

**CARMEL COLLEGE OF ARTS, SCIENCE & COMMERCE FOR WOMEN
NUVEM-GOA**

DEPARTMENT OF INFORMATION TECHNOLOGY

The Information Technology department Carmel College for Women, Nuvem offers GE courses to BA and B.Com students of the college.

The B.A and B.Com. programme, Carmel College for Women, Nuvem, Goa endeavours to achieve the following outcomes:

PROGRAMME OUTCOME- B.Com

PO1: Knowledge: Acquire in-depth knowledge in commerce discipline including new knowledge relating to market and industry and integrating the same to enhance knowledge.

PO2: Critical Thinking: Develop the ability to critically evaluate and analyze information for decision-making and problem-solving.

PO3: Communication Skills: Develop the ability to communicate information in the form of oral/written reports.

PO4: Teamwork: Inculcate the ability to work in diverse teams in a cohesive manner.

PO5: Holistic Education: Create a spirit of social and ethical responsibility towards business and society.

PO6: Life-Long Learning: Generate interest in exploring an individual's core competencies and using the same for employment and entrepreneurship.

PROGRAMME OUTCOME- B.A

PO1 : KNOWLEDGE. Empower students with knowledge in their areas of undergraduate study.

PO2 : THINKING. Teach learners the skills required for critical thinking.

PO3 : RESEARCH. Inculcate among learners a spirit of curiosity leading to an interest in research.

PO4 : HIGHER EDUCATION. Acquaint students with new trends in their subject areas and develop the capabilities required for higher education.

PO5 : EXCELLENCE. Inspire learners to appreciate and benchmark good aesthetics and professionalism in the languages and social sciences.

PO6 : LIFE SKILLS. Inspire the youth to lead a holistic lifestyle.

PO7 : HUMAN VALUES. Impart value-based learning with the aim to train students to be socially responsible and enlightened citizens.

PROGRAMME SPECIFIC OUTCOMES-DEPARTMENT OF INFORMATION TECHNOLOGY

The Department of Information Technology aims to achieve the following Programme Specific Outcomes:

PSO1: To gain fundamental **knowledge** of computer hardware and software tools

PSO2: To acquire proficiency in handling various s/w tools for data capture, **analysis**, presentation and report formatting

PSO 3: Develop an understanding of emerging technologies and computing trends to equip them to be abreast with the industry needs

PSO 4: To gain knowledge cyber law and Cyber safety practices to help establish a safe and secure environment for the users.

COURSE OUTCOMES

1. GE- Computer Applications I – Semester 1 of B. Com
2. GE- Computer Applications II -Semester II of B.Com
3. GE- Computer fundamentals and emerging Trends – Semester I of BA
4. GE- Cyber Space and Cyber Security – Semester II of BA

1. GENERAL ELECTIVE COURSE FOR B.Com –SEMESTER I

Course Title Computer Application I

Course Code UCCG 101

Credits: 3(Theory)+1(Practical)

Lectures: 45, Practical Lab: 15

Course Objectives: To provide an understanding of essential Information Technology Concepts and Emerging Technologies. Includes practical skills in data capture, analysis and presentation, report formatting, efficient search techniques and online collaboration tools.

Course Outcomes (COs)	
CO1	To provide an understanding of essential information technology concepts.

CO2	To provide insights into the evolving technologies and their applications.
CO3	To be able to handle various software tools for data capture, analysis, presentation and report formatting (also online collaboration tools).
CO4	To be able to handle multimedia tools for Image manipulation, Audio manipulation and Video manipulation

CO-PSO-PO Mapping

PO/C O	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO 3	PSO 4
CO1	2	2	3	1	3	3	3	2	2	3
CO2	2	1	1	1	3	3	2	3	2	2
CO3	2	0	3	1	2	1	2	3	2	1
CO4	2	1	2	1	2	1	3	2	2	1

Course Content:-

Unit I Information Technology Basics (Lectures: 15, Practical Lab 2 Marks Th-30, Pr-1).

