

**SEMESTER – IV**  
**OPERATING SYSTEM**

**Instructional Hrs. : 75**

**Sub. Code:11ITUC407/**

**11CTUC306**

**Max. Marks: CIA -25; ESE -75**

**Credits: 4**

**Objective:** To make the students understand the concepts of Operating Systems.

**UNIT – I**

**15 Hrs.**

Introduction: What is an Operating System? – Process Concepts – Asynchronous Concurrent Processes

**UNIT – II**

**15 Hrs.**

Deadlock and Indefinite Postponement - **Storage Management Real Storage.**

**UNIT – III**

**15 Hrs.**

**Virtual Storage Organization:** Introduction – Evolution of Storage Organizations – Virtual Storage – Multilevel Storage Organization – *Block Mapping* – Paging – Segmentation – Paging / Segmentation Systems.

**UNIT – IV**

**15 Hrs.**

Virtual Storage Management: Introduction - Virtual Storage Management Strategies – Page Replacement Strategies – Locality – *Working Sets* – Page Fault Frequency Page Replacement – Demand Paging. **Job and Processor Scheduling:** Introduction – Scheduling levels – Objectives – Criteria – Preemptive vs Nonpreemptive Scheduling – Interval Timer – Priorities – Deadline Scheduling – FIFO – RR – Quantum Size – SJF – SRT – HRN – Multilevel Feedback Queues.

**UNIT – V**

**15 Hrs.**

**Disk Performance Optimization:** Introduction – Operation of Moving-Head Disk Storage – Need for Disk Scheduling – Seek Optimization – Rotational Optimization – System Consideration – Disk Caching – *Other Performance* – Enhancement Techniques – RAM and Optical Disks. **File and Database Systems :** Introduction – The File System – File System Functions – The Data Hierarchy – Blocking and Buffering – File Organization – Queued and

Basic Access Methods – Allocating and Freeing Space – File Descriptor – Access Control  
Matrix – Access Control by User Classes – Backup and Recovery.

**Note :** *Italics* denotes Topics for Self Study

#### **TEXT BOOK**

**Deitel H.M,** *Operating Systems*, Pearson Education Publication,, 2<sup>nd</sup> Edition, 2005.

#### **REFERENCE BOOK**

**Achyut S Godbole,** *Operating System*, TMH Publications, 2003.

## SEMESTER V

### Practical Lab V: Open Source Computing Lab

Instructional Hrs. : 75

Sub. Code: 15CSUCP05 /

15CAUCP05

Max. Marks : CIA - 40; ESE -60

Credits: 3

**Objective :** To make the students understand the basic concepts of .NET Programming.

1. Creating an app to display Hello World.
2. Creating an Android Simple Login Application.
3. Creating Simple Converter Application in Android.
4. Creating Calculator App in Android.
5. Creating simple Home Screen Widget in Android.
6. Creating Android Chat App in Android.
7. Creating Simple Android Camera Application.
8. Creating Basic List View Demo in Android.
9. Creating a simple Web Browser in Android.
10. Creating Google Map in Android.

**SEMESTER -III**  
**Allied Paper–III**  
**MICROPROCESSOR AND ITS ARCHITECTURE**

**Instructional Hrs. : 75**

**Sub. Code: 11ITUA303/**

**11CTUA202**

**Max. Marks : CIA -25; ESE -75**

**Credits: 5**

**Objective :** To make the students understand the concepts of microprocessor and assembly language programming.

**UNIT I**

**15 Hrs.**

Introduction to microprocessors: Evolution of microprocessors – Single -chip Microcomputer - Embedded Microprocessors – Bit - Slice processors -Microprogramming - RISC and CISC Processors - *Scalar and Superscalar Processors* - Vector Processors - Array Processors - Symbolic Processors – Digital Signal Processors. Intel 8086 - Pin Description of Intel 8086 - Operating modes of 8086 - Register organization of 8086 - BIU and EU - Interrupts - 8086 based computer system - Addressing Modes of 8086.

