



SYLLABUS FOR INTER- DISCIPLINARY COURSE (IDC) IN COMPUTER SCIENCE

Under Single Major Single Minor & Three Discipline
Specific Course (FYUGP)
(To be implemented from Session 2024-25)

SEM II, III & IV

Proposed Syllabus for Computer Science SEC (Skill Enhancement Course)							
Year	Semester	Paper Code	Paper	Credits	Periods/Week	Exam. Marks	Total Marks
1 st Year	II	IACTIDC211	Fundamentals of Information and Communication Technology (ICT)	2	2	40	60
		IACTIDC211T	Fundamentals of Information and Communication Technology (ICT) (Tutorial)	1	1	20	
2 nd Year	III	IACTIDC324	Introduction to Web Technology	2	2	40	60
		IACTIDC324L	Introduction to Web Technology (Lab)	1	1	20	
	IV	IACTIDC437	Open Educational Resources & E- Learning	2	2	40	60
		IACTIDC437T	Open Educational Resources & E- Learning (Tutorial)	1	1	20	

* All examinations of IDC will be in MCQ format in an OMR sheet.

SEMESTER - II

Course- IDC	Paper Code- IACTIDC211	Credits-2	Lectures/Week-2
Paper:	Fundamentals of Information and Communication Technology		

Theory Marks: 40

Prerequisite(s) and/or Note(s):

1. High school Mathematics.
2. Note(s): Syllabus changes yearly and may be modified during the term itself, depending on the circumstances. However, students will be evaluated only on the basis of topics covered in the course.

Course Objectives

Knowledge acquired:

1. Basic computer concepts and terminology.
2. Understanding of information systems and networks.
3. Knowledge of software applications and tools.

Skills gained:

1. Proficiency in using productivity software.
2. Basic coding and programming skills.
3. Ability to troubleshoot common ICT issues.

Competency Developed:

1. Critical thinking in ICT problem-solving.
2. Communication skills for technical concepts.
3. Adaptability to emerging technologies.

Syllabus Overview

Unit 1: Introduction to Computers	7 Lectures
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Introduction, Definition, Characteristics of computer, Evolution of Computer, Block Diagram of a computer, Generations of Computer, Classification of Computers. Input Units: Key board, Terminals, and its types. Pointing Devices, Scanners and their types, Voice Recognition Systems, Vision Input System, Touch Screen. Output Units: Display Units, Printers, Speakers, Web Cams, Projectors.

Unit 2: Storage Organization	8 Lectures
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Primary Storage: RAM ROM, PROM, EPROM, EEPROM. Secondary Storage: Magnetic Tapes, Magnetic Disks. Cartridge tape, hard disks, Floppy disks Optical Disks, Compact Disks, Zip Drive, and Flash Drives. Network Storage.

Unit 3: Software – OS and Application	8 Lectures
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Software and its needs, System Software: Operating System, Utility Programs Programming Language: Machine Language, Assembly Language, High-Level Language their advantages & disadvantages.

Unit 4: IT in Action**7 Lectures**

Applications of Information Technology: Cable TV, Video on Demand, Video Conferencing, Online Shopping, ATM, Electronic Data Interchange, Telemedicine, Geographic Information System, Internet of Things.

Suggested Readings

1. Peter Norton's (2000), Introduction to computers, Tata McGraw Hill.
2. Brain K. Williams and Stacey C Sawyer (2005), Using information technology: a practical introduction to computers and communications, Tata McGraw-Hill.
3. Aruneed Baweja (2003), Introduction to information technology, Kalpaz Publication.
4. Lee Barry (1982), Introducing systems analysis and design, Galgotia Book source.
5. Albert Paul Melvino, Albert Paul Malvino and Jerald Brown (2006), Digital computer electronics, Tata McGraw Hill.
6. William Stallings (2002), Computer organization and architecture: designing for performance, Prentice Hall.
7. R. B. Davison (1968), Guide to the computer, Longman Green.

Course-IDC	Paper Code- IACTIDC211T	Credits-1	Tut./Week-1
Paper:	Fundamentals of Information and Communication Technology (Tutorial)		

Tutorial Marks: 20

Computer Fundamentals Tutorial as assigned and advised by teacher(s).

SEMESTER - III

Course- IDC	Paper Code- IACTIDC324	Credits-2	Lectures/Week-2
Paper:	Introduction to Web Technology		

Theory Marks: 40***Prerequisite(s) and/or Note(s):***

1. Basic Computer Knowledge.
2. Interest in Computers.
3. Note(s): Syllabus changes yearly and may be modified during the term itself, depending on the circumstances. However, students will be evaluated only on the basis of topics covered in the course.

Course Objectives***Knowledge acquired:***

1. Knowledge about HTML and Web page creation
2. Basic knowledge of server-side scripting
3. Knowledge about web application development procedures
4. Familiarity with various concepts of application development using HTML, and JavaScript

Competency Developed:

1. Proficiency in Webpage Development and website management
2. Ability to create dynamic Web Interface
3. Ability to write server and client sides scripts and manage websites
4. Ability to design a web page using Image, Audio and Video editing tools
5. Ability to understand the basic concepts of Open-Source Standards and Open Source software.

