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University of Hyderabad
School of Medical Science Optometry & Vision Science
First Year – Semester I

Course Title : Information technology lab credit (2)

Programming In Visual Basic 4.0

Fundamentals of Visual Basic

- The visual basic programming environment
- The visual basic help system
- Planning the program
- Designing the user interface
- Building a program by visual basic]
- Testing, compiling, and distributing the program
- The user interface form
- The toolbox
- The properties window
- Lucky Seven : Your first visual basic program
- Programming steps
- Creating the user interface
- Setting the properties

Working with controls

- The basic use of controls
- Using file system objects
- Objects for gathering input
- Using an old object to launch applications
- Using a data object to view a Microsoft access database
- Modifying a database

Working With Menus And Dialog Boxes

- Adding menus by using the menu editor
- Processing menu choices
- Using common dialog object

Integrated M.Sc. Curriculum Document for IT

Semester I

Course Title: Introduction to Computational Tools

Type of Course: Lab Course (Both Windows + Linux)

Number of Credits: 2 (3 hrs contact with the faculty)

This course will introduce the student to some of the productivity tools as well as Linux operating system.

The following are the modules to be taught in the course:

1. **MSOFFICE:**

Focus is on teaching how to use Office suite properly.

a) **MSWord:**

The following features are explored for MSWord

– Templates – Using existing

templates and creating new templates, Complex Tables, Use of Pictures with text flowing around the picture, Sectioning, Captioning, CrossReferencing,

Table of Contents, Using

Equation editor for complex equations, Multiple Column format documents.

b) **MSExcel:**

Using complex equations for combining data, VLOOKUP function, Excel charts,

Excel Sort, Excel Filter, Pivot Table.

c) **MSPowerPoint:**

Using Animations and Transitions.

2. **Linux:** Basic commands in Linux such as listing files, viewing contents in files, creating and deleting directories, moving and copying files and/or directories, *man* pages, pipes, *ps* and *top* commands, killing processes. Basic philosophy of the Unix operating system's view of access rights on files/directories, setting permissions on files/directories, *vi/emacs* editors.

3. **Latex:** Understanding how to use latex for document preparation – exploring the same features as in MSWord.

4. **Beamer:** Understanding how to do slides with beamer and use some of the features of beamer.

5. **gnuplot:** Given data files, understanding how to use *gnuplot* to draw different types of graphs as in Excel.

6. **Xfig:** Understanding how to draw pictures using *Xfig*.

References:

1. Online Resources for MSOffice.

2. *Linux manual pages* and help documentation for *gnuplot* and *Xfig*.

3. *A Document Preparation System: LATEX: User's Guide and Reference Manual*: Leslie Lamport, Pearson Education.

4. *Linux in a Nutshell*, 6th Edition, Ellen Siever, Stephen Figgins, Robert Love, Arnold Robbins, O'Reilly.

5. *The Linux Command Line*, A Complete Introduction: William E. Shotts Jr., O'Reilly.

6. *Beamer*: <http://www.tex.ac.uk/CTAN/macros/latex/contrib/beamer/doc/beameruserguide.pdf>

7. *Beamer Tutorial in Beamer*: <http://www.uncg.edu/cmp/reu/presentations/Charles%20Batts%20%20Beamer%20Tutorial.pdf>

Semester II

Course Title: Programming Methodology (On Linux Operating System)

Type of Course: Theory (3 credits = 3hr) + Lab (1 credit = 1hr)

Number of Credits: 4 (4 hrs contact with the faculty)

This course will introduce the basic principles of programming. The course will consist of the following:

Design principles; Implementation principles; Test and Debug principles.

1. Overview of programming languages.
2. Design – concepts of modular design and algorithms.
3. Program Structure
4. Basic Data Types, Variables, Constants, Assignment of values, Macros.
5. Control Structures: IfElse
Conditional Constructs, Looping Constructs
6. Complex Data Types
7. Scope and Extent of Variables
8. Testing and Debugging Principles

The languages preferred for teaching this course are **ONE of** Python/MATLAB/Perl/C.

REFERENCES:

1. *Introduction to Problem Solving and Programming with Pascal*, G.Michael Schneider, Steven W Weingart and David M Perlman, John Wiley and Sons.
2. *Learning Perl*, 6th Edition, Making Easy Things Easy and Hard Things Possible, [Randal L. Schwartz](#), [brian d foy](#), [Tom Phoenix](#), O'Reilly.
3. *Learning Python*, 4th Edition, Powerful Object-Oriented Programming, [Mark Lutz](#), O'Reilly.
4. http://en.wikibooks.org/wiki/MATLAB_Programming
5. *Getting started with MATLAB 7*: a quick introduction for scientists and engineers, Rudra Pratap, Oxford University Press, 2006.
6. *The C Programming Language*, 2nd Edition, Brian Kernighan and Dennis Ritchie, Prentice Hall India.

