



# **Modern Digital System Design Using VHDL: A Practical Introduction**

Department of Computer Engineering  
King Fahd University of Petroleum and  
Minerals  
Dhahran 31261, Saudi Arabia

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# **Modern Digital System Design Using VHDL: A Practical Introduction**

Short Course Offered by:

Department of Computer Engineering  
King Fahd University of Petroleum  
and Minerals  
Dhahran, Saudi Arabia

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## Course Schedule/Objectives

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- Saturday
  - » Introduction to the course
    - VHDL Overview
    - Basic Terminology & Concepts
    - Structured Modeling
    - Familiarization with VHDL Simulator
    - Hands-on Exercise

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## Course Schedule/Objectives

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- Sunday
  - » Behavioral Modeling
  - » Subprograms/Packages
  - » Modeling Flipflops
  - » Modeling FSMs
  - » Building a utility package

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## Course Schedule (contd.)

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- Monday
  - » Data Types and Attributes
  - » Structural Modeling (revisited)
  - » Laboratory Exercise
- Tuesday
  - » Timing Models & Signal Transactions
  - » Dataflow Modeling
  - » Timing Models
  - » Laboratory Exercise

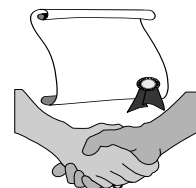
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## Course Schedule

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- Wednesday
  - » Constraints Check & VHDL-93 Vs VHDL-87
  - » Coding Styles for Synthesis
  - » Conclusion



## Logistics

- Refreshments
- Restaurants
- Rest rooms
- Prayer facilities
- Parking (pass provided)
- Messages/Phone
- Security
- Other items

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## Computer Engineering

» Computer Engineering (COE) is the discipline concerned with the design, analysis, modeling and implementation of **Computers and Networks systems**. Both the software and the hardware aspects of these systems are studied in a balanced and coherent manner. The COE program at KFUPM provides a comprehensive coverage of a wide range of COE subjects including hardware design, computer networks and data communications, computer architecture and operating systems, microprocessor-based systems, computer programming languages and software.

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## Goals

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- Graduate students in Computer Engineering.
- Provide engineers who are capable of coping with a rapidly growing computer technology.
- Conduct research activities that will enhance the country's industry, and broaden the scope and ability of faculty members.
- Provide necessary channels for transferring computer engineering technology into country.
- Adapt new and appropriate technologies for the country's need.

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## COE Disciplines

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- Computer Networks and Data Communications
- Computer Architecture and Design
- Digital Design Automation
- Computer Based Systems
- Testability and Fault Tolerance

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## COE Tracks

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- The new curriculum has three tracks for students to concentrate. The tracks are:
  - » Software
  - » **Computer Networks**
  - » Computer Systems

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## Laboratory Facilities

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- » Computer Networking and Data Communications Laboratory
- » Logic Design Laboratory
- » Microprocessors Laboratory
- » Design Automation Research Laboratory
- » Printed Circuit Boards Manufacturing Center
- » PC Laboratory
- » Computer Graphics Center
- » Digital Systems Design Laboratory
- » And Others...

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## Community Services

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- Seminars
- Computer Exhibition
- Short Courses
  - » Personal Computers
  - » Computer Networks
  - » Internet services and applications
  - » Mobile Networks
  - » PC Hardware and Maintenance
  - » WWW Development
  - » VHDL Modeling
  - » etc..

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## Instructors

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|----------------------|--|
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