Research Group Profile

Industrial and System Engineering Research Group (ISERG)

NICHE AREAS

1. Ergonomics, Safety and Work Design
2. Lean Six Sigma and Quality Engineering
3. Industrial System Simulation and Optimization
4. Pattern Recognition for Process Monitoring
5. Supply Chain Performance Measurement

MEET OUR TEAM

RESEARCH GROUP LEADER
Prof Dr. Wong Kuan Yew

RESEARCH GROUP MEMBER
Dr. Hayati @ Habibah Binti Abdul Talib

RESEARCH GROUP MEMBER
Assoc. Prof Dr. Azanizawati Bt Ma'aram

RESEARCH GROUP MEMBER
Dr. Nor Asmaa Alyaa Binti Nor Azlan

RESEARCH GROUP MEMBER
Dr. Faizir Bin Ramlie

RESEARCH GROUP MEMBER
Mdm. Wan Nazdah Bte Wan Hussin

RESEARCH GROUP MEMBER
Dr. Mohd Firdaus Bin Mohd Taib

RESEARCH GROUP MEMBER
Assoc. Prof Dr.Abd. Rahman Bin Abdul Rahim

RESEARCH GROUP MEMBER
Dr. Mohd Syahril Ramadhan Bin Mohd Saufi

RESEARCH GROUP MEMBER
Dr. Rozlina Bte Md. Sirat

RESEARCH GROUP MEMBER
Dr. Muhammad Firdaus Bin Isham

RESEARCH GROUP MEMBER
Dr. Halim Shah Bin Hamzah

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SERVICES & FACLITIES

- Training and Consultancy in the niche areas.
- Industrial System Simulation Software.
- Optimization Software.
- Design of Experiment Software.
- Ergonomics Measurement Equipment.

PROJECTS HIGHLIGHT

Mental Workload and Mental Fatigue Models to Determine Work-Rest Regime for Pre-School Teachers, Funded by Ministry of Higher Education (MOHE).

Optimization of Unequal-Area Stochastic Facility Layout Problems, Funded by UTM.

Multi-Objective Imperialist Competitive Algorithm for Low-Carbon Job Shop Scheduling, Funded by Ministry of Higher Education (MOHE).

Accident Cost Calculator for Manufacturing Industries, Funded by Department of Occupational Safety and Health (DOSH)

Best Practices by World Class Manufacturing, Funded by Intel Technology Sdn Bhd.

Synergistic Approach to Enhance Monitoring and Recognition Performance of Developing Shewhart Control Chart Patterns, Funded by UTM.

EurAsian Network for Product Lifecycle Support and Training (EAPSTRA), Funded by European Commission.

Sustainable Supply Chain Performance Indicators for GMO and non-GMO Food Industry, Funded by Ministry of Higher Education (MOHE).

Study of Heat Stress and Its Effect on Human's Physiology and Performance, Funded by UTM.

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ACTIVITIES

FLAGSHIP RESEARCH PROJECT

Mental health issues are increasing in an alarming rate among service sectors' workforce globally. In Malaysia, statistical data have shown an increasing trend in mental health problems. The teaching profession, especially in early childhood education institutions (ECEIs) requires a high demand of mental activities for dealing with learners' and stakeholders' expectations. This study aims to examine the relationship of mental workload towards the work performance of pre-school teachers (PSTs) in ECEIs, in order to determine a suitable work-rest regime. Data collection was conducted using five different types of questionnaires. Then, field experiments were conducted using direct observation, electrocardiogram (ECG) and sleep electroencephalogram (EEG). A model for Mental Workload-Fatigue Prediction was developed after considering the measurement and relationship of mental workload, burnout and mental fatigue towards the work performance for PSTs, threshold levels of mental fatigue load, fatigue classification index and work-rest regime. Then, the prediction of workers' performance was assessed. This project can be used as guidelines for ECEIs in determining a work-rest regime for their PSTs and increasing their work performance. This study is a step towards reducing the alarming cases reported on mental health issues in the service sector specifically among PSTs.

ACHIEVEMENTS

Researchers in this research group have received several outstanding awards and recognitions nationally and internationally, such as the Malaysia's Rising Star Award, Fellowship from Royal Academy of Engineering, United Kingdom, Emerald Literati Award for Highly Commended Paper, Best Paper Awards in International Conferences, and Award Medals from International Invention, Innovation & Technology Exhibition (ITEX), Malaysia Technology Expo (MTE), etc.

OTHER ACTIVITIES

- MoU signing ceremony with NIOSH
- Development of Industrial simulation model
- Development of Performance measurement system