Information : Prerequisites of Information, Need for Information Technology and its advantages;
Information Technology : Definition and components; Data : Definition, Types, Data Representation, Number system and Coding Schemes(ASCII and UNICODE); Parts of a Computer: CPU, Memory, Input/ Output Devices, Auxiliary Memory; Software – Definition, Relationship between Hardware and Software, Categories of Software, OS - definition & functions
Role of Information Technology in : Business, Mobile Computing, Health Services, ,Public Sector, Media, Defence Services, Education and Publication.

Lab1 OS basic

Installation of Operating System (Demonstration only) , Demonstrate features of any MS Windows based OS or any of the Linux flavor , Identification of Directories , Setting up computer, Add a printer, Check device drivers, Installation software, Users and administrative rights for installation , Unicode, Enable computer to support regional language, add Keyboard, Use onscreen keyboard, install phonetic keyboard, type the national anthem using Unicode, Use online translators and transliteration service

Unit II Introduction to Data Handling, Processing and Analysis (Lectures: 10, Practical Lab 06 Marks Th-10, Pr-10).

Word processing concepts: Use of Templates, Working with word document: Editing text, Find and replace text, Formatting, spell check, Autocorrect, Autotext, Bullets and numbering, Tabs, Paragraph Formatting, Indent, Page Formatting, Header and footer, Tables: Inserting, filling and formatting a table; Inserting Pictures and Video; Mail Merge: including linking with Database; Printing documents Creating Business Documents using the above facilities Spreadsheet concepts: Managing worksheets; Formatting, Entering data, Editing, and Printing a worksheet; Handling operators in formula, Project involving multiple spreadsheets, Organizing Charts and graphs, Generally used Spreadsheet functions: Mathematical, Statistical, Financial, Logical, Date and Time, Lookup and reference, Database, and Text functions

Unit III Presentation Software (Lectures: 05, Practical Lab 02 Marks Th-05, Pr-06).

Basics of presentations: Slides, Fonts, Drawing, Editing; Inserting: Tables, Images, texts, Symbols, Media; Design; Transition; Animation; and Slideshow. Creating Business Presentations using above facilities

Lab 2.1 Data capture using Google Forms

Create data forms to capture data for Event Registration, Event Feedback, Customer feedback/satisfaction on a product or service and Order Request.

Lab2.2 Report Formating using Word Processing

Draft an official letter for job interview invitation/ job appointment/ invitation to an business trade show event, use mail merge to input the recipients list linking with database. Given a project report in PDF format transfer to word processor software and format to include title page, specified Paragraph and Page Formating (page size, orientation, line spacing, font type and font size, Indent, bullets, paragraph formatting) details, Acknowledgement page, Table of contents page, List of figures page, List of Tables page, bibliography, references, distinc headers for each chapter, page numbering in roman for initial pages and normal from first chapter. The document should be checked for spelling errors and corrected appropriately. Create/ Upload a document in a collaboration software like Google docs. Share and collaborate in real time, Safely store and organize your work, Control who can see your documents

Lab2.3 Spreadsheet Working with worksheets –

Entering data, Formatting, Editing, and Printing a worksheet, Formulas and Functions, Handling operators in formula, Generally used Spreadsheet functions - Mathematical, Statistical, Financial, Logical, Date and Time, Lookup and reference, Database, and Text functions, Inserting Charts and graphs, Data Sorting and Filtering Introduction to some more useful functions such as the IF, nested IF, VLOOKUP and HLOOKUP, construction of Pivot Tables to organize data, Creating spreadsheet in the area of: Loan and Lease statement; Ratio Analysis; Payroll statements; Capital Budgeting; Depreciation Accounting; Graphical representation of data; Frequency distribution and its statistical parameters; Correlation and Regression

