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Dayananda Sagar University Bengaluru

Volume 01 Issue 01

CSE EDUINSIDE

A Newsletter of Department of Computer Science and Engineering, SOE, DSU, Bangalore

VISION AND MISSION OF THE INSTITUTE

DSU

Vision

To be a centre of excellence in education, research & training, innovation & entrepreneurship and to produce citizens with exceptional leadership qualities to serve national and global needs.

Mission

To achieve our objectives in an environment that enhances creativity, innovation and scholarly pursuits while adhering to our vision

VISION AND MISSION OF THE DEPARTMENT

CSE

Vision

To develop pool of high calibre professionals, researchers and entrepreneurs in the areas of Computer Science & Engineering and Information Technology with exceptional technical expertise, skills and ethical values, capable of providing innovative solutions to the national and global needs.

Mission

- To create a robust ecosystem where academicians, concept developers, product designers, business incubators, product developers, entrepreneurs, mentors and financial institutions are brought together under one platform of the department.
- To establish Project Environment in the Department with open source tools, provide hands-on experience to students by establishing a process to channelize their effort towards acquiring relevant competencies and skills in their chosen technology areas and domains.
- To create continuous learning environment for faculty and establish Research Centres in collaboration with Industries and Institutions of National/International repute and conduct research in emerging areas as well as socially relevant technical and domain areas through funded research projects.

Dayananda Sagar University
Innovation Campus
School of Engineering
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What's inside...

CHAIRMAN'S MESSAGE

Dr. Girisha G S
Professor and
Chairman

I am happy to note that the Department of Computer Science and Engineering is releasing the first publication of bi-annual newsletter for academic year 2021-22 Even semester. The newsletter is believed to be a focus of the inside activities i.e. academics, students and faculty achievement as well as innovation occurring in the department. In the era of engineering and technology, this newsletter will motivate the teachers and students of sharing their creativity and new ideas with the world and will help in their overall development. I take this opportunity to congratulate our editorial board for their great effort to make this newsletter as a reality. Also I invite the readers of 'CSE EDUINSIDE' for their contribution and suggestions for the forthcoming issues.

ABOUT THE DEPARTMENT

The Department of Computer Science & Engineering was started in the year 2015. It offers four Undergraduate Programmes, namely, B. Tech CS&E, B. Tech CS&E (AI & ML), B. Tech CS&E (Data Science) and B. Tech CS&E (Cybersecurity) which prepares students for the current and future demands of industry and the research world.

The Department offers a Master's Programme namely, M. Tech in Computer Science & Engineering. This programme prepares students to become leaders in knowledge driven professions.

The faculty members in the Department are active in the Research Areas of Artificial Intelligence, Machine Learning, Data Science, Network Security, Networks & IoT, Wireless Networks, BlockChain Technologies, Big Data, Data Mining, Data Analytics, Cloud Computing, Image Processing, Computer Vision and Video Analytics, Information Retrieval, etc. Apart from core courses, the Department also offers Liberal Studies Courses (as per NEP- 2020). Liberal studies focuses on creating synergy between Humanities, Social Sciences, Performing arts, Law, Management, Fine Arts, Yoga, Painting, Music etc.

The Department has many Adjunct Professors/Professor of Practice who typically have positions at Industry or other institutions to bring in the industry expertise and research rigour in our programmes to provide specialized supervision of student projects.

The students of CSE Department are placed in various top MNCs like IBM, Accenture, Capgemini, Cognizant, Wipro, Infosys, Mindtree, Intel, Mercedes Benz, Sap Labs etc. with an emolument in the range of 4.78 Lakhs to 27 Lakhs per annum

Articles

The Prefix and Suffix for "DATA"
Prediction or Astrology or Forecast or Source

The covid-19 pandemic has taught us lessons by the challenges posed on various dimensions of life.

The positive sign was that the world at large has started working with pure science and math principles in reengineering the ecosystem, be it a medical support methodology, treatment, predictions, transmission dynamics of the virus, large chapters of knowledge on the mutation of the virus, in a span of record time.

The questions of how, why, what, and who of the dynamic mutation of biological unit i.e., I remember in March 2020, we were in lockdown, we as a small team worked quickly to understand what this virus comprises of, with about 29000 base pairs and creating desolation on an evolved species with a complex genome sequence of human beings consists of about 3 billion base pairs. We came up with an outcome of preprint publication in April 2020 with a finding of phylogenetic analysis, reflecting on transmission dynamics of an early phase of covid 19 in India. Predominantly nCov19 was transmitted over from Europe and middle east countries not from china*(though originated from Wuhan) in the early phase.

As time passes by, we are in the post 3rd wave pandemic. so-called 4th wave in India region, IIT Kanpur team of researchers have published findings in a Medrxiv journal in Feb 2022, the article claims that the model has been trained using data of earlier waves of covid 19 spikes and the study reports concludes that the mathematical model predicts the onset of spike-wave in Jun 2022, for a new wave of infection on covid 19. There are discussions around whether mere trend lines from the outcome of statistics and mathematical models can predict /forecast the infection rates with specific date lines; it raises questions about the ecosystem of a double-dosed population. (The previously trained models were not based upon similar variants and the population was not double-dosed). The variant of the virus is also different.

The experts* went ahead with brainstorming sessions with investigative and reactive comments. Some experts say the results are overblown; some researchers concluded that it is impossible to predict the dateline of the wave* "not easy to convert biological phenomena". They have opinions about cannot predict because don't about the new variant. It is akin to data astrology, not data science.

However, the health experts of the government of India relied upon day-by-day monitoring rather than imposing full-scale measures in the name of risk mitigation. The researchers also observed that it's one of the ways to sensitize the people.

Dr. Basavaraj N Hiremath
Professor, CSE

Dr. Girisha G S
Professor & Chairman, CSE

From Quantum Computing to Quantum Machine Learning

Quantum computers harness the unique behavior of quantum physics such as superposition, entanglement, and quantum interference, and apply it to computing. This introduces new concepts to traditional programming methods. A qubit is the basic unit of information in quantum computing. Qubits play a similar role in quantum computing as bits play in classical computing, but they behave very differently. Classical bits are binary and can hold only a position of 0 or 1, but qubits can hold a superposition of all possible states. Succinctly, we may say that: Quantum Computing = Quantum Physics (For Laws) + Linear Algebra (Computation) + Computer Science (Programming).

Machine learning involves making machines learn like human beings using supervised, unsupervised, or reinforcement learning. Supervised learning means learning from someone (features and labels), unsupervised learning means `learning on our own' (features) and reinforcement learning involves rewards and penalties. In this article, we compare classical machine learning and quantum machine learning by using supervised learning. In classical machine learning, we give features (input) and labels (output) to the supervised machine learning algorithm. The algorithm then builds a model which can be used for prediction.

Quantum machine learning is a field that's just starting to develop. It lies at the intersection of Quantum Computing and Machine Learning. The main goal of Quantum Machine Learning is to speed things up by applying what we know from quantum computing to machine learning. The theory of Quantum Machine Learning takes elements from classical Machine Learning theory and views quantum computing from that lens. Python provides the QISkit library in order to write programs in quantum computers. Machine Learning code in quantum computers is the same as classical computers except we need to convert classical data into quantum data.

Both classical and quantum machine learning algorithms use the fit method for building the model and predict the method for predicting output when input is given. Quantum Machine Learning is a growing field, and researchers say that by the mid-2030s Quantum Computers will become popular, and people will start using them.

Prof. CVSN Reddy
Associate Professor, CSE

METAVERSE TECHNOLOGY

"New technology is not good or evil in and of itself. It's all about how people choose to use it" ~David Wong

The above quote is true by all means. Just like a coin has two sides, each technology to has its own pros and cons. It is our primary responsibility to use it with optimistic goals and for the welfare of society. Today, the advancements in technology are at a great pace and most importantly in a great direction. One such technology that is being spoken about everywhere is the "Metaverse". We hear everyone heaping lots of appreciation and expectations about this technology and its role in the future.

