

DISCIPLINE SPECIFIC CORE COURSE – 16 Information Security and Cyber Laws

| Course title & Code | Credits | Credit distribution of the course | | | Eligibility criteria | Pre- requisite of the course (if any) |
|-------------------------------------|---------|-----------------------------------|----------|---------------------|----------------------|---------------------------------------|
| | | Lecture | Tutorial | Practical/ Practice | | |
| Information Security and Cyber Laws | 4 | 3 | 0 | 1 | Class XII Pass | NA |

Learning Objectives

The course aims to introduce cyber threats, issues in information security, and contemporary cyber laws.

Learning Outcomes

On successful completion of this course, a student will be able to:

1. Enumerate issues in information security.
2. Enumerate and describe common forms of attacks.
3. Describe the importance of security policy in the security framework.
4. Describe security related terms like cryptography, privacy, steganography.
5. Describe the need for cyber laws, and important provisions of IT Act.

SYLLABUS OF DSC- 16

Unit 1 : Introduction (9 Hours)

Protection, security, risk, threat, flaw, vulnerability, exploit, attack, confidentiality, integrity, availability, non-repudiation, authentication, authorization, codes, ciphers, substitution cipher (Caesar), transposition cipher (Rail-Fence), public and private key cryptography, cyber forensics.

Unit 2 : Risk Analysis and Threat (9 Hours)

Risk analysis, key principles of conventional computer security, security policies, authentication, data protection, access control, internal Vs external threat, security assurance, passwords, computer forensics and incident response.

Unit 3 : Cyber Attacks and Digital Crime (9 Hours)

DoS attack, man-in-the-middle attack, phishing attack, spoofing attack, spam attack, drive-by attack, password attack, SQL injection attack, cross-site scripting attack, eavesdropping attack, birthday attack, malware attack, social engineering attack, session hijacking attack, criminology of computer crime, cyber forensics, cyber foot prints.

Unit 4 : Safety Tools and Issues (6 Hours)

Firewalls, logging and intrusion detection systems, e-mail security, digital signature, electronic signature, digital certificate, security issues in operating systems, ethics of hacking and cracking.

Unit 5 : Cyber laws to be covered as per IT Act (6 Hours)

- [Section 43] Penalty and compensation for damage to computer etc.
- [Section 65] Tampering with computer source documents
- [Section 66A] Punishment for sending offensive messages through communication service etc.
- [Section 66B] Punishment for dishonestly receiving stolen computer resource or communication device
- [Section 66C] Punishment for identity theft
- [Section 66D] Punishment for cheating by personation by using computer resource
- [Section 66E] Punishment for violation of privacy
- [Section 66F] Punishment for cyber terrorism
- [Section 67] Punishment for publishing or transmitting obscene material in electronic form
- [Section 67A] Punishment for publishing or transmitting of material containing sexually explicit act, etc. in electronic form
- [Section 67B] Punishment for publishing or transmitting of material depicting children in sexually explicit act, etc. in electronic form
- [Section 72] Breach of confidentiality and privacy

Unit 6 : Information Security in India (9 Hours)

Brief introduction of IT infrastructure for information security in India.

Essential Readings

1. Mark S. Merkow, Jim Breithaupt, Information Security: Principles and Practices, 5th Edition, Pearson

Education, 2014.

2. Gordon F. Snyder, Terry Pardoe, Network Security, Cengage Learning, 2010.

3. Michael E. Whitman, Herbert J. Mattod, Principles of Information Security, 5th Edition, Cengage Learning, 2015.

Suggested Readings

1. Alfred Basta, Wolf Halton, Computer Security: Concepts, Issues and Implementation, Cengage Learning, 2008.

2. Anderson Ross, Security Engineering: A Guide to Building Dependable Distributed Systems, 3rd Edition, Wiley, 2001.

Practical Component

1. Demonstrate the use of Network tools: ping, ipconfig, ifconfig, tracert, arp, netstat, whois

Suggested Readings: whois, ping, tracert, netstat, ifconfig.

2. Use of Password cracking tools : John the Ripper, Ophcrack. Verify the strength of passwords using these tools.

3. Perform encryption and decryption of Caesar cipher. Write a script for performing these operations.

4. Demonstrate sending of a protected word document.

5. Demonstrate sending of a digitally signed document.

6. Demonstrate sending of a protected worksheet.

7. Demonstrate creating users - Admin and Regular

8. Use “steghide” steganography tool to hide data in an image file

9. Use nmap/zenmap to analyse a remote machine.(optional)

10. Use Burp proxy to capture and modify the message. (optional)

11. Demonstrate use of steganography tools.(optional)

12. Demonstrate use of gpg utility for signing and encrypting purposes.(optional)

DISCIPLINE SPECIFIC CORE COURSE – 17 E - Commerce

| Course title &Code | Credits | Credit distribution of the Course | | | Eligibility criteria | Pre- requisite of the course (if any) |
|-----------------------|---------|---|----------|------------------------|-------------------------|---|
| | | Lecture | Tutorial | Practical/ Practice | | |
| E- Commerce | 4 | 3 | 1 | 0 | Class XII Pass | NA |

Learning Objectives

To enhance skills for effective and contemporary applications of E-commerce.

Learning Outcomes

After completing the course, the student shall be able to:

1. Understand the basics of E-commerce, current and emerging business models.
2. Familiarize with basic business operations such as sales, marketing, HR etc. on the web.
3. Identify the emerging modes of e-payment.
4. Understand the importance of security, privacy, ethical and legal issues of e-commerce.

