Semester I

Paper 104: Fundamentals of Computers

Unit 1: Basic Structure of a Computer **15 Lectures**

1.1. Introduction: Computer Types, Functional Units, Basic Operational Concepts, Performance, Historical Perspective.

1.2. Number System: Bits, bytes, analog system, digital system, binary number system, octal number system, hexadecimal number system.

1.3. Number System Conversion: Conversion from one number system to another, floating point numbers

1.4. Weighted codes, binary coded decimal

Unit 2: Operating Systems and application Softwares **15 Lectures**

2.1 Definition of Operating system, Operating System's role, Operating-System Operations

2.2 Functions of Operating System, Computing Environments, Operating-System Services

2.3 Introduction to word processor

2.4 Style sheets and presentation tools

Unit 3: Web Programming **15 Lectures**

3.1 Internet and world wide web: What is Internet? Introduction to internet and its applications, E-mail, e-commerce, video conferencing, e-business. Internet service providers, domain name server, internet address,

3.2 World Wide Web (WWW): World Wide Web and its evolution, uniform resource locator (URL)

3.3 Browsers – internet explorer, Netscape navigator, opera, Firefox, chrome, Mozilla. Search engine, HTTP protocol

3.4 HTML5: Introduction, Why HTML5? Formatting text by using tags, using lists and backgrounds, Creating hyperlinks and anchors. Style sheets, CSS formatting text using style sheets, formatting paragraphs using style sheets

Unit 4: Introduction to Programming **15 Lectures**

4.1. Introduction to Programming: History of Programming language, importance of computer languages, Understanding Compiler and interpreter.

4.2. Introduction to Python: Input /Output functions, Data types and operators: types and uses of various operators.

4.3. Control statements: Branching (if, if-else, if-elif-else), Looping (while, for, break and continue statement) Variables, Strings, Numeric Types, Typecasting, Python operators,

4.4. List, Tuples, Dictionaries, copy, search, append, sort operations.

References

1. Patterson and Hennessy, Computer Organization and Design, Morgan Kaufmann, ARM Edition, 2011.
2. Abraham Silberschatz, Peter Galvin, Greg Gagne, Operating System Concepts, Wiley,9th Edition, 2012
3. Achyut S. Godbole, AtulKahate, Operating Systems, 2nd Ed.,Tata McGraw Hill, 2009
4. HTML5 Black Book: Covers CSS3, JAVASCRIPT, XML,XHTML, AJAX, PHP and JQUERY DreamTech Press.
5. Paul Gries, Jennifer Campbell, Jason Montojo, Practical Programming: An Introduction to Computer Science Using Python 3, Pragmatic Bookshelf, 2/E 2014
6. Michael Dawson, Python Programming for the Absolute Beginner, Paperback, Second Edition, Published November 8th, 2005 by Course Technology PTR