UTM
UNIVERSITI TEKNOLOGI MALAYSIA
SERG

SERG (Software Engineering Research Group) is a dynamic research group deeply engaged in advancing techniques, methodologies, processes, and tools for enhancing the development and maintenance of extensive and intricate software systems. Our research efforts span multiple domains within software engineering, with a special emphasis on key research themes, including Software Modeling, Software Testing, Software Reusability, Dependable Real-time Systems, Intelligent Software Systems, and Software as a Service (SaaS).

Client

KEMPAS HOSPITAL MANAGEMENT SYSTEM
EFFRON SDN BHD

(I-WTP) WATER MANAGEMENT SYSTEM
SAJ SDN BHD

THE DESIGN OF SERVICE-ORIENTED ARCHITECTURE FOR VARIOUS GOVERNMENT AGENCIES
GATES IT SDN BHD

SOFTWARE QUALITY ASSURANCE FOR RAPID TRANSIT SYSTEM (RTS) LINK
SAPURA RAIL SYSTEMS SDN BHD & RTS OPERATIONS PTE LTD

SOFTWARE QUALITY ASSURANCE FOR KLANG VALLEY MASS RAPID TRANSIT (KVMRT) LINE 2
SAPURA EV DYNAMIC CONSORTIUM (SECO)

BUSINESS PROCESS IMPROVEMENTS

Metodologi Penambahbaikan Proses Bisnes Digital Berorientasikan Kerangka TOGAF

01 Fasa 1 – Permulaan
Aktiviti: Definisi objektif dan skop Pelan Strategik Pendigitalan. Analisa jurang dan pencapaian terhadap ICT blueprint terdahulu. Analisa penanda aras.
Hantaran: Laporan Awal – Dokumen Objektif dan Skop Cadangan Kerangka Pelan Strategik Pendigitalan

02 Fasa 2 – Visi Senibina
Aktiviti: Kenalpasti pihak berkepentingan dan keperluan.
Hantaran: Laporan Kemajuan – Dokumen Keperluan Pihak Berkepentingan

03 Fasa 3 – Senibina Perniagaan
Aktiviti: Analisa proses perniagaan semasa (As-Is) bagi setiap pihak berkepentingan yang telah dikenalpasti. Analisa kemampuan ICT dan kenalpasti jurang untuk penambahbaikan.
Hantaran: Laporan Kemajuan – Dokumen Proses Perniagaan As-Is

04 Fasa 4 – Senibina Sistem Maklumat
Aktiviti: Mencadangkan penambahbaikan proses perniagaan (To-Be). Kenalpasti dan mendefinisi senibina sistem bagi setiap proses perniagaan (To-Be) dari aspek teknikal perkakasan, perisian dan rangkaian.
Hantaran: Laporan Kemajuan – Dokumen Proses Perniagaan To-Be dan Senibina Sistem

05 Fasa 5 – Senibina Teknologi
Aktiviti: Kenalpasti teknologi untuk implementasi senibina sistem. Kenalpasti keperluan 4 dimensi insan, proses, teknologi dan governan.
Hantaran: Laporan Kemajuan – Dokumen Implementasi Sistem

06 Fasa 6 – Implementasi dan Governan
Aktiviti: Membangunkan pelan halatuju ICT. Mengenalpasti isu, cabaran, dasar, polisi dan governan yang terlibat. Mencadangkan kaedah pemantauan.
Hantaran: 1. Draf Laporan Akhir – Dokumen Halatuju Implementasi Pelan Strategik Pendigitalan dan Cabaran.
2. Laporan Akhir – Pelan Strategik Pendigitalan dan Pemantauan

Our Iconic Product

DESaP

It is a Dengue-Entomological Surveillance and Prediction (DESaP) Application in supporting dengue outbreak surveillance and prevention.

BY: DR NORAINI IBRAHIM

RECENT AWARDS:
- BRONZE MEDAL, DINOWEX2021
- GOLD AND SPECIAL AWARD, SOCIAL INNOVATION ASIA AWARD 2020, MTE 2020
- SILVER, INVENTION AND INNOVATION AWARD, MTE 2020
- FIRST PRIZE, MDEC PREMIER DIGITAL TECH IHL AWARD, IMDC 2019
- IEM BEST PAPER AWARD, IMDC 2019
- SECOND PRIZE, GOOGLE TECHNOLOGY TRACK AWARD, IMDC 2019
- BRONZE AWARD, INATEX 2019
- 3RD PLACE, 2017 IEEE MALAYSIA UNDERGRADUATE FYP COMPETITION
- GOLD WINNER, IDEAS INNOVATION CHALLENGE 2017

Robokar

SCAN HERE!