**UNIT II**

**15 Hrs.**

8086 Instruction Set - Instruction Groups - Addressing Mode Byte -Segment Register Selection - Segment Override - 8086 Instructions. **Assembly Language Programs for 8086:** Largest Number, Smallest Number in a Data Array - *Numbers in Ascending and Descending order* - Block Move or Relocation -Block Move using REP instruction - Sum of a series -Multibyte Addition.

**UNIT III**

**15 Hrs.**

Intel 386 and 486 Microprocessors: Intel 386 and 486 Microprocessor -486DX Architecture - Register Organization of 486 Microprocessor - Memory Organization - Operating Modes of Intel 486 - **Virtual Memory** - Memory Management UNIT Gates -Interrupts and Exceptions - Addressing Modes of 80486 - Pin Configuration.

#### **UNIT IV**

**15 Hrs.**

Input devices - Output devices - Memory and VO addressing - 8086 Addressing and Address Decoding - Programmable VO Ports - DMA Data Transfer. Other Microprocessors - PowerPC Microprocessors - Pentium Microprocessors - *Pentium Pro-microprocessor* - Alpha Microprocessor - Cyrix Microprocessor - MIPS Microprocessor – AMD Microprocessor.

#### **UNIT V**

**15 Hrs.**

MOTOROLA 68000, MOTOROLA 68020, MOTOROLA 68030, **MOTOROLA 68040**  
**Interfacing of AID Converter and Applications:** Introduction -Interfacing of ADC 0808 or ADC 0809 to Intel 8086 - Bipolar to Unipolar Converter - Sample and Hold Circuit, LF 398 – Microprocessor based Measurement and Control of Physical Quantities.

**Note:** *Italics* denotes Self Study Topics

#### **TEXT BOOK**

1. **Badri Ram**, *Advanced Microprocessors and Interfacing*, Tata McGraw-Hill Publishing Company Limited, Fourteenth Reprint, 2007.

#### **REFERENCE BOOK**

1. **A.K. Ray, K.M. Bhurchandi**, *Advanced Microprocessors and Peripherals*, Tata McGraw Hill Publishing Company Limited, Second Edition, 2007.

**SEMESTER – IV**  
**Allied Paper–IV**  
**SOFTWARE PROJECT MANAGEMENT**

**Instructional Hrs. : 75**

**Sub. Code : 11ITUA404**

**Max. Marks : CIA -25; ESE -75**

**Credits: 5**

**Objective :**To make the students understand the concepts of Software Project Management

**UNIT I**

**15 Hrs.**

Introduction-Software Projects- Various other types of projects-Problems with projects –An overview of project planning –*Project evaluation*-Project analysis and technical planning – Software effort estimation.

**UNIT II**

**15 Hrs.**

Activity planning- planning schedules- *sequencing and scheduling projects*-network planning model- shortening project duration-identifying critical activities.

**UNIT III**

**15 Hrs.**

Risk management-resource allocation-Monitoring and control-Managing people and organizing teams-*planning for small projects*.

**UNIT IV**

**15 Hrs.**

Software configuration management-Basic functions-responsibilities-standards –*configuration management*-prototyping – models of prototyping.

**UNIT V**

**15 Hrs.**

Case study – Prince Project management.

**Note :***Italics* denotes Topics for Self Study

**TEXT BOOK**

1. **Gopal Samy Ramesh**,*Managing Global software projects*,TMH publ, 2002.
- 2.**Mike Cotrell, Bob Huges**,*Software Project Management*, Inclination/Thomas computer press, 1995.

## SEMESTER IV

### Core Paper VIII: PC Hardware and Troubleshooting

**Instructional Hrs: 75**

**Sub. Code: 15ITUC408/**

**15CTUC510**

**Max. Marks: CIA -25; ESE -75**

**Credits: 4**

**Objective:** Enable the students to learn the hardware concepts and troubleshooting of a computer.

#### **UNIT I**

**15 Hrs.**

**PC-Hardware Overview:** Introduction-Hardware-BIOS-DOS Interaction-The PC family-PC Hardware-Interconnections Between Boxes-Inside the System Box-Motherboard Logic-DMA Channel-Floppy Disk Controller (FDC)- Memory Refresh-Post Sequence-*Overview of advanced PCs.*

#### **UNIT II**

**15 Hrs.**

**Support Chips in the Motherboard :** Introduction-Dumb and Smart Chips- Clock generator-Bus Controller-Interrupt Controller-Programmable Interval Timer-8255A-5 Programmable Peripheral Interface(PPI)-DMA Controller-*Support chips for advanced microprocessors.*  
**Print Controller:** Controller Hardware overview. **Hard disk Controller Subsystem:** Overview of HDC Organization.

