Center of Excellence (CoE)
Universiti Teknologi MARA (UiTM)

HICoE profile - Accounting Research Institute (ARI)

The Accounting Research Institute (ARI) was first formed in 2002 as a special interest group. Since then, ARI had gone through a complete evolutionary cycle which includes of first being a special interest group (SIG), then as a research centre and finally as a research institute. The Ministry of Higher Education formally approved the formation of ARI in 2005. As a research institute, ARI is responsible to coordinate and manage the activities of its eight multi-discipline research centres – each focus on different topic. Effective November 2009, ARI has been recognised by the Ministry of Higher Education as one of the Higher Institutions' Centres of Excellence (HICoE). ARI is recognized internationally for its sustained initiatives, commitment and dedication towards advocating research in Islamic Financial Criminology (IFC). IFC encompasses two very important conceptual domains: Islamic Finance & Muamalat and Financial Criminology. Among global research project in Islamic Finance includes Islamic Corporate Social Responsibility (i-CSR), Corporate Waqaf, Shariah Audit, Islamic Microfinance Transformation Programme, Mosque Financial Sustainability Model, Social Impact Assessment and Good Governance Practices in Zakat Management and Islamic Social Enterprise Economics. International research in Financial Criminology focuses on developing possible fraud prevention mechanisms to minimize leakages include Corporate Integrity Systems, Social Enterprise Intelligent Advisory System and Benchmarking the Success of Saemaul Undong, South Korea.

GLOBAL ACHIEVEMENTS

- Global Islamic Finance Awards (GIFA) Lifetime Achievement, 2019, Cape Town, South Africa
- GIFA Eminence in Islamic Financial Criminology Research Award 2018, Bosnia Herzegovina
- GIFA Global Research Excellence in Islamic Financial Criminology Award 2017, Kazakhstan
- GIFA Best Research & Development in Islamic Finance 2016, Indonesia
- GIFA Pioneer in Islamic Financial Criminology Research 2015, Bahrain
- GIFA Best Islamic Finance Education Provider 2014, United Arab Emirates (UAE
- Top 10 Most Influential Women in Islamic Business and Finance for the year 2019 by Cambridge (IFA) International Finance Advisory
- Global Good Governance (3G) Awards (2017)
- ASEAN Enterprise Risk Management Awards (2017)
- ACQ Global Awards 2016 - Gamechanger of the Year
- ACQ Global Awards 2015- Islamic Financial Criminology Research Body of the Year

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Research at Integrative Pharmacogenomics Institute, Universiti Teknologi MARA (iPROMISE, UiTM)

iPROMISE is a Centre of Excellence instituted at Universiti Teknologi MARA in 2013. The niche area of iPROMISE is Precision Health which focuses on understanding the genetics, environmental cues/ pressures and life-styles that affect the overall well-beings of human and responses towards exogenous substances. Diseases or disorders which affect the wellness of an individual or the nation which are investigated by the researchers at iPROMISE include both the non-communicable (cardiovascular, metabolic diseases, dental health) and communicable diseases (parasites, bacteria, viruses). We also studied the genetics of psycho-cognitive which affect the well-beings of individual. The genetics of residual ridge resorption in dental health was also investigated. The basic and integrative omics (metabolomics, genomics, transcriptomics, proteomics, epigenomics) are the tools being used to understand the mechanisms or pathways related to these diseases. We had developed methods for detection and quantitation of biomarkers (genetics, metabolites and proteins) for screening that may help diagnosis and monitoring of disease progress or drug responses. In building the nation, we had also developed expertise in sport genomics which uses genomics to identify talents of elite athletes and which can help tailor training programmes. Local databases (such as whole genome sequences and metabolomes of the Orang Asli in Malaysia and Malays) were set up which are useful local source for further basic study on the novel variants that had not been studied by other counterparts. The research team on the artificial intelligence at iPROMISE aims to innovate and develop new applications and softwares using the local databases we had developed in house to enhance the precision of prediction and preventive potentials of the genetics or genomics tests . We also ventured into the search for multi-receptors targeted lead compounds with a wider safety window as the potential new chemical entities preventing or inhibiting inflammatory disorders and cancers. Our team had also developed dental implants using newly innovated materials and process.

