SCHOOL OF ENGINEERING

DAYANANDA SAGAR UNIVERSITY

Devarakaggalahalli, Harohalli
Kanakapura Road, Ramanagara - 562112, Karnataka, India

COMPUTER SCIENCE AND ENGINEERING

6.2.1 Strategic Plan 2023-2024

Department New letter:https://dsu.edu.in/engineering/computer-science/newsletter-cse

2023-24:Volume 4 Issue 1 : CseJuly24.pdf

2023-24:Volume 3 Issue 4:(April-June 2024)CSE EDUINSIDE.pdf

2023-24:Volume 3 Issue 3:https://dsu.edu.in/images/Engineering/CSE-dept/Newsletter/JanMarch24.pdf

2023-24:Volume 3 Issue 2:CSOctDec23.pdf

S.No	Focused Area	Goal	Strategy	Implemented Status
1	**Programs Offered**	➔ To be in the forefront of global technological advancements and to meet the current and future industry requirements, diverse courses.	The department continuously offers diverse range of courses.	• B.Tech (Computer Science & Engineering) • M.Tech (Computer Science & Engineering) • Ph.D in Computer Science & Engineering • B.Voc-Computer Engineering and IT Infrastructure • B.Voc–Data Analytics

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S.no	Focused Area	Goal	Strategy	Implemented Status
2	**Academic Excellence** ❖ Outcome Based Curriculum	➔ Outcome Based Curriculum focusing on Continuous improvement and Innovation by Benchmarking against the Global Best Practices.	• Incorporation of new courses matching IIT standards and industry demands in -line with the guidelines of UGC, AICTE and University • Enrich the Curriculum with Increased Diversity and Academic Flexibility through Timely Syllabus Revisions.	**Curriculum Features adopted** • Continue focus on NEP-2020 features • **Incorporation of new Liberal Arts courses(2 new course added) with a total of 15.** • The curriculum have the scope for Integrated laboratory, mini projects, projects, internships, special topics, reflection notes, research paper critique, **Skill Enhancement**

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				1.Skill Enhancement (3rd Sem):Programming in Java 2. Skill Enhancement (4th Sem):IOT Automation 3.Skill Enhancement(5th Sem):Spring Boot,PowerBI & Rapid Miner,Django **Addition of new Liberal Study courses** 1.New Courses added -3D Modelling using Tinkercad, Introduction to German Language **Addition of New Core subjects** 1.Introduction to Artificial Intelligence(4TH Sem) , credit 3 2.Computer Networks(5TH Sem),credit-3 3.Innovation and Cloud Computing(6th Sem),credit- **Internship**

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				1.Mandatory 4 weeks internship (6th sem) **Change in the Credit of Courses VII sem** 1.Data Visualisation(credit- 4)(VII sem) 2.Project Phase(credit- 4)(VII sem) Overall two credits increased in the syllabus 17 in VII sem 3.Internship credit to 4 in VIII sem. **Professional Elective Courses(PEC)** 1.PEC1:Cyber security(domain 3),introduction to Data Mining(domain 4) 2.PEC3:5G Mobile Network (domain 3),Devops(domain 5) 3.PEC4: Cloud IOT and Security (domain 3)

				4.PEC5: Block chain and Distributed Ledger **Open Elective1 (OE1)** 1.Economics for engineers **Value added course** 1.Value added course on Digital marketing (4th July to 9th July ,2024)

S.No	Focused Area	Goal	Strategy	Implemented Status
3	**Human Resources Development – Faculty** ❖ Faculty Retention ❖ Strengthening Faculty ❖ Faculty Student -Ratio	➔ Faculty retention	• To maintain good Faculty retention in the department. o Due recognition and reward for every year based on the performance o Ensuring that faculty have the	• **Department Faculty - (2023-24)** **Professors: 11** **Associate Professors: 11** **Assistant Professors: 34**

