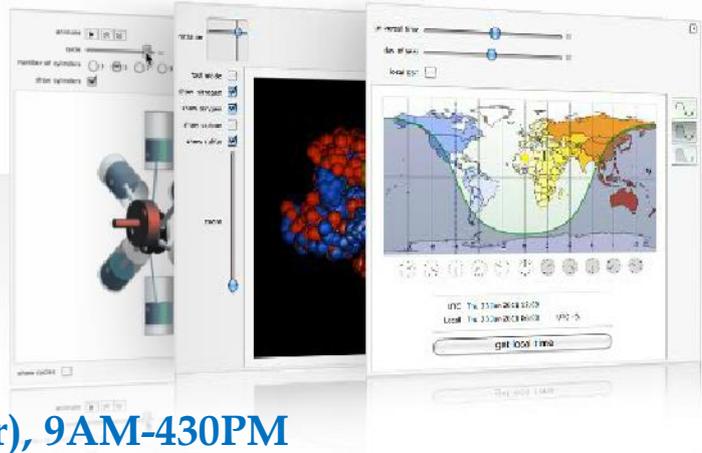


The world's definitive system for modern technical computing

2 Days Workshop

A Guide to Effective Programming,
Numerical Computing &
Deployment with Mathematica



11-12 November 15 (Wed-Thur), 9AM-430PM

**Makmal Beta, Pusat Pengajian Sains Matematik,
(PPSM) Fakulti Sains dan Teknologi, UKM, Bangi**

Registration before **4 Nov 15**: Ms Venuga, 03-3324 0474, info@oemscorp.com

Training Fee: RM 400/person,

Including course notes, learning medias, lunch & tea breaks, & certificates

Course Objective

Introduces the core technologies needed to become an adept user of Wolfram Mathematica, including the Core Language Programming, Numerical Computing and Interactivity CDF for easy Web Deployment, Sharing and e-Learning.

Target Audience

The fundamental course is designed primarily for people who have little Mathematica experience as well as for experienced user who would like to broaden their understanding of how Wolfram Language could enhance their Research and Classroom Education.

Delivery Type

Courses are delivered as instructor-led classes in computer classroom facilities. Course topics are presented with alternating sessions of lectures and exercises.



DAY ONE

Introduction to Mathematica - 1 hour

- **Introduction**

Step-by-step instruction on getting started, free-form input with Wolfram|Alpha, performing basic operations, building up computations, and navigating the user interface, as well as a description of how to use and take full advantage of the documentation system

Mathematica Programming - 4 hours

- **Recognizing Expressions**

Introducing expressions and their structure, manipulating expressions, evaluating expressions, and displaying expressions

- **Assignments and Evaluation**

Introducing assignments, the differences between immediate and delayed assignments, and how assignments fit into the framework of understanding expressions

- **Procedural Programming**

Procedural programming explicitly specifies the steps a program should take to reach the desired state or output.

- **Functional Programming**

Functional programming uses functions as building blocks in programming. It provides an efficient, elegant way to represent common computations.

- **Pattern Matching and Rules**

Explaining how elements in expressions can be recognized and modified through pattern matching and Rule for complex tasks.

- **Loops vs. Maps**

Illustrating how built-in functions in the Wolfram Language make it quick and easy to operate on the individual elements of a list or expression

DAY TWO

Numerical Computing - 2.5 hours

- Fitting data, interpolation, integration, solving equations, displaying intermediate values, differential equations, linear systems, exact vs. inexact numbers, arbitrary-precision numbers, and working with large arrays
- Traditional Numerical Methods versus Hybrid Symbolic-Numeric Methods
- Method Selection, Classification, and Specialization
- Unique Numerical Methods Made Possible with Symbolic
- Performance and Automatic Optimizations

CDF Deployment for Interactive Sharing, E-Learning and Classroom Teaching - 2.5 hours

- What Is Computable Document Format (CDF)?
- Performing basic operations and creating interactive and technical material in CDF
- Introduction to authoring Wolfram Demonstrations
- Deploying standalone applications
- CDF deployment methods, including wizards, programmatic deployment, and cloud deployment
- Embedding CDF in e-Learning portal, Moodle, MOOCs, HTML page, WordPress site, etc.



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