iPROMISE also specialises in multi-particulate system design and development from the perspectives of material science, formulation strategy, processing and equipment design for the delivery of personalised therapy. The multi-particulate system from nano, micro to millimetre scale is subjected to physicochemical modification where targeting ligands, penetration enhancer and other functional excipients are introduced. Precision microwave was used to facilitate the nanoparticulate drugs to overcome the skin barrier, with the aim to promote skin drug retention and/or systemic drug permeation for the treatment of melanoma and diabetes. The global first colon-specific coatless pellets, *in vivo* instead of fluid-bed coated spheroids, and nanoparticles-in microagglomerate systems are designed for tissue- and cell-specific delivery of cancer therapeutics and related actives. In addition, the nanoparticles-on-microparticles delivery system has been developed to carry the nanoparticulate drugs into deep and peripheral lungs for cancer and infection control.

We had translated the research output to community through our start -up company which provide Direct-to-Customer genetic tests using arrays and whole genome or exome sequencing. We had established collaborations with the industries partners as well as researchers from both local and overseas.

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List of selected projects

A. INTEGRATIVE OMICS

Evolutionary genomics and anthropological approaches on the endangered Malaysian aborigine populations: towards ensuring their sustainability

Determinants of executive performance function of the younger generation: understanding the genetic variation of BDNF-TrkB and microRNA regulatory roles

Dominator of success: your genes and personality traits

Signatures of the champions : enhancing sport performance via integrated physical training , diet and genomics approaches

Accurate assessment of micronutrients in the elite athletes : a need for personalized diet therapy

Understanding the relationship of gut and oral microbiota with cognitive and behavioral stress response among university students

Metagenomics and metabolomics analysis of human gut microbiota: evaluation of the predisposing mechanisms and probiotic effects on obesity

Profiling the metabolome signatures of gut microbiota in obese subjects in understanding the effect of physical induced weight loss

Investigating anti-proliferative effect of chalcone derivatives against breast cancer: in silico and in vitro approaches

Elucidating the anticancer activity of *Polygonum minus* and *Christia vespertilionis* extracts in breast cancer cell lines

Secondary metabolites of *Tacca integrifolia* with anti-proliferative properties: factors and mechanisms in regulating the expression of genes to enhance the yield

Anxiolytic effects of *Moringa oleifera* extract using chronic unpredictable stress zebrafish model

Elucidating the molecular mechanisms of the anti-inflammatory properties of chalcone and flavones derivatives

Dissecting the molecular mechanisms of *Garcinia atroviridis* in transgenerational inheritance of epigenetics in diet-induced obese rats

B. PHARMACOGENETICS

Evaluation of the *VKORC1* haplotypes in individualising warfarin therapy

Expression analysis of thiopurine methyltransferase (TPMT) activity in leukemic patients

Tacrolimus pharmacogenetics: the influence of genetic polymorphism of *CYP3A5, MDR1* and pregnane x receptor (*PXR*) in transplant patients

Genetic polymorphism of drug metabolizing enzymes and estrogen receptor innpharmacogenetics of tamoxifen: implication for optimization of breast cancer treatment

Transgenerational epigenetics in substance abuse: exploring the inheritable DNA methylation underlying the aggressive behaviour and altered stress response

Bone remodeling in the oromaxillofacial region following reduced function: implication of Wolff's law and genetic polymorphisms of FGFR1op2/WIT3.0

C. ARTIFICIAL INTELLIGENCE / COMPUTATIONAL MODELLING

Computational approaches on prediction of diseases risks and nutrigenomics for precision medicine

Computational studies on chalcone and flavone derivatives as multi-target inhibitors: towards anti-inflammatory therapy

