



SCHOOL OF ENGINEERING

- NoSQL Database Programming
- Python Programming for Science and Engineering
- Web Application Development with Python Flask
- An Integrated Approach to Strategic Facilities Management
- Modern Construction Project Management toward Competitive Advantage and Productivity
- Smart Building & Technology Management In Asset & Facilities Management
- Strategic and Sustainable Project Management Services
- Computation Fluid Dynamics Modelling
- 3D Ansys Structural Modelling

TRAINER'S PROFILE

DAVID LEONG

David Leong is an experienced Lecturer specialising in Electrical and Electronics Engineering, having taught for many years in various institutions in Singapore and Malaysia.

David pursued a MEng (Hons) Electronic Engineering at the University of Exeter, and a Master in Telecommunications Engineering at the University of Melbourne.

DR YEW YONG KIN

Dr Yew was a scholar and staff in Institute of High Performance Computing, A*STAR and National University of Singapore. His main areas of research are in Computational Mechanics and Process Simulation. He is now a lecturer in School of Engineering, MDIS. He gives lectures on the topics of Physics, Mechanics and Materials.

DR KANG KOK HIN

Managing Director, MPF Consultants Pte Ltd

Dr. Kang graduated with First Class Honours, Bachelor of Engineering from Monash University, Australia, and earned a Master of Engineering, MBA, PhD from NUS. He is a chartered engineer in Australia and UK.

He started as an engineer with PWD to gain expertise in design, operation, facilities/infra-structure and project management. He has spent 30 years in corporate strategy, human resources, business management, international asset and facilities management (FM). He was the General Manager of IT Park Bangalore, India, Director of Wuxi Industrial Park China and a General Manager of City Building Management Pte. Ltd.

Currently, Dr. Kang lectures in BCA Academy on Green Mark FM, construction management productivity, sustainable FM and project planning. He manages retail malls, offices and industrial buildings via data analytics. He is also involved in AI maintenance and Building Information Modelling (BIM)-FM.

DR TAN KIM PIEW

Dr Tan Kim Piew received the B.Eng.(Honours) and Ph.D. degrees in mechanical engineering from University of Sheffield, U.K. After graduation, he worked as an engineer in the ST Kinetics Pte Ltd.

Subsequently, he joined A*STAR, Data Storage Institute (DSI), Singapore, as a Senior Research Fellow. In DSI, his main research interests were dynamics and vibration analysis, and control applications for mechanical and data storage systems.

Currently, he is an academic Lecturer in the School of Engineering with MDIS. He teaches both Diploma and Degree Programmes. Mathematics, Physics and Design are his areas of expertise.

NOSQL DATABASE PROGRAMMING

Trainer: David Leong

COURSE SYNOPSIS

The NoSQL database is where data is stored without a rigid tabular structure. The MongoDB is a popular NoSQL database, where documents are used to store and classify data. MongoDB is used with Internet-of-Things (IoT) for data collection and web applications.

This course is designed for college and mature students, as well as working professionals, who want an introduction to using Python programming language with MongoDB. The course is suitable for beginners with little to no programming experience. Students will be guided in creating a Python application in order to interact with MongoDB.

This course will benefit students seeking a career in or improving their skill-set in software development, web development, information technology, electronics and the Internet-of-Things.

COURSE DATE

September 2020
15, 29 (Tue)

October 2020
14, 28 (Wed)

PYTHON PROGRAMMING FOR SCIENCE AND ENGINEERING

Trainer: Dr Yew Yong Kin

COURSE SYNOPSIS

This course will introduce essential programming knowledge, concepts and structure of Python to students and practitioners. Participants will have hands-on experience to apply the knowledge to solve typical science, mathematics and engineering problems.

The contents of the course will include the fundamental concepts of Python scripting languages, the syntax and structure of codes, techniques of debugging and more.

