ts Dr. Abdul Rasid Bin Abdul Razzaq

Ph.D (Town & Regional Planning) (UTM), Master of Tourism Planning (UTM), Bachelor of Business Management (UUM), Dip. (Maktab Perguruan Teknik, KL)

Deputy Dean (Academic & International)

Ts Dr. Mohd Hasril Bin Amiruddin

Ph.D (Technical & Vocational Education) (UKM), Master (Technology Education) (UPM), Bachelor (Technical & Vocational Education) (UTHM), Diploma (PSA)

Deputy Dean (Research, Development & Publication)

Associate Prof. Ts Dr. Badaruddin Bin Ibrahim

Ph.D (Colorado State Uni.), Master (Technical Education) (UTM), Bachelor (Mechanical Engineering) (ITTTHO)

Deputy Dean Student Affairs & Alumni

Associate Prof. Ts Dr. Azman Bin Hasan

Ph.D (Technical & Vocational Education) (UTM), Master (Technical Education) (KUiTTTHO), Bachelor (Civil Engineering) (ITTTHO)

Office Secretary

Mrs. Mollyza Binti Abd Majid

Diploma (UiTM)

Office Secretary

Mrs. Zarina Binti Atan

Diploma (UiTM)

Senior Asst. Registrar

Miss Rohana binti Dollah

Sarjana Muda Pentadbiran Korporat (Setiausaha Syarikat)

Asst. Admin. Officer (Finance & Asset)

Mrs. Suzana Binti Ojudah

Bachelor (OUM), Diploma (UiTM)

Asst. Admin. Officer (Academic & Student Affairs)

Mrs. Norina Binti Alwee

Diploma (UiTM)

Senior Asst. IT Officer (Multimedi & Data Management)

Mrs. Farizah Binti Sudin

Diploma (Information Tech.) (UiTM)

Senior Clerk

Mr. Hazni Bin Md Harith

SPM (SM Dato Onn, Batu Pahat)

Senior Clerk

Mrs. Ruzehan Binti Md. Shah

Cert. (Kolej Komuniti Yayasan Pelajaran Johor), STPM (SM Tun Sardon), SPM (SM Tun Sardon)

Clerk

Mrs. Nor Afizah Binti Omar

STPM (SM (P) Temenggong Ibrahim), SPM (SM (P) Temenggong Ibrahim)

Clerk

Mrs. Hernany binti Abd Kadir

Certificate/Sijil Komunikasi (Institut Perdagangan Mara)

Clerk

Mr. Mohd Nazri bin Md Sapi @ Safri

SPM (Sek. Men. Keb. Munshi Sulaiman)

General Office Asst.

Mr. Haszizan Bin Hasbullah

SPM (Smk Pt Haji Hassan)

Professional Education Department

Academic Staff

Head of Professional Education Department

Ts. Dr. Marina Binti Ibrahim Mukhtar

Ph.D (Evaluation and Assessment) (UKM), Master (Technical & Vocational Education) (KUiTTHO), Bachelor (Civil Eng.) (KUiTTHO)

Prof. Ts. Datuk Dr. Wahid Bin Razzaly

Ph.D (Engineering Education) (Univ. Manchester), Master (Highway & Transport) (UTM), Bachelor (Civil Engineering) (Univ. College Swansea), Diploma (Education) (UKM)

Prof. Datin Ts. Dr. Noraini Binti Kaprawi

Ph.D (Higher Education) (Univ. Manchester), Master (Technology Management) (UTM), Bachelor (Physic) (Univ. of Aston)

Prof. Emeritus Dr. Jailani Bin Md Yunos

Ph.D (Education) (Univ. Sheffield), Master (Education) (Univ. Wisconsin-Stout), Bachelor (Industrial Technology) (Univ. Wisconsin-Stout)

Associate Prof. Dr. Asri Bin Selamat

Ph.D (Evaluation and Assessment) (UTM), Master (Evaluation and Assessment) (UTM), Bachelor (Sastera) (USM), Cert. (Maktab Perguruan Bahasa, KL)

Associate Prof. Ts. Dr. Abdul Rasid Bin Abdul Razzaq

Ph.D (Town & Regional Planning) (UTM), Master of Tourism Planning (UTM), Bachelor of Business Management (UUM), Dip. (Maktab Perguruan Teknik, KL)

Associate Prof. Ts. Dr. Lee Ming Foong

Ph.D (Technical & Vocational Education) (UTM), Master (Technical & Vocational Education) (UTM), Bachelor (Technology Education) (UTM)

Associate Prof. Ts. Dr. Halizah Binti Awang

Ph.D (Curriculum) (USM), Master (Education) (ITTHO), Bachelor (Civil Engineering) (UTM), Cert.(PPD)

Associate Prof. Dr. Kahiroil Bin Mohd. Salleh

PhD (Education & Human Resource) (Colorado State University), Master (Technical Education) (UTM), Bachelor (Mechanical Engineering) (UTM), Cert.(POLIMAS)

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Ph.D (Technical & Vocational Education) (UTM), Master (Technical & Vocational Education) (UTHM), Bachelor (Computer Mathematic) (UMT)

Dr. Nur Sofurah Binti Mohd Faiz

Ph.D (Education) (Univ.Of South Australian), Master (Technical & Vocational Education) (KUiTTHO), Bachelor (Material Engineering) (USM)

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Ph.D (Technical & Vocational Education) (UPM), (Technical & Vocational Education) Master (UTHM), Bachelor (Information Technology & Communication) (UiTM), Diploma (UiTM)

Ts. Dr. Alias Bin Masek

Ph.D (Technical & Vocational Education) (UTHM), Master (Technical & Vocational Education) (UTHM), Bachelor (Electrical Engineering) (KUiTTHO)

Dr. Norhasyimah Binti Hamzah

Ph.D (Education Technology) (UTM), Bachelor (Computer Science with Mathematic Education) (UTM), Diploma (Computer Science) (UTM)

Dr. Hashima Binti Hamid

Ph.D (Technology Management) (UTHM), Master (Technical & Vocational Education) (UTHM), Bachelor (Information Technology) (UM)

Ts. Dr. Tee Tzee Kiong

Ph.D (Technical & Vocational Education) (UTHM), Master (Technical & Vocational Education) (UTM), Bachelor (Civil Engineering Education) (UTM)

Dr. Nurul Hidayah Liew Binti Abdullah

Ph.D (Technology Management) (UTHM), Master (Environmental Management) (UKM), Bachelor (Arts) (UKM)

Dr. Suhaizal Bin Hashim

Ph.D (Technology Education) (UTM), Master (Technology Education) (UTM), Bachelor (Mathematic) (UTM)

Dr. Zanariah Binti Ahmad

Ph.D (Teaching & Curriculum) Master (Technical & Vocational Education) (UTHM), Bachelor (Technical & Vocational Education) (UTHM)

Ts. Dr. Yusmarwati Binti Yusof

Ph.D (Education) (Uni. of East London), Master (Education) (ITTHO), Bachelor (Civil Engineering) (ITTHO), Cert (Civil Engineering) (POLISAS)

Dr. Noorazman Bin Abd. Samad

Ph.D (Technical & Vocational Education) (UTHM), Master (Curriculum & Pedagogy) (UKM), Bachelor (Public Management) (UUM), Diploma (Edu. Management) (UM)

Ts. Dr. Yee Mei Heong

Ph.D (Technical & Vocational Education) (UTHM), Master (Technical & Vocational Education) (UTM), Bachelor (Technology with Education) (UTM)

Dr. Nur Syamimi Binti Mohd Razali

Ph.D (Education Technology) (UTM), Bachelor (Education & Science) (UTM).

Dr. Mohd Zulfadli Bin Rozali

Ph.D (Education) (UTHM), Master (Technical & Vocational Education) (UKM), Bachelor (Technology Management) (UTHM).

Asst. Engineer

Mr. Daud Bin Ahmad

Cert.of Elect. Communication (Politeknik Ungku Omar, Ipoh).

Mr. Natijau @ Mohd Hazizul Bin Silam

Cert.of Elect.Power (Politeknik Batu Pahat).

Mrs. Noor Hayati Binti Mustafa

Cert.of Elect. Communication (Politeknik Sultan Haji Ahmad Shah, Kuantan).

Mr. Omar Bin Motaji

Cert.of Elect. Communication (Politeknik Ungku Omar, Ipoh).

Mr. Mansor Bin Mordi

Cert.of Elect. Communication (Politeknik Sultan Haji Ahmad Shah, Kuantan).

Mr. Yushadi Bin Muslim

Cert.of Elect. Communication (Politeknik Sultan Haji Ahmad Shah, Kuantan).

Mrs. Zanariah Binti Ahmad

Cert.of Elect. Communication (Politeknik Sultan Ahmad Shah).

Vocational Education Department

Academic staff

Head of Vocational Education Department

Ts. Dr. Faizal Amin Nur Bin Yunus

Ph.D (Technical & Vocational Education) (UKM), Master (Technical Education) (UTHM), Bachelor (Mechanical Engineering) (UTHM)

Associate Prof. Ts. Dr. Ahmad Rizal Bin Madar

Ph.D (Technical & Vocational Education) (UTM), Master (Education) (KUiTTHO), Bachelor (Elect. Engineering), (KUiTTHO), Diploma (UTM)

Associate Prof. Ts. Dr. Razali Bin Hassan

Ph.D (Education) (Univ. Of Warwick), Master (Vocational Education) (UPM), Bachelor (Elect. Engineering) (UTM)

Associate Prof. Ts. Dr. Mohamad Hisyam Bin Mohd Hashim

Ph.D (Technology Education) (UPSI), Master (UTM), Bachelor (Elect. Eng.) (UTM), Cert.(POLIMAS)

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Associate Prof. Ts. Dr. Azman Bin Hasan

Ph.D (Technical & Vocational Education) (UTM), Master (Technical Education) (KUiTTHO), Bachelor (Civil Engineering) (ITTHO)

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Ph.D (Industrial and System Engineering) (Hong Kong Polytechnic Uni.) Master (Technical Education) (KUiTTHO), Bachelor (Mechanical Engineering) (KUiTTHO)

Ts. Dr. Rohayu Binti Roddin

Ph.D (Town & Regional Planning) (UTM), Master (Tourism Planning) (UTM), Bachelor (Town & Regional Planning) (UTM)

Ts. Dr. Marlina Binti Mohamad

Ph.D (Business-Instructional Design) (Melbourne Royal Institute of Technology University), Master (Information Technology) (UTM), Bachelor (Computer) (UTM), Diploma (UTM)

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Ph.D (Education) (Nova Southeastern University), Master (Technical & Vocational Education) (UTHM), Bachelor (Technology Management) (UiTM), Diploma (UiTM)

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Ph.D (Resource & Information Technology) (UKM), Master (Instructional Design & Technology) (UTHM), Bachelor (Technical & Vocational Education) (UTHM)

Ts. Dr. Affero Bin Ismail

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Ts. Dr. Mohd Erfy Bin Ismail

Ph.D (Education), Master (Mechanical Engineering) (UTHM), Bachelor (Mechanical Engineering) (UniMAP)

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Ph.D (Education Technology) (USM), Master (Instructional Design & Technology) (UTHM), Bachelor (Technology Education) (UTM)

Dr. Nurhanim Saadah Binti Abdullah

Ph.D (Education Technology & Multimedia) (USM), Master (Technical Education) (UTHM), Bachelor (Electric & Electronic Engineering) (UMP)

Dr. Nor Aziah Binti Ahmad

Ph. D (Education) (UM) Master (Food Services Management) (UiTM), Bachelor (Food Services Management) (UiTM)

Ts. Dr. Azmanirah Binti Ab Rahman

PhD (Measurement & Assessment) Master (Vocational Education) (UTM), Bachelor (Electrical Engineering) (UTM)

Dr. Azita Binti Ali

Ph.D (Technical & Vocational Education) (UTM), Master (Technical & Vocational Education) (UTHM), Bachelor (Komunikasi Data dan Perangkaian Maklumat) (UiTM), Diploma (UiTM)

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Master (Technology Education) (UTM), Bachelor (Hotel Management) (Univ. Strathclyde, Scotland), Cert. (MPT, KL)

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Dip. (Politeknik Johor Bharu), Cert.of Mech. Eng (Politeknik Port Dickson)

Mr. Aminuddin Bin Abas

Dip. (Politeknik Johor Bharu), Cert.of Mech. Eng (Politeknik Port Dickson)

Mr. Mohamad Rafi Bin Rahhim

Cert.of Elec. Power (Politeknik Port Dickson)

Mr. Muhammad Muzammil Bin Noruddin

Dip. (Politeknik Merlimau), Cert.of Mech. Eng (Politeknik Merlimau).

Mr. Mohd Razali Bin Mohd Muksin

Cert. (Politeknik Sultan Salahudin Abdul Aziz Shah, Shah Alam).