Understanding facial expression of schizophrenia : use of innovative photography

High sensitivity optimal path trace back system development based on veterbi algorithm for DNA sequences alignment accelerator application

Formulation of A Robust Image Segmentation Framework for Micro Bleeds Detection in MRI Images of Cerebrovascular Diseases

Novel Random-Valued Impulse Noise Removal Based On Adaptive Switching Filter And Local-Preserving Scheme

Diagnosis Of Cervical Cancer Stages Using Hybrid Radial Basis Function Network With Fuzzy Membership-K-Means Clustering As Centre Positioning Algorithm

Identification of Tumor Existence in Mammogram Image Using Image Processing Algorithm

Intelligent Classification System for Microcalcification of Breast Cancer

Formulation of A New Watershed-based Segmentation Method for Features Extraction of Lung Cancer nodule in CT-scan IM

New ROI-Based Features Extraction Method Based On White Matter Lesions From MRI Images Of Small Vessel Stroke Predisposition

Drone- Assisted Victim Localization and Identification in Mass – Disaster Management from a Forensic Perspective

Hierarchical Deep Networks Technique for Swift Drone-Assisted Mass Disaster Victim Localization and Identification

Multimodal Deep-Learning–Based Robotic Therapy (MDLRT) of Children with Autism Spectrum Disorder

A Low Complexity Convergence and Non-Convergence Output Detection Algorithms and Early Termination Criterion for Big Data in Iterative Decoding

Hemispheric Brainwave Characterisation in Human Learning

Novel Optimized Element Algorithm for Sizing DNA Sequence Alignment, Duration

Big Data Analytics of Large Scale Botnet Detection in Heterogeneous BYOD Environment

High Sensitivity Optimal Path Trace Back System Development Based on Veterbi Algorithm for DNA Sequences Alignment Accelerator Application

Abnormal Gait Analysis and Classification Based on Machine Learning Approach

D. MICROBIOLOGY/ PARASITOLOGY

Genome Map of COVID-19 in Malaysia

Molecular characterization of *Mycobacterium tuberculosis* strains in the tropics for a better understanding of transmission mechanism, pathogenesis and tissue tropism

Mutation analysis of MDR-TB strains isolated in Malaysia and Nigeria

Exploring the metabolic regulatory networks of virulence and resistance behaviour of pathogenic *Klebsiella pneumoniae* and *Proteus mirabilis* using whole genome sequencing, proteomics and metabolomics approaches

A whole genome analysis of the adaptive power of *S. aureus* to antibiotics: emergence of methicillin-resistant *S. aureus* (MRSA)

The potential pathogenicity of *Acanthamoeba* isolates contact lens users on human corneal cells and their resistance to commercially available contact lens disinfectant solutions.

Understanding the relationship of gut and oral microbiota with cognitive and behavioral stress response among university students.

Molecular genotyping and physiological characterization of potentially pathogenic *Acanthamoeba* isolates from recreational water sources in Peninsular Malaysia.

Development of a new multiplex PCR for rapid detection of *Blastocystis* sp. In human stool samples.

Comparison of microscopy, *in vitro* cultivation and DNA-based method for detection of *Blastocystis* sp. In human stool samples.

Molecular phylogenies of *Blastocystis* sp. Isolates from different hosts: identification of subtypes, implication for pathogenicity and zoonosis.

Neglected parasitoses among indigenous communities in Peninsular Malaysia.

E. Personalised Targeted Drug Delivery

Design of polysaccharidic nano-in-micro soft agglomerates as primary oral drug delivery vehicle for colon-specific targeting.

Alginate-c18 conjugate nanoparticles loaded in tripolyphosphate-crosslinked chitosan-oleic acid conjugate-coated calcium alginate beads as oral insulin carrier.

Coatless alginate pellets as sustained-release drug carrier for inflammatory bowel disease treatment.

Drug release, preclinical and clinical pharmacokinetics relationships of alginate pellets prepared by melt technology.

