EASWARI ENGINEERING COLLEGE

(AN AUTONOMOUS INSTITUTION)

BHARATHI SALAI, RAMAPURAM, CHENNAI 600089

DEPARTMENT
OF
CSE

CONNECTRIX

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EASWARI ENGINEERING COLLEGE
AUTONOMOUS

COMPUTER SCIENCE AND ENGINEERING

VISION

To impart quality education in the field of computer science and engineering and to provide graduates with technical skills enabling them to contribute to the society by solving real world problems and to become a centre of excellence for advanced computing.

MISSION

M1. To provide strong foundation in computer science and engineering and in problem solving techniques to become successful professionals in the field of computing and prepare them for higher education.

M2. To provide students with latest skills in the field of computer science and engineering and to realize the importance of life-long learning.

M3. To produce graduates with the ability to participate in interdisciplinary collaborations and apply recent computing tools and technologies in new domains and industry.

M4. To produce graduates capable of ethically and responsibly approaching and committing themselves to the social impact of computing.

M5. To prepare students to communicate effectively and exhibit leadership qualities to work on diverse project teams.

M6. To provide research environment for students and faculty to undertake inter-disciplinary research in emerging areas.

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PROGRAMME EDUCATIONAL OBJECTIVES

PEO 1

Graduates will possess the ability to think logically and have capacity to understand technical problems and to design optimal solutions for a successful career in industry, academia and research.

PEO 2

Graduates will have foundation in mathematical, scientific and computer science and engineering fundamentals necessary to formulate, analyze and solve engineering problems.

PEO 3

Graduates will have the potential to apply their expertise and current technologies across multiple disciplines to solve real world challenges and research issues.

PEO 4

Graduates will have the ability to work as a team and will be able to promote the design and implementation of products and services with an understanding of its impact on economical, environmental, ethical, and societal considerations through their strong interpersonal skills, leadership quality and entrepreneurial skills.

PEO 5

Graduates will possess an urge to learn continuously and to be responsive to the demands of the progressive industrial world by carrying out researches in frontier areas of computer science and engineering.

PROGRAMME SPECIFIC OUTCOMES

PSO 1

Analyze , design and develop computing solutions by applying foundational concepts of computer science and engineering.

PSO 2

Apply software engineering principles and practices for developing quality software for scientific and business applications.

PSO 3

Adapt to emerging information and communication technologies (ICT) to innovate ideas and solutions to existing/ novel problems.

PROGRAMME OUTCOMES

Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

Problem analysis: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

ARTICLE

<u>DATA SCIENCE</u>

Data science merges math, statistics, specialized programming, advanced analytics, AI, and machine learning with domain expertise to uncover actionable insights in an organization's data. These insights guide decision-making and strategic planning. As data sources and volumes grow, data science has become one of the fastest-growing fields across industries.

Data Science Lifecycle:

Data Ingestion: Collect raw structured and unstructured data from various sources via manual entry, web scraping, real-time streaming, and more.

Data Storage and Processing: Clean, deduplicate, transform, and combine data using ETL jobs or other technologies to ensure data quality before loading it into repositories.

Data Analysis: Conduct exploratory data analysis to generate hypotheses and evaluate data relevance for predictive analytics, machine learning, and deep learning.

Communication: Present insights through reports and visualizations to help decision-makers understand the data's business impact.

Data Scientists vs. Data Science:

Data science is the discipline, while data scientists are the practitioners. Data scientists' responsibilities often overlap with those of data analysts but typically require a broader skill set, including programming (R, Python), statistical inference, and data visualization.

Data Science vs. Business Intelligence

While both data science and business intelligence (BI) relate to data analysis, they differ in focus. BI encompasses technologies for data preparation, mining, management, and visualization, enabling data-driven decision-making by analyzing past data. It provides descriptive insights into what happened before to inform actions, often using structured, static data.

In contrast, data science uses descriptive data to identify predictive variables for forecasting and categorizing data. Data science and BI are complementary, with organizations leveraging both to maximize data value.

Tools for Data Science

Data scientists use various programming languages and tools for analysis and visualization:

- R Studio: For statistical computing and graphics.
- Python: Dynamic language with libraries like NumPy, Pandas, and Matplotlib for quick data analysis.

GitHub and Jupyter Notebooks: For sharing code and information.

- SAS and IBM SPSS: For statistical analysis and predictive modeling.
- Big Data Platforms: Apache Spark, Hadoop, NoSQL databases.
- Visualization Tools: Tableau, IBM Cognos, D3.js, RAW Graphs.
- Machine Learning Frameworks: PyTorch, TensorFlow, MXNet, Spark MLib.

Multipersona DSML Platforms

These platforms use automation and user-friendly interfaces to allow individuals with minimal data science background to create value. They support collaboration and accelerate AI project returns.

Data Science and Cloud Computing

Cloud computing enhances data science by offering scalable processing power and storage. Cloud storage solutions, such as data lakes, efficiently handle large data volumes. Cloud platforms offer flexible, cost-effective infrastructure and host open-source technologies, democratizing access to data insights and innovations

Data Science Use Cases

Enterprises can leverage data science for various benefits, including process optimization and enhanced customer targeting. Here are some specific examples:

- Banking: An international bank uses a mobile app with machine learning-powered credit risk models and a secure hybrid cloud to deliver faster loan services.
- Electronics: An electronics firm develops 3D-printed sensors for driverless vehicles, enhancing real-time object detection with data science and analytics tools.
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REDHAT CERTIFICATIONS

Congratulations to the CSE students for earning their Red Hat certifications! This achievement showcases their dedication and expertise in open-source technology. We're proud of their hard work and commitment to excellence. Here's to their continued success in the tech industry. Amirthavarshini and Harini P scored a perfect centum mark. Their exceptional performance highlights their dedication and hard work. Congratulations to both on this outstanding achievement!

ACHIEVEMENTS

Kavya Sundara Moorthy, Mohammed Anees P V, PVS Deepti and Radhika Swaminathan of 3rd Year, Department of Computer Science and Engineering, participated in Cython 2024, an 8-hour Hackathon, organised by FITT-IIT Delhi in collaboration with NCIIPC (A Unit of NTRO), at Research and Innovation Park - IITD

 Vishal. K. S Thaush kumar.N Renil Immanuel.C of 2nd year, CSE Department has secured 1st Prize in the Sprint hackathon with Cash Prize Rs. 1500 Technical Event conducted at SRM University Ramapuram.

ACHIEVEMENTS

S NO	NAME OF THE STUDENT	TYPE OF THE EVENT	AWARD RECEIVED
1	THANUSH KUMAR	HACKATHON	FIRST PRIZE
2	KEVIN DENZIL	HACKATHON	FIRST PRIZE
3	RENNIL IMMANUEL	HACKATHON	FIRST PRIZE
4	K S VISHAL	SPRINT HACKATHON	FIRST PRIZE
5	KEVIN DENZIL	PAPER PRESENTATION	FIRST PRIZE
6	KIRUTHIK KANNA	HACKATHON	FIRST PRIZE
7	NAKULAN	HACKATHON	FIRST PRIZE

WORKSHOP

Department of Computer Science and Engineering in associstion with CSI-Chennai and Coding Club Organized a Workshop on "IoT Unleashed : Applications Hands on Session "

INAUGRATION

The Department of Computer Science and Engineering inaugurated The National Conference on Innovation in Intelligence and Computing Technologies - NCIICT 2024,
Chief Guest: Dr. K M Suceendran sir, The Head of the Academic Alliances Group of the Tata Consultancy Services, Chennai
which took place on 29th of April, 2024 at 9:30 am in the TRP Auditorium.

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