Mr. Mohd Syah Hafiz Bin Masrol

Cert. (Electric & Electronic) (Politeknik Johor Bharu)

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Dip. (Electronic Computer), Cert. (Electric & Electronic Eng.) (Politeknik Johor Bharu)

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Dip. (Electronic), Cert. (Electric & Electronic Eng) (Politeknik Johor Bharu)

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Diploma (Hotel Management) (UNITAR)

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Master (Food Servis Management) (UTM), Bachelor (Culinary Arrts) (UTM)

ACTIVE

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Head of ACTIVE

Associate Prof. Dr. Nor Lisa Binti Sulaiman

PhD (Education & Human Resource) (Colorado State University), Master (Education) (UTM), Bachelor (Electrical Engineering) (UTM), Cert. (PPD)

Programme Name

Bachelor Degree in Vocational Education (Refrigeration and Air Conditioning) with Honours

Programme Aims

The program is designed to be in line with the vision and mission of the University. Through this program, graduates are expected to become part of the educator in TVET and skilled worker which is capable in driving the growth of the country accordance with the aspirations of Vision 2020. This program also to produce skilled educators who are able to confront challenges faced during their experiences in teaching, managing and supervising students, by familiarising them with relevant, appropriate and significant research-based knowledge in different areas of education. This will be done with the course emphasizing new technologies, which also include theoretical and practical skills. In addition, this program will also expose students to a variety of activities that can increase the generic skills and personality.

Programme Educational Objectives (PEO)

These are the PEOs for Bachelor Degree in Vocational Education (Refrigeration and Air Conditioning) with Honours is to produce professional instructors in the field of TVET that who are:

- PEO 1 : Knowledgeable and skilled in the field of vocational education (Refrigeration and Air Conditioning) in line with the needs of the national education industry.
- PEO 2 : Able to communicate effectively and have a high quality of professional leadership in line with the responsibilities given across the diversity of community background, personality, complexity of the educational process in the field of vocational education from primary to tertiary level.
- PEO 3 : Able to solve problems creatively and innovatively in the field of vocational education (Refrigeration and Air Conditioning) and subsequently constantly display, strengthen, appreciate the ethics and professional code of practice as well as the values of the teaching profession in educational practice.
- PEO 4 : Able and wise in strengthening positive and productive relationships with family and community as well as engaging in lifelong learning and contributing to life.
- PEO 5 : Competent in applying technology to improve efficiency and training skills according to the needs of the country's vocational education.
- PEO 6 : Demonstrate high competencies in entrepreneurial skills, the ability to enhance personal knowledge, talents and personalities gradually and continuously in the field of Refrigeration and Air Conditioning.

Programme Learning Outcomes (PLO)

These are the PLOs for Bachelor Degree in Vocational Education (Refrigeration and Air Conditioning) with Honours:

- PLO 1 : Analyze and develop students' knowledge and understanding of (student learning) in certain subjects, across curriculum activities and programs to achieve the entire curriculum of educational institutions that will be provided services.
- PLO 2 : Apply various philosophies and effective practical skills to educational situations both in terms of different levels of education and educational settings.
- PLO 3 : Creative and innovative promote the use of the corpus of knowledge of the teaching profession and quality practice protocols in the educational environment as well as address the context of students' cultural diversity in a sensitive, effective and prudent manner to foster learning, and competent student talents and potential.
- PLO 4 : Meet the requirements of professional teaching standards embedded at all levels (schools, colleges, universities and other learning organizations).
- PLO 5 : Apply knowledge of interpersonal skills, communication skills and be able to work collaboratively and independently to solve problems in different educational environments.
- PLO 6 : Exhibit and demonstrate professional leadership characteristics appropriate to the given responsibilities.
- PLO 7 : Prudently apply problem-solving skills and scientific skills as well as awareness of the role of research through mastery of knowledge and understanding in their ever-evolving professional practice.
- PLO 8 : Reflect and learn from their own experiences in order to advance and drive their learning forward, for example, by using the theory of constructivism for universal benefit.
- PLO 9 : Practicing and demonstrating management, entrepreneurship and ICT skills as well as being responsive to changes in education as an academic and professional discipline.
- PLO 10: Develops encyclopedic general knowledge and diverse individual talents and potential to the highest level continuously and incrementally.
- PLO 11: Contribute to community development through professional organizations or voluntary organizations through active involvement in social responsibility.
- PLO 12: Exhibit and demonstrate research, creativity, innovation and design capabilities.

Curriculum Structure

Table 1: Summary of curriculum for the Bachelor of Technology in Refrigeration and Air Conditioning with Honours

COURSE COMPONENT	BIL	COURSE CODE	COURSE	CREDIT
Compulsory University Courses	1	UHB10102	English for Higher Education	2
	2	UHB20102	Essential Academic English	2
	3	UHB30102	English for Technical Purposes	2
	4	UHB40102	English for Occupational Purposes	2
	5	UQI10102/ UQI10202	Islamic Studies/ Moral Studies	2
	6	UQ*1xx02	Foreign Language	2
	7	UQU10103	Nationhood and Current Development of Malaysia	3
	8	UQI11202	Philosophy and Current Issues	2
	9	UQU10702	Appreciation, Ethics and Civilization	2
	10	UQ* 1XXX1	Co-Curriculum I	1
	11	UQ* 1XXX1	Co-Curriculum II	1
Professional Education Course	1	BBD 10102	Philosophy of Education	2
	2	BBD 10202	Educational Psychology	2
	3	BBD 10302	Pedagogy	2
	4	BBD 10803	Information Technology in Education	3
	5	BBD 20202	Educational Technology	2
	6	BBD 20403	Micro Teaching	3
	7	BBD20603	Education Management	3
	8	BBD20703	Measurement and Evaluation in Education	3
	9	BBD 20802	Technical Vocational Education and Planning	2
	10	BBD 30302	Guidance and Counselling	2
	11	BBD 30402	Educational Data Reasoning	2
	12	BBD 30502	Sociology in Education	2
Technical and Vocational Education Course	1	BBP 10603	Mathematics I	3
	2	BBP 10403	Mathematics II	3
	3	BBP 10502	Creativity And Innovation In TVE	2
	4	BBP40302	Entrepreneurship	2
	5	BBP 20203	Engineering Graphics	3
	6	BBP 20202	Occupational Safety and Health	2
	7	BBP 30403	Research Methodology in TVE	3
	8	BBP 20402	Project Management	2
	9	BBP 30103	Laboratory and Workshop Management	3
	10	BBP 30102	Industrial Design	2
	11	BBM10103	Material Selection	3
	12	BBM 30103	Fluid Mechanics	3
	13	BBM 30303	Solid Mechanics	3
	14	BBP 40102	Final Year Project 1	2
	15	BBP 40204	Final Year Project 2	4

Professional Practise	1	BBD 10500	School Orientation Training - ROS (2w)	0
	2	BBP40408	Teaching Training	8
	3	BBP 30404	Industrial Training	4
Core Programme Courses	1	BBP 10703	Fundamental of Electrical Technology	3
	2	BBA 10102	Workshop Practice for Refrigeration and Air Conditioning	2
	3	BBM 20203	Thermodynamic	3
	4	BBA40503	Air Conditioning Installation and Maintenance Supervision	3
	5	BBA 30203	Engineering Drawing Refrigeration and Air Conditioning System	3
	6	BBA 40603	Air Conditioning System Design	3
	7	BBA 40303	Diagnosis and Analysis Refrigeration and Air Conditioning System	3
	8	BBA 40403	Service and Maintenance Commercial Refrigeration and Air Conditioning System	3
Elective Course	1	BBA 20203	Technology of Refrigeration and Air Conditioning	3
	2	BBV 20303	Electrical Wiring and Installation	
	3	BBW 20103	Metal Fabrication and Welding Technology	3
	4	BBA 40203	Service and Maintenance Domestic Refrigeration and Air Conditioning System	
	5	BBA 30303	Electric Motor Control	3
	6	BBM40703	Basic Skill of Welding	
	7	UQU 40103	Professional At Work	
JUMLAH				133

University Course Synopsis

UQ* 10602 French Language

Prerequisite Course: None

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

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4. Hatier. (2002). Le Nouveau Bescherelle 12,000 French Verbs. English Edition. Paris: Librairie Hatier.
5. Hatier, (1995). Le Nouveau Bescherelle Complete Guide 12 000 French Verbs. Paris: Librairie Hatier.
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7. Grégoir, Maïa et al, (1995). Grammaire Progressive du Français avec 500 exercices. Paris: CLE International.
8. Miquel, Claire Leroy et al, (1995). Vocabulaire Progressive du Français avec 250 exercices. Paris: CLE International.
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10. French Dictionary (1999). The New Collins Robert 5th Edition. Paris: Harper Collins Publishers.

UQ*10902 Mandarin Language

Prerequisite Course: None

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. Liu Xun (2010). *New Practical Chinese Reader: Textbook*. China: Beijing Language and Culture University Press. [PL1129.E5 .L58 2010]
3. Kang Yuhua (2007). *Conversational Chinese 301:Vol. 2*. China:Beijing Language and Culture University Press. [PL1121.C5 .K364 2007]
4. Liping Jiang (2006). *Experiencing Chinese*. China: Higher Education Press. [PL1129.E5 .T59 2006]
5. Kang Yuhua (2005). *Conversational Chinese 301*. China: Beijing Language and Culture University Press. [PL1121.C5 .K36 2005]

UQ*11002 Malay Language

Prerequisite Course: None

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

UQB11202 Arabic Language

Prerequisite Course: None

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). *Bahasa Arab UMR 1312*. Batu Pahat: Penerbit UTHM. [PJ6115 .M445 2008 a]
2. Abu 'Amiir 'Izzat. (2008). *Kamus adik: bahasa Melayu-bahasa Inggeris-bahasa Arab*. Kuala Terengganu: Pustaka Darul Iman. [PJ6640 ABU 2008]
3. Ab. Halim Mohammed; Rabiyyah Hajimaming; Wan Muhammad Wan Sulong. (2007). *Bahasa Arab Permulaan*. Serdang: Penerbit UPM. [PJ6065 .A32 2007]
4. Abdullah, Mustaffa Siti Rohaya Sarnap Siti Sujinah Sarnap. (2006). *Cara mudah belajar Bahasa Arab*.Singapore: Jahabersa. [PJ6106 .A22 2006]
5. Mohd Hisyam bin Abdul Rahim. (2005). *Senang Berbahasa Arab*. Batu Pahat: Penerbit KUiTTHO. [PJ6115 .M44 2005 a]
6. Mohd Azani Ghazali, Abdul Aziz Hassan @ Yahya. (2000). *Kamus ringkas Bahasa Melayu- Bahasa Arab*. Johor Bahru: Jahabersa. [PL5091.8 .A7 .M393 2000 rd]
7. Fuad Ni'mat. (1973). *Mulakhas qawa'id al-lughatul 'arabiyyah*. Damsyik: Darul

UQB10802 Japanese Language

Prerequisite Course: None

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. Surie, Network (2010). *AE Minna no Nihongo 1-2 Elementary: Translation and Grammatical Notes*, Tokyo: 3A Corporation. [PL539.3 .M57 2010]
2. Surie, Network (2010). *AE Minna no Nihongo 1-1 Elementary: Main Textbook*, Tokyo: 3A Corporation. [TK7885.7 .V44 2000r]
3. Surie, Network (2009). *AE Minna no Nihongo 1-1 Elementary: Translation and Grammatical Notes*, Tokyo: 3A Corporation. [PL539.3 .M567 2009]
4. Surie, Network (2009). *AE Minna no Nihongo 1-2 Elementary: Main Textbook*, Tokyo: 3A Corporation. [PL539.3 .M569 2009]
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6. Surie Network, (2000). *Minna no Nihongo: Kaite Oboeru*, Tokyo: 3A Corporation. [PL539.3 .M56 2000]
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8. Surie Network, (1998). *Minna no Nihongo: Main Textbook - Shokyu 1*, Tokyo: 3A Corporation. [PL539.3 .M574 1998]
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10. The AOTS, (1977). *Shin Nihongo no Kiso: Japanese Kana Workbook*, Tokyo: 3A Corporation. [PL539.3 .S54 1977]

UQB10702 German Language

Prerequisite Course: None

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. [PF3301. H46 2006]
2. Gabriele Kopp, Siegfried Büttner, (2004). *Planet 1: Deutsch für Jugendliche: Kursbuch*. Ismaning: Germany: Hueber Verlag. [PF3129. K664 2004]
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UQB 11102 Spanish Language

Prerequisite Course: None

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. Nurul Sabrina Zan, (2010). *Hola! Hablo español* First Edition Batu Pahat: Penerbit UTHM. [PC4445 .N72 2010a]
2. Salina Husain, (2005). *Vamos a aprender español lengua extranjera* Batu Pahat: Penerbit UTHM. [PC4121 .S24 2005a]
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]
6. Vox modern Spanish and English dictionary: English-Spanish/Spanish-English (1986) National Textbook. Co. XX(131882.1)

UQB11302 Javanese Language

Prerequisite Course: None

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

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5. Yrama, Widya (2008). *Cara belajar membaca dan menulis huruf jawa, jilid*

UHB 10102 English for Higher Education

Prerequisite Course(s): None

Synopsis

This course exposes students to English language learning in higher education and enhances their study skills. Students have opportunities to learn about using technological affordance in listening to lectures, note taking, library and internet research, conducting academic group discussions, preparing and delivering presentations and writing academic report. The course also provides opportunities for student to acquire learning skills that facilitate the transition to tertiary education. Aspects of English language oral and written skills that are most relevant to students in their academic work will be reinforced.

References

1. Agosti, M. (2008). *Information Access through Search Engines and Digital*

- Libraries*. Berlin : Springer Science & Business Media. Z699. I534 2008.
2. Galanes, G.J. (2013). *Effective group discussion: Theory and Practice* (14th edition). New York : Mc Graw Hill. HM736. G34 2013.
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 5. Zhang, F. (2012). *Computer enhanced and mobile assisted language learning: Emerging issues and trends*. Hershey, PA: Information Science Reference. P53.28. C65 2012.