Oral 5-fluorouracil colon-specific delivery through *in vivo* pellet coating for colon cancer and aberrant crypt foci treatment.

Design of multi-particulate “dome matrix” with sustained-release melatonin and delayed-release caffeine for jet lag treatment.

Chitosan-carboxymethyl-5-fluorouracil-folate conjugate particles: microwave modulated uptake by skin and melanoma cells.

Folate-induced nanostructural changes of oligochitosan nanoparticles and their fate of cellular internalization by melanoma.

Carboxymethylcellulose film for bacterial wound infection control and healing

Lung cancer: active therapeutic targeting and inhalational nanoproduct design.

Critical physicochemical attributes of chitosan nanoparticles admixed lactose-peg3000 microparticles in pulmonary inhalation.

Critical physicochemical and biological attributes of nanoemulsions for pulmonary delivery of rifampicin by nebulization technique in tuberculosis treatment.

Institut Patologi, Perubatan Makmal dan Forensik (I-PPerForM)

I-PPerForM is one of UiTM Centres of Excellence (CoE), established in 2015, following restructuring and rebranding of IFS (Institute of Forensic Science) which was formed in 2011. The niche areas of I-PPerForM are in the fields of **Atherosclerosis, Coronary heart disease prevention, and Study of diseases.** The **vision** is to be a prestigious global CoE in areas of *Atherosclerosis, Coronary heart disease prevention and Study of Diseases,* focussing on promoting health and disease prevention, based on professional ethics, high moral values and maximising talent potentials. The **mission** is to enhance knowledge advancement and transfer in the niche areas, through cutting-edge research, innovation, service, and consultation; focussing on nurturing talent excellence and leadership; and targeting community empowerment in promoting disease prevention, health and well-being at national and international level. The **objectives** of this CoE are to: 1) provide a platform for knowledge advancement and transfer in its niche areas, 2) facilitate and conduct cutting-edge research and innovation in its niche areas, 3) utilize the concept of *molecules- to-man* translational research, 4) undertake clinical and consultative services in relevant areas of expertise and specialties, 5) mainstream community empowerment through outreach programmes, 6) train, supervise and nurture postgraduates and talent excellence in related fields, 7) inculcate leadership skills for human resource development, 8) enhance network and linkages with governmental, corporate and professional agencies at national and international arena, in enhancing disease prevention, health and well-being, and 9) cultivate academic culture based on high moral values, professional ethics and academic integrity.

The internationalisation of I-PPerForM has been successfully achieved through extensive collaborations with FH Australasia Network, University of Western Australia (UWA), APSAVD (Asia Pacific Society of Atherosclerosis and Vascular Diseases), EAS (European Atherosclerosis Society), WHF (World Heart Federation), International Academic Registry, University Of Nottingham, United Kingdom, Shahid Beheshti University of Medical Sciences, Tehran, Iran, Mahidol University, Korean Polar Research Institute, Fourier Intelligence Co. LTD, Shanghai, China, Bernhard-Nocth Institute for Tropical Medicine Germany, UiTM, UTHM & FRAUNHOFER, SD Biosensor, Korea, Universitas Abulyatama, Indonesia, Volgograd State Medical University, Rusia and Faculty of Medicine, Prince of Songkla University, Thailand.

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Atta-ur-Rahman Institute for Natural Product Discovery

Atta-ur-Rahman Institute for Natural Products Discovery (AuRIns), UiTM is a centre of excellence dedicated to research in natural products. The institute's research areas encompass drug discovery from natural resources and the analysis of herbals, with the main objective of providing scientific rationale to the traditional usage of local medicinal plants. The institute is a multi-disciplinary research platform, with chemists and biologist working collaboratively towards discovery of bioactive chemical entities, particularly from medicinal plants and microorganisms. Contemporary methods are employed for metabolite dereplication and profiling, isolation and structure elucidation, organic synthesis and biological evaluation, creating a strong niche for the institute. Diverse and vibrant research community of AuRIns along with state-of-the-art instrumentations allows new practices based on synergistic coalescence of the relevant sciences and cutting-edge emerging technologies.