Lab 2.4 Data Presentation using Presentation Software

Preparing presentation in areas such as Customer satisfaction/ feedback, product analysis, job satisfaction using the data obtained through data capture tool, including appropriate slide animation, sound recording, slide timings, customer feedback video. Export the presentation as video or save as slide show. Prepare handouts for audience. Working with multimedia tools: Image manipulation - Use any image editing tool such as (GIMP, Inkspace) to design the cover page of

Book; Audio manipulation - Use any two Mp3 tracks of your choice to create a unique two minute composition that is significantly different from either of the original tracks; Video manipulation - Make a Movie on a given topic with the help Windows Movie Maker.

Unit IV Internet Applications and Emerging Technologies (Lectures: 15, Practical Lab 5 Marks Th-30, Pr-8). Internet – role and importance, Web Browser, IP Addressing – Public Vs Private, Static Vs Dynamic; WWW & related protocols; Internet Applications. Cloud Computing: Meaning, Features, & Service models – Infrastructure as a service, Advantages and disadvantages, Mobile Computing: Meaning, Business Applications of Mobile computing, Virtual reality & Augmented Reality: Meaning and applications, IOT - Internet of Things: Meaning & Application

Lab 3 Surfing the Internet,

Use of Email and Search Engines Advanced web search and translation services, Web search, image search, Search only for pages that contain (ALL the search terms contain the exact phrase you type, contain at least one of the words you type, do NOT contain any of the words you type, written in a certain language, created in a certain file format like ppt, pdf, rtf, doc, xls), Advanced search operators: Include search (“+” search), synonym search, OR search, Domain search, Numrange search, other advanced search features (Google, Local language, Technology Search, Date, Occurrences, Domains, Safe search), Multiuser ; Google docs: Create documents, spreadsheets and presentations online, Share and collaborate in real time, Safely store and organize your work, Control who can see your documents

Reference Books:

1. Introduction to Information Technology by ITL Education Solutions Limited, second edition.
2. „O“ Level made simple “Introduction to ICT resources” by Satish Jain, Shashank Jain, Shashi Singh & M. Geetha Iyer, BPB publication.
3. Computer fundamentals fourth edition by Pradeep K. Sinha and Priti Sinha BPB publications
4. Information Technology The breaking wave by Dennis Curtin Tata McGraw-hill edition
5. Cloud Computing by Anandamurugan, T.Priyaa et al.
6. Internet of Things: A Hands-On Approach byArsheep Bahga Web references

2. GENERAL ELECTIVE COURSE FOR B.Com –SEMESTER II

Course Title Computer Application II

Course Code UCCG 102

Credits: 3(Theory)+1(Practical)

Lectures: 45, Practical Lab: 15

Course Objectives: To provide an understanding of essential Information Technology Concepts and Emerging Technologies. Includes practical skills in data capture, analysis and presentation, report formatting, efficient search techniques and online collaboration tools.

Course Outcomes (COs)	
CO1	To understand computer networking concepts such as basic computer networks, types of networks, network topologies, and communication channels.
CO2	To learn about E-commerce technology, business applications of E-commerce, business models of E-commerce and modes of different electronic payment systems.
CO3	To Identify the different emerging threats in Cyber Space and to be aware of the security measures to be followed while using the internet.
CO4	To gain knowledge of online privacy and cyber safety practices.

CO-PSO-PO Mapping

PO/C O	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4
CO1	2	2	1	1	3	3	2	2	3	2
CO2	2	1	1	1	3	3	3	2	2	3
CO3	2	2	1	1	3	3	3	2	1	3
CO4	2	1	2	1	3	3	2	2	1	2

Course Content :-

Unit I Basics of Computer Networking

(Lectures: 6, Practical Lab 2 Marks Th-15, Pr-2).

Networking basics, Need for computer networks, Types of networks-LAN, MAN, WAN, Network Components – H/W, Software, Communication channels, Network Devices, Network topologies.