UHB 20102 Essential Academic English

Prerequisite Course: English for Higher Education

Synopsis:

This course enhances student's English language skills, emphasising listening and reading skills necessary for academic contexts. The course provides opportunities for student to learn the strategies to help them understand information from documentaries, lectures and paper presentations and develop analytical listening to differentiate between facts and oppinions. This course also provides opportunities for students to develop skill to critically respond to academic materials such as journal articles.

References:

1. Bowen, E. (2010). *Listening In: Broadcasts, Speeches, and Interviews*. Edinburgh: Edinburgh University Press.
2. Fairbairn, G.J (2011). *Reading, Writing and Reasoning: A guide for students*. Maidenhead: Open University Press. LB2395. F34 2011
3. Shipside, S (2007). *Effective communication: Get your message across and learn how to listen*. London : Dorling Kindersley. HF5718. S4 2007.
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5. Kaur, H.(2005). *Explore MUET*. Kuala Lumpur: Fajar Bakti Sdn. Bhd.
6. Koh, S.L. (2005). *MUET Moments: Malaysia University English Test*. Selangor: Pearson. PE1128 .K63 2005
7. Richards,C. (2009). *Longman Text MUET : A Strategic Approach*. Petaling Jaya: Pearson Malaysia. PE1128 .K97 2009

UHB 30102 English for Technical Purposes

Pre-requisite Course(s): UHB 20102 Essential Academic English

Synopsis

This course aims to prepare students with the skills to write reports and express ideas or opinions competently. Students will be equipped with persuasive strategies that can be applied to write technical reports. The course will also enable them to practice these techniques by drafting and collaborating to produce assigned tasks. The students also expected to orally present their proposals and written report before an audience or panel of examiners.

References

1. Chandra, S. (2013). *Research methodology*. Oxford U.K. : Alpha Science Int. Ltd. H62. C42 2013.

2. Newby, P. (2014). *Research methods for education*. Abingdon: Routledge. LB1028. N48 2014.
3. Sekaran, U. (2013). *Research methods for business: A Skill Building Approach*. Chichester. HD30.4. S44 2013
4. Joan van Emden, L. (2004). *Presentation skills for students*. New York: Palgrave Macmillan.

UHB 40102 English for Occupational Purposes

Prerequisite Course(s): UHB 30102 English for Technical Purposes

Synopsis

This course employs a task-based learning approach and focuses on developing student's delivery of speech in oral interactions and job interviews and presentations. Particular emphasis will be given to promote mastery of self-directed learning, teamwork, research, oral presentations, reasoning and creativity. This course also enable students to acquire knowledge and skills necessary for conducting and participating in meetings, which includes writing meeting documents and event proposals based on specific themes. Students will also be exposed to interview techniques.

References

1. Haynes, Marion. F (2009). *Meeting Skills for Leaders: Make Meetings More Productive*. Rochester, NY: Axzo Press. HD30.3. H39 2009.
2. Peberdy, Duncan (2009). *Brilliant Meetings: What to know, say and do to have fewer, better meetings*. Harlow: Prentice Hill. HF5734.5. P42 2009
3. Wendleton, Kate. (2014). *Mastering the Job Interview: And Winning the Money Game*. Boston: Cengage Learning. HF5549.5. I6. W46 2014.
4. Wrathall, Jeff (2011). *Event Management: Theory and Practice*. North Ryde, N.S.W: McGraw-Hill. GT3405. W72 2011.

UQI 10702 Appreciation, Ethics and Civilization

Prerequisite Course(s): None

Synopsis

Students should be exposed civilizations and its values as it is the basis for learning of science, technology and engineering. This course is a compulsory course stipulated by the Ministry of Higher Education and UTHM to fulfil MQA requirement.

References

1. Mohd Taib Osman (1997). *Islam In The Malay World*. Kuala Lumpur: Dewan Bahasa Dan Pustaka. DS36.86.M63 1997
2. Al-Attas, Syed Muhammad Naquib (2011). *Historical Fact and Fiction*. Kuala Lumpur, Malaysia: UTM Press. BP50.S93 2011 N.S.W: McGraw-Hill. GT3405. W72 2011.
3. Barbara A. West (2009). *Encyclopedia of the Peoples of Asia and Oceania (2 Vols.)*. New York: Facts of Life Inc. GN625.W47 2009 v.2
4. Andrew Gordon (2003). *A Modern History of Japan: From Tokugawa Times to the Present*. New York: Oxford University Press. DS881.9.G67 2003
5. John Keay (2010) 2nd. Edition. *India: A History, From the Earliest Civilisations to the Boom of the Twenty-First Century*. New York: Grove Press. PS374.N65 2000

UQI 11202 Philosophy and Current Issues

Prerequisite Course(s): None

Synopsis

This course focuses on the conceptual and practicality of the ethnic relation in the Malaysian context. The discussions comprise of fundamental concepts of ethnic relation and the history of the construction of a plural society, constitution as the core of the societal life, relationship between development and the ethnicity in the aspects of economy, politics and social based on the government and society top-down and bottom-up approaches.

Students

References

1. Shamsul Amri Baharuddin. (2012). Modul Hubungan Etnik g Edisi Dua. Bangi: Institut Kajian Etnik. Universiti Kebangsaan Malaysia.
2. [DS595 .M62 2007].
3. Dworkin, A.G. (1999). The minority report: An introduction to racial, ethnic and gender relations. Fort Worth: Harcourt Barce
4. College Pub. [E184.A1 .M56 1999].
5. Holst, F. (2012). Ethnicization and identity construction in Malaysia. New York: Routledge. [DS595 .H64 2012 v. 12].
6. Wan Hashim Wan Teh. (2011). Hubungan Etnik di Malaysia. Kuala Lumpur: ITNM. [DS595.W36 2011].
7. Zaid Ahmad. (2010). Hubungan Etnik di Malaysia. Oxford Fajar: Shah Alam. [DS595 .H822010].

UQ* 101 Cocurriculum 1 & 2**

Prerequisite Course(s): None

Synopsis

This course is offered in various forms of activity options for students of Bachelor and Diploma level. Eight of the activities offered are Public Speaking, Entrepreneurship, Sports, Community Service, Volunteerism, Leadership, Culture and Innovation.

References

1. Ab. Alim Abd Rahim (2004). Pengurusan gerak kerja kokurikulum. Shah Alam : Penerbit Fajar Bakti. No. Panggilan : LB3605 .A44 2004.
2. Abu Bakar Nordin dan Ikhsan Othman (2008). Falsafah pendidikan dan kurikulum. Perak: Quantum Books. No. Panggilan : LB1570 .A22 2008.
3. Saifullizam Puteh (2006). Pengurusan Kokurikulum: Modul Pengajaran. Batu Pahat: Universiti Tun Hussein Onn Malaysia. No Panggilan : LB3605 .S24 2006 a.
4. Mohd Sofian Omar Fauzee, Aminuddin Yusof dan Borhan Yusof (2002). Kokurikulum : peranan dan implikasi. Kuala Lumpur : Utusan Pub.. No panggilan : LB3605 .M76 2002.
5. Mok, Soon Sang (2008). Pengurusan Kokurikulum dan Pendidikan Sukan. Puchong : Penerbitan Multimedia. No panggilan : LB3605 .M64 2008.

UQI10102 Islamic Studies

Prerequisite Course(s): None

Synopsis

This course explains about Islamic concept as ad-deen. It discusses the study of al-Quran and al-Hadith, Sunnism, schools of Islamic theology, development of schools of Fiqh, principles of muamalat, Islamic Criminal Law, Islamic work ethics, issues in Islamic family law and current issues.

References

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

UQI 10202 Moral Studies

Prerequisite: None

Prerequisite Course(s): None

Synopsis

This course explains on concepts of moral, aspects of moral and its importance in daily lives, Western moral theories and moral values of great religions of the world, moral values in work and current moral issues.

References

1. Mohd Nasir Omar. (2010). *Falsafah Akhlak*, Penerbit Universiti Kebangsaan Malaysia, Bangi. [BJ1291 .M524 2010].
2. Hussain Othman. (2009). *Wacana Asasi Agama dan Sains*. Batu Pahat: Penerbit UTHM. [BL 240.3 H87 2009^a].
3. Hussain Othman, S.M. Dawilah Al-Edrus, Berhannudin M. Salleh & Abdullah Sulaiman. (2009). *PBL Untuk Pembangunan Komuniti Lestari*.Batu Pahat: Penerbit UTHM. [LB 1027.42 P76 2009^a].
4. Eow Boon Hin. (2002). *Moral Education*. Longman. [LC268 .E48 2008].
5. Ahmad Khamis. (1999). *Etika Untuk Institusi Pengajian Tinggi*. Kuala Lumpur: Kumpulan Budiman. [LC315.M3 .A35 1999].

UQI 10302 Islamic and Asian Civilisations

Prerequisite Course(s): None

Synopsis

This course discusses on the civilization, its development, interaction between civilizations, the Islamic civilization, Islam in Malay civilization; contemporary civilization issues and the principles of Islam Hadhari.

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.],
4. (2005), *Sejarah tamadun Islam Ibn Kathir*, Kuala Lumpur : Dewan Bahasa dan Pustaka. [DS36.85.I32 2005 v.1]
5. Mohd Liki Hamid, (2003), *Pengajian tamadun Islam*, Bentong : PTS Publications and Distributors. [DS36.85 .P46 2003]
6. 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]
7. Rajakrishnan Ramasamy, M Rajantheran, (1994), *Pengantar tamadun India*, Kuala Lumpur : Penerbit Fajar Bakti. [DS425 .R34 1994]

UQU 10103 Nationhood and Recent Development in Malaysia

Prerequisite Course(s): None

Synopsis

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

References

1. Zahrul Akmal Damin, Fauziah Ani, Lutfan Jaes, Khairunesa Isa, Siti Sarawati Johar, Harliana Halim, Khairul Azman Mohd Suhaimy, Shamsaadal Sholeh Saad, Ku Hasnan Ku Halim dan Mohd Akbal Abdullah (2009). *Kenegaraan & Pembangunan Malaysia*. Batu Pahat: Penerbit UTHM.
2. Ruslan Zainudin, Mohd Mahadee Ismail & Zaini Othman. (2005). *Kenegaraan Malaysia*. Shah Alam: Fajar Bakti. [JQ715 .R87 2005].
3. Nazaruddin Mohd Jali, Ma'rof Redzuan, Asnarulkhadi Abu Samah & Ismail Mohd Rashid. (2005). *Pengajian Malaysia*. Petaling Jaya: Prentice Hall. [DS596.6 .P46 2001 N2].
4. Mohd Ashraf Ibrahim. (2004). *Gagasan Bangsa Malayan yang Bersatu 1945-57*. Bangi: Penerbit UKM. [DS597 .M37 2004].

Noor Aziah Mohd Awal. (2003). Pengenalan kepada Sistem Perundangan di Malaysia. Petaling Jaya: International Law Book Services. [KPG68 .N66 2003

Faculty Course Synopsis

BBP 10102 Philosophy Education

Prerequisite Course(s): None

Synopsis

This course focuses on understanding of philosophy: general philosophy, what is philosophy, what is education. Branches of philosophy: the concept and function, metaphysics, epistemology, axiology, and logic. Mainstreams of western philosophies: idealism, realism, pragmatism, existentialism. Western educational philosophy: essentialism, perennials, progressivism, reconstructionist. The philosophy of Islamic education: policy and objectives, scope and field of Islamic education, Islamic education curriculum. The National Education Philosophy (FPN): the descriptions of FPN, a brief history of the formation of FPN, the elements and the role of FPN, the National Education Philosophy (FPK): the concepts, values in FPK, the importance of the application of values in the education system, the implications FPK for the country's education system, the development of policy and the national education system. Teacher Education Philosophy (FPG): insights on education, the development of teacher education and training, the ethics of teaching profession through FPG. Teachers and the Environmental Education: teaching scenario in Malaysia, professionalism: the concept and needs, ethics and responsibility of teachers, motivation, job satisfaction and teacher performance.

References

1. Abd Rahim Abd Rashid (2003). Falsafah Budaya Dalam Pendidikan. Kuala Lumpur: Penerbit Universiti Malaya.. No. Panggilan : LA132 .F34 2003
2. Abu Bakar Nordin dan Ikhsan Othman (2008). Falsafah pendidikan dan kurikulum. Perak: Quantum Books. No. Panggilan : LB1570 .A22 2008
3. Abdul Fatah Hasan (2001). Pengenalan Falsafah Pendidikan. . Kuala Lumpur: PTS Publications & Distributors Sdn. Bhd. No. Panggilan : LA21 .A32 2001
4. Sufean Hussin (2004). Pendidikan di Malaysia: sejarah, sistem dan falsafah. Kuala Lumpur: Dewan Bahasa dan Pustaka. No.Panggilan : LA1236 .S93 2004
5. Abdul Rahman Arof & Zakaria Kasa (1995). Falsafah dan Konsep Pendidikan. . Kuala Lumpur: Fajar Bakti. No. Panggilan : LB19 .A72 1995.