Selected Projects:

1. An appraisal on the wound healing potential of selected Malaysian stingless bee propolis: *In vitro* and *in vivo* studies
2. Identification and Quantification of Umami Tastant from *Pycnarrhena cauliflora* Leaves using Liquid Chromatography Tandem Mass Spectrometry
3. Evaluation of *Streptomycete*-derived antimicrobial peptides on the growth and biofilm formation of *Streptococcus mutans*
4. Chemical profiling, dereplication and isolation of antimicrobial constituents from the stembarks of *Lepisanthes rubiginosa* (roxb.) Bl
5. Integrated multi-platform MS- and NMR based metabolomics, genetics and chemometrics approaches for the characterisation and discrimination of *Piper Sarmentosum* in combination with bioactivity assessment
6. Absolute configuration and bioactivity relationship of isomeric miyabenols C, oligostilbenes from keruing padi, an endangered dipterocarpaceous species
7. Antiplasmodial activities if *Goniothalamus lanceolatus* using *Plasmodium falciparum* in vitro culture and *Plasmodium berghei* - infected mice
8. Drug-herb interaction potential of *Clinacanthus nutans* and chemotheraphy drug cyclophosphamide on cytochrome p450 metabolism
9. Design and synthesis of novel a,b-unsaturated ketone and imine derivatives of usnic acid as potential dengue inhibitor
10. Polymetal acyclic azomethine complexes as homogeneous catalysts for Suzuku coupling reaction
11. Development and validation of molecular docking protocol, QSAR model and pharmacophore analysis for cad design and simulation towards discovery of potential dengue inhibitors
12. Galectin-3 inhibition properties of benzimidazole derivatives as insulin resistance reversal agent
13. Probing the antiplasmodial mechanistic pathway of *Goniothalamus lanceolatus* by targeting the hemozoin biosynthesis

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Smart Manufacturing Research Institute (SMRI)

Smart Manufacturing Research Institute (SMRI) is situated at the Faculty of Mechanical Engineering, UiTM Shah Alam. This institute provides the link between academia and industry to accelerate the application of smart manufacturing technology through broad-based and cross-disciplinary collaboration for achieving transformational industrial improvement. SMRI drives the objectives to cater the industrial needs towards the Industrial Revolution (IR) 4.0 with the following main units:

- Manufacturing, Dynamic and Numerical Computation
- Transport and Infrastructure
- Aerospace and Additive Manufacturing
- Lean Kaizen and Reliability Engineering
- Robotic, IoT and Big Data Analytics
- Energy and Oil & Gas

All six (6) units of SMRI are headed and membered by knowledgeable and highly experienced experts from Faculty of Mechanical, Electrical, Chemical and Civil Engineering at Universiti Teknologi MARA (UiTM) in Shah Alam as well as in branch campuses throughout Malaysia. This institute is also equipped with sophisticated infrastructure in various laboratories ranging from high performance simulation software up to industrial oriented machines as well as instrumentations. SMRI is collaborating with well-known international research institutes from Germany, UK, Austria, Japan and Korea as well as local industries and universities to develop novel approaches and professional trainings as well as to provide consultation and certification suited to up-to-date industrial needs.

VISION

To be an internationally recognized research institute for broad-based and cross-disciplinary innovation and application on smart manufacturing technology and system.

MISSION

- To develop and improve novel and existing approach, technology and system for solving industrial challenges.
- To catalyze research between university, industry and stakeholder through smart partnership.
- To promote expert platform for consultation, certification, training and proficiency.
- To provide talent pool of tomorrow's engineers trained through applied research conduction and adoption using digital technology.

CORE VALUE

Inclusive and trusted partnership through fortification of academic and business excellence which values cross-disciplinary philosophies and approaches in developing new ideas and innovations as real practical benefit to be conveyed to cross-industrial sectors and community.