Lab1

Basic Networking Setup of PC, Network commands like ipconfig, ping, traceroute, nslookup / dig etc, Setup of Home Router / Wifi Hotspot, Understanding of Firewall and Basic Firewall Setup, File and Printer Sharing, connecting to share, Setup of Email Clients like Outlook, FTP Clients and Upload / Download. Finding out public address, connection speeds etc.

Unit II E-Commerce

(Lectures: 10, Practical Lab 07 Marks Th-15, Pr-15).

Definition, E-commerce and Trade Cycle, Electronic Markets, Electronic Data Interchange and Internet Commerce, Types of E-commerce :Business to Business E-Commerce, Business to Consumer E-Commerce. Consumer to Consumer, Electronic Payment Systems: Smart Cards –

Credit Cards – Wallets, Risks, E-Retail, Concept and Examples, E-Banking, Features and services, M-Commerce, Products and services

Lab2

E-commerce

- Y *Attempt to purchase a product online from any E-Commerce Site. Proceed till paymentgateway. Check digital certificates (such as ebay.in and amazon.com)*
- Y *Write a review of an E-Commerce Site visited include: Site description, Site Design, ease in navigation , process for purchasing items, security, privacy, customer service, best features of site etc..*

Y *An E-commerce site case study: Include*

Target market/audience: who uses this service?

Revenue model: where does the money come from?

How are they promoting their products in the marketplace? ,

Unit III Emerging threats in Cyber Space

(Lectures: 15, Practical Lab 02 Marks Th-25, Pr-2).

Introduction to cyber space, Malware threats- Definition and types (Virus/ worms, Trojan, Rootkits, Spyware, Keyloggers). Social Engineering, Cyber Crimes – Definition, Types (DOS, Intellectual Property Rights and related crimes, Unauthorized access to computer system or networks, Theft of information contained in electronic form, Cyber Stalking, Identity Theft, E- mail Spoofing, E-mail bombing, Online gambling, Sale of illegal articles, Cyber Defamation, Salami attack, Phishing, Pharming, Data Diddling, logic bombs, Web jacking, Theft of computer system, physically damaging a computer system, Cyber warfare, Cyber terrorism.)

Lab3

Installation and Configuration of any free Antivirus Package eg. AVG/Avast etc., Using Antivirus Package for Threat Detection, Browser security and Safety such as Understanding SSL and Certificates, checking URL of site for Phishing attempts, Email Headers and Tracking,

Unit IV Cyber Safety, IT Act and Cyber forensic

(Lectures: 14, Practical Lab 04 Marks Th-20, Pr-6).

Online Privacy – Introduction, Significance, Privacy Policy, Sensitive Personal Information, Social media – Usage, Safety. Online shopping – Introduction, Safety measures (Encryption of data authentication, SSL, Digital signatures, Digital Certificates), Online payments – Introduction, Types, Safe practices.

Cyber Laws: Evolution and Need for cyber law, The legal perspectives – Indian perspective, Global perspective, Information Technology Act (ITA) 2000, Provisions related to E-commerce, Provisions for cyber-crimes, Information Technology (Amendment) (ITAA) Act 2008, Adjudicating officer, CERT-IN- its role and powers.

Reporting Cyber Crimes, Cyber Forensics: Introduction, Evidence collection, Data Recovery, Cloning of Devices, Forensic Investigation phases – Acquisition and preservation, Authentication, Analysis, Documenting Evidence, Presentation of Evidence, Media sanitization.

Lab4.1

Keeping passwords cyber secure-Choosing strong passwords, Privacy settings on Facebook, Social Media Safety, Payment Systems Security concerns and Safe Practices, Online Banking Security features, OpenPGP Tools.

