

List of Supportive **Courses** offered by the Department of Computer Science other PG programmes

R Programming-Practical

18UPCSCR01

Credits: 3

Develop R Program for the following:

1. To Perform Vector Operations
2. To Perform Matrix Operations
3. To Perform List Operations
4. To Perform Data-Frame Operations
5. To Perform Strings and Factor Operations
6. To Perform Control Statement Operations using A) Selection B) Loop C) Advanced Loops
7. To Perform Data Import/Export Operations
8. To Perform Pre-processing Operations
9. To Perform Basic Statistical Operations on Dataset
10. To Perform Data Exploration Operations
11. To Perform Data Visualization Operations
12. To Perform T-Test
13. To Perform ANOVA
14. To Perform Linear Regression and Logistic Regression
15. To Perform Correlation and Multi-Correlation Coefficient

References:

1. Larry Pace, “Beginning R: An Introduction to Statistical Programming”, Apress, Second Edition, 2015
2. Richard Cotton, “Learning R: A Step-by-Step Function Guide to Data Analysis”, OReilly, 2013

Course 18UPCSC6N02 Principles of Information Technology 4 Credits

Unit-I

Business Environment: Business and Information technology – business in the information age – about information technology – what is an information system – Information Technology in the Modern Organization.

Unit-II:

Computer Hardware – Significance of Hardware – Central Processing Unit – Computer Memory – Computer Hierarchy – Input Technologies – Output Technologies – Strategic Hardware issues. Computer Software: Software History and Significance – System Software – Application Software – Software issues – Programming languages – Enterprise Software.

Unit-III:

Managing Organizational Data and Information: Basics of Data arrangement and Access – Traditional file environment – modern approach: database management systems – logical data models – data warehouses – Telecommunications and Networks: The telecommunication system – Networks – Telecommunications applications – Internet- Evolution of the Internet – Operation of the Internet – WWW- Intranets and Extranets.

Unit-IV

Functional, Enterprises, and Interorganizational Systems: Information system to support business functions – transaction processing information systems – accounting and finance system – marketing and sales system – production and operations management system – Integrated information system and enterprises resource planning – interorganizational / Global information system. - Electronic Commerce

Unit-V

Information Systems Development: Information system planning – Traditional systems development life cycle – alternative methods for system development –system development outside the IS department – building Internet and Intranet applications – Implementing: Ethics, Impacts and Security.

Text Book:

1. Turban, Rainer, Potter – Introduction to Information Technology, Second edition, Wiley India, 2007

References:

1. V. Rajaraman – Introduction to Information Technology, Prentice Hall of India, 2007.

Unit I: Basic Concepts

Data modeling for DBs – records and files – abstraction and data integration – three level architecture proposal for a DBMS – components of DBMS – pros and cons of DBMS.

Unit II: Data models

Introduction – data association – data model classifications – E.R. model - relational data model network data model – hierarchical model – comparison.

Unit III: File organization

Introduction – serial files – sequential files – index sequential files – direct files.

Unit IV:

Secondary key retrieval – indexing using tree structures – logical and physical pointers – record placement.

Unit V: Case Studies

Banking – students inf.sys – supermarket – payroll processing – Electricity bill.

Text Book:

1. BipinC.Desai, “An Introduction to Database systems”, Galgotia publications Pvt. Ltd., New Delhi, 2000.
Unit – I to Unit – IV – Chapters 1,2 and 3.

Reference Books:

1. Jeffrey Dullman, “Principles of Database Systems”, 2nd edition, Galgotia Publications Pvt, Ltd., New Delhi, 2003.
2. C.J.Date, A.Kannan, S.Swaynathan, “An introduction to Database Systems”, 8th edition, Pearson Education, Inc., 2007.

Course 18UPCSC6N04 Fundamentals of Computers and Communications 4 Credits

Unit- I:

Introduction: What is computer – Components of Computers – Advantages and Disadvantages of using computers – Computer Software – Categories of Computers -Elements of information Systems. The Components of the Systems Unit: Processor – Data representation – Memory – Expansion Slot and Adapter Cards – Ports and Connectors - Buses –

bBays – Power Supply – Mobile Computers and Devices.

Unit – II:

Input and Output Device: What is input - what are input devices – keyboard –pointing device – mouse – other pointing devices – controllers for gaming and media players – Voice input – Input for PDAs, Smart phones and Tablet Pcs- Digital Cameras – Video input – Scanners and Reading devices Terminals – Biometric input - Input devices for physically challenged users- Output: What is output – display devices – Flat panel displays – CRT monitors – Printers – Speakers, Headphones and Ear phones – other out put devices – output device for physically challenged users – Storage devices.

Unit-III:

Operating Systems and Utility Programs: System software – Operating system – Operating system functions – operating system utility programs – types of operating systems – stand alone operating systems – network operating systems – embedded operating system – Standalone utility programs. Application Software: Application software – Business software – Graphics and Multimedia Software – Application software for Communication

Unit-IV:

Internet and World Wide Web: Internet – History of the Internet – How the Internet works – WWW – E-commerce – Other Internet Services – Netiquette. Communications and Networks: Communications – Uses of Computer Communications – Networks – Network communication standards – Communication software – Communication over the telephone network – Communication devices – Home networks – Communications Channel – Physical transmission media and Wireless transmission media.

Unit-V:

Database Management: Databases, Data and Information, The Hierarchy of data – Maintaining data – File processing versus databases – database management systems – relational, object oriented and multidimensional databases – web databases – database administration. Computer Security : Computer security risks – Internet and network attacks – Unauthorized access and use.

Text Book:

Gary B. Shelly, Thomas j. Cashman, Misty E.Vermaat – Introduction to Computers – Cengage Learning, 2008

References

1. “Understanding Computers- Today and Tomorrow”, Deborah Morley, Charles S. Parker, 11th Edition, Thomson Course Technology
2. “Fundamentals of Computer Science and Communication Engineering”, Alexis Leon, Mathew’s Leon, Vikas Publishing House, New Delhi, 1998.

Unit – I

Introduction to E-Commerce – value chains – supply chains – Porter’s value chain model – business strategy.

Unit – II

Inter – organizational transactions – Electronic markets electronic data interchange (EDI).

Unit – III

EDI: The nets and bolts – EDI and business – Inter-organizational e- Commerce.

Unit – IV

The Internet – development of the internet – TCP/IP – internal components – uses of the internet – HTML basics and introduction to HTML – client side scripting and server side scripting – HTML editors and editing.

Unit – V:

The elements of E-Commerce – e-shop – online payments delivering the goods – internet e-commerce security – internet banking – virtual actions – e-diversity.

Text Book:

1. David Whiteley, “E-Commerce: Strategy, Technologies and Applications”, TMH, 2nd edition, 2008.
Chapters: 1,2,4,6-11,13-16.

Reference Book:

1. Jeffrey F.Rayport, Bernard J.Jaworski, “Introduction to E-Commerce”, TMH, 2003.
2. Elias M.Awad, “Electronic commerce from vision to fulfillment”, PHI.
3. Gary P.Schneider, “Electronic Commerce”, Fourth Annual Edition.