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Microwave Research Institute (MRI)

Microwave Technology Centre (MTC) was officially formed in 2003 to spearhead research and consultancy in areas related to high frequency engineering. The effort started in 1996 as an informal grouping of researchers of the Faculty of Electrical Engineering. The group later expanded into a research centre, carrying out various projects which were multi-disciplinary in nature, but related to microwaves, funded mostly by government grants. Following a series of encouraging performances in, recent years, MTC was upgraded to a Tier 3 Centre of Excellence in October 2015 and was subsequently re-named Microwave Research lnstitute (MRl). The main objectives of MRI are to promote research and development in areas related to microwave technology, to provide consultancy services in high frequency component and system fabrication to the industry and to act as a national reference centre in providing advanced training in areas pertaining to microwave technology and high frequency engineering. Currently, researches in MRI focus on wireless and radio frequency technology, High frequency applications of ceramic thin films and carbon nano-materials, microwave nondestructive testing, microwave integrated circuit technology, bio-medical applications, radar systems and electromagnetic sensing applications, wireless power transfer and artificial Intelligence. Several new research areas have been identified including millimeter waves, high speed networks, defense technology, microwave ultrasonics, RF micro-electromechanical systems and computational electromagnetics.

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Malaysia Institute of Transport (MITRANS)

MITRANS is a Malaysia advisory transportation institute based at Universiti Teknologi MARA (UiTM). It focuses on delivering innovative solutions for strategic, tactical and operational transportation problems, logistics planning and development, application of new technologies in transportation and logistics, and halal supply chain (HSC). It has strong partnership and linkages with local and international industries and research centres. Some of the services offered by MITRANS incudes Logistics and Supply Chain Management, Halal Logistics and Supply Chain, International Transport and Trade Facilitation, Big Data Analytic, Decision Support Systems, Occupational Safety and Health, Maritime and Transport Law, Transport System Engineering, Railway System, Smart Mobility Cities, Traffic Safety, Environmental Economics, Business Strategy and Policy, Green Logistics & Sustainability Development of Transport and Logistics, Transport and Logistics Risk Management, Air Transport Management, Maritime Management System, and more. At the same time, MITRANS also offers postgraduate research programs and certificate level trainings in transport and logistics. MITRANS is 'Transporting Happiness, Delivering Success'.

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Institute of Science (IOS)

Institute of Science (IOS) is a unique multidisciplinary research institute devoted in conducting and supporting research in fundamental sciences as well as encouraging research in applied sciences and engineering. UiTM has recognised the institute as one of the leading centres of excellence in helping the university to excel in research and development particularly in science and technology. IOS is the home to more than 50 graduate students, 22 research fellows and nearly 20 associate members from various faculties within and outside the university. For the past 16 years, our researches have grown in scale and breadth: from nano-scale materials to supramolecular complexes and polymeric materials. We create and synthesize new molecules for the discovery of new or refined drugs as well as develop smart ionic materials, functional nanomaterials and devices. Our research area ranges from exploring reaction mechanism in chemical reactions up to discovering activities of the sun and impact of environmental nuclear radiation. The diversity of expertise among members in the institute is complemented by a common culture of research excellence and appreciation for interdisciplinary collaboration. In order to focus on its diversified researches as well as to strengthen collaborative efforts and networking among its researchers with scientists local and abroad, the institute establishes research centres as follows:

1. Centre of Functional Materials & Nanotechnology
2. Centre of Chemical Synthesis and Polymer Technology
3. Centre of Astrophysics & Applied Radiation

In addition to having well-equipped research laboratories and experienced technical staff, IOS is anticipated to be a centre of knowledge creation, innovation and discoveries.