BBD 20202 Educational Technology

Prerequisite Course(s): None

Synopsis

This course focuses on Introduction to educational technology: the definition of "technology" and "education", educational technology and teaching technology. Design and teaching model: learning theory, teaching model, Dick & Carey model, ADDIE model, ASSURE model, teaching design, teaching strategy, motivational aspect (ARCS), 9 learning stages (Gagne). The effectiveness and selection of teaching

materials: The use of tools in Teaching, the selection of teaching materials. Spacing: showroom, presentation tool, presentation strategy. Visuals are not impressions: natural objects, models, photos and graphics. Visual Impressions: slides, movies, multimedia systems. Photography: Original format, digital format, presentation from a computer. Audio media: audio and audio audio, analog and digital audio concepts, audio use as teaching materials, examples of audio use in education. Video Use in Education: Basic video concept, camera handling, script writing, video role in education, the benefits of video use in education, classroom use of video use. Computer In Education: the primary role of a computer, a computer in teaching and learning a computer in management and management. Learning education through web and tele trial: definition of learning through the web, web usage as a teaching medium, computer video search telesidang. Resource center: School Resource Center, Teacher Activity Center, Electronic Resource Center. Telecommunication systems: applications in education, educational communication functions, Current Communication Technology in Education.

References

1. Heinich, R., Molenda M., Russell, J.D., & Smaldino, S.E. (2002). *Instructional Media and Technologies for Learning: 7th Edition*. New Jersey: Merrill Prentice Hall. No panggilan: LB1028.3 .H44 2002.
2. Smaldino, Sharon E. (2005). *Instructional technology and media for learning*. New Jersey: Pearson. No panggilan: LB1028.3 .I57 2005.
3. Januszewski, Alan (2008). *Educational technology : a definition with commentary*. Mahwah, NJ : L. Erlbaum Associates. No panggilan: LB1028.3 .J36 2008.
4. Kemp, J.E. & Smellie, D.C (1994). *Planning, Producing and Using Instructional Technologies: 7th Edition*. New York: Harper Collins College Publishers. No panggilan:
5. Zol Azlan Hamidin (2000). *Strategi Pengajaran : Pendekatan sains teknologi masyarakat*. Selangor : Pearson. No

BBD 10302 Pedagogy

Prerequisite Course(s): None

Synopsis

This course focuses on the understanding of teaching and learning: definition of teaching, the differences between pedagogy and andragogy, teaching as an art and science, and reflection on teaching and learning insight. Teacher: Who teacher, the role of teachers, teacher personality, ethics of teaching profession, teachers and the community. Brief description on Models of Teaching: The Sim, Glaser, Taba, Suchmen, Systems Approach, Classroom Teaching, Laboratory and workshop Teaching Models. Teaching approaches: the teacher-centered, student-centered, content, tools & teaching materials-centered, inductive and deductive teaching. Science Process Skills Education, Technical and Vocational Education: the scientific method, science process skills, manipulative skills, thinking skills, reflective skills, behaviorism, objectivism and constructivism, Learning Skills: reading and communication, concept mapping, using journal and portfolio, develop teaching modules, individual learning , Teaching methods: selecting teaching methods, the diversity of teaching methods, The lectures, practical methods, demonstration workshops , project method, problem-based teaching methods, teaching computerized,

andragogy teaching, simulation methods, interactive methods (discussions, brainstorming, buzz group) , schools and sites visits, teaching strategies and collaborative techniques in vocational teaching and training. Teaching skills: proficiency in questioning and answering skills, set induction skills, closing skills, strengthening skills, practices in learning outcomes, various stimulus skills, skillful in selecting media and teaching aids. Instructional design: effective teaching, teaching planning definition, curriculum and syllabus, Determining specification for teaching schedules, Planning semester teaching, teaching planning weekly, daily lesson plan, teaching assessment: assessment through reflections, supervision, clinical supervision, teaching assessment instruments, peer-assessment.

References

1. Barell, John (2007) Problem-Based Learning: An Inquiry Approach. Corwin Press, Thousand Oaks. No ISBN:141295004X, 9781412950046.
2. Joel Spring, (2006). Pedagogies of globalization: the rise of the educational security state. Mahway, NJ: L. Erlbaum. No.Panggilan: LC71 .S67 2006.
3. Shahabuddin Hashim, Rohizani Yaakub dan Mohd. Zohir Ahmad (2003). Pedagogi: Strategi dan Teknik Mengajar Dengan Berkesan. Pahang: PTS Publications. No.Panggilan LB1775.2 .S52 2003.
4. Mok Soon Sang (2002). Pedagogi: Untuk Kursus Diploma Perguruan Semester 3, Kuala Lumpur: Kumpulan Budiman. No.Panggilan: LB1025.3 .M65 2002.
5. Abd Aziz Abd Talib (2000). Pedagogi Bahasa Melayu: Prinsip, Kaedah dan Teknik. Kuala Lumpur: Utusan Publications and Distributors. No.Panggilan: PL5105 .A29 2000 n.5.

BBD 10202 Psychology Education

Prerequisite Course(s): None

Synopsis

This course focuses on the Introduction to Psychology and Educational Psychology: What is psychology?, What is educational psychology?. Why study psychology, understanding the basic concepts of psychology, fields of psychology. Human nature: the meaning of human needs, various kinds of needs, motivation and relevance to the needs, behavior problems that arise when the requirements are not met, the potential, strength and human weakness. Theories of development: the notion of growth, meanings of development, development theory, the implications of the concept of growth and development of teaching and learning in the classroom, growth theory, the implications of the growth and development of teaching and learning in the classroom. Individual differences: understanding individual differences, aspects of individual differences, the factors that cause individual differences in terms of cognitive, social, emotional and psychomotor effects of individual differences on schooling progress of students, teachers face the problem of how individual differences of students in school. Personality: the difference between the personality, character and traits, the classification of personality, factors that influence personality and learning style. Self-Concept: Ideas about self-concept, types of self-concept, the factors that cause a negative self-concept, self-defense tricks, how teachers help children form a positive self-concept, behavior problems and behavior modification. Behavioral psychology: understanding developmental tasks, the main features of the development task, the task of development in Havighurst, the problems in the achievement of developmental tasks, how teachers help children cope and achieve developmental tasks in accordance with the ranking, behavioral modification. Teaching and Learning: the definition of teaching, teaching models, a definition of learning, types of learning, learning styles, learning style model, the relationship between teaching and learning styles, learning process: the willingness, motivation, perception and responsiveness, memory and forgetting, transfer of learning, learning styles, learning styles implications

in the teaching and learning process. Learning theories: cognitive learning theory, behaviorism learning theory, social learning theory, learning theory humanist. Thinking: the concept and process of thinking, reflective thinking, relationships with educational psychology and teaching supplies.

References

2. Sahizan Hasan, Tsai Chen Chien dan Saw Hooi Chin. (2004). Intrapersonal dan Interpersonal Untuk Remaja. Bentong: Publications and Distributors. No. Panggilan: BF637.C45 .S52 2003.
3. Mohamed Hatta Shaharom. (2003). Psikologi dan Kaunseling Remaja. Bentong Publications and Distributors. No. Panggilan: HV1421 .M42 2003.
4. Noraini Ahmad. (2003). Kaunseling Remaja. Selangor: Utusan Publication and Distributors Sdn. Bhd. No. Panggilan: BF637.C6 N67 2003.
5. Corbin, Barry. (2008). Unleashing the potential of thr teenage brain: 10 powerful ideas. Thousand Oaks, CA: Corwin Press. No. Panggilan: LB1060 .C68 2008.
6. Metcalf, Linda. (2008). Counseling Toward Solutions : A Practical Solution-Focused Program for Working With Students, Teachers and Parents. 2nd ed. San Francisco, CA: Jossey-Bass. No. Panggilan: LB1027.5 .M47 2008.

BBD 20403 Micro Teaching

Prerequisite Course(s): BBD20102 Pedagogy

Synopsis

This course focuses on micro-teaching. Curriculum Analysis, Planning, Teachings Aids / Tools, Documentation, Micro Teaching Theory and Practice (Specialization). Induction Skills, Teaching Skills, Skills in closing / ending the teaching sessions, and reflecting skills.

References

1. Zol Azlan Hamidin (2000). Strategi Pengajaran : Pendekatan sains teknologi masyarakat. Selangor : Pearson. No panggilan: LB1532.M3 .Z64 2000.
2. Castaeda, Carmelita Rosie (2004). Teaching and Learning in Divers Classrooms, New York: Routledger Flamer. No panggilan: LC1099.3 .C37 2004.
3. Siow Heng Loke (2005). Pedagogi Merentas Kurikulum. Kuala Lumpur:Universiti Malaya. No panggilan:LB1025.3 .P42 2005.
4. Walker, Melaine (2006). Higher Education Pedagogies: A capabilities approach. New York: Open University Press. No panggilan: LB2322.2 .W34 2006.
5. Spring, Joel (2006). Pedagogies of Globalization:Tthe rise of the educational security state. Mahway, NJ: Erlbaum. No panggilan: LC71 .S67 2006

BBD 20703 Measurement and Evaluation in Education

Prerequisite Course(s): None

Synopsis

This course focuses on the concept of testing, measurement, evaluation and assessment. Its covers type of evaluation; classification of test; characteristics of test; item skill level; development of objective and subjective item; planning of test; scoring

scheme; administration of test; analysis and interpretation of the question; basic statistical evaluation; current issues of educational evaluation.

References

1. Bhasah Abu Bakar (2003). Asas Pengukuran Bilik Darjah. Tanjung Malim: Quantum Books Perak.
2. Mohd Isha Awang (2005). Pengujian, Pengukuran dan Penilaian. Sintok: Azizi Publicist.
3. Kubiszyn, T dan Borich (2007). Educational Testing And Measurement: Classroom Application and Practice. 8th ed. Hoboken, NJ : John Wiley. No. Panggilan: LB3051.K82 2007.
4. Anderson, Lorin W. (2003). Classroom Assessment: Enhancing the Quality of Teacher Decision New Jersey: Lawrence Erlbaum Associates. No. Panggilan: LB3051 .A52 2003.
5. Linn, R and Gronlund, N. E (2000). Measurement and Assessment in Teaching. 8th ed. New Jersey: Prentice Hall. No. Panggilan: LB3051 .L54 2000.

BBD 30302 Guidance and Counseling

Prerequisite Course(s): None

Synopsis

This course focuses on the basic concept of guidance and counseling: What is counseling, the development of guidance and counseling services in Malaysian schools. The philosophy of guidance and counseling services: the need for rational guidance and counseling services in the context of national education philosophy and technical and vocational education for the school and the community and the country. The qualities of a counselor: acceptance and warmth, do not punish (non-judgmental), the authenticity, accuracy (specificity). Procedure counseling processes: provide sessions, building relationships, exploring the problem, identify the cause of the problem, seeking and discussing alternatives for action, and ending the session. Basic counseling skills: listening, empathy: to understand the emotions and feelings, reflecting, explaining and paraphrasing, questioning and confronting, formulating and roll, counseling theories: comparison of western and Islamic counseling, psychoanalytic theory, the theory of convergence of the client (Client -Centered Therapy), Alfred Adler's theory, theory of behavior, theory of reality. Counseling services in schools: individual inventory, providing information, guidance / counseling groups, individual counseling, placement, drug use prevention, consultation and referral sources, subject areas: education counseling, career guidance, personal and social counseling. The use of tests in the guidance: the selection and administration of the tests, the validity of the tests, reliability tests, advantages and limitations in the use of the test, a sample-exam tests such as intelligence, aptitude test (talent and inclination), interest test, personality test. Ethics Counseling: Counseling ethical concepts, ethical counseling in Malaysia by Malaysia Counselor Association (PERKAMA).

References

1. Ainon Mohd dan Abdullah Hassan (2002). Guru Sebagai Pendorong Dalam Bilik Darjah. Bentong, Pahang: PTS Publication & Distributors.
2. Jensen, Eric. (2008). Brain-Based Learning. 2nd Ed. Thousand Oaks, CA : Corwin. No Panggilan: LB1060 .J46 2008

3. Parsons, R.D. Hinson, S.L & Sardo-Brown, D. (2001). Educational Psychology: A Practitioner-Research Model of Teaching. Victoria : Thomson Learning. No Panggilan: LB1051 .P37 2001
4. Saedah Siraj, Zainun Ishak dan Tunku Mohani Tunku Mokhtar. (1996). Motivasi Dalam Pendidikan: Siri Pengajian dan Pendidikan Utusan. Kuala Lumpur: Utusan Malaysia Publication & Distributors.
5. Santrock, John, W. (2011). Educational Psychology. New York: McGraw Hill. No Panggilan: LB1051 .S26 2011

BBD 30402 Educational Data Reasoning

Prerequisite Course(s): None

Synopsis

This course focuses on the basics statistics: measuring nominal, ordinal and interval, descriptive statistics: mean, median and mode, standard deviation, population and sampling, distributions: normal, skewed, graphs and charts. Application statistics: an introduction to test significant, probability and significance, the general procedure is a significant test, chi-square test, Mann-Whitney U, correlation, statistical software: interface design and data input, data manipulation, data display: table, histogram, graphs, pie charts, commentary and interpretation of data: data, analyze data, formulate findings, the findings justify.