	❖ Faculty Induction and Pedagogical program	➔ Strengthening Faculty	tools to improve their teaching skills or engage in research that could broaden their knowledge base shows that the department is invested in their long-term success which in turn encourages faculty to be invested in a long-term career in the department. ○ Retain eminent professors after retirement as Emeritus Professors Appointment of experts from industry other organizations as Adjunct faculty. • Encouraging Faculties for Acting as resource person- expert lecture, Chief Guest, chairperson, BOS member, etc • Encouraging participation in events organized by recognized government bodies Participation in conferences/	• **90% of the faculty attended various FDPs to upgrade their domain knowledge.** • **FDP for faculties were organized - AWS Cloud Essentials, IOT Automation, AR & VR** • **In pursuance of strengthening the faculty the department has recruited a greater number of Ph.Ds.** At the end of the AY 2024 more than 30% of faculty are with PhD qualification.

			workshops/ seminars. • Faculty exchange Program – National, International levels, Organizing FDPs/ Seminars/Conferences-Sponsored/self-supporting and professional society activities. • To ensure academic and research ambience on the campus with 50% of the faculty with Ph. D qualification. • To motivate the faculty towards self-learning and continual education faculty are to be advised to undergo at least one certification program per semester. • To encourage faculty to publish their research work in peer reviews journals and conferences, and to give incentives for quality.	Key Highlights: Dr. Bipin Kumar Rai, Professor, Dept of CSE extended their service as a reviewer for the 10th International Conference on Electronics, Computing and Communication technologies, IEEE CONNECT organized by IEEE Bangalore Section at IISc, Bangalore from 12th July to 14th July 2024. Dr. Shashikiran, Associate Professor, Department of CSE has published paper in ACM Computing Surveys with the title "Survey on Redundancy Based-Fault tolerance methods for Processors and Hardware accelerators - Trends in Quantum Computing, Heterogeneous Systems and Reliability" on June 28th 2024 in the Q1 Journal with an impact factor of 16.6. **CSE teams showcase their healthcare projects at Majumdar Shaw Foundation**  Faculty, students, and researchers from the Computer Science and Engineering department participated in the Global Bio-India 2023 event on November 25 at the Majumdar Shaw Medical Foundation.

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				Dr. George Fernandez I, Associate professor, Dept of CSE extended their service as a reviewer for the 10th International Conference on Electronics, Computing and Communication technologies, IEEE CONNECT organized by IEEE Bangalore Section at IISc, Bangalore from 12th July to 14th July 2024. **Dr George Fernandez I, Associate professor, Department of CSE, extended his service as REVIEWER for 2nd IEEE International Conference on Networks, Multimedia and Information Technology (NMITCON) is organized at Nitte Meenakshi Institute of Technology, Bengaluru INDIA on 9th and 10th August 2024 in association with IEEE Bangalore Section.** • As part of continual education, 75% faculties are certified with SWAYAM, NPTEL certifications

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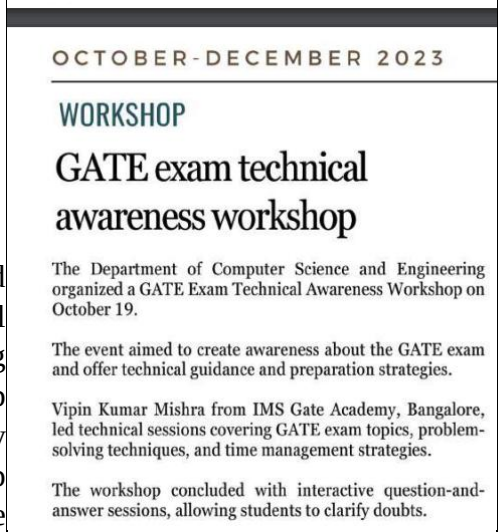
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		➔ Faculty Induction and Pedagogical program. ➔ Faculty student ratio	• Recruiting faculty members to meet the ratio	**Year** / 2023-24: **Journals** 41; **Patents** 7; **Books/ Book Chapter** 18; **Conferences** 48

S.no	Focused Area	Goal	Strategy	Implemented Status
4.	**Human Resources Development – Student** ● To Promote Technology-Assisted Self-Learning ● Student-centered learning ● Exposure to Cutting-Edge Research/Industry Relevant Skills/Real-World Application ● Participative/Experiential/Project Based Learning/Activity Based	➔ To Promote Technology-Assisted Self-Learning	● Continue Promoting technology-assisted self-learning can be enhanced through various strategies, including the incorporation of MOOC (Massive Open Online Course) platforms and	● Preparation of course plan module-wise and resources be uploaded onto LMS (Learning Management system) ○ 500+ students completed MOOC courses ○ 200+ students participated in various Hackathons

