

SWAMI VIVEKANANDA
UNIVERSITY



NEWS LETTER

Volume-I, Issue-VIII

**Department of Computer
Science & Engineering**



The Compuverse

Committee and Editorial Board

President: Dr. Nandan Gupta

Vice-President: Prof. (Dr.) Subrata Kumar Dey

Convener: Mr. Sourav Saha

Joint Convener: Mr. Subrata Nandi

Secretary: Prof. (Dr.) Somsubhra Gupta

Advisory Board:

Mr. Saurabh Adhikari

Mr. Tanmoy Mazumder

Prof. Amitabha Gupta

Editor-in-Chief: Dr. Ranjan Kumar Mondal

Editorial Board:

Dr. Sanjay Nag

Dr. Chayan Pal

Payel Bose

Sangita Basu

Sumana Chakraborty

Sukriti Santra

Lipika Mukherjee Pal

Published: 20.08.2024

Department of Computer Science & Engineering

Computer Science serves as the foundation for various technological advancements that the world sees today. The field has grown by leaps and bounds. The future innovations that it brings along never seem to slow down. Yet another beauty of computer science is that it finds a place in many interdisciplinary fields as well. With these, there also comes a necessity to keep up to the global demand of finding highly skilled engineers and scientists. Swami Vivekananda University, one of the top-ranked universities in India drives on the purpose of providing quality education and improving competence among students thereby living up to its motto, 'Progress Through Knowledge'.

M. Tech. Programme in CSE

Programme Educational Objectives

- PEO - 1: The graduates will be able to employ their expertise in engineering to resolve various industrial and technological problems.
- PEO - 2: The graduates will be able to build up an ability to analyze the requirements, understand the technical specification, design and provide novel engineering solutions and produce efficient product design.
- PEO - 3: The graduates will be able to reveal professionalism, ethical attitude, strong communication skills and maintain good teamwork spirit in their profession.
- PEO - 4: The graduates will be able to interact with their peers in industry and society as engineering



professionals and leaders to set up technical ambience in the society.

- PEO - 5: The graduates will be able to employ their skill with a strong base to prepare them for higher learning and research activities.
- PEO - 6: The graduates will be emerged as leaders in engineering, management, applied research, and education.

Programme Outcomes

- Required expertise and knowledge of advanced computing and applications of engineering.
- Necessary skill set to design and conduct scientific experiments as well as to analyze and interpret numerous data sets.
- An ability to function or lead multidisciplinary team, work cohesively and produce results.
- An understanding of lifelong learning, professional development, social and ethical responsibility.
- The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- Graduates are able to participate and succeed in various competitive examinations for research and development.
- An interest to investigate complex problems, deriving joy from learning and discovering new things.

Editor's Message



The Department has state-of-the-art infrastructure and computing equipment supported by high speed Ethernet and wireless networks. Our faculty members aim at delivering top class education blending their rich research experience with classroom teaching.

The students are motivated to participate in Curricular, Co-Curricular and Extra-Curricular Activities. Students are encouraged to attend National, State level & International Level Workshop and Conferences to enhance their knowledge. Students are also encouraged to attend Value Added Courses and do mini projects on new technologies to meet out the gaps between the curriculum and Industry needs and software development process.

We are overwhelmed by the response that we received from students, faculties and staff in making this newsletter possible. In this newsletter, we reported various news including department faculty member activities. We would like to also thank Dean of Science and Program Coordinators and other faculty members for providing information and valuable suggestions. I hope you will enjoy reading this issue!!!

What is NEW?

We are excited to announce that some new features will be added to our newsletter in the upcoming issues. These features will include all departmental activities, Faculty members' activities, Student activities, etc.



About the Department

Computer Science & Engineering

The department started in 2020 and offers a undergraduate course, post graduate course and diploma in Computer Science & Engineering as well as Computer Science and Data Science and Cyber Security. The course curriculum for the Course has been carefully revised recently taking the need of the industry and consulting the syllabus offered in other leading institutions. The syllabus includes vital topics on basic electronics, followed by microprocessors, computer hardware, advanced computer languages for text and graphics, with laboratory and project work.

Most of the faculty members have received advanced degrees and/or training from reputed institutions in India. Alumni members of the department hold prestigious positions in leading Software and Hardware companies in various companies all over the India. Many alumni have been employed in reputed public sector undertakings and academic institutions in India. The department has adequate infrastructures including new laboratories namely UNIX, Computer Hardware, Linux, PC laboratories. The faculty members and students of the department have been honoured at National and International level.