#### **UNIT III**

**15 Hrs.**

**PC Bus and Motherboard:** PC Bus and Motherboard Functions-Reset Logic (8088-PC)-DMA Logic (8088-PC)-wait State Logic (8088-PC)-Time of Day (TOD) Logic (8088-PC)-Speaker Logic (8088-PC)-Keyboard Interface (8088-PC)-SMPS

**Display Adapter:** Introduction-CRT Display-CRT Controller Principle-CRT Controller-Color/Graphics Adapter-*Second Generation Graphics Adapters*-New Trends in Display Controllers-Display Adapters Interface.

## **UNIT IV**

**15 Hrs.**

Installation and Preventive Maintenance-System Configuration-Pre-Installation Planning-*Installation Practice*-Routine Checks-PC Assembling and Integration -Engineering Version and Compatibility-Preventive Maintenance-Virus-Data recovery

## **UNIT V**

**15 Hrs.**

**Keyboard Maintenance and Troubleshooting**—correcting problem keyboards-vacuum cleaners and keyboards-replacing the spacebar-preventing problems-dealing with large objects-dealing with spills-disabling a keyboard-**Troubleshooting a Pointing Device** - mouse/trackball interfaces-serial mice-bus mice-PS/2 mice-USB mice-mouse driver software issues-mouse keys under windows 9x-adjusting mouse properties-common detection issues-**Modem Troubleshooting**-check the command processor-check the dialer and telephone line-typical communication problems-modem troubleshooting in windows 98-resolving resourceconflicts-other issues-checking modem firmware-**Troubleshooting a Soundboard**-dos drivers and driver order- full duplex drivers-soundboard acceleration-multiple codecs-WAV playback problems-**Troubleshooting Video Adapters**-Basic problem isolation-multiple display support guide-missing display options.

**Note : Self study topics are denoted in *Italics***

### **TEXT BOOKS**

1. **Govindarajalu B**, *IBM PC and Clones Hardware, Troubleshooting and Maintenance*, Tata McGraw-Hill Publishing Company Limited, New Delhi-Second Edition 2008. (Unit 1- 4)
2. **Bigelow's**, *Troubleshooting, Maintaining & Repairing PCs*, Tata McGraw-Hill Edition 2001, Fifth Edition (Unit 5)

### **REFERENCE BOOKS**

1. **Craig Zacker and John Rourke**, *The Complete Reference-PC Hardware*, Tata McGraw-Hill Publishing Company Limited, New Delhi Edition-2001.
2. **Ron Glister**, *PC Hardware a Beginner's Guide*, Tata McGraw-Hill Publishing Company Limited, New Delhi Edition-2001.
3. **Sanjay K Bose**, *Hardware and Software of Personal Computers*, New Age International (P) Limited, Publishers, New Delhi 2000.



## SEMESTER IV

### Practical IV: PC Hardware and Troubleshooting Lab

**Instructional Hrs: 75**

**Sub. Code: 08ITUCP04/**

**08CTUCP05**

**Max. Marks: CIA -25; ESE -75**

**Credits: 3**

**Objective:** To develop the skill of troubleshooting and assemble the computer hardware.

1. Create a Partition in a given Hard Disk.
2. How to install the new modem and connect the internet.
3. Configure the given printers and take the print out successfully.
4. What are the types of SMPS and measure the given SMPS output voltage.
5. Install the given virus scanner software and detect any virus found in your machine.
6. Install the Microsoft office XP for given PC.
7. How to configure the given web camera and activate them.
8. What are the steps involved in Sound Card Driver Installation.
9. Install the Network Interface Card and assign the IP Address for the NIC and Check the connectivity between two machines.
10. Trouble shoots the problem – System hangs during booting.
11. Troubles shoot the problem – Keyboard not working.
12. Trouble shoot the Problem – Wrong character print put.