Syllabus Overview

Unit 1:	Unit 1: Introduction to WWW	5 Lectures
Introduction to internet, client server model, Protocols and programs, secure connections, IP addresses, Domain name, Internet service, and Electronic mail, application, and development tools. Web Design: Web site design principles, planning the site and navigation,		
Unit 2:	Introduction to HTML	5 Lectures
Brief history, HTML tags, HTML documents, header section, body section, headings, formatting characters, font tag, listing, and anchor tag.		
Unit 3:	Links, Images and Tables	5 Lectures
Relative Links, Absolute Links, Link Attributes, Using the ID Attribute to Link within a Document, Putting an Image on a Page, Using Images as Links, Putting an Image in the Background, creating a Table, Table Headers, Captions, Spanning Multiple Columns, Styling Table.		
Unit 4:	HTML Frames and Form	8 Lectures
Frameset definition, Frame Definition, nested frameset, HTML Forms, Basic Input and Attributes, Other Kinds of Inputs, Styling forms with CSS, Where to Go from Here Capturing Form Data, GET and POST form methods, Dealing with multi value fields, Redirecting a form after submission		
Unit 5	Style Sheets	7 Lectures
Need for CSS, introduction to CSS, basic syntax, and structure, using CSS, background images, colours and properties, manipulating texts, using fonts, borders and boxes, margins, padding lists, positioning using CSS, CSS2		

Suggested Readings

1. HTML and CSS: Design and Build Websites – Jon Duckett
2. Web Design with HTML, CSS, JavaScript and jQuery Set – Jon Duckett
3. Learning Web Design – Jennifer Niederst Robbins
4. HTML5 and CSS3: Visual QuickStart Guide – Elizabeth Castro & Bruce Hyslop
5. Internet and Web Technologies – Rajkamal
6. Web Technologies: HTML, JavaScript, PHP, Java, JSP, ASP.NET, XML and Ajax – Uttam K. Roy

Course-IDC	Paper Code- IACTIDC324	Credits-1	Tut./Week-1
Paper:	Introduction to Web Technology ()		

Tutorial Marks: 20

Introduction to Web Technology Tutorial as assigned and advised by teacher(s).

SEMESTER – IV

Course- IDC Paper:	Paper Code- IACTIDC437 Open Educational Resources & E- Learning	Credits-2	Lectures/Week-2
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Theory Marks: 40

Prerequisite(s) and/or Note(s):

1. Basic knowledge of internet usage and computer operations.
2. 2. Familiarity with digital tools like word processors, web browsers, and file management.
3. 3. Interest in teaching, content creation, education technology, or online learning systems.
4. 4. No programming skills required (for non-technical learners).

Course Objectives

Knowledge acquired:

1. To introduce learners to the concept and significance of Open Educational Resources (OER).
2. To familiarize students with various e-learning platforms, tools, and content formats.
3. To develop the ability to discover, evaluate, and use OER.
4. To promote awareness of licensing, copyright, and Creative Commons in education.
5. To empower learners to participate in open knowledge sharing and collaborative learning.

Skills gained:

1. Ability to search, select, and evaluates OER for learning purposes.
2. Designing and developing interactive learning materials using digital tools.
3. Creating basic online courses using open platforms like Moodle or Google Classroom, MOOCs.
4. Applying Creative Commons licensing correctly in content sharing.
5. Planning and structuring lessons or modules based on instructional design principles.

Competency Developed:

1. Competent in using and integrating OER into formal and informal learning environments.
2. Capable of developing self-directed learning modules with accessible and open tools.
3. Effective in contributing to collaborative educational ecosystems and open knowledge sharing.
4. Skilled in designing inclusive, accessible, and interactive e-learning experiences.
5. Prepared for academic, training, or professional roles in digital education and ed-tech.

Syllabus Overview

Unit 1: Introduction to OER and E-Learning	8 Lectures
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Concept of Open Educational Resources (OER), Historical development and evolution of OER, Principles behind OER, Benefits and challenges of OER; Overview of E-Learning: Definition, Evolution, and Scope; Difference between traditional learning and e-learning.

Unit 2: Licensing, Repositories, and Platforms	8 Lectures
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Creative Commons (CC) Licensing: Types and Use; Copyright and Intellectual Property Rights in OER; Repositories for OER: MERLOT, NPTEL, SWAYAM, OpenStax, Wiki educator; Platforms for OER-based e-learning: Canvas, Google Classroom, and Coursera.

Unit 3: Instructional Design and Content Development	7 Lectures
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Instructional Design Models: Key Phases of Instructional Design-ADDIE Model ; E-learning content creation principles; Multimedia integration: infographics ; Open-source authoring tools: Google Forms, Audacity.

Unit 4: Evaluation, Collaboration, and Future Trends	7 Lectures
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Learner engagement and assessment in e-learning; Analytics in e-learning platforms (LMS logs, quiz reports) ; Mobile Learning (m-Learning), MOOCS; Future trends in OER and e learning in education.

Suggested Readings

1. Atkins, D.E., Brown, J.S., & Hammond, A.L. – *A Review of the Open Educational Resources (OER) Movement*
2. Wiley, D. – *The Access Compromise and the 5th R*
3. Garrison, D. R., & Anderson, T. – *E-learning in the 21st Century*
4. Khan, B. H. – *Managing E-learning Strategies*

Course-IDC	Paper Code- IACTIDC437T	Credits-1	Tut./Week-1
Paper:	Open Educational Resources & E- Learning (Tutorial)		

Tutorial Marks: 20

Open Educational Resources & E- Learning Tutorial as assigned and advised by teacher(s).