SYLLABUS OF DSC- 17

Unit I: Introduction to E- Commerce (9 Hours)

Concepts and significance of E-commerce, driving forces of E-commerce. E-commerce business models – key elements of a business model and categories. Mechanism Dynamics of World Wide Web and internet- evolution and features; Design and launch of E-commerce website – decisions regarding Selection of hardware and software; Outsourcing vs in house development of a website.

Unit II: Online Business Transactions (12 Hours)

Rationale of transacting online, E-commerce applications in various industries (banking, insurance, payment

of utility bills and others), e-marketing, e-tailing, online services, e-auctions, online portal, online learning, e-publishing and e-entertainment, online shopping.

Unit III: E-payment System (12 Hours)

E-payment Methods- Debit card, Credit card, Smart cards, E-Money, E-Wallets; Digital Signatures - procedures and legal position; Payment gateways; Online banking- concepts, importance; Electronic fund transfer; Automated Clearing House. Automated Ledger Posting. Emerging modes and systems of E-payment (MPaisa, PayPal and other digital currency).E-payments risks.

Unit IV: Security and Legal Aspects of E-commerce (12 Hours)

E-commerce security – meaning and issues. Security threats in the E-commerce environment security intrusions and breaches, attacking methods like hacking, sniffing, cyber-vandalism etc.; Technology solutions- encryption, security channels of communication, protecting networks, servers and clients. Information Technology Act 2000- provisions related to offences, secure electronic records, digital signatures, penalties and adjudication.

Essential Readings:

- Kamlesh N. Agarwala, Amit Lal, Deeksha Agarwala, Business on the Net: An Introduction to the Whats and Hows of E-commerce, Macmillan India, 2000.
- K.K. Bajaj, Debjani Nag, E-Commerce: The cutting edge of Business, 2nd Edition, McGraw Hill, 2005.
- T.N. Chhabra, Hem Chand Jain, Aruna Jain, An Introduction to HTML, Dhanpat Rai & Co.(P) Ltd., 2017.
- Harvey M. Deitel, Paul J. Deitel, Kate Steinbuhler, E-Business and E-Commerce for Managers, Pearson, 2011.
- Parag Diwan, Sunil Sharma, Electronic Commerce - A Manager's Guide to E-Business, Vanity Books International, 2002.
- Elias M. Awad, Electronic Commerce: From Vision to Fulfillment, Third Edition, Prentice Hall of India.
- David Kosiur, Understanding Electronic Commerce, Prentice Hall of India.
- EfraimTurban, Jae K. Lee, David King, Michael Chung, Electronic commerce: A Managerial Perspective, Pearson, 2006.
- David Whiteley, E-Commerce: Strategy, Technologies and Applications, McGraw Hill, 2017.

DISCIPLINE SPECIFIC CORE COURSE – 18 Android Programming

| Course title & Code | Credits | Credit distribution of the course | | | Eligibility criteria | Pre-requisite of the course (if any) |
|---------------------|---------|-----------------------------------|----------|---------------------|----------------------|--------------------------------------|
| | | Lecture | Tutorial | Practical/ Practice | | |
| Android Programming | 4 | 2 | 0 | 2 | Class XII Pass | NA |

Learning objectives:

Creating robust mobile applications and learning how to integrate them with other services.

Learning Outcomes:

1. Describe characteristics of Android operating system.
2. Describe components of an android applications.
3. Design user interfaces using various widgets, dialog boxes, menus.
4. Define interaction among various activities/applications using intents, broadcasting, and service.
5. Develop Android applications that require database handling.

SYLLABUS OF DSC- 18

UNIT-I: Introduction (6 Hours)

Review to JAVA & OOPS Concepts, History of Android, Introduction to Android Operating Systems, Android Development Tools, and Android Architecture, Android components including activities, view and view group, services, content providers, broadcast receivers, intents, parcels, instance state.

UNIT-II: User Interface Architecture (8 Hours)

Application context, intents: explicit intents, returning results from activities, implicit intents, intent filter and intent resolution, and applications of implicit intents, activity life cycle, activity stack, application's priority and its process' states, fragments and its life cycle.

UNIT-III: User Interface Design (8 Hours)

Layouts, optimizing layout hierarchies, form widgets, text fields, button control, toggle buttons, spinners, images, menu, dialog.

UNIT-IV: Broadcast receivers and Database (8 Hours)

Broadcast sender, receiver, broadcasting events with intents, notifications and services. SQLite, Content Values and Cursors, creating SQLite databases, querying a database.

Essential Readings:

1. Dawn Griffiths, David Griffiths, Head First Android Development, O'Reilly, 2015.
2. Reto Meier, Professional Android 4 Application Development, Wiley, 2012.

Practical Component:

1. Create "Hello World" application. That will display "Hello World" in the middle of the screen in the emulator. Also display "Hello World" in the middle of the screen in the Android Phone.
2. Create an application with login module. (Check username and password).
3. Create spinner with strings taken from resource folder (res >> value folder) and on changing the spinner value, Image will change.
4. Create a menu with 5 options and selected option should appear in text box.
5. Create a list of all courses in your college and on selecting a particular course teacher-in-charge of that course should appear at the bottom of the screen.
6. Create an application with three option buttons, on selecting a button colour of the screen will change.
7. Create and Login application as above. On successful login, pop up the message.
8. Create an application to Create, Insert, update, Delete and retrieve operation on the database.