Lab4.2

Use of Investigation tools such as Winhex for forensic investigation, Data Recovery using winhex, Use of Free data recovery tools like Recuva, Mapping a given list of cyber-crimes to appropriate ITAA Act 2008 offence listed in http://www.naavi.org/ita_2008/index

Reference Books and web references

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1. Rick Lehtinen and G. T. Gangemi, *Computer Security Basics*, O'Reilly Media, Inc.; 2nd Edition, 2006
2. Wall, David, (2007). *Cyber Crime: The Transformation of Crime in the Information Age*. Polity Publishing
3. Michael cross, *Scene of the Cyber Crime*, Syngress Publishing, Elsevier Publishing, 2nd Edition, ISBN 13: 978-1-59749-276-8
4. Chander, Harish, *Cyber Laws and IT Protection*, ISBN: 978-81-203-4570-6

5. Nina Godbole, SunitBelapure, "Cyber Security – Understanding Cyber Crimes, Computer Forensics and Legal Perspectives", Wiley India Pvt.Ltd., ISBN - 978-81-265-2179-1
6. *Frontiers of Electronic Commerce* Ravi Kalakota & Andrew B Whinston, Pearson Education.
7. Bruce Schneier, "Applied Cryptography-Protocols, Algorithms and Source code in C", 2nd Edition, Wiley India Pvt Ltd, ISBN 978-81-265-1368-0
8. Cyber Laws, <http://deity.gov.in/content/cyber-laws>
9. www.cert.org

3. GENERAL ELECTIVE COURSE FOR B.A –SEMESTER I

Course Title Computer Fundamentals and Emerging Technologies

Course Code CSG 101

Credits: 3(Theory)+1(Practical)

Lectures: 45, Practical Lab: 15

Course Objectives: To provide an understanding of Fundamental Technology Concepts and Emerging Technologies in Computer Field. Includes practical skills in data capture, text editing with report formatting, effective presentation tools, efficient search techniques and online collaboration tools.

Course Outcomes (COs)	
CO1	To provide an understanding of essential information technology concepts.
CO2	To learn the concept of the evolving technologies and their applications.
CO3	To be able to handle various software tools for data capture and presentation and report formatting and also online collaboration tools.
CO4	To be able to create content for the web with the help of content development tools and to perform data capture, analysis and report generation using online data management tools.

CO-PSO-PO Mapping

PO/C O	PO1	PO2	PO3	PO4	PO5	PO6	PO7	2	2	3	2
CO1	3	1	2	2	0	3	1	3	2	2	3
CO2	3	2	1	3	0	3	1	3	2	1	3
CO3	3	1	2	2	0	3	2	2	2	1	2
CO4	3	1	1	2	0	3	1	2	2	3	2

Course Content:

Unit I Lectures:15, Practical Lab:1 Sessions

Marks(Theory-30, Practicals-1)

Computer Fundamentals (Theory)

Introduction: Introduction to computer system, uses, types.

Data Representation: Number system and Coding Schemes(ASCII and UNICODE).

Human Computer Interface: Relationship between Hardware and Software, Types of software, Operating system as user interface, utility programs.

Role of Computers in: Business, Manufacturing, Mobile Computing, Public Sector, Media, Defense Services.

Lab 1: Computer Fundamentals (Practicals)

- a. Features of MS Windows based OS and any of the Linux flavor, Setting up users and User rights in a computer, Adding a printer, Software Installation
- b. Troubleshooting basic computer connections.

Unit II Lectures: 15, Practical Lab: 10 Sessions

Marks (Theory-10, Practicals-18)

Content/Data Management Tools (Theory)

User Generated Content: Blogs and Wikis.