The technical definition for metaverse goes like, "The Metaverse is an expansive network of persistent, real-time rendered 3D worlds and simulations that support continuity of identity, objects, history, payments, and entitlements, and can be experienced synchronously by an effectively unlimited number of users, each with an individual sense of presence", wrote Mathew Ball, a venture capitalist. In simple words, it is basically a virtual world where people can interact, conduct meetings, make business deals, and do even more in that virtual space, creating a virtual economy that runs parallel to our real one. The metaverse builds on the internet, allowing users to experience and explore the virtual world using technologies such as Virtual Reality (VR), Augmented Reality (AR), Artificial Intelligence (AI), social media, digital currency, etc. It would not be wrong to say that people can "live" in the metaverse, to some extent. Some of the key features of the Metaverse include Infrastructure, Human Interface Technologies, Digital Avatars, Decentralization, Experiences, Security, and Persistence.

The companies working in the field of Metaverse are Facebook, Epic Games, Microsoft, and many other firms. In an open letter, Facebook CEO, Mark Zuckerberg said that his company's metaverse investment represented a fundamental change and was a part of a new vision designed for the social media giant, i.e., "to bring the metaverse to life." On the other hand, Epic Games' vision of metaverse is to provide a communal space for users to interact with each other and brands that will align with their purpose to fill the world with emotion, through the power of technology and creativity. Nothing less than the former two, Microsoft has interesting visions for the future of metaverse with its announcement of "Mesh", a platform for developers that includes a suite of AI-powered tools for avatars, session management, spatial rendering, synchronization across multiple users, and "holoportation". Holoportation is a 3D capture technology that lets users reconstruct and transmit high-quality 3D models of people in real-time.

Metaverse, if used with the right skills and optimistic purposes can have great impacts in the fields of Healthcare, Real Estate, Education, Military, and Manufacturing. It can make virtual events effective to the highest extent and social media highly interactive. It leads to immersive learning experiences, immersive shopping experiences, and effective employee engagement.

"You can think about the metaverse as an embodied Internet, where instead of just viewing content, you're in it".
~Mark Zuckerberg

Ms. Bhagyalaxmi N Kulkarni
3rd Year Student, CSE

Emerging Technologies-Empowerment of the Future Generation

"If technology advancements keep up, man will atrophy all his limbs but the push-button finger", "Technology is a useful servant but a dangerous master". The late Steve Jobs must be praised for his unique insight on emerging technologies, and the sponsors of the future. Not just him many of his peers have agreed about the advancement of emerging technologies.

So what does emerging technologies mean? Well, emerging technologies define a new technology or the continuous development of existing technology. Technology is developing at a frighteningly quick pace and will continue to do so for the next 5-10 years with the same pace and intensity. Emerging technology has aided mankind by playing a vital role in the modernization of industries and these technologies are held responsible for the transformation of enterprises into a digital world. We live in the 21 st century which is continuously driven by digital solutions and in such a world like ours, emerging technologies will continue to affect the way we live, work, and interact with society.

Emerging technologies such as Artificial Intelligence (AI), robotics, Internet of Things (IoT), blockchain, cyber security, and big data have already begun to show their limitless potential to create new and innovative products and also provide worldwide accessible services. These services are essentially helpful for those who struggle to use them. It is certain by now that emerging technologies will define our professional lives as well. Those tiresome, repetitive, and boring tasks are boosted with productivity and efficiency, thereby making more time to engage in our highly valued tasks. The concept of remote working facilitated with technological solutions could easily hand us the dream job that we desire without stepping a foot outside our country

There are some advantages and some disadvantages to these rapid and rising technologies. Many of these technological advancements have been tremendously beneficial; they increase our work productivity, and provide us or help us access the required services at a much faster and more efficient rate. Overall technology makes our life much easier. However, there are some hurdles that we face amidst using these technologies. Humans tend to become indolent, languorous, and lazy with the existence of technologies. Certain emerging technologies have already begun to create unemployment in many manual labor sectors of our society.

All of these may sound exciting and enthralling to us. Today emerging technologies have come to the stage where humans find themselves at crossroads. The positive, as well as the negative aspects of technology, have certainly put us in a dilemma. Getting used to the emergence of such technologies may take us a while to get used to, but the sooner we start the sooner we can gain the fruits of benefits that these technologies have to offer. With adequate knowledge and proper implementation, we can continue to grow, adapt and flourish in this society which is sooner or later going to be run by these emerging technologies.

Mr. Ankur Mukhopadhyay
1st Year Student, CSE

Department Events

DEMYSTIFYING AI & ML

The Department of Computer Science Engineering conducted an online value-added course on “Demystifying Artificial Intelligence (AI) and Machine Learning (ML)” from 24th-29th January, for 3rd-year Students organized by Dr.Jayavrinda Vrindavanam, Professor and Chairperson, Department of CSE(AI&ML) and Dr. Meenakshi Malhotra, Associate Professor, Department of CSE.

Dr. Srinivas A., Dean, School of Engineering inaugurated the Programme, Dr. Girisha G S, Chairperson, Department of CSE introduced the workshop.

On day 1, the participants understand the basics of AI and ML, their types, and Python Libraries.

On day 2, focused on the mathematical aspects of AI and ML. Dr. Debanjali Bhattacharya gave an "Introduction to Mathematics for Machine Learning”. The sessions were used to provide knowledge of analytical design and demonstrate algorithms and applications.

On day 3, Dr. Jayavrinda explained the process flow of the ML project and its algorithms. Dr. Rajesh explained the pattern recognition algorithms and their applications in forensic crime detection. Dr. Renukadevi M.N. discussed human action recognition and applications. Dr. Jayita Saha explained pre-processing and feature extraction with some examples.

On day 4, Addressed the implementation and hands-on session of Machine Learning Models and their various methods. The next day concentrated on industrial uses of AI and concluded with project implementations of AI on medical Data. The last session was on "Machine learning for Cyber Security and Cloud computing".

DATA SCIENCE SKILLS ON DIGITAL TRIBE

Under the DAV Club, Data Science Program, Department of Computer Science and Engineering Organized a 5 days value-added course on "Data Science Skills for Digital Tribe” from 24th - 31st January 2022 Organized by Dr. Shaila S G. Professor and Chairperson Data Science Program, Dept. of CSE and Prof. Shivamma D, Assistant Professor, Dept. of CSE. The targeted audience was B.Tech and M.Tech students of the Department of CSE. The workshop consisted of several sessions on a multitude of topics supported by practical sessions, handled by faculty experts from Computer Science and Engineering. Around 100+ students were registered. All students were trained on both theoretical and practical knowledge of the present technologies in the Data Science domain.

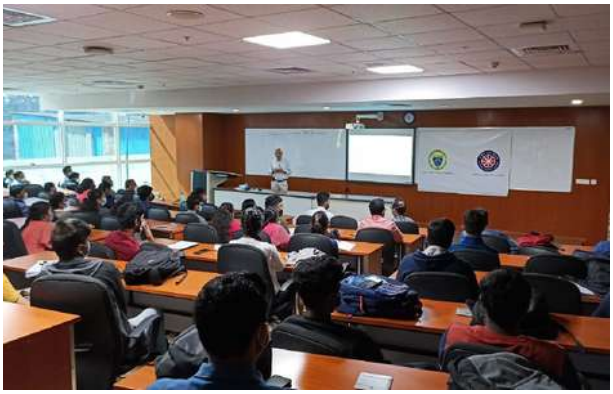
The course started with Introduction to Data Science given by Dr. Shaila S G, and Introduction to Business Intelligence by Dr. Basavaraj N Hiremath. The next day Dr. Revathi V explained Mathematics for Data Science followed by Data Pre-processing and Feature extraction given by Dr. Kiran B Malagi.

On Day 3, Dr. Pramod Naik gave an Introduction to Modern Tools and Libraries. Machine Learning Algorithms were explained by Dr. Rajesh T M and Business tools and Self-service dashboards by Dr. Basavaraj N Hiremath.

on day 4, Forensic Investigation by Machine Learning approaches by Dr. Renuka Devi M, BI - Retail Market Case study was demonstrated by Dr. Basavaraj N Hiremath in the next session Dr. Pramod Naik gave a demonstration on Netflix recommender system.

