

**Shree Manibhai Virani and Smt. Navalben Virani Science College, Rajkot  
(Autonomous)**

**Affiliated to Saurashtra University, Rajkot**

**Syllabi for Part – II Generic Elective Courses**

**Offering Department : Department of Computer Science & Information Technology**

**SEMESTER V & VI**

<b>16UCSGE01</b>	<b>Cyber Security</b>	<b>02 hrs/wk</b>	<b>02 Credits</b>
------------------	-----------------------	------------------	-------------------

**Objectives:**

To enable the students to

1. How to protect them self and ultimately society from cyber attacks
2. Understand Risks & Vulnerabilities of system
3. Understand the different concept of information security and its application

**Unit -1 Introduction to Cybercrime (06 hrs)**

- Definition and Origins of the Word Cybercrime and Information Security
- Classifications of Cybercrimes (E-Mail Spoofing, Spamming, Cyber defamation, Internet Time Theft, Hacking, Online Frauds, Pornographic Offenses , Software Piracy, E-Mail Bombing/Mail Bombs, Computer Network Intrusions, Password Sniffing, Credit Card Frauds)
- Categories of Cybercrime
- Criminals Plan to the Attacks: Reconnaissance, Passive Attack, Active Attacks, Scanning/gathered Information, Attack (Gaining and Maintaining the System Access), Social Engineering

**Unit -2 Introduction to Cyber security (06 hrs)**

- Cyber security objectives
- Cyber security roles
- Differences between Information Security & Cyber security
- Principles of Cyber security
  - Confidentiality, integrity, & availability
- Authentication & non-repudiation

**Unit – 3 Information Security Concept (06 hrs)**

- Information Security Overview
- Information Security Services
- Goals for Security
- E-commerce Security.
- Computer Forensics
- Steganography

- Cryptography

**Unit – 4 Operating System Security (06 hrs)**

- OS Security Vulnerabilities, updates and patches
- OS integrity checks
- Anti-virus software
- Design of secure OS and OS hardening
- Configuring the OS for security (Technique)

**Unit – 5 Future Implications & Evolving Technologies (06 hrs)**

- New & emerging in IT & IS technologies
- Mobile security issues, risks, & vulnerabilities

**Reference Books**

1. *Sunit Belapure Nina Godbole, 2011, Cyber Security, Wiley*
2. *Er. Abhishek Kumar Singh Er. Sushil Kumar Singh, 2015, Cyber Security, Vayu education of India*
3. *Mike Shema, Anti-Hacker Tool Kit (Indian Edition), Mc Graw Hill*

<b>16UCSGE02</b>	<b>Emerging Information Technologies</b>	<b>02 hrs/wk</b>	<b>02 Credits</b>
------------------	--	------------------	-------------------

**Objectives:**

To enable the students to

1. Understand the role of technology in day to day life
2. Understand day to day use of latest technologies
3. Understand various mobile technologies
4. Understand the different tools to make their presentation and diagrams more meaningful and effective
5. Understand the different search technique to make search more precise.

**Unit -1 History and Foundations (06 hrs)**

- Role of Technology in day to day life
- Communication and Emerging Technology Overview
- Introduction of emerging technologies in Information Technology, Nanotechnology, Agriculture, Medical science, Chemistry, BioInformatics.

**Unit -2 Role of Technology in Education (06 hrs)**

- Online Study Tools Every Student Should Know,
- Use of learning management system (LMS)(Google Class, Edmodo, Flintt)
- Online Presentation tools To make effective presentation (Prezii etc..)
- Different Diagramming tools (Online/Desktop)
- Google advance searching techniques(Image,video)
- Use of Online storage(Google Drive, Sky Drive etc)

**Unit – 3 Emerging mobile technologies (06 hrs)**

- Introduction of CDMA and GSM
- GIS, GPS
- 2G,3G,4G
- Blue tooth, Wi-Fi, hotspot, Virtual Reality, 3D Touch.
- Cloud Computing

**Unit – 4 Various Emerging technologies for day to day life (06 hrs)**

- Internet of things(IOT)
- High-Precision Location Sensing
- Next Generation Batteries, The Blockchain, 2D Materials, Autonomous Vehicles, Organs-on-chips, Wearable Devices, Mobile-Connected Smart Objects, LTE and LTE-A, Nano sensors

**Unit – 5 Emerging technologies in IT (06 hrs)**

- Computer Assisted Translation (CAT)

- Semantic Web
- Emerging and Influential Technologies
  - Blogs/Social Networking Technologies, Gaming Technologies

### **Reference Books**

1. *Sunil V.K. Gaddam*, 2010, **Information Technology: Emerging Trends**, Vitasta Publishing Pvt. Ltd.