Online Data Capture Tools: Types of data capture form templates (Personal, Work and Education). Question Formats for data capture (short answer, paragraph, multiple choice, check- box, drop-down, linear-scale, multiple choice grid). Data form design (Add new question, add section, add title/description/image/video). Data form distribution techniques (Send via email, publish on social media, send as link). Response management (Print responses, Export to spreadsheet, View analysis, Include analysis in word processing reports)

Text Formatting using Word Processing tools: Use of Templates, Working with document: Editing text, Find and replace text, Formatting, spell check, Autocorrect, Autotext; Bullets and numbering, Tabs, Paragraph Formatting, Indent, Page Formatting, Header and footer, section break, footnotes, **bibliography and references**. Tables: Inserting, filling and formatting a table; Inserting Pictures and Video; Managing **Mail Merge**: including linking with Database; Printing documents Creating Business Documents using the above facilities.

Data Presentation using Presentation tools: Slides, Fonts, Drawing, Editing; Inserting: Tables, Images, texts, Symbols, Media; Design; Transition; Animation; and Slide-show. Creating Business Presentations using above facilities

Lab 2.1 : Creating Content for the Web (Practicals)

- a. *Create a blog using popular blogging tools like WordPress/ BlogSpot.*
- b. *Edit Wikipedia articles.*

Lab 2.2 : Data Capture using Google Forms (Practicals)

- a. *Create data forms to capture data for Event Registration, Event Feedback, Customer feedback/satisfaction on a product or service and Order Request.*

Lab 2.3 : Report Formating using Word Processing (Practicals)

- a. *Draft an official letter for job interview invitation/ job appointment/ invitation to an event, use mail merge to input the recipients list linking with database.*
- b. *Given a project report in PDF format transfer to word processor software and format to include title page, specified Paragraph and Page Formating (page size, orientation, line spacing, font type and font size, Indent, bullets, paragraph formatting) details, Acknowledgement page, Table of contents page, List of figures page, List of Tables page, bibliography, references, distinct headers for each chapter, page numbering in roman for initial pages and normal from first chapter. The document should be checked for spelling errors and corrected appropriately.*

- c. *Design a certificate in landscape orientation with a border around the document.*
- d. *Design a Garage Sale sign.*

Lab 2.4 : Content Presentation using Presentation Software (Practicals)

- a. *Preparing presentation in areas such as Impact of Social Media on Youth, Emerging trends in Mobile Technology include appropriate slide animation, slide transitions, sound recording, slide timings, customer feedback video.*
- b. *Export the presentation as video or save as slide show.*
- c. *Prepare handouts for audience.*

Unit III Lectures: 5, Practical Lab: 3 Sessions

Marks(Theory -20, Practical -5)

Overview of Emerging Technologies

Cloud Computing: Meaning, Features, & Service models – Infrastructure as a service, Advantages and disadvantages, Mobile Computing: Meaning, Business Applications of Mobile computing, Virtual reality & Augmented Reality : Meaning and applications , IOT - Internet of Things: Meaning & Application

Lab 3: Web Applications (Practicals)

- a. *Scheduling tasks in Google Calendar*
- b. *Create/Upload documents / spreadsheets and presentations online.*
- c. *Share and Collaborate in real time*
- d. *Safely store and organize your work of Google Drive or OneDrive*

Unit IV Lectures: 10, Practical Lab: 1 Sessions

Marks (Theory-15, Practical -1)

Computing Trends in Internet, Education and Research:

Internet-role and importance, Web Server and Web clients like web browser or web app, IP addressing : Public Vs Private, Static Vs Dynamic, world wide web and related protocols, e-Library, Google Scholar.

Lab 4: Internet Applications (Practicals)

- a. *Surfing the Internet, Using Email and Search Engines*
- b. *Advanced web search and translation services, Web search, image search, Search only for pages that contain (ALL the search terms contain the exact phrase you type, contain at least one of the words you type, do NOT contain any of the words you type, written in a certain language, created in a certain file format like ppt, pdf, rtf, doc, xls)*
- c. *Advanced search operators: Include search (“+” search), synonym search, OR search, Domain search, Numrange search, other advanced search features (Google, Local language, Technology Search, Date, Occurrences, Domains, Safe search),*

Reference Books:

