Simulation Laboratory

Room Number: H 120

Faculty In Charge: Dr. Abdel Majed Hamouda

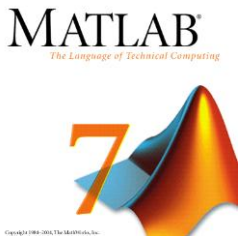Teaching Assistant In Charge: Eng. Samer Abdel Azim

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ADAMS

Multi-body dynamics and motion analysis software

Category: Softwares

Courses: Mechanical Design I, Mechanical Design II

MATLAB

MATLAB® is a high-level language and interactive environment that enables you to perform computationally intensive tasks faster than with traditional programming languages such as C, C++, and Fortran.

Category: Softwares

Courses: Control Systems, Numerical Methods

Labview

LabVIEW is a graphical programming environment used by millions of engineers and scientists to develop sophisticated measurement, test, and control systems using intuitive graphical icons and wires that resemble a flowchart. LabVIEW offers unrivaled integration with thousands of hardware devices and provides hundreds of built-in libraries for advanced analysis and data visualization. The LabVIEW platform is scalable across multiple targets and operating systems, and since its introduction in 1986 has become an industry leader.
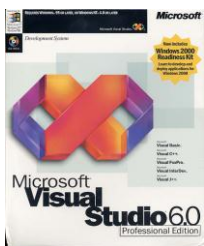
Category: Softwares

Courses: Mechatronics System Design, Manufacturing Systems Design

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Autocad

Design and shape the world around you with the powerful, flexible features found in AutoCAD® software, one of the world's leading 2D and 3D design applications. Autodesk has been bringing efficiencies to your design process for more than 26 years. Used by millions of people globally, AutoCAD offers robust 3D free-form design tools and powerful drafting and documentation capabilities.
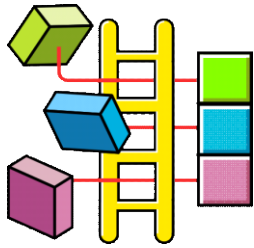
Category: Softwares

Courses: Mechanical Design I, Mechanical Design II, Senior Project I, Senior Project II, Engineering Graphics

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Microsoft Visual Studio

Microsoft Visual Studio 2010 Professional is an integrated environment that simplifies the basic tasks of creating, debugging and deploying applications. Let Visual Studio 2010 Professional unleash your imagination and easily deliver your ideas.

Category: Softwares

Courses: Senior Project I, Senior Project II

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RSLogix™ 500

The RSLogix™ family of IEC-1131-compliant ladder logic programming packages helps you maximize performance, save project development time, and improve productivity. This family of products has been developed to operate on Microsoft® Windows® operating systems. Supporting the Allen-Bradley SLC™ 500 and MicroLogix™ families of processors, RSLogix™ 500 was the first PLC® programming software to offer unbeatable productivity with an industry-leading user interface.

These RSLogix products share:

- Flexible, easy-to-use editors
- Common look-and-feel
- Diagnostics and troubleshooting tools
- Powerful, time-saving features and functionality

Category: Softwares

Courses: Production Automation

Ansys MultiPhysics

ANSYS Multiphysics software offers a comprehensive product solution for both multiphysics and single-physics analysis. The product includes structural, thermal, fluid and both high- and low-frequency electromagnetic analysis. The product also includes solutions for both direct and sequentially coupled physics problems including direct coupled-field elements and the ANSYS multi-field solver.

Category: Softwares

Courses: Mechanical Design II, Senior Project II

ANSYS Fluent

ANSYS FLUENT software contains the broad physical modeling capabilities needed to model flow, turbulence, heat transfer, and reactions for industrial applications ranging from air flow over an aircraft wing to combustion in a furnace, from bubble columns to oil platforms, from blood flow to semiconductor manufacturing, and from clean room design to wastewater treatment plants. Special models that give the software the ability to model in-cylinder combustion, aeroacoustics, turbomachinery, and multiphase systems have served to broaden its reach.

Category: Softwares

Courses: Heat Engines

Solid Works

Solid works premium software integrates a broad range of mechanical CAD, design validation, product data management, design communication, and CAD productivity tools in a single package that's affordable and easy.