References

1. Latifah Mohd. Nor(2005). Statistics Made Simple (2nd Ed.). Kuala Lumpur: International
2. Islamic University. No. Panggilan: HA29 .L37 2005.
3. Marija,J.N.(2002).SPSS 11.0 Guide to Data Analysis: SPSS Inc..New Jersey:Prentice Hall.
4. Huck,S.(2000).Reading Statistics and Research. Needham Heights: Allyn and Bacon. No. Panggilan: QA276 .H82 2008.
5. Levin,J.,Fox,J.(2007).Elementary Statistics in Social Research. Needham Heights:Allyn And Bacon. No Panggilan: HA29 .L494 2007.
6. Mohd.Salleh Abudan Zaidatun Tasir.(2001). Pengenalan Kepada Analisis Data Berkomputer SPSS10.1 for Windows. Kuala Lumpur:Venton Pub. No. Panggilan: HA32 .M64 2001

BBD 30502 Sociology in Educational

Prerequisite Course(s): None

Synopsis

This course exposes students to the Introduction to Sociology, Definition of sociology, sociology as a discipline and its importance, development sociology. Prominent sociologist and its contribution: Auguste Comte, Herbert Spenser, Durkheim, Spenser, Lester. Theories of Sociology, theory of functionalism, conflict theory, interactionism theory. Sociology in the context of Malaysia's education system, the sociological role of Technical Education. Sociology as a means of social control. Cultural dissemination tools, Tools and ideological unity of the State, social stratification tool, Education System as Social Institutions. Structure and organization of educational institutions. Educational institutions and the community. Interaction in the education system. Community Services. And the difference equation. Differences and similarities in

education. Education as a national ideology developer, Technical Education and Social Mobility. Factors of social mobility, the Technical Education and social impact on the socio-economic status, Social Effects of Technical Education Achievement. Environmental factors, socioeconomic status, values and culture of the school, Aspirations school, peer group and social opportunities, education system in Malaysia. The historical perspectives and development of education in Malaysia. State education system evolution patterns before and after the British occupation: the vernacular Chinese, Indian and English. National education policy, development of technical and vocational education, university education, Technical Education and National Development, Role of technical education in the national aspiration. Development of Technical Education in Malaysia, System of Higher Education, higher education functions, theory approach to higher education, Reform and Planning In the education system, dynamics change, perspectives change, strategies for school changes. Roles played by sociologists in education and changes in educational policies. Reform as a natural progression in education, liberalization and corporatization of liberalization and corporatization of education, education administration system: central, state and district levels.

References

1. Ellen Brantlinger(2003). Dividing classes: how the middle class negotiates and rationalizes school advantage. London: RoutledgeFalmer. No. Panggilan: LC205 .B72 2003.
2. Jeanne H. Ballantine & Joan Z. Spade (2004), Schools and society : A sociological approach to education, 2nd ed. Belmont, CA: Wadsworth/Thomson. No Panggilan: LC191 .S33 2004.
3. Walter Feinberg, Jonas F. Soltis (2004), School and society. 4th ed. New York: Teachers College Press. No Panggilan: LC191 .F44 2004.
4. Alex Moore (2006). Schooling, society and curriculum. London: Taylor and Francis. No Panggilan: LC191.8.G7 .S33 2006.
5. Alan R. Sadovnik (2007). Sociology of education: A critical reader. New York: Routledge. No. Panggilan: LC191.2 .S52 2007.

BBD 20802 Technical Vocational Education and Planning

Prerequisite Course(s): None

Synopsis

This course provides knowledge and concept in human resource management, development and organise in strengthen the human capital for organization. TVET planning including training and development involved by training provider, partnership between government and private also how the concept of workplace training applied. This course will provide an overview of how management concepts and training are needed in strengthening the role of TVET.

References

1. Chris Brewster, Elizabeth Houldsworth, Paul Sparrow and Guy Vernon (2016). International Human Resource Management. Fourth edition. eBook ISBN97818439844184
2. DECenzo, David A.(2013). Human Resource Management. Singapore:John Wiley. (H5549.D42.2013)
3. Nocolescu, Ovidiu (2016). Challenges, performance and tendencies in organization. New Jersey: World Scientific. .(HD31 .C49 2016)

4. Noe, Raymond (2013). Employee Training and Development. New York : McGraw-Hill/Irwin.[HF5549.5.T7 .N63 2013]
5. Phillips, Jean M (2014). Human Resource Management. Mason, Ohio: South-Western. [HF5549.P444 2014]

BBP 10803 Information Technology in Education

Prerequisite Course(s): None

Synopsis

Introduction to Information Technology; Information Age, Principles of Information Technology, Function And Benefits Information Technology, Multimedia Super Corridor (MSC), Cyber Law, Computer Software; Software, Software Applications, Software Type Basic, Word Processing; Basic Word Processor, Supporting Reading, type format and graphics, Listing Mel And Penggunannya, Publishing Desk, construction Test E-Form, Performance Electronics; Introduction, Multimedia Presentation, Construction Slides, Spreadsheet; Introduction, Features Basic Spreadsheet, Spreadsheet Integration in Teaching and Learning, Database; Type Database, usu- Organization, Servers, Features Basic Database, Editing Software: Adobe Photoshop; Introduction to Photoshop Interface, Functionality Each icon, Basic use of Adobe Photoshop, Basic Concept And Production Text, Basic Concepts Using Layer, Basic Concepts Using Channels and History, Basic Use Filter, Internet; Definitions, Basic Internet, Computer Internet, Basic Internet service, use of the Internet in Education, Communication Data; Key Elements of Communication, Signal Type, Transmission Mode, Trend Data, Shipping Rates, Issues and Opportunities of Information Technology; Professionalism, Ethics and Society, Issues Safety and Control Computer Systems, Health and Ergonomics, Opportunities in IT, Information Technology and the Future.

References

1. Abdul Razak Hamdan, Yazrina Yahya, Muhd Shanudin Zakaria dan Mohd Zamri Murah.2000. Teknologi Maklumat. Kuala Lumpur:McGraw Hill T58.5 .T44 .A22 2000
2. Stallings, W. and Van Slyke,R.2001. Business Data Communications. Upper Sydel River, New Jersey: Prentice Hall. Edisi ke 4. HF5548.2 .S83 1994
3. Panko, R. R. 2001. Business Data Communications and Networking. Upper Sydel River, New Jersey: Prentic Hall. Edisi ke 3. HD30.37 .P36 2001
4. Stamper, D.A. 2001. Local Area Networks. Upper Sydel River, New Jersey: Prentic Hall. Edisi ke 3. TK5105.7 .S73 2001 N1
5. Stephen Doyle (2001). Information and communication technology : vocational A level. UK: Stanley Thornes.

BBD 20603 Educational Management

Prerequisite Course(s): None

Synopsis

This course focuses on the concepts, principles and theories of management education in Malaysia: concepts of management, principles and theories of education management, educational management practices. Introduction of management education: history of education in Malaysia, the role of InstitutAminuddinBaki in the management and administration of the school. Administration of the public education system: the administrative system of public education and its rationale, role and contribution to teaching and learning in schools, private education administration

system: the administrative system of private education and the rationale, role and contribution to teaching and learning in schools. The organization and administrative structure: the concept of organization, school organization, the administrative hierarchy and relationship with the school organization, administration and management of schools: office, curriculum and co-curriculum and school finance., Vision Education: unity, perkhidmatanpenyayang, empowerment, knowledge culture, science, caring school , budayacemerlang, skills as a manager and administrators in education: responsibility, tasks and role of the headmaster, accountability and leadership styles of headmaster, skills and competencies of headmastersas administrators and managers. Reflection: effectiveness and challenges in the management and administration of education in Malaysia: issues management and administration of education: past, present and future.

References

1. Hoy,W.K.& Miskel,C.G.(2008).Educational Administration:Teory,Research and Practice.8th.Edition.Boston: McGraw-Hill. No Panggilan: LB2805 .H69 2008.
2. Lunnenburg,F.C. & Ornstein,A.C.(2004).Educational Administration:Concept and Practices. 4th.Edition.Belmont, CA : Thomson Learning. Call no: LB2805 .L86 2004.
3. Robbins,S. & Decenzo, D.(2004). Fundamentals of Management-Essential Concept And Applications.4th.Edition.Upper Saddle River: NJ: Pearson Education. Call no: HD31 .R63 2004
4. Carayannis,E.G.(2001).Strategic Management of Technological Learning. Boca Raton, FL: CRC Press. Call no: HD58.82 .C37 2001 n.1.
5. Ahmad Kilani Mohamed (2003).Pengurusan Pendidikan Di Sekolah:Huraian Menurut Perspektif Islam.Skudai:PenerbitUTM. Call no: LB2831.8 .A35 2003.

BBP 10603 Mathematics I

Prerequisite course (s): none

Synopsis

This course introduces students to mathematical knowledge needed in the technology field. The topics discussed are Cartesian Coordinate: Distance between two points, slopes and line equations. Perpendicular distance from a point to a line and bisect of two lines. Quadratic equations: Quadratic equations with single variable, properties of the quadratic equations. Inequalities: solving inequalities, partial fractions. Trigonometry: trigonometric identities, addition and subtraction formulas, double-angle formulas and factor formulas, general solution of trigonometric equation. Solution of system of linear equation: Determinants and cofactor, inverse matrices, Cramer's rule, Gauss elimination method. Complex numbers: polar form, Euler's form, De Moivre's theorem, nth root of complex numbers. Vectors: operations including dot product and cross product in 2 and 3 dimensions. Planes and lines equation. Conic section: circle, parabola, ellipse, hyperbola.

References

1. Nafisah@Kamariah Md Kamaruddin & Norhaidah Mohd Asrah (2006). Modul Pengajaran: Algebra. UTHM.
2. R. N. Aufmann, V. C. Barker & R. D. Nation (2005), College Algebra and Trigonometry. 5th. Ed. Houghton Mifflin Company, New York. No. Panggilan: QA154.3 .A93 2005.
3. Dwyer, David & Gruenwald, Mark (2000). Algebra for College Students, 2nd. Ed. Pacific Grove, CA : Brooks/Cole. No. Panggilan: QA152.2 .D89 2000.

4. R. Larson et. al. (2008) Algebra and Trigonometry: A graphical Approach, Houghton Mifflin Company, New York. No. Panggilan: QA154.3 .L37 2008.
5. Stewart, J., Redlin, L. and Watson, S. (2004). College Algebra, 4th Ed. Belmont, CA : Brooks/Cole. No. Panggilan: QA152 .S73 2004.

BBP 10403 Mathematics II

Prerequisite Course(s): BBP 10603 Mathematic I

Synopsis

Function: Graph of algebraic, trigonometric, exponent, logarithm and hyperbolic functions with its inverse, composite function, inverse function. Limits and Continuity: Concept and definition, one-side limits, limit at infinity, infinite limits, computing limits, continuity. Differentiation: Definition, techniques of differentiation, higher order differentiation, application of differentiation. Integration: Basic of integration, technique of integration: substitution, integration by part, partial fraction, definite integral, application of integration. Sequences and Series: Definition of sequence and series, convergence test for sequence and series.

References

1. Anton, Howard, Bivens, Irl C. Davis, Stephen (2010), Calculus, 7th Edition, Hoboken, NJ : Wiley. No. Panggilan: QA303.2 .A57 2010
2. Peng, Yee Hock (2007). Kalkulus Permulaan. Serdang : Universiti Putra Malaysia. No Panggilan: QA300 .P46 2003.
3. Abd Wahid Md Raji *et. al*, (2002), Matematik Asas. Skudai: Penerbit UTM. No. Panggilan: QA37.2 .M37 2002 N1
4. Abu Bakar Musa, (2001), Kalkulus awalan: untuk pelajar-pelajar sains dan kejuruteraan, Serdang : Universiti Putra Malaysia. No Panggilan: QA303 .A28 2001.
5. Smith R. T. and Minton R.B. (2006), Calculus: Concepts and Connections. Boston: McGraw Hill. No Panggilan: QA303.2 .S64 2006.

BBP 10502 Creativity and Innovation in TVE

Prerequisite Course(s): None

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.

5. Ceserani, J. & Greatwood, P. 2001. Innovation and Creativity. New Delhi : Creast Publishing House.
6. Clegg, B. & Birch, P. 2002. Crash Course in Creativity. London : Kogan Page.
7. De Bono, E. 1998. Edward De Bono Supermind Pack: Expand Your Thinking Power with Strategic & Mental Exercise. DK Publishing Incorporated.
8. Lumsdaine, E., Lumsdaine, M. & Shelnut, J. W. 1999. Creative Problem Solving and Engineering Design. USA: McGraw-Hill.

BBP 40302 Entrepreneurship

Prerequisite Course(s): None

Synopsis

This course exposes students to the basic aspects of entrepreneurship. This course includes four modules, namely fostering an entrepreneurial culture, opportunities and business plans, practical entrepreneurship and entrepreneurial activity report presentation.

References

1. Kementerian Pengajian Tinggi (2007) 'Asas Pembudayaan Keusahawanan'. Penerbit UUM;.
2. Marc J. Dollinger. – 3rd ed. (2003), 'Entrepreneurship; Strategic and Resources'. Prentice Hall Pearson Malaysia Sdn. Bhd.
3. UiTM Entrepreneurship Study Group (2004), 'Fundamentals of Entrepreneurship' Prentice Hall Pearson Malaysia Sdn. Bhd.
4. Carol Yip (2007) 'Smart Money-User' Kanyin Publication.
5. Agensi Kaunseling and Pengurusan Kredit (2009) 'Money Sense-Getting Smart with Your Money. 2nd Edition
6. Agensi Kaunseling and Pengurusan Kredit (2009) 'Celik Wang-Pengurusan Wang secara Bijak

BBP 20203 Engineering Graphics

Prerequisite Course(s): None

Synopsis

This course encompasses the topics of introduction to engineering drawing, the use of drafting tools, lettering and lines, dimension, scale and size of paper. Geometrical drawing; the constructions of geometry, polygon and ellipse. Projection drawing: projection, orthographic, isometric, oblique. Additional projection drawing: additional, axis and elevations in additional drawings, curves, circles and sectional in additional drawings. Computer aided drawing: introduction to computer aided drawing, basics operations in instruction system, the use of CAD LI, printing and plotting machines operation.