1. Introduction to Information Technology by IITL Education Solutions Limited, second edition.
2. ‘O’ Level made simple “introduction to ICT resources” by Satish Jain, Shashank Jain, Shashi Singh & M. Geetha Iyer, BPB publication.
3. Computer Fundamentals fourth edition by Pradeep K. Sinha and Priti Sinha BPB publications
4. Information Technology The breaking wave by Dennis Curtin Tata McGraw-hill edition
5. Computer Fundamentals by A. Goel, Pearson Education, 2010.
6. Introduction to Information Technology by P. Aksoy and L. DeNardis, Cengage Learning, 2006

3. GENERAL ELECTIVE COURSE FOR B.A –SEMESTER I

Course Title Cyber Space and Cyber Security

Course Code CSG 102

Credits: 3 (Theory)+1(Practical)

Lectures: 45, Practical Lab: 15

Course Objectives: To provide an understanding of Fundamental Technology Concepts and Emerging Technologies in Computer Field. Includes practical skills in data capture, text editing with report formatting, effective presentation tools, efficient search techniques and online collaboration tools.

Course Outcomes (COs)	
CO1	To understand computer networking concepts such as basic computer networks, types of networks, network topologies, and communication channels.
CO2	To learn about E-commerce technology, business applications of E-commerce, business models of E-commerce and modes of different electronic payment systems.
CO3	To Identify the different emerging threats in Cyber Space and to be aware of the security measures to be followed while using the internet.
CO4	To gain knowledge of online privacy and cyber safety practices.

CO-PSO-PO Mapping

PO/C O	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4
CO1	3	1	2	2	0	3	1	2	2	3	2
CO2	3	2	1	3	0	3	1	3	2	2	3
CO3	3	1	2	2	0	3	2	3	2	1	3
CO4	3	1	1	2	0	3	1	2	2	1	2

Course Content:-

Unit I Lectures: 6, Practical Lab: 2 Sessions Marks (Theory -15, Practicals -2)

Basics of Computer Networking

Networking basics, Need for computer networks, Types of networks-LAN, MAN, WAN, Network Components – H/W, Software, Communication channels, Network Devices, Network topologies.

Lab1

- *Basic Networking Setup of PC, Network commands like ipconfig, ping, traceroute, nslookup / dig etc, Setup of Home Router / Wifi Hotspot,*
- *Understanding of Firewall and Basic Firewall Setup, File and Printer Sharing, connecting to share*
- *Setup of Email Clients like Outlook, FTP Clients and Upload / Download.*
- *Finding out public address, connection speeds etc.*

Unit II Lectures: 10, Practical Lab: 04 Sessions Marks (Theory-15, Practicals-16)

E-Commerce

Definition, Hardware requirements, E-commerce and Trade Cycle, Electronic Markets, Electronic Data Interchange and Internet Commerce, Benefits and Risk, Types of E-commerce :Business to Business E-Commerce, Business to Consumer E-Commerce. Consumer to Consumer, Electronic Payment Systems: Smart Cards – Credit Cards – Wallets, Risks, E-Retail, Concept and Examples, E-Banking, Features and services , M-Commerce, Products and services

Lab 2

E-commerce

- *Attempt to purchase a product online from any E-Commerce Site. Proceed till payment gateway. Check digital certificates (such as ebay.in and amazon.com)*
- *Write a review of an E-Commerce Site visited include: Site description, Site Design, ease in navigation , process for purchasing items, security, privacy, compare with competitors, customer service, best features of site etc.*
- *An E-commerce site case study: Include Target market/audience: who uses this service?*

Revenue model: where does the money come from? Competitive environment: who else is competing in this market, or who might enter the market and threaten this company's position? Competitive advantage analysis: how is your case company attempting to gain an advantage: competing on cost? Differentiation? How are they promoting their products in the marketplace? ,How have they been doing - financial results if available?