Category: Softwares

Courses: Mechanical Design I, Mechanical Design II

Engineering Equation Solver (EES)

EES (pronounced "ease") stands for **Engineering Equation Solver**. EES gives the numerical solution of a set of algebraic equations. It can also be used to
* solve differential and integral equations.
* do optimization.
* provide uncertainty analyses and linear and non-linear regression.
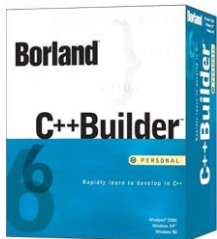* generate publication-quality plots.
 There are two major differences between EES and other equation-solving programs.
* First, EES allows equations to be entered in any order with unknown variables placed anywhere in the equations; EES automatically reorders the equations for efficient solution.

* Second, EES provides many built-in mathematical and thermophysical property functions useful for engineering calculations. Transport properties are also provided for all substances.

Category: Softwares

Courses: Thermodynamics II, Heat Transfer, Thermodynamics I

C++

C++ (pronounced "see plus plus") is a statically typed, free-form, multi-paradigm, compiled, general-purpose programming language. It is regarded as a *middle-level* language, as it comprises a combination of both high-level and low-level language features. It was developed by Bjarne Stroustrup starting in 1979 at Bell Labs as an enhancement to the C programming language and originally named "*C with Classes*". It was renamed *C++* in 1983.

Category: Softwares

Courses: Heat Transfer

AFT Fathom

AFT Fathom 7.0, the latest version of the world's most advanced pipe flow modeling software, provides an amazingly broad scope of capabilities. Addressing open and closed systems, AFT Fathom includes a built-in library of fluids and fittings, variable model configurations, pump and control valve modeling and much more. AFT Fathom goes beyond the boundaries of fluid flow analysis, with pump energy cost analysis, thermal analysis capabilities including piping heat transfer, heat exchanger modeling and varying fluid properties.

Category: Softwares

Courses: Energy Systems Laboratory

MS Project

Microsoft Office Project Standard 2007 gives you robust project management tools with the right blend of usability, power, and flexibility, so you can manage projects more efficiently and effectively. You can stay informed and control project work, schedules, and finances, keep project teams aligned, and be more productive through integration with familiar Microsoft Office system programs, powerful reporting, guided planning, and flexible tools.

Category: Softwares

Courses: Project Engineering

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Primavera

Oracle's Primavera P6 Enterprise Project Portfolio Management is the most powerful, robust, and easy-to-use solution for globally prioritizing, planning, managing, and executing projects, programs, and portfolios. Primavera P6 Enterprise Project Portfolio Management is an integrated project portfolio management (PPM) solution comprising role-specific functionality to satisfy each team member's needs, responsibilities, and skills. It provides a single solution for managing projects of any size, adapts to various levels of complexities within a project, and intelligently scales to meet the needs of various roles, functions, or skill levels in your organization and on your project team.

Category: Softwares

Courses: Industrial Systems Design

Minitab

Minitab's comprehensive collection of statistics and its easy-to-use interface make it the leading package used to improve quality worldwide.

Category: Softwares

Courses: Statistical Quality Control, Design of Experiment, Probability & Statistics

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SPSS

Technology from SPSS, an IBM Company, encapsulates advanced mathematical and statistical expertise to extract predictive knowledge that when deployed into existing processes makes them adaptive to improve outcomes.

Our Predictive Analytics Software will help you:

- Capture all the information you need about people's attitudes and opinions
- Predict the outcomes of interactions before they occur
- Act on your insights by embedding analytic results into business processes

Category: Softwares

Courses: Statistical Quality Control

ARENA

Arena Professional simulation software is most effective when analyzing complex, medium to large-scale projects involving highly sensitive changes related to supply chain, manufacturing, processes, logistics, distribution, warehousing, and service systems to demonstrate, predict, and measure system strategies.

In addition, Arena PE is used to create customized simulation modeling products; that is, templates focused on specific applications or industries. With Arena Professional, customers develop custom templates that consist of "libraries" of modeling objects that make it significantly easier and faster to develop models that require repeat logic

Category: Softwares

Courses: Manufacturing Systems Design, Industrial Systems Design, Simulation Systems