Academic Council --/--/----
Item No: _____

SIES College of Arts, Science and Commerce, Sion (W)

EMPOWERED AUTONOMOUS COLLEGE

Syllabus for

Program: Second Year Bachelor of Science (NEP) Course: Computer Science

Semester: III & IV

With effect from
Academic Year 2024 -25

Preamble

Information and Communication Technology (ICT) has today become an integral part of all industry domains as well as fields of academics and research. The industry requirements and technologies have been steadily and rapidly advancing. Organisations are increasingly opting for open source systems. The students too these days are thinking beyond careers in the industry and aiming for research opportunities.

The B.Sc. Computer Science course structure therefore needed a fresh outlook and complete overhaul. A real genuine attempt has been made while designing the new syllabus for this 3 year graduate course. Not only does it prepare the students for a career in the Software industry, it also motivates them towards further studies and research opportunities.
The core philosophy of overall syllabus is to -

a. Form strong foundation of Computer science,
b. Introduce emerging trends to the students in gradual way,
c. Groom the students for the challenges of ICT industry

In the Second year i.e. for semester III & IV, the basic foundation of important skills required for software development is laid. The syllabus proposes to have 6 core subjects of Computer science and 1 Vocational Skill Course & 1 skill enhancement course of Computer science. In Semester IV the students would also be given industrial exposure via field projects/industrial visit. All core subjects are proposed to have theory as well as practical tracks. While the Computer Science courses will form fundamental skills for solving computational problems, the Mathematics & Statistics course will inculcate research oriented acumen.The syllabus design for further semesters encompasses more advanced and specialized courses of Computer Science.

We sincerely believe that any student taking this course will get a very strong foundation and exposure to basics, advanced and emerging trends of the subject. We hope that the students' community and teachers' fraternity will appreciate the treatment given to the courses in the syllabus.

We wholeheartedly thank all experts who shared their valuable feedback and suggestions in order to improvise the contents, we have sincerely attempted to incorporate each of them. We further thank the Chairperson and members of the Board of Studies for their confidence in us. Special thanks to the Department of Computer Science and colleagues from various colleges, who volunteered or have indirectly helped design certain specialized courses and the syllabus as a whole.

Program Outcomes

SR.NO	Details
PO 1	Recall and explain acquired scientific knowledge in a comprehensive manner and apply the skills acquired in their chosen discipline. Interpret scientific ideas and relate its interconnectedness to various fields in science.
PO 2	Evaluate scientific ideas critically, analyse problems, explore options for practical demonstrations, illustrate work plans and execute them, organize data and draw inferences.
PO 3	Explore and evaluate digital information and use it for knowledge upgradation. Apply relevant information so gathered for analysis and communication using appropriate digital tools.
PO 4	Ask relevant questions, understand scientific relevance, hypothesize a scientific problem, construct and execute a project plan and analyze results.
PO 5	Take complex challenges; work responsibly and independently, as well as in cohesion with a team for completion of a task. Communicate effectively, convincingly and in an articulate manner.
PO 6	Apply scientific information with sensitivity to values of different cultural groups. Disseminate scientific knowledge effectively for upliftment of the society.
PO 7	Follow ethical practices at the workplace and be unbiased and critical in interpretation of scientific data. Understand the environmental issues and explore sustainable solutions for it.
PO 8	Keep abreast with current scientific developments in the specific discipline and adapt to technological advancements for better application of scientific knowledge as a lifelong learner.

Program Specific Outcomes

SR.NO	Details
PSO 1	Apply knowledge of computational mathematics, statistics and programming acquired in the field of Computer Science.
PSO 2	Identify, analyze complex problems in the real world and formulate innovative solutions to those problems.
PSO 3	Compare and apply hardware and software technologies for implementing reliable optimized solutions catering to need and available resources.
PSO 4	Apply software development, managerial, Professional, and soft skills in industry
PSO 5	Understand the global needs and prepare themselves for the changing needs worldwide adapting an ability to engage in life- long learning.
PSO 6	Become a responsible, ethical citizen and explore environmental issues to develop sustainable solutions for it.