Likewise, IOS attains close cooperation and collaboration with many international institutions, which include:

1. Nagoya Institute of Technology (NIT), Japan
2. University of Tokyo, Japan
3. Kagawa National College of Technology, Japan
4. National Health Research Institutes (NHRI), Taiwan
5. King Saud University, Riyadh, Saudi Arabia
6. Synchrotron Light Research Institute (SLRI), Thailand
7. Australia's Nuclear Science and Technology Organisation (ANSTO), Australia
8. Korea Basic Science Institute (KBSI), South Korea
9. The Institute of Cancer Research, London, UK
10. University of Surrey, UK
11. National Research Institute of Astrophysics and Geophysics, Egypt
12. University of Sumatra Utara, Medan, Indonesia

Some of the globally recognized research projects which IOS involved in are listed below:

1. Fabrication of Nanomaterials and Devices
2. Anti-Infectious Disease Drug Development: From Lead Optimization to Preclinical Testing
3. MRSA and Anti-Inflammatory Study of Pyrrolidinone-typed Compounds
4. Application of Graphene Composite as Cathode/Anode of Secondary Battery
5. Solar Astrophysics Study and Determining Subh Prayer Time
6. Synchrotron Light Accelerator’s Research (Beamline Facility and Beamtime)
7. Fundamental Study of CMOS with in-pixel Intelligence in 3D Optical Computed Tomography Dosimetry System Developed In-House

CONTACT

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Institute for Infrastructure Engineering and Sustainable Management (IIESM)

IIESM means “Institute for Infrastructure Engineering and Sustainable Management” was established on 7th of January 2009 and officiated on 8th of April 2010. It is established to dedicate excellence in creation of knowledge through postgraduate program, innovation in research and leadership in professional services. This center of excellence focuses on research in all civil engineering disciplines with the aim to solve infrastructure and environmental engineering problems in a more sustainable way and introduce a new state of the art technology. The niche areas are green infrastructure materials which include recycle materials, timber engineering, nano materials, non-destructive test (NDT) specifically for used for the construction of buildings and infrastructures. The objectives of IIESM are to enhance existing knowledge through high impact research and publication, to develop sustainable product and processes for infrastructure development, to become reference centre in solving and managing infrastructure problems towards sustainable environment and to intensify research networking and collaboration in the critical areas for nationally and internationally. The vision of IIESM is to establish the institute as a premier entity to provide leadership in the scholarship of research and consultancy. The mission of IIESM is to be the Centre of Excellence (COE) and an engine of growth for new knowledge to solve future problem. Currently, IIESM have seven principle investigators, four administrative staff, three researcher officers and three technical staff. We work together to build IIESM as Centre of Excellence to contribute to the societies in term of research and social commitment.

From 2015-2019, IIESM has received a total of more than RM2.1 million research grants from the university, national grant providers and also the industries. Among the research topics are Development of New Adaptive Seismic Isolator Containing Carbon Nanotubes, Lightweight Concrete as A New Solution, Fatigue Performance of Glued Laminated Timber Railway Sleepers Using Selected Malaysian Tropical Hardwood, Effect of Nanosilica Concentrations on the Microstructural Changes of Nanosilica Modified Asphalt Binder, Enhancing the Kenaf Productivity Through Product and Seismic Response of Base-Isolated Low-Rise RC Buildings Under In-Plane Lateral Cyclic Loading.

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Institute of Business Excellence (IBE)

Institute of Business Excellence (IBE) was originally founded by the Faculty of Business Management in 2005. It is a Centre for Retail Excellence with service as its main thrust, backed by the biggest Faculty in UiTM (Faculty of Business and Management) and the pioneering BBA (Hons) Retail Management, the only academic retail programme offered at public universities. IBE was awarded a Centre of Excellence (CoE) Tier-3 status on October 22, 2015.