The department has a library with good number of books to help the Teaching Assistant as well as Technical Assistant to upgrade their outlook in various areas of Computer Science. The department organizes National Technical Seminars, Exhibition, and Industry-Institute Interaction Programme every year.

Last Month Faculty Member Activates



Subrata Nandi, Assistant Professor, Department of Computer Science and Engineering, Successfully defended his PhD work at IIT Guwahati on 24.7.24. We congratulate him for his Academic success!



Departmental Activities

We are excited to publish our departmental book name Application of the Internet of Things (IOT) in smart cities. This book promised to be an excellent opportunity for knowledge sharing, and professional development. We are grateful to our Sourav Saha sir for his initiative to publish such types of book. And we are grateful to SVU to give us this opportunity. The bellow list of faculty members are following whose writing is in the book.

List of Authors

Prof. Somsubhra Gupta
 Dr. Ranjan Kumar Mondal
 Dr. Sanjay Nag
 Dr. Chayan Pal
 Mr. Subrata Nandi
 Mr. Sourav Malakar
 Mr. Sourav Saha
 Ms. Sumana Chakraborty
 Ms. Sangita Bose
 Mr. Diganta Bhattacharyya
 Mrs. Sukriti Santra
 Mrs. Lipika Mukherjee Pal
 Mr. Subhadip Mukherjee
 Mr. Bipradash Pandit
 Mr. Arindam Das
 Mr. Sitikantha Chattopadhyay
 Ms. Payal Bose
 Mr. Kashinath Dutta
 Mr. Jayanta Chowdhury
 Mrs. Bijaya Banerjee
 Mr. Dipam Mishra
 Mr. Pradip Sahoo
 Mr. Apurba Saha
 Mr. Aniket Dey
 Mr. Manish Kumar Dubey
 Ms. Suparna Bandyopadhyay

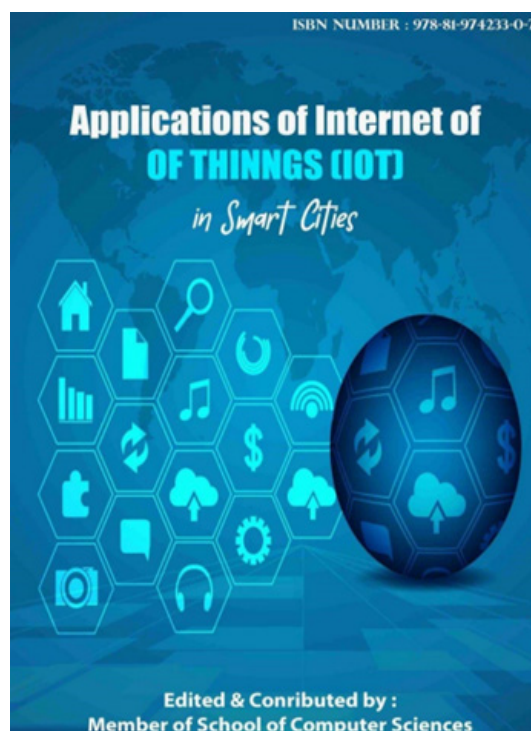


Table of Contents

| | |
|---|-----|
| Acknowledgement..... | 3 |
| Preface..... | 5 |
| List of Authors..... | 6 |
| Abstract..... | 8 |
| Chapter 1: Introduction to Smart Cities and IoT Integration..... | 9 |
| Chapter 2: Internet of Things Infrastructure – Network and Connectivity..... | 20 |
| Chapter 3: Sensor Technologies for Urban Environments..... | 32 |
| Chapter 4: Smart Energy Management in IoT-enabled Cities..... | 40 |
| Chapter 5: Transportation and Mobility Solutions Using IoT..... | 45 |
| Chapter 6: Public Safety and Security Applications of IOT..... | 61 |
| Chapter 7: Healthcare Innovations in Smart Urban Settings..... | 71 |
| Chapter 8: Environmental Sustainability through IoT..... | 89 |
| Chapter 9: Waste Management Optimization in Smart Cities..... | 100 |
| Chapter 10: Building automation and smart homes..... | 120 |
| Chapter 11: IoT Applications for Urban Agriculture..... | 144 |
| Chapter 12: Data Analytics and Urban Decision Making..... | 168 |
| Chapter 13: Citizen Engagement and IoT in Smart Cities..... | 187 |
| Chapter 14: Regulatory and Ethical Considerations in IoT Implementation Survey..... | 205 |
| Chapter 15: Future Directions and Emerging Trends in IoT for Smart Cities..... | 221 |
| References..... | 228 |