References

1. Atan Hj Hussein, Jailani Mohd Yunos & Saifullizam Puteh (2007). Grafik Kejuruteraan, Batu Pahat: Penerbit UTHM. No Panggilan: T353.A82 2007a.
2. Bertoline G.R (2000). Engineering Drawing Workbook. Boston: McGraw Hill. No. Panggilan: T385. B473 2000 ca.
3. Kirkpatrick, James N (2004). The AutoCAD book: Drawing, Modeling and Applications Using AutoCAD 2004. Upper Saddle River, NJ: Prentice Hall. No.

- Panggilan: T385. K57 2004.
4. Siddiquee, Arshad N, Zahid Akhtar Khan and Mukhtar Ahmad (2004). Engineering Drawing with a Primer on AutoCAD. New Delhi, Prentice Hall. No. Panggilan: TA174.S52 2004.
 5. Spencer, Henry Cecil (2000). Basic Technical Drawing. 7th Ed. New York, Mc Graw Hill No.Panggilan T353.S63 2000 N1.

BBP 20202 Occupational Safety and Health (OSH)

Prerequisite Course(s): None

Synopsis

This course introduces students to the knowledge and skills in occupational safety and health (OSH) in the workplace. The scope of study includes the management of Health, Safety and Environment: Introduction to OSH, OSHA, 1994 (Act 514), FMA 1967, EQA 1974, the safety management system and occupational health, safety culture, health and the environment; Management and Risk Assessment: introduction to risk management, risk assessment techniques, HIRARC; Physical injury and Controls: introduction to physical injury, construction works, electrical, mechanical, and that involves chemicals; Health hazards: an introduction to health and hygiene, the dangers of chemical, physical, biological, and hygiene; Accident Investigation and Reporting: identification, accident investigation, the cause of the incident, incident analysis and data collection methods.

References

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

BBP 30403 Research Methodology in TVE

Prerequisite Course(s): None

Synopsis

This course focuses on the basics of Research. Why carry out research in education? Research in technical and vocational education. Scientific methods in research. Determining the best criteria in research. Ethics in research. Preparing a research proposal. How to write research proposal? How to write a research proposal content. How to determine research problems, motivation in research, understanding the field of research, objective of research, literature, concept, model or theory. Review the findings of previous studies, review past studies methods, research methods, survey design, survey instruments and data analysis.

References

1. Methods in educational research : from theory to practice / Marguerite G. Ladico,

- Dean T. Spaulding and Katherine H. Voegtle by Lodico, Marguerite LB1028 .L62 2006
2. Educational research / K. Swarna Jyothi ; editor Digumarti Bhaskara Rao LB1028 .J96 2007
 3. Educational research in practice : making sense of methodology /edited by Joanna Swann and John Pratt LB1028 .E38 2003
 4. Understanding and Evaluating qualitative educational research / editor, Marilyn Lichtman LB1028 .U52 2011
 5. Introduction to educational research / Craig A. Mertler, C.M. Charles LB1028 .M46 2008

BBP 20402 Project Management

Prerequisite Course(s): None

Synopsis

This course is to equip students with the knowledge and project management skills to enhance teaching and learning in providing human capital development at par with global technological developments. This course exposes students to the planning and control cycle in project management, project plan development, project plan execution, monitoring project progress, project control, integration costs, scheduling information and the findings and make a report and briefing.

References

1. James P. L. (2008). Fundamental of Project Management. 2nd. Edition. O'Reilly Media, Inc. HD69.P75 .L485 2007
2. Sunny Baker, Kim Baker, & G. Michale (2008). The Complete Idiot's Guide to Project Management,.3rd. Edition. O'Reilly Media, Inc. HD69 T54 . B34 1992
3. Scott. B. (2008). Making Things Happen: Mastering Project Management. 1st. Edition. O'Reilly Media, Inc. BF774 .B37 2007

BBP 30103 Laboratory and Workshop Management

Prerequisite Course(s): None

Synopsis

This course will introduce pre service instructors in the field of Technical Education to management perspective. Introduction to Industry Management; introduction, definitions of management, approach to management, total quality management (TQM), legislation under the act, Lab and Workshop Safety; Review of health, early detection of disease at work, industry safety of act, OSHA Regulations Act 1996 and 1997, Safety measures, installation; The design and layout of the plant, contract specifications, Industrial Organization, Management; Functions and objectives of management, personnel management, staff management, Disciplining staff, handling plant, Inspection and air pollution, preparation of equipment and materials; Identification, preparation of equipment and materials, workshops, laboratories and field, storage of chemicals, environmental safety, Organization and Management Workshop; The meaning and purpose of the organization, scope of the organization and management workshops, workshop layout according to the needs and safety, storage and handling; Storage of materials and equipment, equipment and material concepts, techniques of quantitative management, operation, maintenance; Maintenance management, maintenance categories, implementation of maintenance, asset management; Procurement procedures (see related circulars), asset management procedures and disposal procedures.

References

1. C.Ray Asfahl (2003) *Industrial Safety and Health Management (5th Edition)* :Amazon. T55 .A83 2004
2. Kamal Halili Hassan (2001) *Undang-undang Keselamatan Industri di Malaysia*.Kuala Lumpur : Dewan Bahasa dan Pustaka. HD7262.5.M3 .K35 2001
3. Manuele, Fred A (2003) *On The practice of Safety 3rd Edition* : Hoboken John Wiley. T55 .M36 2003
4. Mohamad Khan Jamal Khan (200 5) *Keselamatan dan Kesehatan Pekerjaan dalam Organisasi*. Petaling Jaya : Prentice Hall/Pearson. T55 .M53 2005
5. Aldershot : Ashgate (2004) *Teaming up : Components of Safety Under High Risk : Industrial Safety Congress*.

BBP 30102 Industrial Design

Prerequisite Course(s): None

Synopsis

This course focuses on history of the development design and human needs, research and development based on ergonomic factors, functions of design, aesthetics and materials. Design of the project is to identify the problems involved, situation, description, classification, solutions, validity of the design and testing involved. The assessment of goal achievement, seminars, reports presentations and proposal design.

References

1. Ulrich, K.T., Eppinger, S.D., 2003, *Product Design and Development*, Third Edition, New York, Mc Graw Hill International
2. Ullman, D.G. 1997. *The Mechanical Design Process*. 2nd ed. New York: McGraw-Hill International.
3. Pugh, S. 1990. *Total Design: Integrated Methods for Successful Product Engineering*. Cornwall UK: Addison Wesley.
4. Cross, N. 1994. *Engineering Design Methods: Strategies for Product Design*, 2nd ed. West Sussex UK: John Wiley and Sons.
5. Dieter, G.E. 1991. *Engineering Design: A Materials And Processing Approach*. New York: McGraw-Hill International.

BBM 10103 Material Selections

Prerequisite Course(s): None

References

This course explains about the materials used in engineering. The scope covers introduction to materials; introduction to engineering materials, latest development in materials, introduction to metals, classification of metals. Fe-Carbon dan Fe-Carbide system; Alloy; lightweight alloy, aluminium, heat treatment, Ceramics; Polymers; polymer structure, stiffness and strength of the polymer, Composites classification (focus on composite polymer matrix). Methods of forming materials and materials selection methodology.

References

1. *Askeland, Donald R.; Pradeep P. Phulé (2006). The Science & Engineering of*

- Materials.Thomson-Engineering.* LC Call Number: TA403.D87 2010
2. Callister, Jr., William D. (2010). *Materials Science and Engineering - An Introduction.* John Wiley and Sons. LC Call number: TA403 .C33 2011
 3. Lewis, P.R., Reynolds, K. & Gagg, C. (2003). *Forensic Materials Engineering: Case Studies.* Boca Raton: CRC Press. LC Call number: TA219 .L48 2004
 4. Mathews, F.L. & Rawlings, R.D. (1999). *Composite Materials: Engineering and Science.* Boca Raton: CRC Press. LC Call number: TA418.9.C6 .M37 1999
 5. Neville, A. M. (2010). *Concrete technology.* Harlow, England; New York : Prentice Hall. LC Call Number: TA439 .N46 2010

BBM 30103 Fluid Mechanics

Prerequisite Course(s): None

Synopsis

This course explains about the basic theories and mechanical analysis of fluid. The scope of this course include Dimensions, Units and Physical Quantities, Sheer Stress in Moving Fluids, The Continuum Concept of a Fluid, Statics of Fluids, Pressure Variation in a Fluid at Rest, Manometry, Hydrostatic Force on a Plane Surface, Fluid Dynamics, Bernoulli Equation, Flow Rate Measurements, Viscous Flow in Pipes, Laminar and Turbulent Flow, Energy Equation, Major and Minor Losses in Pipe Flow, Dimensional Analysis, Buckingham Pi's Theorem, Modeling and Similitude.

References

1. Yunus A. Cengel. 2003. *Heat Transfer: A Practical Approach.* New York: McGraw Hill. Call number: QC320 .C46 2003
2. Yildiz Bayazitoglu and M. Necati Ozisik. 1988. *Elements of Heat Transfer.* New York: Mc Graw Hill. Call number: TJ260 . B38 1988
3. J. P. Holman. 2010. *Heat Transfer.* New York: Mc Graw Hill. Call number QC320 .H64 2010

BBM 30303 Solid Mechanics

Prerequisite Course(s): None

Synopsis

This course explains about solid mechanics. Among the scopes are: Analysis theory of Shear and Stress; Concept and definition of shear and stress, Types of loading, Modulus of elascity and plastic elascity, Thermal Stress and strain, Poisson's ratio and horizontal stress, Types of beams and supports, Types of beam loads, Shear forces, Shear force diagram, Maximum bending moment, Stress in beams; Bending theory, bending moment and shear seperation, Torsion; Torsion stress and strain in round and hollow bars, Composite bar, Shaft design and load combination. Thin Cylinder, Pressure in thin cylinder, Complex torsion; Combination of stress and strain in two-dimensional system, Main stress and strain, Maximum shear stress and strain.

References

1. G.H Ryder, 1983, *Kekuatan Bahan,* Macmillan Publisher Ltd. ISBN: 9789679290028
2. Ferdinand L. Singer, Andrew Pytel & Ir. Darwin Sebayang, *Kekuatan Bahan,* 1985, Penerbit Erlangga.
3. Ferdinand P.Beer, E.Russell Johnston, Jr. & John T. DeWolf, *Mechanics of Materials,* Fifth Edition, 2009, McGraw Hill. ISBN: 9780073529387 &

9780077221409

4. William Nash, Strength of Materials, Fourth Edition, 1998, McGraw Hill. ISBN: 9780070466173 & 9780071166072
5. P.P. Benham, R.J Crawford & CG Armstrong, Mechanics of Engineering Materials, Second Edition, 1996, Longman. ISBN: 9780582251649

BBP 40102 Final Year Project 1

Prerequisite Course(s): BBP30403 RESEARCH METHODOLOGY

Synopsis

This module consist of:

Introduction: Introduction, background of study, statement of problem, purpose of study, objective of study, question of study, concept framework of study, importance of study, scope of study, limitation of study, operational definition, summary.

Literature: Introduction, related literature (concept/theory/model), related research (Related findings of previous studies) and summary.

Methodology: introduction, design of study, chronological study of product development (analyze project need, design selection, analysis and modification, testing and evaluation, design specification, material selection, tool and material for the project, installation process), and summary

Presentation: Assessment and reflection of proposal report Degree Project 1, verbal feedback about Degree Project 1 from supervisor/assessor, feedback about instruments from supervisor/ assessor.

References

1. Module Implementation Final Year Project (university and Faculty).
2. University Academic Regulations
3. University Thesis Writing Guide

BBP 40204 Final Year Project 2

Prerequisite Course(s): BBP40102 Final Year Project 1

Synopsis

Chapter 1: Introduction (Introduction, Background of study, Statement of problem, Purpose of study, Objective of study, Question of study, Concept framework of study, Importance of study, Scope of study, Limitation of study, operational definition, summary.

Chapter 2: Literature Review (Introduction, Related literature (concept/theory/model), Related research (Related findings of previous studies), Summary). Chapter 3: Methodology (Introduction, Design of study/project, chronological study of product development (analyze project need, design selection, analysis and modification, testing and evaluation, Population /respondent/ design specification, Material selection (material for the casing, the material for the operations), Research instrument / Equipment and Materials Used (Project development and costs), Installation Process, Analysis item / process testing, Expectations Finding, Summary. Chapter 4: Analysis Engineering / Product / research (Introduction, Research finding, Material design analysis (Implementation of components and materials testing), Product design analysis (Implementation and testing) and Summary. Chapter 5: Discussion, Conclusion and Recommendation (Introduction, Discussion (Materials design and product design), Conclusion, Recommendation (Proposed findings and further study

recommendations) and Summary. Assesment and Reflection Research Report (Degree Project II), (Verbal feedback from supervisor and assessor and Feedback from supervisor and assessor through assessment instruments Degree Project II.

References

1. Module Implementation Final Year Project (university and Faculty).
2. University Academic Regulations
3. University Thesis Writing Guide

BBD 10500 School Orientation Planning

Prerequisite Course(s): None

Synopsis

School History : administration , building , department , public relations . School : school location , school plans , infrastructure and school facilities . Vision and mission of the school : the vision , mission , charter , pledge , song , badge . School's administrative organization : organizational , administrative , academic organization , curricular organization . School activities : academic , co-curricular activities , activities hem , Textbook Loan Scheme , projects of excellence , ICT , special program . School and community : Parents and Teachers Association (PIBG) , school council consensus , the board of management of the school , the teachers council / council school principals , National Union of Teaching Profession (NUTP) .