S.Y.B.Sc. Computer Science Syllabus
Credit Based System and Grading System
Academic year 2024-2025

Semester – III						
Course Code	**Course Type**	**Course Title**	**Credits**	**Lectures/Week**		
				Theory	**Practical (2 lectures)**	**Total**
Skill Enhancement Course						
SIUCSSE131	Skill Enhancement Course (SEC)	Cyber Law and IPR	1	1		1
SIUCSSE131	Skill Enhancement Course practical	Practicals of Cyber Law and IPR	1		1	1
Total						**2**

Skill Enhancement Courses(SEC)

Course Code	Course Title	Credits	Lectures /Week
SIUCSSE141	**Cyber Law and IPR**	**1**	**1**

About the Course:
The course on Cyber Laws and IPR provides a comprehensive understanding of the legal aspects and regulations related to cyberspace and information technology. The course covers a wide range of topics, including basic concepts, internet technology, network security, cyber law, ecommerce, electronic signatures, cyber crimes, privacy, intellectual property rights, and more. Students will explore the legal framework governing cyberspace and develop an understanding of the legal and ethical issues associated with information technology

Course Objectives:

- Understand fundamental concepts of cyber laws and their relevance in the digital age.
- Examine legal frameworks and regulations in cyber laws, including the Information Technology Act 2000 in India.
- Explore key issues in cyber laws such as e-commerce, e-governance, and electronic records and contracts. Gain knowledge of cybercrimes, enforcement mechanisms, and the role of the Cyber Appellate Tribunal.
- Analyze emerging issues in cyber laws, including liability of ISPs, privacy concerns, and jurisdictional aspects.
- Understand intellectual property rights and online regulations, including copyrights, patents, and domain name disputes.

Learning Outcomes:
After successful completion of this course, students would be able to

- Demonstrate a comprehensive understanding of cyber laws and their application in the digital age.
- Evaluate legal frameworks and regulations governing cyber laws.
- Identify and assess key issues in cyber laws, such as e-commerce, e-governance, and electronic records and contracts.
- Understand cyber crimes, enforcement mechanisms, and the role of the Cyber Appellate Tribunal.
- Analyze emerging issues in cyber laws, including liability of ISPs, privacy concerns, and jurisdictional complexities.
- Recognize intellectual property rights and online regulations, including copyrights, patents, and domain name disputes.

Unit	Topics	No of Lectures
I	**Introduction to Cyber Laws and Technology:** Basic Concepts, Internet and Advantages and Disadvantages of Internet Technology, Network and Network Security **Legal Framework and Regulations**: Cyber Law & Components of Cyber Law, Cyber Law in India: An Overview of Information Technology Act 15 2000, Cryptography, Encryption Technique & Algorithm and Digital Signature & Electronic Signature Key Issues	15L

	in Cyber Laws: E-Commerce, E-Governance, E-Record & EContract, Regulator, Certifying Authority, Electronic Signature Certificates **Cyber Crimes and Enforcement:** Cyber Appellate Tribunal, Cyber Crimes-Cyber Contraventions, Cyber Offences, Power of Investigation & Search, E-Evidence and Computer Forensic **Emerging Issues and Legal Considerations:** ISP & Intermediary Not to be Liable in Certain Cases, Consequential Amendments in Various Conventional Laws in India, Grey Areas of Information Technology Act, 2000 **Jurisdiction and Privacy:** Cyber Jurisdiction, E-Consumers, Privacy of Online Data and Information. **Intellectual Property Rights and Online Regulations:** Free Speech Online or Online Freedom of Speech and Expression and Liability of Intermediary **Intellectual Property Rights (IPRs), Copyrights & Patents:** International and Indian Scenario, Copyright Issues and Digital Medium, Patent Issues in Digital Medium **Disputes and Resolution:** Domain Name Dispute & Resolution and Trademark Issues in Digital Medium, Spamming and Phishing.	

Textbook(s):

1. Cyber Laws & Information Technology (For LL.B.) Paperback – 1 January 2020
2. Cyber Law in India, Satish Chandra, ABS Books, 2017
3. Cyber Security and Cyber Laws, Nilakshi Jain, Wiley India, October 2020

Additional Reference(s):

1. Cyber Laws, Justice Yatindra Singh, Universal Law Publishing, Universal Publishing, 2016
2. Cyber laws, Dr. Gupta & Agrawal, PREMIER PUBLISHING COMPANY, 2022
3. Cyber Law - An Exhaustive Section Wise Commentary On The Information Technology, Pavan Duggal, Universal Publishing (LexisNexis), 2nd Edition, 2017

Course Code	Course Title	Credits	Lectures /Week
SIUCSSE141	**Practicals of Cyber Law and IPR**	**1**	**1**

A. Case Studies based on Cyber Laws and IPR

****