University of Rajasthan
Jaipur

Syllabus of Skill Enhancement Courses

As per UGC Curriculum and CBCS

Framework for Undergraduate Programmes

Under NEP- 2020
For
Three/Four Year Under Graduate Programme in

(Semester – I to VI)
In
Faculty of Arts/Science/Commerce/Social Science/ Fine Arts

w.e.f. Academic Session - 2023-24

Detailed Syllabus

SEC-001- Computer Fundamentals

Unit – I

Introduction to Information Technology: Evolution and generation of computers, Type of computers, Micro, mini, mainframe and Super computer, Architecture of a computer system: CPU, ALU, Memory (RAM. ROM families, Cache Memory, Input/Output Devices, Pointing Devices, Hardware and Software

Operating System and Programming Languages: Concept of Operating System, Need, Types of Operating Systems, Batch, Single User, Multi-Processing, Distributed and Timeshared operating systems, Introduction to UNIX, Linux, Windows, Window NT, Virtual Machine, Programming Languages, Low Level and High Level, Generation of Languages, 3 GL and 4 GL languages, Procedural Programming Languages, Object Oriented Programming languages, Functional Programming Languages, Scripting Languages, Logic Programming Languages, Command Line Interface and Graphical User Interface

(8 Lectures)

Unit -II

The Internet: History and Functions of the Internet, Working with Internet, Web Browsers, World Wide Web, Uniform Resource Locator and Domain Names, Uses of Internet, Search for Information, Email, Chatting, Instant Messenger Services, News Group, Teleconferencing, Video Conferencing, E-Commerce and M-Commerce, E-services -Online Banking, Online Payment Modes, Mobile Wallets, Social Networking Sites, E-Learning/ Online Educations, Cloud-Based Storage, Digital Signature

Manage an E-Mail Account, E-Mail Address, Configure E-Mail Account, Login to an Email, Receive Email, Sending Email, Sending Files as Attachments, Adress Book, Downloading files

(8 Lectures)

Unit -III

Social, Legal, Ethical Matters and Network Security: Types of Cyber Threats, how to identify Safe Websites/ Portals, Secure Seals (Verisign/Trust pay etc.), Secure Browsing Habits and Mailing Etiquettes, Social, Legal and ethical aspect of IT, Effects on the way we work Socialise, Operational Areas, Cyber Crime, Prevention of Cyber Crime, Cyber Law, Indian IT Act, Intellectual Property Right, Software Piracy, Copy right and Patent, Software Licencing, Proprietary Software, Free and Open-Source Software, GPL Licence,

(7 Lectures)

Unit-IV

Cyber Security Threats: Security Threats and Attacks (Passive, Active), Types and Effects, Computer Virus, Malware, Adware, Ransomware, Spyware, Emotet , Identity Theft, Denial of Service, Man in Middle, Phishing, MySQL/SQL Injection, Password Attacks

Network Security: Risk Assessment and Security Measures, Assets and Type (Data, Applications System and Network), Security issues and Security Measure (Firewall, Encryption/Decryption), Prevention
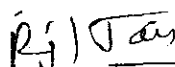
(7 Lectures)

Suggested Books and References –

1. Introduction to Computers by Peter Norton, McGraw-Hill Education
2. Computer Fundamentals by P.K. Sinha and Priti Sinha
3. Fundamental of Computers, Anita Goel
4. Fundamental of Computers, V. Rajaraman
5. Computer Fundamentals and Programming in C, Reema Thereja
6. Computers: Understanding Technology by Floyd Fuller and Brian Larson
7. Computer Science: An Overview by J. Glenn Brookshear
8. Discovering Computers by Misty E. Vermaat, Susan L. Sebok, Steven M. Freund, and Jennifer T. Campbell.
9. Computers Are Your Future by Catherine Laberta
10. The Elements of Computing Systems: Building a Modern Computer from First Principles by Noam Nisan and Shimon Schocken
11. How Computers Work by Ron White and Timothy Edward Downs
12. The Complete Idiot's Guide to the Internet by Peter Kent and Joe Kraynak
13. Cybersecurity for Beginners by Raef Meeuwisse.
14. Cybersecurity: The Beginner's Guide by Dr. Erdal Ozkaya and Hispasec Sistemas

Course Learning Outcomes:

By the end of the course, students should be able to:
1. Students will gain a strong foundational knowledge of Information Technology and the historical progression of computers, leading to a broader perspective on technological advancements.
2. Students will be able to comprehend the architecture of a computer system, including the roles of CPU, ALU, memory, and input/output devices, fostering a deeper understanding of hardware-software interactions.
3. Students will acquire knowledge of different operating systems and programming languages, allowing them to make informed decisions while selecting appropriate tools for various applications.
4. Students will develop proficiency in using the Internet for research, communication, and e-commerce purposes, enhancing their digital literacy skills.
5. Students will understand the importance of social, legal, and ethical aspects of IT and be able to make responsible and secure choices while using technology.
6. Students will be able to identify potential cyber threats and adopt preventive measures to safeguard personal and organizational data from cyber-attacks.
7. By the end of the course, students will be equipped with essential skills and knowledge to navigate the digital world safely, making them more confident and informed users of technology.

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