At the end of the course an evaluation was carried out and the students performed satisfactorily.

AWARENESS PROGRAMME ON CYBER CRIME



The Department of Computer Science and Engineering (CSE) started 'Cyber Jagrukta Diwas' to raise awareness about cybercrime and how to deal with it. As a part of it, the department conducted a seminar on "Cyber Crimes – An Overview", on 5th January, 2022.

The inauguration of the event was started with the invocation song by Dr. Renuka Devi MN, Asst. Professor, CSE Dept. and welcome speech was given by Ms. Soumya Raj, First-year B.Tech. CSE student. Dr. Jayavrinda Vrindavanam, Professor and Chairperson (AI and ML), introduced the speaker to the audience.

The speaker of the event was Prof. Sitaram Yajil, Professor/ECE NMIT, YELAHANKA. In the seminar, he covered various topics during the interaction. It started with the definition of cybercrime and its impact; kinds of cyber crimes such as women/child-related crime, online financial frauds, online job fraud, debit/credit card fraud, etc. Later on, the ways and methodologies to report cybercrime; Laws and acts related to cybercrime and cyber security; how the investigation process is carried out in case of cybercrimes; preventive measures, and the significance of cyber security were discussed.

This seminar motivated the students to concentrate on cyber security by explaining its scope.

The organizers for the event were Dr. Jayavrinda Vrindavanam, Professor and Chairperson, Department of Artificial Intelligence (AI) and Machine Learning (ML), Dr. Bharanidharan N, Assistant Professor, CSE, DSU, and Mr. Sri Hari as student coordinator.

Under the Cyber Jagrookta (Awareness) Diwas, Department conducted another webinar on "Cyber Hygiene – Best Practices" on 2nd February 2022.

The organizers for the event were Dr. Mouleeswaran SK, Associate Professor, Prof. Kalpana B N, Assistant Professor, Prof. Ankita Singhai, Assistant Professor, Department of CSE, DSU, and Ms. Krishna Priya Lokanatha and Ms. Nupur R Naik, Student of 4th Sem as student coordinator. The webinar was open to all the faculties, Research scholars, and students.

More than 100+ B.Tech. students participated from various streams. The session started with the welcome speech by Prof. Ankita Singhai. Then the Chairman of CSE Dr. Girisha GS addressed the gathering about Cyber Jagrootka Diwas. Dr. Mouleeswaran SK introduced the speaker, Mr. Dhruva Santosh, to the audience.

Speaker covered the following things: Definition and introduction of cyber hygiene; Rules of cyber hygiene; How can we check whether our E-mail and Mobile number are compromised or not by using the website link haveibeenpwned.com? also to check the strength of our password by using haveibeenpwned.com/passwords? and passwordmonster.com. Benefits and best practices of cyber hygiene; Some of the vulnerabilities present in games and web browsers were also discussed and shown using CVE, CVSS, Exploit DB, etc.

The Talk was interactive and followed by a Question & Answer (Q&A) session. Finally, the vote of thanks was delivered by Prof. Kalpana B N.

PY-QUIZ

AI & ML club of AI&ML Program, Department of Computer Science and Engineering conducted the Python Quiz for 2nd-year students on 16th March 2022 organized by Dr.Jayavrinda Vrindavanam, Professor and Chairperson, Department of CSE (AI&ML) and Prof. Roshni M, Prof. Balakrishnan, Assistant Professor, Dept. of CSE along with Raghav Nanjappan, Student, Dept. of CSE.

The program started with an introductory speech about the club AI works@DSU by Dr. Jayavrinda V for 24 students (12 groups).

The quiz had 2 rounds. The first round was a quiz, the top 5 groups were shortlisted for the next round. Round 2 was coding in which the students were asked to write 3 python programs. Out of the 5 teams the top 2 teams were selected.

Armin Bushra Taj and R D Lohith, 4th Semester H Section secured the first prize, and Yashna Karkera and Pranav S S of 4th Semester H section secured the second prize. Certificates were issued to the winners.

WEBINAR ON CLOUD SECURITY

Department of Computer Science & Engineering and the Department of Computer science and Technology organized a Webinar on "Overview of Cloud Security" on 18th April 2022. The webinar was organized by Dr. Sindhu P Menon, Professor, Dr. Pramod Naik, Associate Professor, Dept of CSE, and Prof. Ramandeep Kaur, Assistant Professor, Dept of CST. The main objective of the Webinar is to provide an insight into Network Cloud security issues and to stream Application logs using Cloud watch. The resource person of the event was Mrs. Ashwini Ravikiran, Lead Quality Assurance Test Analyst, Infosys Ltd.

DATA ANALYTICS

The first activity under the Anveshana club of Dept. of CSE was conducted on 26th February 2022 on "Data Analytics" organized by Dr. Savitha Hiremath, Dr. Jayita Saha, Dr. Debanjali Bhattacharya, Prof. Veena M, Prof. Shwetha G S, Prof. Nandini K, Prof. Pooja Goud, Prof. Shradha Naik.

The Resource Person was Mrs. Kavya Niranjanaradhya, Senior Technical Program Manager, Lifion by ADP, New York City. 70+ students registered and attended the webinar. The agenda of the webinar was about conveying the importance of Data Analytics and its types and uses. The session was very interactive and students clarified their doubts.

WORKSHOP ON NETWORK SIMULATION (NS3)

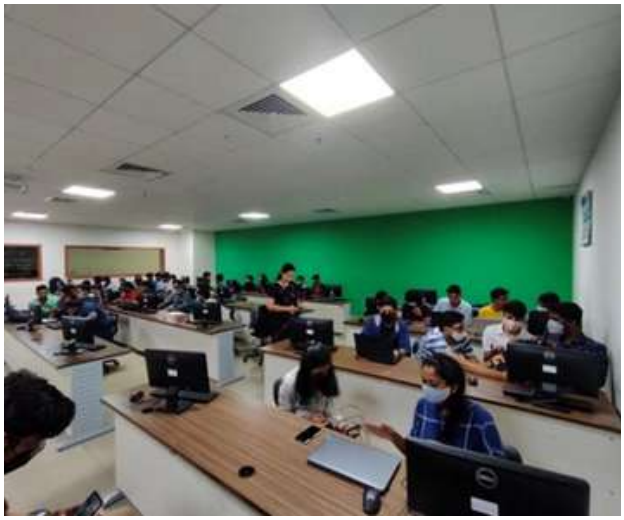
Department conducted a two days workshop on "Introduction to Network Simulation (NS3)" on 5th-6th March 2022. The workshop was organized by Dr. Renuka Devi, Prof. Krishna Sowjanya K, and Prof. Pooja Goud, Assistant Professor, CSE, DSU. The speaker of the workshop was Dr. Nagaraj M. Lutimath, Associate Professor in Information Science and Engineering, East Point College of Engineering and Technology.

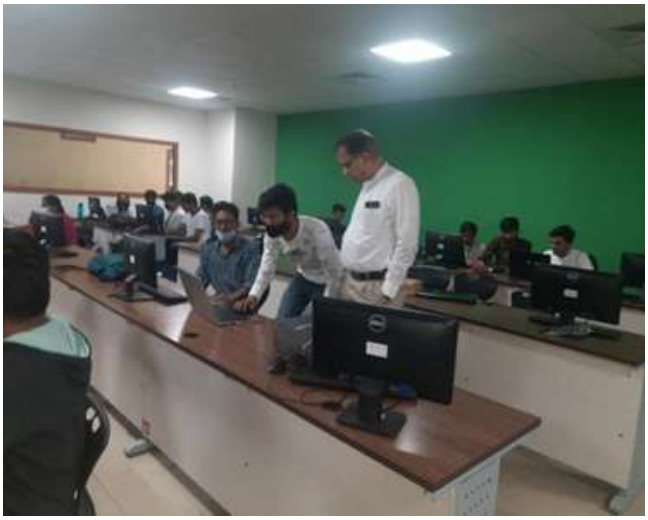
On day 1, the speaker gave an introduction to Network Simulation, which is a discrete event network simulator and Open-source tool with a modular design then explained its simulation along with components and structure of C++ in NS3 as well as provided a set of simulation models implemented as C++ objects. In the afternoon session, Network simulation was explained using NetAnim which includes the Application of Wireshark for simulation output, Tracing, and logging of the NS3 program for debugging.