Unit III Lectures: 15, Practical Lab: 02 Sessions Marks (Theory-25, Practicals-2)

Emerging threats in Cyber Space

Introduction to cyber space, Malware threats- Definition and types(Virus/ worms, Trojan, Rootkits, Spyware, Keyloggers). Social Engineering, Cyber Crimes – Definition, Types (DOS, Intellectual Property crimes, Unauthorized access to computer system or networks, Theft of information contained in electronic form, Cyber Stalking, Identity Theft, Forgery, E-mail Spoofing, E-mail bombing, Online gambling, Sale of illegal articles, Child pornography, Cyber Defamation, Salami attack, Phishing, Pharming, Data Diddling, Virus/ worm attack, logic bombs, Web jacking, Theft of computer system, physically damaging a computer system, Cyber warfare, Cyber terrorism.)

Lab 3

- *Installation and Configuration of any free Antivirus Package eg. AVG/Avast etc., Using Antivirus Package for Threat Detection*
- *Browser security and Safety such as Understanding SSL and Certificates, checking URL of site for Phishing attempts*
- *Email Headers and Tracking, Identification of Phishing Emails*

Unit IV Lectures: 7, Practical Lab 03 Sessions Marks (Theory-10, Practicals-2)

Online Privacy and Cyber Safety

Online Privacy – Introduction, Significance, Privacy Policy, Sensitive Personal Information, Social media – Usage, Safety. Online shopping – Introduction, Safety measures (Encryption

of data authentication , SSL, Digital signatures, Digital Certificates) Online payments – Introduction, Types, Safe practices.

Lab 4

- *Keeping passwords cyber secure-Choosing strong password,*
- *Privacy settings on Facebook, Social Media Safety*
- *Payment Systems Security concerns and Safe Practices*
- *Online Banking Security features, OpenPGP Tools.*

Unit V Lectures: 7, Practical Lab 04 Sessions

Marks (Theory-10, Practicals-3)

Cyber Laws and Cyber Forensics

Cyber Laws: Evolution and Need for cyber law, The legal perspectives – Indian perspective, Global perspective, Information Technology Act(ITA) 2000, Provisions related to E-commerce, Provisions for cyber-crimes, Information Technology (Amendment)(ITAA) Act 2008, Adjudicating officer, CERT-IN- its role and powers.

Reporting Cyber Crimes, Cyber Forensics: Introduction, Evidence collection, Data Recovery, Cloning of Devices, Forensic Investigation phases – Acquisition and preservation, Authentication, Analysis, Documenting Evidence, Presentation of Evidence, Media sanitization.

Lab 5

- *Use of Investigation tools such as Winhex for forensic investigation*
- *Data Recovery using winhex*
- *Use of Free data recovery tools like Recuva*
- *Mapping a given list of cyber-crimes to appropriate ITAA Act 2008 offence listed in http://www.naavi.org/ita_2008/index*

Reference Books and web references

1. Rick Lehtinen and G. T. Gangemi, Computer Security Basics, O'Reilly Media, Inc.; 2nd Edition, 2006
2. Wall, David, (2007). Cyber Crime: The Transformation of Crime in the Information Age. Polity Publishing
3. Michael cross, Scene of the Cyber Crime, Syngress Publishing, Elsevier Publishing, 2nd Edition, ISBN 13: 978-1-59749-276-8
4. Chander, Harish, Cyber Laws and IT Protection, ISBN: 978-81-203-4570-6
5. Nina Godbole, SunitBelapure, "Cyber Security – Understanding Cyber Crimes, Computer Forensics and Legal Perspectives", Wiley India Pvt.Ltd.,ISBN - 978-81-265-2179-1
6. Frontiers of Electronic Commerce Ravi Kalakota & Andrew B Whinston, Pearson Education.
7. Cyber Laws, <http://deity.gov.in/content/cyber-laws>
8. www.cert.org
9. Frontiers of Electronic Commerce Ravi Kalakota& Andrew B Whinston, Pearson Education.