COURSE DATE

October 2020
16 (Fri)

WEB APPLICATION DEVELOPMENT WITH PYTHON FLASK

COURSE SYNOPSIS

Python is an interpreter-based programming language which is very popular among scientists, engineers, economists, researchers, and hobbyists. It is a very powerful and easy-to-learn language for solving technical problems. When Python is combined with the Flask web framework, it can be used to create useful web applications.

This course is designed for college and mature students, as well as working professionals, who want an introduction to using Python programming language with the Flask framework to create web applications. The course is suitable for beginners with little to no programming experience. Students will be guided from the basics of understanding a problem, analysing the requirements for a solution, and creating the application.

This course will benefit students seeking a career in or improving their skill-set in software development, web development, information technology and technology business.

COURSE DATE

September 2020

8-9 (Tue-Wed), 23-24 (Wed-Thu)

October 2020

6-7 (Tue-Wed), 21-22 (Wed-Thu)

AN INTEGRATED APPROACH TO STRATEGIC FACILITIES MANAGEMENT

Trainer: Dr. Kang Kok Hin

COURSE SYNOPSIS

This course is targeted at individuals who are new to the FM industry. The course will cover the basic principles of Asset and FM, organisation planning, roles of managers, scheduling, client briefs, scope statements, works management strategy, project and product life cycle, risk management, partnering and managing international and inter-organisational installations.

FM field contributes to an organisation's core business by increasing customer satisfaction, work productivity, profitability and stability of business environment.

This seminar will showcase how FM strategies improve an organisation's efficiency by coming up with good business decisions and being innovative to achieve business goals.

Achieving competitive advantage to strategise business positions and to strengthen Asset and FM business environment in the future should also be the mantra of success for organisations.

COURSE DATE

October 2020
12 (Mon)

MODERN CONSTRUCTION PROJECT MANAGEMENT TOWARD COMPETITIVE ADVANTAGE AND PRODUCTIVITY

Trainer: Dr. Kang Kok Hin

COURSE SYNOPSIS

Designed for civil engineers, architects, quantity surveyors, project managers, FM practitioners, real estate and property owners/developers, this course will define the nature of construction projects and their management.

Various aspects will be considered including financial control, management of risk, human resource, quality management and control of time, cost and quality. Construction project management (CPM) is a professional service that uses specialised project management techniques to manage the planning, design and construction of a project, from beginning to end.

For all types of projects, the construction project manager ensures scope of work is skilfully planned, executed, adhered to and successfully delivered on time, below budget and with quality workmanship.

OUTCOMES

Upon successful completion of the module, the participants will be able to:

1. Understand the concept and components of “earned value management (EVM)”
2. Discuss the reasons for re-baselining a project
3. Evaluate relationship between time, cost and quality and understand alternative approaches available
4. Monitor project performance and managing change

COURSE DATE

October 2020
5 (Mon)

SMART BUILDING & TECHNOLOGY MANAGEMENT IN ASSET & FACILITIES MANAGEMENT

Trainer: Dr. Kang Kok Hin

COURSE SYNOPSIS

This course is designed for engineers, architects, facilities management practitioners, technologists, ICT engineers, property, real estate and property owners/developers.

This course will educate participants on the concept and foundations of Smart buildings and workplace innovative technology management, in the context of integrated FM services. The approaches toward smart building and innovation in workplaces will be powered by Internet of Things and data analytics.

Topics that will be covered include organisation planning, roles of managers, scheduling, client briefs, scope statements, works management strategy, project and product life cycle, outsourcing, risk management, partnering and managing international and inter-organisational installations.

In this world of digitalisation, it is imperative that we leverage on data to transform our building processes and technology management via Artificial Neural Network (ANN). The FM service provision must be able to anticipate change in technology management, be creative and innovative to enhance the service quality and maximise value management.