On day2, Speaker started NS3 simulation – TCP sockets with a congestion window. They explained ping, CDMA – Code Division Multiple Access, LTE – Long Term Evolution The Evolved Packet System (EPS).

The session was very interactive and students clarified their queries.

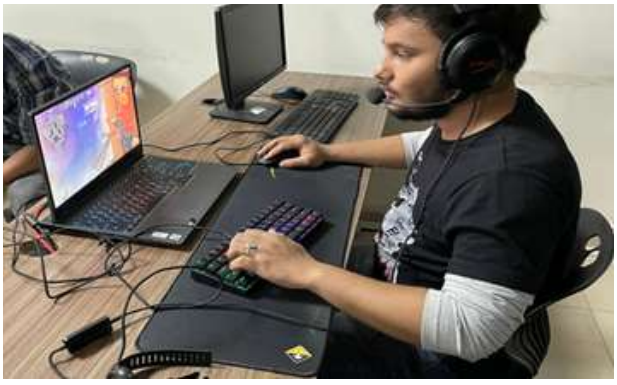
SMART INDIA HACKATHON





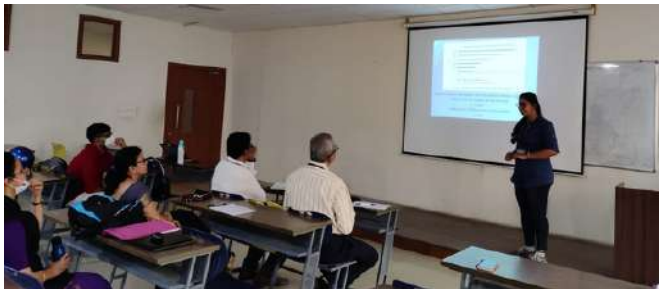
Department of CSE conducted an Internal Hackathon on 26th March 2022. A total of 7 teams participated (42 students) from the various streams. The program was addressed by Dr. M K Banga, Dean of Research, and Dr. Girisha G S, Professor and Chairman Dept. of CSE. Dr. K N Murthy, Vice Chancellor motivated the students to participate in more Hackathons in the future. In total there are four Hardware and three Software Projects. Students were evaluated by experts who have both industry and academic knowledge. Experts gave their suggestions to the teams. The event ended with a thanking note from the university SPOC, Dr. Sindhu Menon.

DSU E-SPORTS



Under the Data Analytics and Visualization (DAV) Club, Data Science Program, Department of Computer Science and Engineering organized E-Sports Event “Valorant” and “FIFA” on 23rd April 2022 by RUSHByKIRA.com. The event started with Kickoff Event followed by Valorant and FIFA Tournament. Around 60+ students attended the event. Mr. Sahil Singh, Founder of KIRA E-Sports addressed the participants on careers in E-Sports. All students were gaming enthusiasts who ranged from amateur to professional backgrounds in gaming. At the end of the event, the statistics were evaluated and the students were awarded on the basis of performance in terms of certain categories for both the games conducted.

ROBOCOLL: COLLOQUIUM COMPETITION



AI & ML Program of the Department of Computer Science and Engineering organized "RoboColl: Colloquium" competition on 30th March 2022. The event was organized by Dr. Jayavrinda V, Professor and Chairperson, CSE(AI & ML), and Prof. Roshni M, Assistant Professor. In the competition, participants were asked to present any technology based on cognitive robotics. Dr. Arun Raman, Dr. Sindhu Menon, Dr. Rangaraj, Dr. Gopal Joshy, Dr. Pramod Naik were the panel members of the event. Mr. Karthik Pai of Semester 4th Semester student of CSE(AIML) won the first prize in the competition. The concepts presented by the students were appreciated by the faculties and students.

WEBINAR ON "PRIMER ON DATA SCIENCE TOOLS AND TECHNIQUES"

Under the Data Analytics and Visualization Club, Data Science Program, Department of Computer Science & Engineering conducted a Webinar on "Primer on Data Science Tools and Techniques" on 09th April 2022. The organizers for the webinar were Dr. Basavaraj N Hiremath, Professor, Dept. of CSE, and Prof. Shivamma D, Assistant Professor, Data Science Program, Dept. of CSE.

The main objective of the Webinar was to provide an insight into real-world industry experience. The students were exposed to applications in the Finance domain. Understanding fraud detection patterns, applying Techniques and Tools for Data mining and data Transformation, and applying Machine Learning Techniques. The webinar discussed various performance and parameters adopted in Data Science, Data Visualization, Optimization Tools, and Techniques.

The targeted audience was B Tech and M Tech students of the Department of CSE. The course was organized in virtual mode. Around 100+ students were registered for the course and 90+ students attended the webinar.

The session was introduced by Dr. Shaila S G, Chairperson, Data Science Program, Dept. of CSE, and then Dr. Basavaraj N Hiremath introduced the speaker of the session Mr. Ashish Jain, Data Scientist @ Infosys Ltd. The speaker in the webinar covered practical exposure to statistics and visualization techniques along with Mining approaches. The webinar showcased various algorithms in ML training on various datasets like Iris etc. All students were trained on both theoretical and practical knowledge of the present technologies in the Data Science domain. At the end of the course an evaluation was carried out and the students performed satisfactorily, feedback was taken from the students and it is found to be satisfactory. Finally, the vote of thanks was delivered by Prof. Shivamma D.

WEBINAR ON “DATA ANALYTICS IN HEALTHCARE”

Under the Data Analytics and Visualization Club, Data Science Program, Department of Computer Science & Engineering has successfully organized a webinar on “Data Analytics in Healthcare” on 23rd April 2022 in virtual mode.

The main objective of the Webinar was to provide Data collection methods in Mental Health Research, Understanding the Challenges in data banking from the end-user perspective, and Cross-sectional and longitudinal data analysis methods. Dr. Eesha Sharma, Assistant Professor, Dept. of Child and Adolescent Psychiatry, NIMHANS Bengaluru was the resource person of the webinar organized by Dr. Shaila S G, Professor and Chairperson, Data Science Program, Prof. Shivamma D, Assistant Professor, Data Science Program, Dr. Basavaraj N Hiremath, Professor, Prof. Monish L, Assistant Professor, Data Science Program, Dept. of CSE.

The targeted audience was B Tech and M Tech students and Research Scholars of all the programs of the Department of CSE, ECE, and Mech. The course was organized in virtual mode. Around 90+ students attended the webinar. The session was introduced by Dr. Basavaraj N Hiremath and then Prof. Shivamma D introduced the speaker of the session Dr. Eesha Sharma. The speaker addressed the participants and highlighted focus points of acquiring healthcare data and their pre-processing, with significance to maintaining the privacy of the patient data. As the speaker has expertise in the domain of mental health research, she has discussed the results of demographic data and challenges in data banking with the importance of longitudinal and cross-sectional analysis of the data. She has actively guided a few clarifications and queries of the participants. All students were trained on both theoretical and practical knowledge of the data analysis in the healthcare domain and technologies in the Data Science area. At the end of the course an evaluation was carried out and the students performed satisfactorily, feedback was taken from the students and it is found to be satisfactory.