	Learning ● Entrepreneurship development/Promoting Startup	➔ tudent-centered learning	● Continue focus on Catering to Students Diversity	● **Focus on Catering to Student's Diversity** ● **<u>Slow Learners</u>** ○ Faculty mentors ○ Remedial classes ○ Assignments ○ Improvement tests ● **<u>Advanced Learners</u>** ○ Encouragement for: ○ Academic competitions ○ Research projects ○ Conferences ● **<u>For all Students</u>** ○ Internship in industry ○ Summer research

		➔ Exposure to Cutting-Edge Research/Industry Relevant Skills/Real-World Application ➔ Participative/Experiential/Project Based Learning/Activity Based Learning	● Courses Offered by Industry/R&D Organization ● Enhance the impact and sustainability of departmental student clubs by fostering innovation, cross-club collaboration, industry partnerships, and leadership development to provide valuable learning experiences and professional growth opportunities for students.	internships  ● **Courses Offered by Industry/R&D Organization** ○ IoT, 5G-Nokia ○ Certification Courses – Altair ○ Information theory &

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			• Professional Societies & Activities	coding -IISc ○ Game Theory-IISc ○ Mathematics for ML-IISc • **Alumni Engagement** Conduction of Alumni Talk Series by Distinguished Alumni. screenshot from news letter -DSU  OCTOBER-DECEMBER 2023 VOLUME 0 **CSE Alumni talk on Impact of Generative AI on Marketing held** The Department of Computer Science and Engineering (CSE) conducted its Alumni Talk series on "Generative AI: Building Tomorrow's World with AGI" on November 25. Fifty three CSE students have registered and participated in this event.

			• Encourage students to participate in external coding competitions like Hackathons, Tech Talks. Entrepreneurship development/Promoting Startup • Students to be encouraged to participate in programmes and events conducted by Gove. Agencies, Innovative Projects from industries.	• **Clubs** ○ Data Analytics and Visualization Club-Active from-2015 ○ Viva Club-Active from 2016 ○ CyberSecurity Club-Active from 2016 ○ Full Stack Development Club-Active from 2020 ○ Gank Anveshana Club-Active from 2021 ○ Professional Activities-CSI-Active from 2016 ○ Professional Activities-ACM-Active from 2022 **Students Chapter of the Department** ○ Computer Society of India ○ IEEE Cybersecurity STC

				○ **Association for Computing Machinery-Inaugurated in 2023** CSI:Workshops Conducted-09, FDP:1 ACM Seminar-1, Competition – 1, Hackathon - 1 IEEE-Cyber Security STC-01 Workshop ● **Awards / Medals** The department has successfully implemented various academic, co-curricular, and extra-curricular initiatives aimed at fostering student excellence. **Recognition and Awards:** A significant number of students have received awards, medals, and other recognitions in regional, national, and international competitions.

				This includes achievements in ● **National /State /Inter School Hackathons,Quiz,CodeRank , Hackerrank** ● **State Level KSCT** ● **qualification in ML summer school conducted by Amazon ML Summer School,** ● **Participation in conferences** ● **publication in journals,** ● **State and National level cultural programs,** ● **Online Courses like:Coursera,Nptel,Udemy, MATLAB Onramp** ● **Participation in events conducted by IEEE Student branch** ● **Newsletter Highlights:** In our latest newsletter, we proudly highlighted the accomplishments of students who earned top honors. These accolades reflect the growing impact of the department's

				commitment to student development. ● **Impact on Reputation:** These achievements have significantly raised the department's profile and reputation both within and outside the institution. **Key Highlights of the achievements.**

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CSE students win prize at REVA HACK 2023

The Department of Computer Science Engineering (CSE) students participated in the REVA HACK 2023 a 36 hour hackathon held in Reva University from November 2 to November 4.