IBE is led by a Director and supported by a Deputy Director, four Heads and three administrative staff. IBE reports directly to Deputy Vice Chancellor Research and Innovation and has its own Advisory Council, who are industry captains and affiliates with specific industry experiences. IBE core services include training, consultancy, event management, research and publication. IBE specialises in providing professional services such as Business and Management Consultancy including but not limited to Market Study (Impact Study), Customer Satisfaction Index, Retail Store Audit (Mystery Shopper), Branding and Repositioning, Customer Profiling, Critical Success Factors, Bumiputra Retailing, Talent Development, Training, Mentoring and Coaching. IBE is also committed to provide the best trainings in soft skills and professional certification programmes specifically tailored to the industry needs. Our mission is to provide business and management expertise to members in the business communities through collaborative efforts, building an excellent business intelligence and to facilitate exchange of knowledge among the business communities as well as benchmarking activities for best business practices. In conjunction with our mission, we strive to become a centre of excellence where knowledge is enriched, and practice is enhanced. Thus, we remain committed to work towards the status of Higher Institution Centre of Excellence (HICoE).

In the last 5 years, IBE managed to acquire more than RM1 million in research grants from national and international institutions.

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UiTM Solar Energy Research (U-SER) Institute

UiTM-Solar Energy Researh (U-SER) is a centre of excellence dedicated to strengthen the research on renewable energy such as solar energy system for the purpose of developing new technologies especially in the field of power system. The establishment of this centre of excellence is aiming to enhance the pragmatic research activities as well as providing expert advice through training and consulting/commercialization related to the solar energy system, which can benefit from the development and operation of the UiTM Solar Power Station in Gambang, Pahang (LSSPV Gambang). The station is fully operational on the 5th April 2019 to provide electricity to the TNB National Grid System. This centre of excellence is focusing on several main areas that have been identified in line with the key priorities of energy industry such as those at the ASEAN Centre of Energy (ACE). Notably, the Southeast Asia (S.E.Asia) regional energy strategy consolidation project (including Malaysia) is an initiative undertaken by ACE under the Asean Power Grid (APG) program. The establishment of this centre of excellence is also in line with the direction of the Ministry of Higher Education (MoHE), Malaysia to leverage the university's expertise that will be useful and benefit to the community and industry. The **vision** is to become a world-renowned and internationally recognized research centre in the field of solar energy systems, sustainable energy technology, optimization and integration of power systems through various disciplines of research, innovation and commercialization. The **mission** of this centre of excellence includes, 1) Conducting world-class research in solar and renewable energy technologies, systems integration, management and policy towards a reliable and sustainable power system. 2) Design and disseminate the latest knowledge through research, innovation and commercialization to the community. 3) Increase national and global expertise in sustainable energy systems through technology transfer, training and commercialization / consulting services. There are four units operating under the ramification of U-SER, namely as the,

1) Solar Energy Integration System.
2) Power Delivery Advanced System.
3) Energy Efficiency.
4) Development, Infrastructure, Water & Agrotechnology.

To date, U-SER has acquired more than RM3 Million research grants.

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Institute for Biodiversity and Sustainable Development (IBSD)

The Institute for Biodiversity and Sustainable Development (IBSD) was established on 15th June 2020. This institute was established as the backbone to the Sustainable Development Goals (SDGs) impacts activities and initiatives for Universiti Teknologi MARA (UiTM). IBSD envisioned in strengthening the research in biodiversity and sustainable development through international strategic partnership as well as securing grants and collaborative symposiums. At IBSD, we conduct research fundamental and applied research in biodiversity responses from land to sky and strategically mapped to the 17 SDGs. A significant part of our research is dedicated to the scientific expedition project of SDGs Triangle (Pulau Tuba, Royal Belum Forest Reserve, Pahang National Park and Gunung Ledang National Park) and the SDGs Borneo (collaborative research between UiTM, Universiti Malaysia Sabah (UMS) and Universiti Malaysia Sarawak (UNIMAS). IBSD researchers have also been actively involved in climate change, urban morphology, policy developments, geospatial science and technology for sustainable development. IBSD also aims to provide an opportunity or platform for interaction and exchange of ideas across universities, research institutions, government, industry and experts from around the world.

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