BY: PROF DR DAYANG NORHAYATI ABG JAWAWI

Computational Thinking Through Robotics Programming

TEACHING MODULE
- Computational Thinking
- Introduction to Robotics
- Algorithms and Problem Solving
- Introduction to Programming
- Debugging

SIMOBE

BY: TS DR SIM HIEW MOI

Overall Student Analysis

Faculty	Programme	PLO	Gain	Percentage
SoM	BBAHM	PLO1	61.12 / 80.36	76.06 %
SoM	BBAHM	PLO2	53.61 / 70.36	76.19 %
SoM	BBAHM	PLO3	110.07 / 145.36	75.72 %
SoM	BBAHM	PLO4	2.01 / 4.02	50 %
SoM	BBAHM	PLO5	25 / 30	83.33 %
SoM	BBAHM	PLO7	19 / 30	63.33 %
SoM	BBAHM	PLO6	30 / 40	75 %
SoM	BBAHM	PLO9	32.19 / 100	32.19 %

Programme	Semester	Course	Assessment
BBAHM	March 2023	BA2111 : Principles of Healthcare Management	Individual Written Assignment
BBAHM	March 2023	BA2111 : Principles of Healthcare Management	Group Written Assignment (Case
BBAHM	March 2023	BA2111 : Principles of Healthcare Management	Final Exam MCQ
		BA3111 : Principles of Healthcare	

- WHY OBE? UNVEILING THE EDUCATIONAL PARADIGM SHIFT
- MASTERING OBE CONCEPTS
- CRAFTING PEOS, PLOS, AND CLOS DEMYSTIFIED
- CONSTRUCTIVE ALIGNMENT AT YOUR FINGERTIPS
- CREDITS UNVEILED – UNRAVELING STUDENT LEARNING TIME (SLT) AND NOTIONAL HOURS
- CRAFTING COGNITIVE TEST ITEMS WITH FINESSE
- CONTINUOUS QUALITY IMPROVEMENT (CQI)
- CURRICULUM BRILLIANCE THROUGH REVIEW

The team

For any research collaboration and consultancy, Email to: rohayanti@utm.my

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DR NORAINI IBRAHIM

TS DR NOOR AZIZAH SA'ADON

TS DR JOHANNA AHMAD

DR ADILA FIRDAUS ARBAIN

DR NOOR HIDAYAH ZAKARIA

TS DR SIM HIEW MOI

DR RAZAK SAMINGAN

DR ALIF RIDZUAN KHAIRUDIN

MR NORIZAM KATMON

DR MUHAMMAD KHATIBSYARBINI ABD RAHIM

JOIN OUR CRASH COURSE PROGRAM

UTM — Universiti Teknologi Malaysia
KERANA TUHAN UNTUK MANUSIA
SERG

RESEARCH AREAS

1. **SOFTWARE DEVELOPMENT METHODOLOGIES:**
   - AGILE SOFTWARE DEVELOPMENT
   - WATERFALL MODEL
   - DEVOPS
   - CONTINUOUS INTEGRATION
   - SCRUM
   - KANBAN

2. **SOFTWARE ARCHITECTURE:**
   - ARCHITECTURAL PATTERNS
   - MICROSERVICES
   - SERVICE-ORIENTED ARCHITECTURE (SOA)
   - CLOUD COMPUTING ARCHITECTURES
   - DISTRIBUTED SYSTEMS

3. **SOFTWARE TESTING AND QUALITY ASSURANCE:**
   - TEST AUTOMATION
   - TEST DRIVEN DEVELOPMENT (TDD)
   - QUALITY METRICS
   - SOFTWARE VERIFICATION AND VALIDATION
   - MUTATION TESTING

4. **SOFTWARE REQUIREMENTS ENGINEERING:**
   - REQUIREMENT ELICITATION
   - REQUIREMENT ANALYSIS
   - REQUIREMENT SPECIFICATION
   - REQUIREMENTS MANAGEMENT

5. **SOFTWARE METRICS AND MEASUREMENT:**
   - SOFTWARE COMPLEXITY METRICS
   - CODE METRICS
   - PROCESS METRICS
   - PRODUCT METRICS

6. **EMPIRICAL SOFTWARE ENGINEERING:**
   - DATA-DRIVEN SOFTWARE ENGINEERING
   - EXPERIMENTATION IN SOFTWARE ENGINEERING
   - CASE STUDIES

7. **SOFTWARE EDUCATION AND TRAINING:**
   - SOFTWARE ENGINEERING EDUCATION

1.

Are you an educator or a student eager to enhance your software engineering research skills?

Join us for an intensive and captivating 2-days workshop on Software Engineering Research Methodology.

REGISTER NOW

🎯 What You'll Learn:

- **Introduction to software engineering.**
- **Systematic literature review.**
- **Problem formulation in software engineering.**
- **Research design in software engineering.**

🎯 At the end of the workshop, participants will be able to:

- Relate the appropriate software engineering field of study, SWEBOK classification and research method with the potential topic of study.
- Perform literature surveys, literature comprehension and literature review report.
- Write the research gaps, problem statement, research questions and research objectives which all interrelate with each other.
- Apply the appropriate research design approaches in software engineering.

2.

Unlock the Power of Agile Software Documentation!

Are you ready to elevate your software documentation to the next level? Introducing our immersive crash course on "Best Practices in Agile Software Documentation".

REGISTER NOW

🎯 What You'll Learn:

- **Understand the pivotal role of documentation in Agile software development.**
- **Harness Agile principles to create documentation that adapts and evolves.**
- **Document Project Management Plan, Software Requirements Specification, Software Design Document, Software Testing Document, Software Deployment Report.**
- **Design UML model**
- **Leverage tools and technologies to simplify documentation management.**

AGILE