WORKSHOP ON FULL STACK DEVELOPMENT

The Department of Computer Science and Engineering conducted 3 days workshop on “React JS” in association with Full Stack Development Student Club from 7th to 9th May 2022. The workshop was organized for CSE 4th semester students by Prof. Gousia Thahniyath, Prof. Veena M, Dr. Kiran B. Malagi, Prof. Chhaya S. Dule, and Dr. Sindhu P. Menon, Prof. Debasmita Mishra, Prof. Gaurav Kumar. Mr. Rizwan Ahmed Shivalli, Senior software Engineer/React Native Developer, Health Plix Technologies, Private Limited was the resource person. The workshop was organized to enhance the knowledge of students in React JS which is a javascript library for developing interactive user interfaces. The topics covered in the workshop were React overview, Components, Events, and JSX along with hands-on sessions. Students become familiar with React JS. Real-time application development through React JS with hands-on sessions. The session was really interesting and informative, and students enjoyed the Hands-on session.

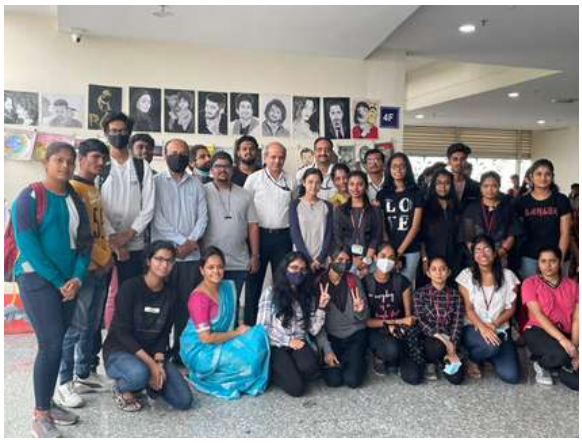
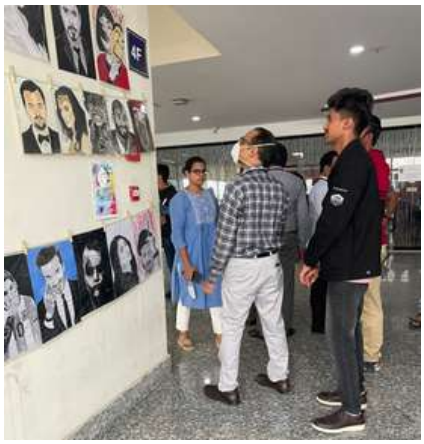
The same club webinar on Graph QL was conducted from 4th June to 6th June 2022. The main objectives of the workshop were Basic GraphQL syntax, and how it maps to similar SQL syntax, How GraphQL mutations save time by combining reads and writes into a single transaction, and How to handle add, update, and delete operations in GraphQL. The resource person of the event was Mr.Vishak Amin, Software Engineer, geekyants, Bangalore.

WEBINAR ON INTELLECTUAL PROPERTY RIGHTS & ITS PROTECTION IN INDIA

Department of Computer Science and Engineering conducted a webinar on “Intellectual Property Rights and its Protection in India” in association with the Government of India, Ministry of Commerce and Industry collaboration with Dayananda Sagar University on 30th June 2022. Coordinators of the webinar were Dr. Pramod Naik, Associate Professor, Prof. Kavya B, Prof. Meghana G, and Prof. Roshni M, Assistant Professor, CSE. The speaker of the event was Ms. Lavanya Madduri, Examiner of Patents and designs NIPAM-Officer, Patent Office, Chennai.

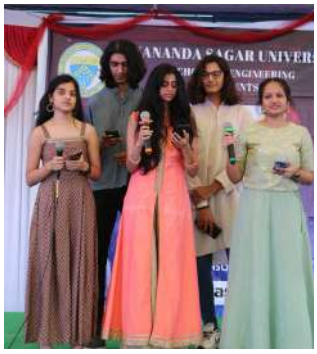
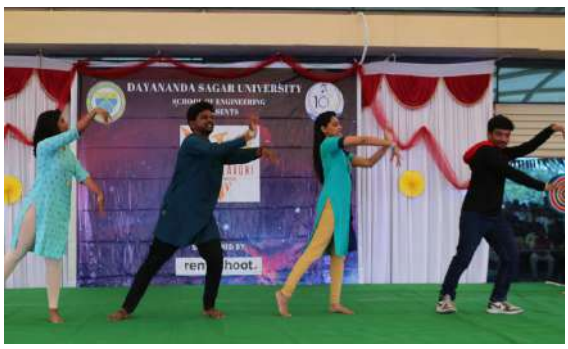
Speaker spoke on “Patents, Copyrights and Trademarks: Procedural and Legal Aspects", started with an introduction to Intellectual Property Laws and spanned across the different disciplines related to IPR, the importance of legislation in the field of science and arts community, how innovation comes with different disciplines with collaboration research, marketing innovations, etc. Speaker explained how to file a patent in India itself with respect to life science, biotechnology, computer science, and physical sciences and also in the context of collaborative research. She briefed on IPR laws in different countries like the USA, Germany, the UK, etc. At last, the speaker discussed different aspects of intellectual properties like industrial design, geographical indication, trade secrets, protection of farmers’ rights, and researchers’ rights. She concluded the talk by explaining the rationale of protection and the nature of IPR.

ART EXHIBITION - FINE ART CLUB


Fine Art club of SOE, DSU organized Art Exhibition as a part of the Liberal Studies course for Computer Science and Engineering 4th semester students on 14th May 2022. The event was coordinated by Prof. Sharvari J N, Assistant Professor, CSE. The participants were enthusiastic and presented their paintings, drawings, portraits, and photography.

KALAAGNI 2022

School of Engineering, DSU organized the annual fest "KALAAGNI-2022" on 28th May 2022. Students from all the departments had participated enthusiastically in the dance, singing, and fashion show.. Department of CSE won the Second Runner Up in the event.

INDUSTRIAL VISIT

Department of Computer Science and Engineering, Cyber security 4th-semester Students visited URSC ISRO, Bangalore on 8th June 2022.

Department of Computer Science and Engineering, 2nd-semester Students visited the CDAC to attend Symposium and Hackathon GO AI for Social GOOD on 11th June 2022.

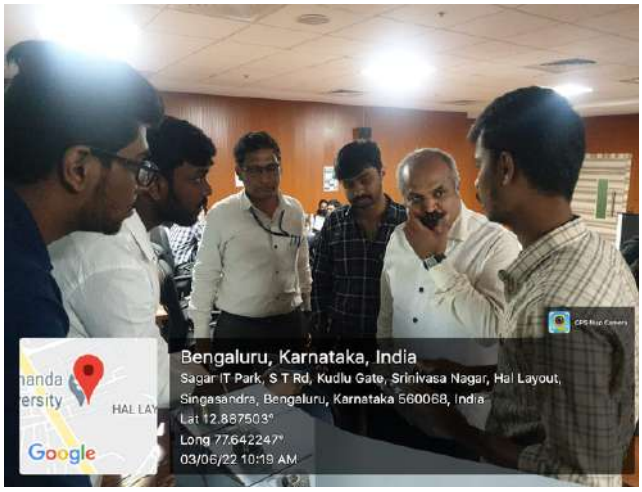
WORKSHOP ON LINUX CUSTOMIZATION AND PORTING

Department of Computer Science & Engineering conducted a Workshop on "Linux Customization and Porting" on 31st May 2022. The main objective of the event was to Develop, Analyse, Review and Contribute to the efficient, secure, and high-quality design, implementation, testing, and operations of a computing system.
Mr. Sukesh Kumar, Senior Manager, Software Development, and Mr. Ashutosh Tripathi, Principal Member of Technical Staff in Oracle India Pvt. Ltd., Bengaluru, were the resource persons for the event, and organizers are Prof. Naveen Kulkarni, Prof. Ambeshwar Kumar., Prof. Monish L, Assistant Professor, Computer Science and Engineering. A total of 35 students participated in the workshop and the students performed satisfactorily, feedback was taken from the students and it is found to be satisfactory.