References

1. David Hopkins. (2008). A teacher's guide to classroom research. Maidenhead: Open University Press. No. Panggilan: LB1028.24 .H66 2008
2. Zol Azlan Hamidin (2000). Strategi Pengajaran : pendekatan sains teknologi masyarakat. Selangor: Pearson. No. Panggilan: LB1532.M3 .Z64 2000
3. James Nolan, Jr. , Linda A. Hoover. (2011). Teacher supervision and evaluation: theory into practice. Hoboken, NJ: John Wiley. No. Panggilan: LB2838 .N64 2011
4. James Rath and Amy C. McAninch. (2003). Teacher beliefs and classroom performance: the impact of teacher education. Greenwich, CT: Information Age Publishing. No. Panggilan: LB1775.2 .T43 2003
5. John C.Daresh. (2002). Teachers mentoring teachers: a practical approach to helping new and experienced staff. Thousand Oaks, CA: Corwin Press. No ISBN: 0761945768, 9780761945765.

BBP 40408 Teaching Training

Prerequisite Course(s): Pedagogy (BBD10302), Micro Teaching (BBD20403)

Synopsis

This course focuses on Teaching Preparation: writing teaching schedule, annual teaching plan, weekly teaching plan, daily lesson plan. Implementation of teaching plans: Teaching: pre-teaching skills, induction set skills, presentation skills, questioning skills and assessments, teaching using teaching aids, classroom control, cover. Reflection: oral feedback from instructors / supervisors, supervisor / supervisor feedback through evaluation instruments, teaching, reflection writing in teaching planning books. Routine work: management and administration, job examinations / student assignments, continuous assessment, lab management and workshops, other instructional tasks, preparation of teaching training portfolios.

References

1. Emmer, Edmund T (2015) Handbook of classroom management, New York : Routledge, Taylor & Francis Group [LB3013 .H36 2015]
2. Lyons, Gordon (2014) Classroom management: creating positive learning environments, South Melbourne: Cengage Learning [LB3013. L96 2014]
3. Senior, Lynn (2017) A teacher's guide to 14-19 policy and practice. New York, NY: Routledge [LC1047.G7. S46 2017]
4. Weinstein, Carol Simon (2015) Middle and secondary classroom management: lessons from research and practice, New York, NY: McGraw-Hill Education [LB3013. W44 2015]
5. FPTV Practical Teaching Guide 2020

BBP 30404 Industrial Training

Prerequisite Course(s): Students need to complete the all related core courses

Synopsis

This course focuses on the planning. Throughout planning Period of Industrial Training. Monthly Planning. Weekly planning. Project planning. Daily Duties. Briefing Supervisors. Implementation Assignment. Communication. Log book. The scope of the project. Task Completion. Learning. Reflection. Studies Organization. Organisational structure. Communication Channels. Climate Organization. Current development of Organization. Practices and Work Procedure. Report Writing. Writing format. Presentation. Documents Attachment and Presentation Materials.

References

1. *Panduan Latihan Industri Universiti*
2. *Panduan Latihan Industri Fakultas*
3. *Peraturan Akademik Universiti*

BBP 10703 Fundamental of Electrical Technology

Prerequisite Course(s): None

Synopsis

Source of electricity: chemical, magnetic, friction, heat and light. Conductor and insulation: conductor and the types of conductors, insulators and other types of insulation, factors affect the conductor resistance and calculation. Passive components: resistors: definition of resistor and resistance, function of resistors, resistor structures and properties, types of resistors, resistor color code, resistor in series circuits, parallel and complex circuits. Inductor passive component: understanding the meaning of the inductor and inductance, inductor standard units and symbols, types of inductor and functions, factors affects induction, inductor in series and parallel, self-inductance and mutual inductance, test and inductor damage. Capacitance Passive Components: understand the capacitor and the capacitance, standard units and capacitor symbols, color code and capacitor rates, types and capacitance functions, the factors influenced the capacitance, the capacitance in series and in parallel, the process of charging and discharging, testing and capacitor damage. Basic electromagnetism: principles, concepts, factors that affect the electromagnetic force, electromagnetic induction and induced electromotive force. Ohm's law: definitions, current, voltage, resistance, power circuits in series, parallel and series-

parallel circuit E.T. Kirchhoff's law: the law of Kirchhoff's current and voltage. Basic electric machines: principles, construction and operation of the generator, Faraday's law of electromagnetic induction, Law of the right-hand and left-hand rotation DC motor based on the Law (Power) amperes and the equation $F = BIL$, The D.G.E concepts, operating principles transformer and operating principles construction of the transformer, the losses in the transformer, the transformer ratio of the voltage, current and transformer windings.

References

1. Azli Yusop, Siti Amely Jumaat & Megat Azahari Chulan (2007). Electrical Technology (DEE 1113). Batu Pahat: Penerbit UTHM. No. Panggilan: TK146 .A94 2007.
2. Giorgio Rizzoni (2007). Principles and applications of electrical engineering. 5th Ed. Boston McGraw-Hill. No Panggilan: TK146. R59 2007
3. Gupta J. B. (2004). Electrical Technology. New Delhi S.K Kataria. No Panggilan: XX (79170.1)
4. Cotton, H. (2004). Electrical Technology 7th Edition. New Delhi CBS Publisher. No. Panggilan: XX (79171.1).
5. Bird, J. (2001). Electrical circuit theory and technology. 2 nd Ed. Oxford: Newness. No Panggilan: TK454. B57 1997

BBA 10102 Workshop Practices in Refrigeration and Air Conditioning

Prerequisite Course(s): None

Synopsis

This subject gives students knowledge against; General Safety (theory of accident , OSHA Act 1996 , regulation 1996 and 1997, occupational health, accident type , group and category, occupational safety, plant and equipment) ; security workshop / laboratory (workshops safety rules, personal safety , safety tools and machine , electrical safety , fire prevention , emergency treatment); basic hand tools and equipment test (type and function of non-motorized hand tools , type and function motorized hand tools , methods of use and care of tools , methods of testing and measuring equipment); gas welding (regulation and safety oxygen and acetylene tanks , soft welding and type, connection type, brazing and silfosing) ; arc welding (regulation and safety arc welding machine , corner joint, butt joint, tee joint, edge and lap joint) ; fitting (measuring , marking , cutting , grinding , forming and boring.

References

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2. Waters T.F. (1996). Fundamentals Manufacturing for Engineers. London; UCL press Ltd. TS138. W37 1996
3. Abu Hassan Ismail. (1993). Kimpalan dan potongan gas: manual bengkel. IBS Buku. TS227. A38 1993
4. Hamdan Ali (1989). Teknologi Penyejukan dan Penyamanan Udara, cetakan ke 4. TH7687 .H35 1989
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BBM 20203 Thermodynamics

Prerequisite Course(s): None

Synopsis

This course explains about basic theories in thermodynamics. The scopes in this course are basic concepts; Thermodynamic properties, Temperature, Work done, Heat. First Law of Thermodynamics; Non-flowing process; Energy equilibrium and irreversible concept, Isobaric process, Polytropic process, Adiabatic process, Isothermal process. Flow process; Unsteady flow process, Cycle with steady flow process. Second Law of Thermodynamics; Efficiency cycle, Second law of thermodynamics, Entropy features, The sequence of second law for steady flow process, The validity and limits of thermodynamics laws.

References

1. Cengel, Yunus A. (2008). Thermodynamics- An Engineering Approach - 6th ed. McGraw-Hill Higher Education. LC Call Number: TJ265 .C464 2008
2. Moran, Micheal J & Shapiro. (2010). Fundamentals of Engineering Thermodynamics - 6th ed. John Wiley & Sons. LC Call Number: TJ265 .M67 2010
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5. Whalley, P. B. (1992). Basic Engineering Thermodynamics. Oxford University. LC Call Number: TJ265. W42 1992

BBA 30203 Engineering Drawing of Refrigeration and Air Conditioning

Prerequisite Course(s): None

Synopsis

This subject exposes students to; Drawing symbols (electrical symbol and electronic symbol); Control circuit (single phase control circuit, three phase control circuit, sequential control circuit, alternate control circuit, central control circuit); Motor Control: Refrigeration And Air Conditioning (star-delta motor control and auto-trans motor control); Air ducting (building layout, size and structure building and ducting drawing layout); Component air ducting (main ducting, vibration isolators, air terminals, terminal units, vane, plenums, dampers); Air conditioning and refrigeration system layout (basic system 4 component + 2 accessories, ducting for HVAC water cooled system - commercial building); Piping (basic system 4 component + 2 accessories, ducting for HVAC water cooled system- commercial building)

References

1. Gupta, H. C (2016). Comprehensive HVAC System Design: A Handbook on Practical Approach to Air Conditioning, Heating and Ventilation System: New Delhi: MV Learning.
2. Kaushik, S.C (2016). Alternatives in Refrigeration and Air Conditioning: I K International Publish.
3. Kleinert, Eric (2015). HVAC and refrigeration preventive maintenance: New York: McGraw-Hill.
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5. Miller, Frank C. (2004). Blueprints and plans for HVAC. Clifton Park, NY : Thomson. (TH7345 .M54 2004)
6. Miller, Frank C. (1996). Blueprint reading for heating, ventilating, and air conditioning. Albany : Delmar. (TH7345 .M54 1996).
7. Whitman, Johnson and Tomczyk. (2000). Refrigeration & Air Conditioning Technology. 5th ed. Thomson Delmar Learning.(TP492 .W55 2000 N1)
8. Hamdan Ali ,Shawaludin Md. Aris,Mat Misiah Ayob.(1989).Teknologi Penyejukan dan Penyamanan Udara Untuk Sekolah Vokasional.Cetakan Keempat.Kuala Lumpur.Edusystem Sdn. Bhd.(TH7687 .H35 1989)

BBA 40303 Diagnosis System and Analysis of Refrigeration and Air-Conditioning

Prerequisite Course(s): None

Synopsis

This subject provides the skills and knowledge of students to the process troubleshooting basic control, mechanical troubleshooting, operation and troubleshooting of chilled water air-conditioning systems and maintenances of chilled water air-conditioning systems.

References

1. Gupta, H. C (2016). Comprehensive HVAC System Design: A Handbook on Practical Approach to Air Conditioning, Heating and Ventilation System: New Delhi: MV Learning.
2. Kaushik, S.C (2016). Alternatives in Refrigeration and Air Conditioning: I K International Publish.
3. Kleinert, Eric (2015). HVAC and refrigeration preventive maintenance: New York: McGraw-Hill.
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8. George E. Clifford. (1993). Modern Heating & Ventilating System Design, New Jersey, Prentice Hall. TH7223 .C55 1993

BBA 40403 Service and Maintenance Commercial Refrigeration and Air-Conditioning System

Prerequisite Course(s): None

Synopsis

This subject introduces students to the field of engineering technology skills commercial refrigeration and air conditioning systems such as charging, servicing, installation, wiring system and repairing system. Things learned are;

Commercial Air-Conditioning Servicing (water cooled packaged unit, air cooled packaged unit); Commercial Refrigeration Servicing (cold room, commercial fridge); Air Distribution System (correct air quantity, balancing damper, blower and system pressure, residential duct system problems, air duct selection); Cooling Tower. (cooling tower selection and installation, water piping and water pump); Commercial Refrigeration Installation. (piping and wiring systems, fan coil unit, condenser unit); Component and Accessories (open and installation system components, open and installation system accessory, trouble shooting system, repairing system open and installation vehicle accessory) and Troubleshooting (single phase wiring installation, star- delta wiring installation, auto transformer wiring installation).

References

1. Gupta, H. C (2016). Comprehensive HVAC System Design: A Handbook on Practical Approach to Air Conditioning, Heating and Ventilation System: New Delhi: MV Learning.
2. Kaushik, S.C (2016). Alternatives in Refrigeration and Air Conditioning: I K International Publish.
3. Kleinert, Eric (2015). HVAC and refrigeration preventive maintenance: New York: McGraw-Hill.
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6. Hamdan Ali, Shawaludin Md. Aris, Mat Misiah Ayob. (1989). Teknologi Penyejukan Dan Penyamanan Udara Untuk Sekolah Vokasional.Cetakan Keempat.Kuala Lumpur.Edusystem Sdn. Bhd. (TH7687 .H35 1989)

BBA 40503 Air Conditioning Installation and Maintanance Supervision

Prerequisite Course(s): None

Synopsis

This subject provides knowledge of students to the Administration of Service Contracts (arrange schedule for servicing, monitor services according to contract, prepare bill of service contract & contract termination), Handling Of Customer Complaints / Breakdown Calls (acknowledgement of the receive complaints, handling types of complaint, assignment deployment suitable technician, receive fault report, decision on follow up default report, rectification report & wait for feedback / periodical reminder to customers), Part/ Consumable Purchasing Requisition (identify inventory level consumables, check consumable and parts availability, request parts and consumables inventory), Customers Enquiries for Servicing Handling (acknowledge customers enquiries, handle customer enquiries, follow up on customer enquiries) and Client Liaison (analyze the customers need & propose solutions)

References

1. Gupta, H. C (2016). Comprehensive HVAC System Design: A Handbook on Practical Approach to Air Conditioning, Heating and Ventilation System: New Delhi: MV Learning.
2. Kaushik, S.C (2016). Alternatives in Refrigeration and Air Conditioning: I K International Publish.
3. Kleinert, Eric (2015). HVAC and refrigeration preventive maintenance: New York: McGraw-Hill.
4. Rory Burke (2013) Project Management: Planning and Control Techniques Third Edition, John Wiley & Sons Ltd, Chichester, England, 1999 ISBN 0-471-98762-X, 343 p
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6. Mark Hackett, Gary Statham (2016) The Aqua Group Guide to Procurement, Tendering and Contract Administration. United Kingdom-Wiley blackwel
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9. George E. Clifford. (1993). Modern Heating & Ventilating System Design, New Jersey, Prentice Hall. TH7223 .C55 1993

BBA 40603 Air Conditioning System Design

Prerequisite Course(s): None

Synopsis

This subject is designed to provide students with knowledge and skills in cooling load calculation, know the different types of cooling loads, building design and its effects on the heat load, sizing, and design air ducting.