COURSE DATE

September 2020
21 (Mon)

STRATEGIC AND SUSTAINABLE PROJECT MANAGEMENT SERVICES

Trainer: Dr. Kang Kok Hin

COURSE SYNOPSIS

Optimising Return from Investments and fulfilling business objectives are some of the aims of a FM professional. In this course, participants will learn the strategic perspective of project management that is formed by the five core managerial competencies – time, cost, quality, performance and scope management.

These competencies will be supported by four facilitation competencies namely integration, risk, change and communication. Participants will also learn how they can organise better in FM with organisation support services like building information modelling and data analytics/machine learning. The adoption of strategic and sustainable project management services will make for greater business success, enhanced productivity and profitability, at a minimum risk and with the attainment of greater values.

COURSE OUTLINE

- Introduction to modern project management
- Organisation structure and culture
- Developing a project plan
- Monitoring progress and earned value management
- Projects charter and scope statement
- Developing effective site management team supported by HQ professionals
- Managing international projects and installations
- Performance management via evaluation and controls
- Contract administration and management
- Contractual disputes and conflict management – Alternate Dispute Resolution
- Implementation of document management system, QMS, Health Safety Environmental system; commissioning and hand-over

COURSE DATE

September 2020
28 (Mon)

COMPUTATION FLUID DYNAMICS MODELLING

Trainer: Dr Tan Kim Piew

COURSE SYNOPSIS

Ansys Computation Fluid Dynamic (CFD) is able to work out both flow simulation and heat transfer of 3D models. To understand flow processes, fluent flow simulations are performed. This simulation involves the basic techniques of inputting many fluid properties such as density and viscosity.

Next, we consider the solver for either laminar or turbulent flows. A 3D model will be inputted to Ansys CFD. The boundary conditions are then highlighted to input the values of temperature, pressure and velocity. After 3D model is meshed with selected element type and element size, the fluid simulation is performed. Various results such as the temperature, pressure and velocity profiles will be shown together with their streamline functions.

In many engineering applications, heat is generated from electricity and friction. Using almost similar procedures as above, solvers are selected to solve the surface temperature distributions around the 3D models.

During this course, the participants will be given hands-on experience to use CFD software on 3D model examples supported by useful technical fluid data. Participants will learn the computational technique of optimising fluid flow in complex pipelines systems, fluidic mixtures at different pipe junctions and different modes of heat transfer in 3D objects.

COURSE DATE

September 2020

2 (Wed), 4 (Fri), 14 (Mon), 15 (Tue),
16 (Wed), 21 (Mon), 25 (Fri)

October 2020

9, 16, 23 (Fri),
28 (Wed), 30 (Fri)

3D ANSYS STRUCTURAL MODELLING

Trainer: Dr Tan Kim Piew

COURSE SYNOPSIS

Ansys structural software consists of many different types of functions. The general pre-processing consists of many input parameters such as density, young modulus, poisson ratio etc. Next, we have to consider the loadings on an engineering structure and also the contact or boundary conditions (free support, fixed). Thirdly, we select the meshing of the 3D model from various types of finite elements and element size.

After these procedures are performed, we will select the output parameters that we want Ansys to solve for our 3D model. They are namely stress, deflection and safety factor of the 3D analytical model. A further understanding of the solved model will involve the rigid body motion simulator.

Under loadings, a mechanical body will have dynamic behaviour in addition to stress. If the loadings vary with time, it is important to study the vibration characteristics of a randomly loaded body that is operating at a known range of frequency. Therefore, modal analysis simulations on free vibration and forced vibration of a structure will assist designers to simulate the modal response of a 3D model using different dimensions and materials.

During this course, the participants will be given hands-on experience to use Ansys software to create feasible 3D models and useful technical material data as worked examples. Participants will be able to acquire the optimisation technique of achieving safe, reliable and cost effective design.

COURSE DATE

September 2020

2 (Wed), 4 (Fri), 14 (Mon), 15 (Tue),
16 (Wed), 21 (Mon), 25 (Fri)

October 2020

9, 16, 23 (Fri),
28 (Wed), 30 (Fri)