FDP ON BLOCKCHAIN AND ITS APPLICATION

Department of Computer Science and Engineering conducted 6 days of FDP on Blockchain and its Applications from 30th May to 4th June 2022. The event was organized by Prof. Nandini K, Dr. Pramod Naik, Prof. Shwetha G.S, and Prof. Trupthi Hegde, faculties of CSE. Resource Persons of the FDP explained the different concepts of Blockchain. Dr. Mani, IBM explains the Blockchain for Enterprise. Dr. A. Martin, Assistant Professor, School of Mathematics and Computer Sciences, Central University of Tamil Nadu, Thiruvarur explained Blockchain for Big Data. Prof. Aparajita Ojha, Professor, Computer Science and Engineering, PDPM IIT explained different Blockchain elements. Prof.CVSN Reddy, Associate Professor, DSU, Bangalore gave Introduction to Blockchain Technology. Emmanuel Shubhakar Pilli, Associate Professor, CSE, Malaviya National Institute of Technology, Jaipur, explains the Security and Privacy of Blockchain Technology. Mr. Nihar Ranjan Pradhan, Research Associate with the Department of Computer Science Engineering, National Institute of Technology, Meghalaya gave an introduction to Hyper ledger fabric, Besu, and caliper, benchmarking toll. More than 170 faculties participated in the FDP. The workshop was highly appreciated by the participants

PROJECT EXPO 2022



Department of Computer Science and Engineering conducted Project Exhibition for the 8th-semester students on 3rd June 2022. The main objectives of the project exhibition were to provide a platform for the final year students to showcase their work and get valuable comments from industry experts, to provide a platform for the upcoming final year students to see the different domains in which projects can be taken up, motivate and inspire all the junior batches to take up projects in different domains. The event was organized by Dr. Meenakshi Malhotra, Prof Chhaya, Dr. Bharanidharan, Prof. Gousia, and Prof. Vaidehi. There were two External Jury Members Dr.Y V S Lakshmi, Head C-BUDDHI Group Leader IPR & KMG, Bangalore, and Mr. G N V Raviteja, Senior Associate Product Manager, Affinidi. There were 17 teams that have taken up excellent projects and presented them very well. Jurry members appreciate the hard work and innovation of the teams.

Mr. Anirudha Narayan Shastri, Ms. Ananya Snjeev Sawant, Mr. Allwyn AK, Mr. Elwin Thomas, Ms. Jyothsna T did project title “Dental Assistance Tool” won the first prize, Mr. Ashish Sreenivas, Mr. Burhan Baig, Mr. Amey S Benegal, Ms. Aishwarya, Mr. Ajay Venkatesh did project title “Byte Pay Blockchain” was the first runner up and Mr. Rishab Rk Shandilya, Md Ehsaan shaikh, Mr. Mohsin Omar Ahmed, Mr. Namanpreet Singh, Mr. Tushar Ranjan Jha project title “Finding Missing Person using Face Detection” was the second runner up of the exhibition.

Department of Computer Science and Engineering in association with the National Service scheme conducted a **Yoga session for first-year students** as a part of the NSS activity on 15th June 2022.

WEBINAR ON GENDER JUSTICE & FEMINIST JURISPRUDENCE IN INDIA

Department of Computer Science & Engineering conducted a webinar on "Gender Justice and Feminist Jurisprudence in India" on 22nd June 2022. The event was organized by Dr. Jayita Saha, Dr. Renukadevi M N, and Prof. Veena, Assistant Professor, CSE. Dr. Shahista Inamdar, Principal (I/c) and Assistant Professor Navjeevan Law College Nashik, Maharashtra was the speaker of the event. The main objective of the webinar is to provide the concept of Gender Justice, the Evolution of Feminist Jurisprudence, Constitutional Mandate For Women, various statutory laws, and Judicial pronouncements in the protection of women. Special emphasis on Illustrations and Case laws

Talk also focused on the strong need required today as never before to make Indian women aware of their rights. They have to launch a relentless battle for their emancipation. And it's not their responsibility alone. Workers, youth, and students in particular and the Indian people, in general, have to fight and win this battle. Speaker concluded the talk by explaining the following points "The fight is not for women's status but for human worth. The claim is not to end the inequality of women but to restore universal justice. The bid is not for loaves and fishes for the forsaken gender justice gender but for cosmic harmony which never comes till women come.

VALUE ADDED COURSE on INTRODUCTION TO IoT & ARDUINO PROGRAMMING

Department of Computer Science & Engineering conducted a Value-added course for 1st-year students on "Introduction to IoT and Arduino Programming" on 18th, 19th, 25th, and 26th June, 2022. The main objective of the event was to understand IoT and its applications, the functions of sensors and its components, to familiarize Arduino IDE, programming language, Arduino board, its basic components, and Hands-on sessions to develop smart applications.

The workshop was conducted and delivered by the faculties of the CSE department as a resource person. A total of 60 students participated in the course.

Prof Savita Vijay, Assistant Professor gave the Introduction to IoT, its working, application and

IoT Networking Principles. Prof Shwetha G S, Assistant Professor demonstrates IoT boards, Arduino board pin description, an Introduction to sensors, and different types of sensors. Prof.CVSN Reddy, Associate Professor explains IDE Overview, Web and Network basics, Blynk and Google Assistant, Inbuilt LED Test - Arduni, Node MCU, External LED Blink - A and N, Temp and humidity sensor - A (Agriculture), Heart Pulse sensor - A(Healthcare), Internet-based LED Control - Node MCU(Web), Home Automation. Prof. Vaidehi Verma, Assistant Professor demonstrate some IoT projects. Prof. Kavya B, Prof. Trupti, and Prof. Manjula, Assistant Professor, Assist the students in developing IoT Projects.

At the end of the course, students enthusiastically developed IoT projects and had a good experience.

B.TECH 2022 PASSOUTS

8th Semester 'A' Section

8th Semester 'B' Section

8th Semester 'C' Section

8th Semester 'D' Section

8th Semester 'E' Section

8th Semester 'F' Section

Total of 344 students passed out in the month of June 2022 from the Department of Computer Science and Engineering. 308 students registered for the Training and Placement. 218 students were eligible for Placements. Students got 342 offers with 27 LPA as the highest package and on average 4.78 LPA. Some students of department received the international offer.

M.TECH 2022 PASSOUTS

Total 13 students passed out in the month of June 2022 from the Department of Computer Science and Engineering. All students were registered for the Training and Placement. And all students were eligible for Placements. Students got 10 offers with 10 LPA as the highest package and on average 4 LPA.

Department Activities

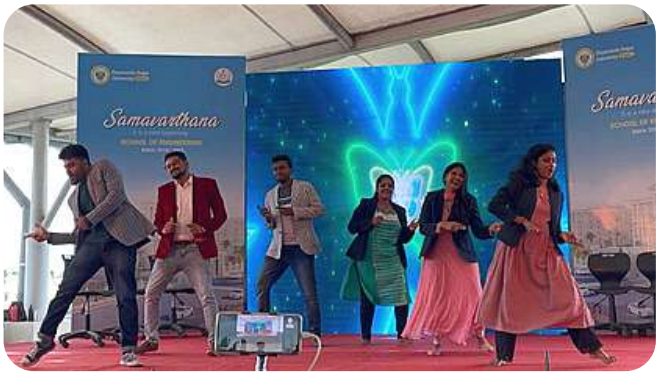
SOE, DSU celebrated "International Women's Day" on 12th March 2022.

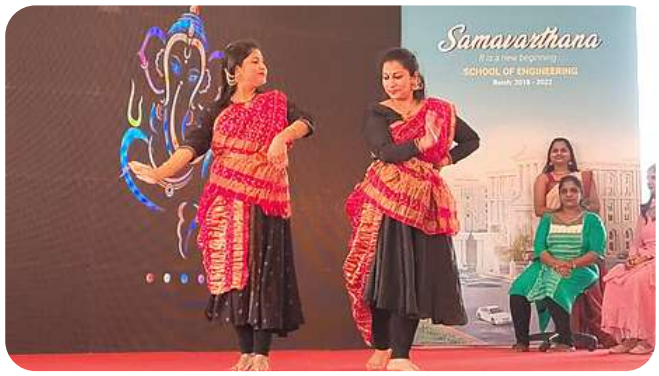
Department of CSE faculties organized "POTLUCK" on 10th June 2022.