The fifth semester students Chirag Aswal , Adithya Pandey and Bhagyalakshmi R A concluded advanced waste management system and won the prize for Best Implementation of MongoDB.

The event was coordinated by Dr. Pramod Naik, Assoc. Prof., (CSE).

CSE students win at AICTE Smart India Hackathon and Apponix

Subha Prakash and Harsha Tiwari seventh semester students of CSR, and members of ICARUS won the first prize with prize money ₹100,000 at AICTE smart India Hackathon 2023.

Chandru R. a final year student of CSE was one of the 100 winners at the National level quiz competition organized by Apponix Academy.

OCTOBER-DECEMBER 2023

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				 CSE students register sterling performance at different events Rudra Narayan Chetty, Vinuraj Vamshi, and R. D. Lohith were selected as local award winners for "Best Use of Technology" for the NASA Space Apps Challenge 2023 in the International Hackathon organised by NASA under the guidance of Prof. Shivamma D on October 7 and 8, 2023. Anuj Dwivedi, 5th sem CSE-AIML, Chethan K Murthy, 3rd sem, Arjun Pulivarthi, 3rd sem, and Ananya R Shet, 3rd semester won. Arjun Pulivarthi, 3rd sem, and Ananya Shet of 3rd sem, won first place at a hackathon organized by IEEE, KLS Gogte College of Engineering, Belgaum. Challa Priyanka, Punith Pechetti, and Raghav were first runner-ups at the International Level Cryptic 2.0, an IEEE Machine Learning Hackathon at the Atria Institute of Technology. Anuj Dwivedi, Neha Amin, and Sharda Singh, secured a first place win at the NITTE Smart Hackathon. Rithvik, Neha Amin, Arjun and Jeydeep, won third place at the Smart Agro hackathon, REVA University. 8 OCTOBER-DECEMBER 2023 o Final Year Project Team bagged best project of the year in KSCST – 46th Series o Chandru R was one of the top 100 winners in "National Level Quiz Competition" organized by Apponix Academy. o Eeshaan and Team – Secured First place worth 40,000/- in CTF event hosted by IIT Kanpur '23 o Adarsh won 1st prize of 2000/- in Lok Sabha Committee in COPE Edition 1 of the MUNSOC ,2023-24 o Sannna Kittur and team bagged 2nd place of Rs. 20000/- @

				project Expo in MVJ College of Engineering ,2023-24 ○ 10 final year B.Tech projects from KSCST SPP scheme 2023-24 received funding of 37,500/ ○ Eeshaan won 2nd pize worth 1.5K in Decipher event held at DSCE – July 2024

	Focused Area	Goal	Strategy	Implemented Status
5.	**Teaching Pedagogy**	➔ To Improve the Quality of Teaching-Learning	● Unique Pedagogy and Assessment	● **Teaching Pedagogy** ○ Project Based Teaching and learning ○ Bridge courses ○ Research Based Teaching (Publications, Patents as outcomes) ○ Training on current Trending Tools ○ Teaching using recorded videos

				of high profiled experts ○ Learning by experiential design ○ Incorporated google classroom teaching as LMS ○ Usage of Virtual Labs, Simulators etc. ● **Assessment** ○ Open Book Test ○ Problem Solving Assignment ○ Reflections Notes ○ Research paper Reading and Seminar ○ Reflection Notes on Industry Visits/Workshop/Webinar ○ Computer Based QUIZ ○ Seminars **Key Highlight:**

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				BRIDGE COURSE ON C BASICS FOR DATA STRUCTURES 

S.No	Focused Area	Goal	Strategy	Implemented Status

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6.	Research ❖ Contribute to new and Vital Research Areas ❖ Sponsored Research Programme Organized ❖ R&D Grants ❖ Publication ❖ Total Google Scholar Citations	➔ Contribute to new and Vital Research Areas	• Promote Research Thrust Areas • Special Research Laboratories	• Networks & IOT • Machine intelligence ○ (AI&ML, Computer Vision, ○ Digital Image Processing) • Big Data Analytics, • Data Science • Cloud Computing • Cyber Security **Degrees Awarded @ Department Research Centre = 03** **(Chinnu Mary George, Vennam Preethi, Dias Norman Ignatius)** • Established Special Research lab • NVIDIA-BOSTON - High Performance Computing Lab • Satellite Image processing lab jointly working with NIAS-ISRO • Joint Research on Agriculture domain with University of Agricultural Sciences (UAS) GKVK • CDSIMER Medical research

		➔ Sponsored Research Programme Organized	• supports for organization of high-level conferences/workshops /seminars • Providing seed money for faculties for research • Develop strategies to secure external research funding through grants, industry partnerships, government agencies, and other sources. • Every faculty member with Ph.D. qualification shall apply for a minimum of one funded research project per year	Collaboration • Faculties have Proposed Seed money for research projects.