References

1. Gupta, H. C (2016). Comprehensive HVAC System Design: A Handbook on Practical Approach to Air Conditioning, Heating and Ventilation System: New Delhi: MV Learning.
2. Kaushik, S.C (2016). Alternatives in Refrigeration and Air Conditioning: I K International Publish.
3. Kleinert, Eric (2015). HVAC and refrigeration preventive maintenance: New York: McGraw-Hill.
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BBW 20103 Metal Fabrication and Welding Technology

Prerequisite Course(s): None

Synopsis

The course will involve students with interactive learning in topics General Introduction Technology in Welding and Fabrication, Principles of Formation Metals, Metals Rolling Process, Forging Process, Extrusion Rods Process, Extrusion Wires And Tubes Process, Formation Process Sheet Metal I (Shearing & Flexing), Metal Forming Process II (Stretch Forming and Others, Soldering And Brazing Process, Gas Welding Process, Arc Welding Processes, Thermal And Cutting Machine Processes, Resistance Welding).

References

1. Waters T.F. (1996). Fundamentals Manufacturing for Engineers. CRC Press. LC Call Number: TS183. W37 1996.
2. Abu Hassan Ismail. (1993). Kimpalan dan Potongan Gas: Manual Bengkel. IBS Buku. LC Call Number: TS227. A38 1993.
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5. Crowson, Richard. (2006), The Handbook of Manufacturing Engineering. Taylor and Francis. LC Call Number: TS183 .H36 2006 v.1.

BBA 20203 Technology of Refrigeration and Air Conditioning

Prerequisite Course(s): None

Synopsis

This subject provides knowledge against; heat, temperature, and pressure; process heat transfer through conduction , convection and radiation ; relations between temperature, pressure and volume (Boyles law, Charles law and general gas law); refrigerant (introduction of refrigerant, refrigeration functions, refrigerant properties, refrigerant types, refrigerant temperature and pressure chart); air conditioning system (domestic, commercial, water cooled system, air cooled system and automobile air conditioning) ; servicing (domestic, commercial, water cooled system, air cooled system and automobile air conditioning); components and auxiliaries in the basic air conditioning system (compressor, condenser, evaporator, expansion valves, storage tanks, metering device, services valve, suction, discharge, pressure gauges); basic refrigerant cycle and calculation (low pressure side, high pressure side, compression process, condensation process, evaporating process, absorption process, compression ratio and system capabilities); secondary refrigerant (water and brine); pressure enthalpy chart (subcooled, saturated vapor, saturated liquid, superheated and calculation system capabilities using plotting pressure enthalpy chart); psychrometric (Dry temperature, wet temperature, relative humidity, specific moisture, enthalpy, humidification, dehumidification, and plotting system using psychrometric.

References

1. Rex Miller, Mark R Miller. (2006), Air Conditioning & Refrigeration, Texas McGraw-Hill. TH7687 .M54 2006
2. Whitman, Johnson and Tomczyk. (2000), Refrigeration & Air Conditioning Technology. 5th ed. Thompson Delmar Learning. TP492. W55 2000 N1
3. Mohamed Rashid Embi Sulaiman Shariff. (1996), Pengudaraan dan Sistem Penyamanan Udara.Kuala Lumpur Dewan Bahasa Pustaka. TH7325. D64 2005
4. George E. Clifford. (1993). Modern Heating & Ventilating System Design, New Jersey, Prentice Hall. TH7223 .C55 1993
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BBA 40203 Service and Maintenance Domestic Refrigeration and Air Conditioning System

Prerequisite Course(s): None

Synopsis

This subject provides the skills and knowledge of students to the management & training of service personnel (Career development training program for service technician and training and imparts of knowledge and skill); air cooled split unit installation and maintenance (Perform air cooled split unit servicing ,Charging, vacuum, leak test and perform air cooled split unit installation); window unit installation & maintenance (perform window unit servicing ,Charging, vacuum, leak test and perform air window unit installation); refrigeration handling (perform types of system approach identification, perform refrigerant recovery for the specific service and prepare refrigerant handling records); Ventilation fan (1ph) installation & maintenance (perform ventilation fan installation, perform ventilation fan servicing and perform ventilation fan repairing); car air coditioning system (perform car airconditioning unit servicing, Charging, vacuum, leak test and refrigerant recovery for vehicle unit system).

References

1. Gupta, H. C (2016). Comprehensive HVAC System Design: A Handbook on Practical Approach to Air Conditioning, Heating and Ventilation System: New Delhi: MV Learning.
2. Kaushik, S.C (2016). Alternatives in Refrigeration and Air Conditioning: I K International Publish.
3. Kleinert, Eric (2015). HVAC and refrigeration preventive maintenance: New York: McGraw-Hill.
4. Rex Miller, Mark R Miller. (2006). Air Conditioning & Refrigeration, Texas McGraw-Hill TH7687 .M54 2006
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BBV 20303 Electrical Wiring and Installation

Prerequisite Course(s): None

Synopsis

This course exposes students to the safety measures of working with electrical wiring and installation for single and three-phase system, staff's safety and health, sources of accidents, sources of fire, and fire prevention; first aid and healing method, wiring accessories including types of electrical accessories for home and building automation, functions and tools in electrical installation. The rules and regulation of IEEE/MS-IEC related to cables and conductors, such as cable core materials, cable shields, and types of cables, cable structure and figures. Choosing suitable types of cables with specific uses, in accordance to IEEE/ST/MS-IEC rules pertaining to inspection and testing of electrical circuit, instruments test, insulation test, earth electrode test, earth impedance test, poles test, and distribution board panel, continuity test, rings circuit test, sequence test, and compliance to IEEE/ST rules and regulations.

References

1. Ray C. Mullin (2005). Electrical Wiring 12th ed.: commercial. Thomson Learning. No. Panggilan: TK260 .M84 2005
2. Ray C. Mullin (2005). Electrical Wiring 15th ed.: residential. Thomson Learning. No. Panggilan: TK3285 .M84 2005

BBA 30303 Electric Motor Control

Prerequisite Course(s): None

Synopsis

This subject prepare students knowledge of: Basic Concepts of Motor Control; Motor Control Functions; Type of Motor control; Electromanatec Devices; Control Components; Motor Control Circuit; Full Starter Voltan; Maintenance and Repair.

References

1. E. Hughes. (2005). Electrical Technology. Longman. London. (TK146 .H83 1987)
2. W Shepherd & L N Hulley. (2003). *Power Electronics and Motor Control*. Cambridge. (TK7881.15. S53 1995)
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6. J.B. Gubra. (1984). Electrical Machines I. Katson Publishing House. (TK2612 . G86 1997)

BBA 40203 Basic Skill of Welding

Prerequisite Course(s): None

Synopsis

This course explains about basic welding skills: The scope of this course are: Regulation practice and safety features; regulation and safety features in workshop, safety precautions in workplace, first aid methods, fire training, training electrical hazard, preparation of accident reports. Interpretating Workshop Drawings; identify symbols and signs, interpret working drawings, determining the dimensions and tolerances, displaying appropriate freehand sketch technique. Develop skills in preparing workpieces and consumables; metal working material selection, selection of consumables, and maintenance of the workpiece. Building skills of various joining process; preparation of working materials and consumables, material selection and fabrication of working metals, consumable materials, and maintenance of the workpieces. Demonstrating formation skills; forming a patterns on a parallel lines, forming a patterns on radius, forming patterns on a triangulation lines, forming a combination of patterns on a lines. Supervision and Quality Control Practices; process monitoring, completing metallurgical differences between observation methods and quality control, providing the inspection report, determining equipment to be maintained regularly and receive employee contributions and achievements.

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2. Peter Smid 2000, CNC programming handbook : A comprehensive guide to practical CNC programming, Industrial Press. LC Call number: TJ1189 .S64 2008
3. John A. Schey, 2000, Introduction to Manufacturing Process, McGraw-Hill International. LC Call number: TS183 .S34 2000 N1
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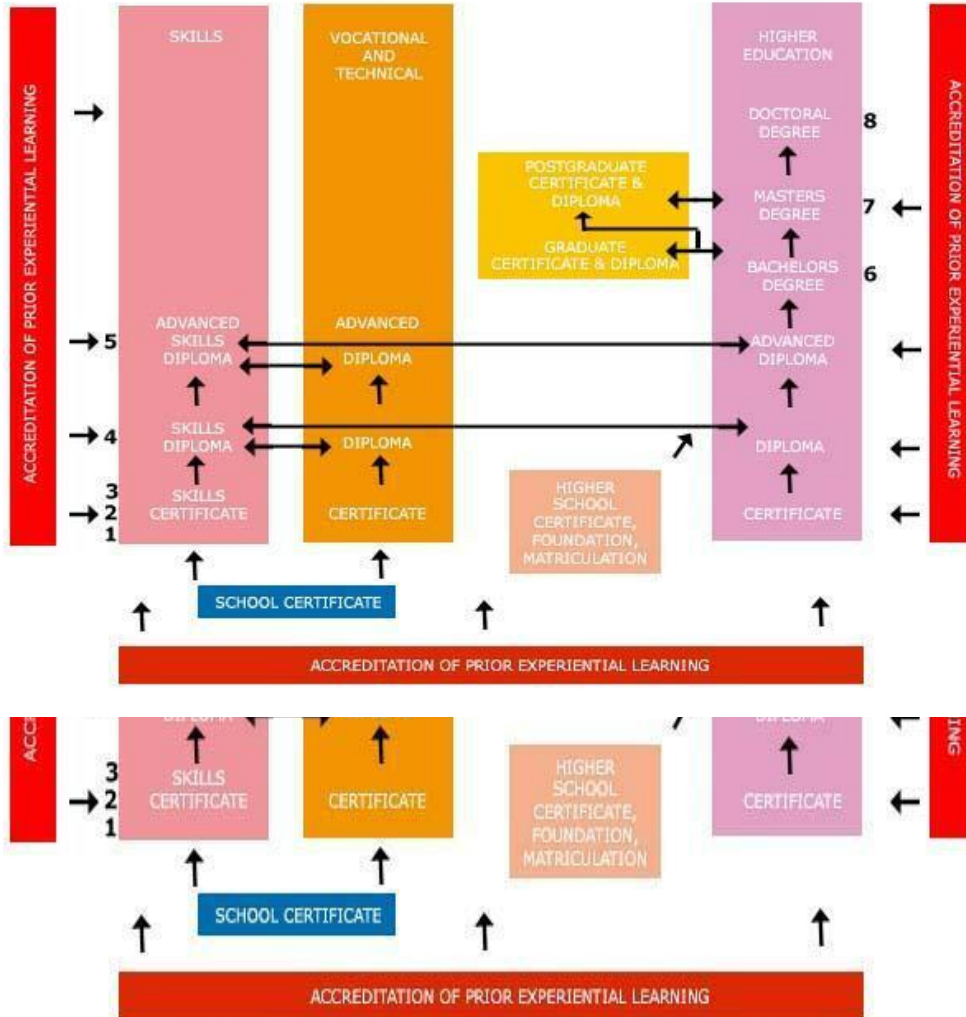
Employment

Graduates have career opportunities in the public and private sector, particularly in the field of technical and vocational education specialization in refrigeration and air-conditioning. In addition, the graduates have career opportunities as a teacher or instructor in vocational colleges, teachers in regular schools that offer related courses and public and private skills training institutes. Besides, the graduates have the potential to engage in industrial fields such as HVAC (Heating ventilation and air conditioning) engineer and also have the potential to become entrepreneurs in related fields. Graduates also have the opportunity to continue their studies at post-graduate level in areas related to technical and vocational education through programs such as Master of Technical Education (Mechanical Engineering), Master of Technical and Vocational Education and Master of Technical Education (Instructional Design and Technology) and programs equivalent.



Path for Further Education :

MQF BASED ON QUALIFICATION LEVEL AND EDUCATIONAL PATHWAY



Source: Malaysian Qualification Framework

**MALAYSIAN QUALIFICATIONS FRAMEWORK:
QUALIFICATIONS AND LEVELS**

MQF Levels	Sectors			Lifelong Learning
	Skills	Vocational and Technical	Higher Education	
8			Doctoral Degree	Accreditation of Prior Experiential Learning (APEL)
7			Masters Degree	
			Postgraduate Certificate & Diploma	
6			Bachelors Degree	
			Graduate Certificate & Diploma	
5	Advanced Diploma	Advanced Diploma	Advanced Diploma	
4	Diploma	Diploma	Diploma	
3	Skills Certificate 3	Vocational and Technical Certificate	Certificate	
2	Skills Certificate 2			
1	Skills Certificate 1			

Source: Malaysian Qualification Framework



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