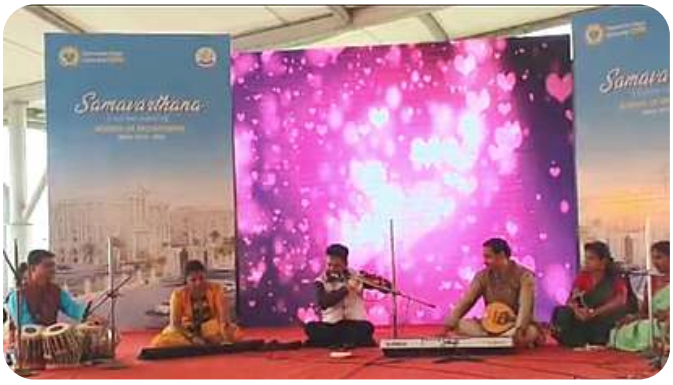
SOE, DSU celebrated "International Yoga Day" on 21st June 2022 with the Circle of Gratitude, care and support each other through small gestures in a community-driven environment

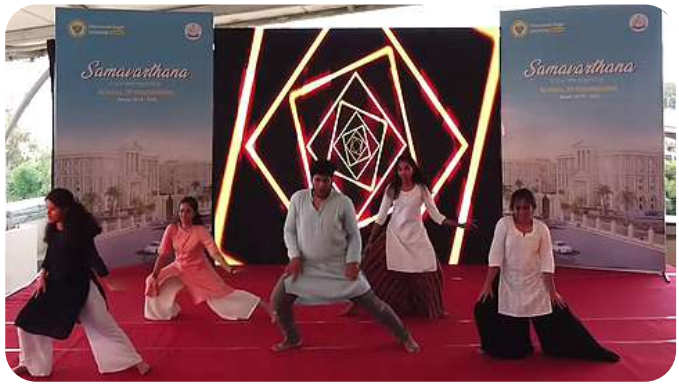
SOE, DSU celebrated "World Music Day" on 21st June 2022. Faculties of all the Departments enthusiastically participated in the event and present their talent in the music.

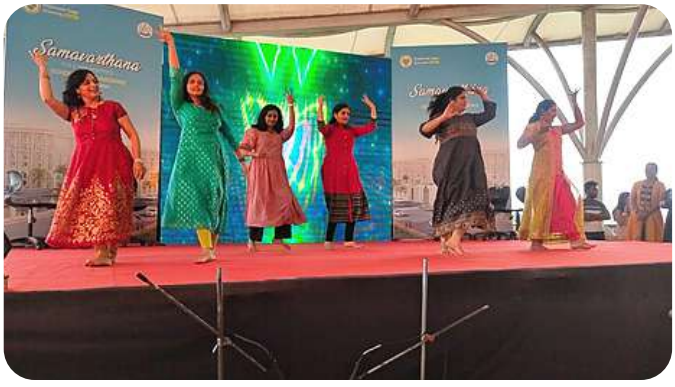
SAMARVARTHANA

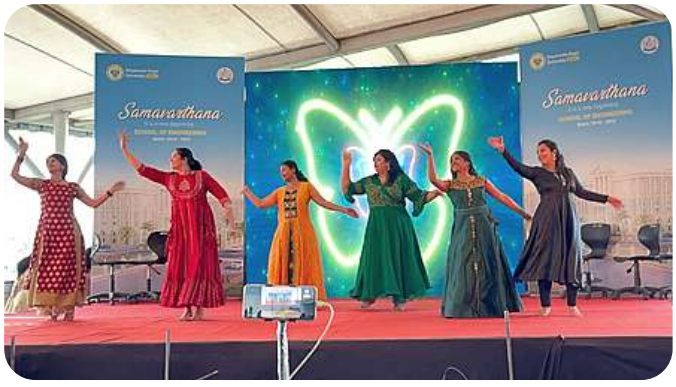












SOE, DSU celebrated farewell "SAMARVARTHANA" for the 2018-2022 batch on 29th June 2022. In the event along with students, faculties gave their performances in the music, skit, and dance.

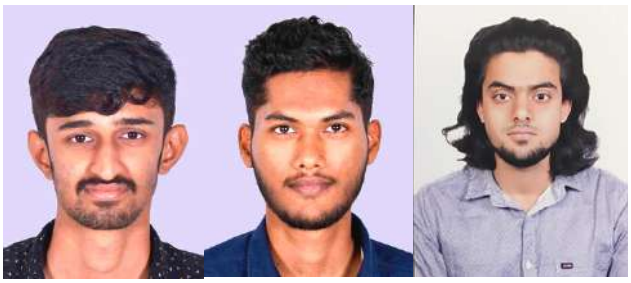
Student Achievements

Ms. Aishwarya Gangyada, 6th Semester CSE gave a talk on "Introduction to RPA from UI Path" on 25th February 2022.

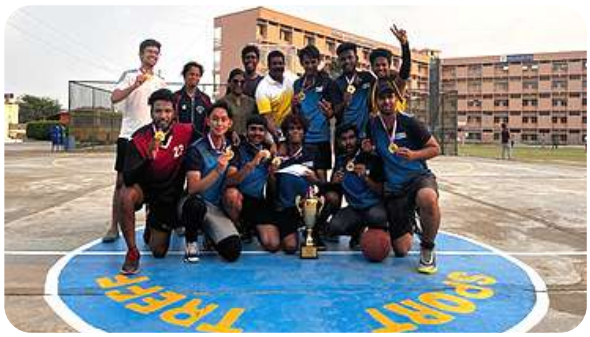
Ms. Shubhashree P, 6th Semester Published the book “The Pheonix Wings”. Inspiring poems about the outlook of living.

Ms. Amrin Bushra Taj and Mr. R D Lohith, 4th Semester secured the first prize in the python Quiz organized by the AI & ML club of CSE on 16th March 2022.

Ms. Yashna Karkera and Mr. Pranav S S of the 4th Semester secured the second prize in the python Quiz organized by the AI & ML club of CSE on 16th March 2022.



Mr. Abhijith JK, CSE 6th semester won the first prize, Mr. Aryan Kumar, CSE 4th semester won the second prize and top Goal Scorer and op Clean Sheet, Mr. Arham Asif Syed, ALML 4th semester won the third prize in FIFA 22 Tournament organized by Data Science program, CSE on 23rd April 2022.



SOE, DSU won the basketball tournament conducted on the 30th April 2022. Under the captaincy of Elton Derick, CSE 4th semester along with team members Mohammed Tanveer, Shaan Meraj Khan, CSE 4th sem, Tejas Darcey, ASE 6th sem, Nandeesh. K, Tenzin, Vishal, Bharath Sharma, CSE 2nd sem, Chiraag Aswal, CSE 2nd sem, Raj Kumar, AIML 4th sem, Manish, ME 2nd sem won the tournament.

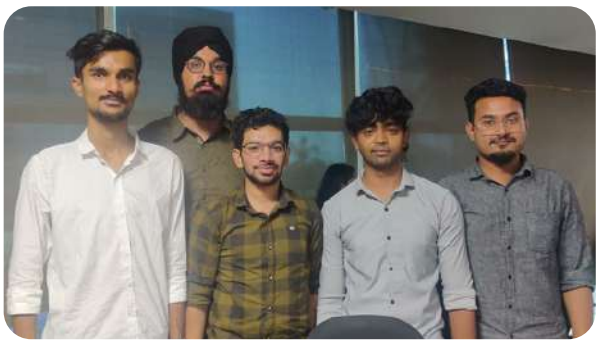
Student Achievements

Mr. Prasanna MSM, Research Scholar completed his Ph.D. defense Under the supervision of Dr. Shaila S. G Professor and Chairperson, Data Science Program, CSE on "Sentiment Analysis and Polarity Classification of Sarcastic and Non-Sarcastic Sentences Using Phrase and Clause Patterns" on 14th May 2022.

Department of CSE won Second Runner-Up in the annual fest of DSU "Kalaagni-2022" on 28th May 2022.

Mr. Anirudha Narayan Shastri, Ms. Ananya Snjeev Sawant, Mr. Allwyn AK, Mr. Elwin Thomas, Ms. Jyothsna T, 8th semester did project title “Dental Assistance Tool” won the first prize in the Project Exhibition held on the 3rd June 2022.

Mr. Ashish Sreenivas, Mr. Burhan Baig, Mr. Amey S Benegal, Ms. Aishwarya, Mr. Ajay Venkatesh, 8th semester did project title “Byte Pay Blockchain” was the first runner up in the Project Exhibition held on the 3rd June 2022.



Mr. Rishab Rk Shandilya, Md Ehsaan shaikh, Mr. Mohsin Omar Ahmed, Mr. Namanpreet Singh, and Mr. Tushar Ranjan Jha, 8th-semester project title “Finding Missing Person using Face Detection” was the second runner up in the Project Exhibition held on the 3rd June 2022.

Mr. Harshavardhan Gupta, 4th semester, CSE (AIML) won the first prize in the IT Startup Ideas competition at the technical fest and the aviation theme fashion walk organized by St. Francis College, Koramangala on 23rd- 25th June 2022. He was guided by Prof. Arjun, CSE.

Faculty Achievements

Dr. Jayavrinda Vrindavanam, Professor and Chairperson, AI & ML Program of CSE, was the resource person for the AICTE-ISTE Sponsored FDP on “Recent Trends in AI” on 14th January 2022, conducted by MANA College of Engineering and Technology, Devrukh, Maharashtra.

Prof. Chhaya S Dule, Assistant Professor in the Department of Computer Science and Engineering authored a book on “Embedded and real-time systems “ which is published by a scientific international publishing house with ISBN is 9789394002333, February 2022.

Prof. Shivamma D, Assistant Professor, CSE (Data Science) delivered a lecture on "Data Analysis Using R in Health Care" as the resource person in the Induction Program organized by the Dayananda Sagar College of Arts, Science and Commerce, Department of Computer Applications on 17th February 2022.

Dr. Shaila G S, Professor, and Chairperson, Data Science Program of CSE was the resource person for 7 days of National Level FDP on "Big Data Analytics and Machine Learning" conducted by the Department of Information Science and Engineering, East Point College of Engineering, Bangalore from 26th March to 1st April 2022.

Dr. Pramod Kumar Naik, Associate Professor, CSE was the resource person on 26th February 2022 for 3 days workshop on "Demonstration of IOT for Aerospace Application" at the Department of Aeronautical Engineering, Aacharya Institute of Technology, Bangalore. Also, resource person for 5days FDP on Application of Machine Learning Algorithm in Aerospace Engineering from 9th May to 13th May 2022 at Department of Aerospace Engineering, R V College of Engineering, Bangalore.

Faculty Achievements

Dr. Sindhu P Menon, Professor, CSE published her patent title "A Hybrid Ensemble Learning Approach to Star-Galaxy Classification" on 11th March 2022.

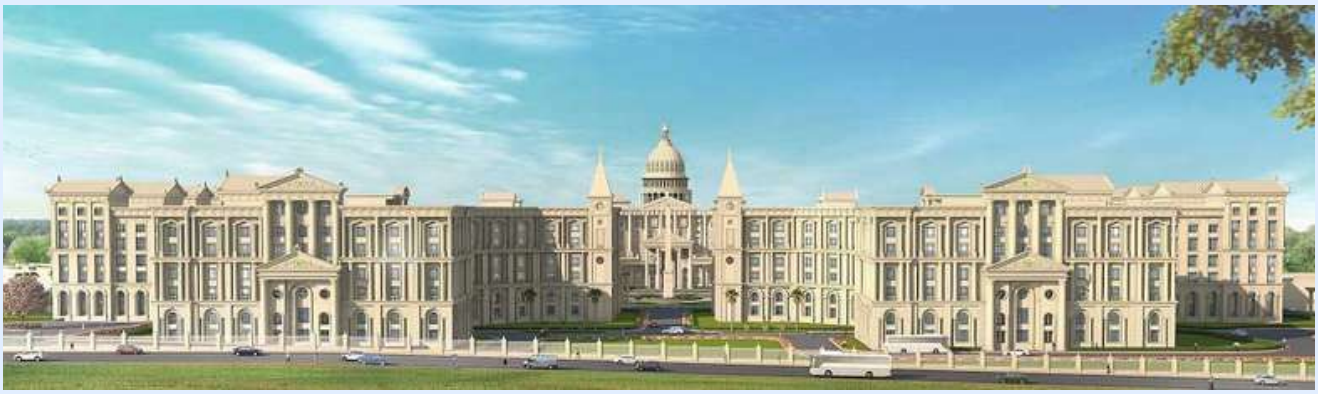
Prof. Nazmin Begum, Assistant Professor, CSE along with coauthor published the paper "A novel approach for multimodal facial expression recognition using deep learning techniques", Multimedia Tools and Applications", Springer, March 2022.

Dr. Arun Kumar Khannur, Associate Professor, CSE delivered a lecture on "Pedagogy" as a resource person under Karnataka State Higher Education Academy (KSHEA) at Dharwad on 26th May 2022.

Dr. Jayita Saha, Assistant Professor, CSE along with co-authors published “A Survey of Machine Learning and Meta-heuristics Approaches for Sensor-based Human Activity Recognition Systems”, Journal of Ambient Intelligence and Humanized Computing, Springer 2022, Indexed in SCI with Impact factor 7.1 and Q1 journal on May 2022.

Dr. Rajesh T. M., Associate Professor, CSE was the session chair during the 10th International Conference on "Recent Trends in Computing (ICRTC 2022)" organized by the Department. of Computer Science and Engineering held at SRM Institute of Science and Technology, Delhi - NCR campus, Ghaziabad. 3rd - 4th June 2022.

Dr. Basavaraj N Hiremath, Professor CSE assigned Committee and Project mentorship by the Hackathon committee of IEEE-C-DAC. He mentored the team for the idea of "Sign Pose detection by ML and NLP" and won the First Prize on 11th & 12th June 2022 at C-DAC Electronic city. Bengaluru.



EDITORIAL COMMITTEE

•Faculty Coordinators•

Prof. Ankita Singhai
Assistant Professor

Prof. Shivamma D
Assistant Professor

• Student Coordinators •

Ms. Shubhashree P
6th Semester

Ms. Shambhavi Chavan
6th Semester

Mr. Elton Derick
4th Semester

Mr. J Gyanasai Dixith
4th Semester

Ms. Shermeen Ulfat
4th Semester

Mr. R D Lohith
4th Semester

Mr. Kishore Kumar K
4th Semester

Mr. Harsh Manalel
1st Semester

Department of Computer Science and Engineering
Dayananda Sagar University
Innovation Campus
School of Engineering
Kudlu Gate, Hosur Road, Bengaluru - 560 068

PROGRAM OUTCOMES (PO'S)

PO1 - Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2 - Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3 - 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.

PO4 - 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.

PO5 - 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.

PO6 - 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.

PO7 - 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.

PO8 - Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9 - Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10 - 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.

PO11 - 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.

PO12 - 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.

PROGRAM EDUCATIONAL OBJECTIVES (PEO'S)

PEO1 - Engage in the design, development, testing/verification and validation, and operation of computational systems in the field of Information Technology and related areas, or in multidisciplinary teams in any field where computing can be applied.

PEO2 - Solve problems of social relevance applying the knowledge of Computer Science Engineering and/or pursue higher education and research.

PEO3 - Work effectively as professional and as team members in computing in multidisciplinary projects, and demonstrating initiative, persistence in problem solving, and excellent technical communication skills.

PEO4 - Engage in lifelong, self-directed learning and career enhancement, anticipate changing professional and societal needs, and adapt rapidly to these changing needs.

PROGRAM SPECIFIC OUTCOMES (PSO'S)

PSO1 - Develop, Analyse, Review and Contribute to efficient, secure and high quality design, implementation, testing and operations of computing system

PSO2 - Find and articulate digital and intelligent solution that can fully or partially automate various aspects of human activity.

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