		➔ R&D Grants ➔ Publication ● (Journals and Books)	• Publication of research work in Science Citation Index (SCI)/Scopus Journal • Faculty member with Ph.D. qualification should publish minimum one SCI paper per year and Faculty with master's degree qualification should publish one Scopus paper per year • Faculty members should utilize either Urkund/ Turnitin-Authenticate plagiarism software's	

		➔ Total Google Scholar Citations	before submitting the research papers/project proposals and its similarity index should be less than 15% • Quality publications will enhance citation index. Incentives can be provided for publications with high citation.	

S.No	Focused Area	Goal	Strategy	Implemented Status
7.	Industry - Institute relationships	➔ Strengthening Placement cell	• Developing partnerships with industries through placement programs and Memorandums of Understanding (MOUs)	• NeoPAT training and assessment tool to improve placement • Finacle Certification program - EdgeVerve subsidiary of Infosys • Online Learning & Certifications through Altair University • MuleSoft Training for unplaced students **Placement Statistics 2023-2024**

				Eligible Students – 266 **Placed – 216** **Highest Package – 27.5L** **MoU's Collaborations** • Memorandum of Understanding (MoU) has been signed between INFOSYS SpringBoard and Dayanand Sagar University • One more to be added

S.No	Focused Area	Goal	Strategy	Implemented Status
8.	**Institutional-l Values**	➔ By incorporating the institutional values and initiatives into our department's strategic	• Incorporating institutional values that reflects departments commitment to social	○ Celebrates International Women's Day ○ Setup a Women Redressal Cell addresses issues of women on the campus

		plan, we create a culture of responsibility, inclusivity, and sustainability, fostering a positive and ethical learning environment for students and staff alike.	responsibility and sustainability. • Women Redressal Cell • Waste Management • E-waste management • Green Campus Initiatives • Quality Audits on Environment and Energy • Disabled-friendly, Barrierfree Environment • Initiatives in Providing an Inclusive Environment • Initiatives in Providing an Inclusive Environment • Awareness of Duties and Responsibilities of citizens	○ Established Committees to safeguard women ○ Personal Counseling Cell ○ Student Grievances Redressal ○ Anti Ragging Committee ○ Anti Sexual Harassment ○ Energy Conservation Measures ○ Solar energy ○ Biogas plant ○ Wheeling to the Grid ○ Sensor-based energy conservation ○ Use of LED bulbs/ power efficient equipment ○ **Waste Management** ○ Solid waste management: deploys different types of bins for collecting different types of wastes ○ Liquid waste management: a sewage treatment plant established on the campus ○ Biomedical waste management: uses incinerators - easy to operate and efficient ○ **E-waste management:**

			• Incorporating Code of Conduct Practices • Recognition of National and International Commemorative days • Outreach Activities	**disposed of by an authorized vendor** ○ Waste recycling system: makes sure that no water is wasted ○ Hazardous chemicals and radioactive waste management: handled by a third party through a legal agreement. ○ Water Conservation Facilities ○ Rainwater harvesting ○ Borewell /Open well recharge ○ Construction of tanks and bunds ○ Waste water recycling ○ Maintenance of water bodies and distribution system. ○ **Green Campus Initiatives** ○ Restricted entry of automobiles ○ Use of Bicycles/ Battery powered vehicles ○ Pedestrian Friendly pathways ○ Ban on use of Plastic ○ Landscaping with trees and plants ○ **Quality Audits on Environment and Energy** ○ Green audit ○ Energy audit

				○ Environment audit ○ Clean and green campus recognitions/awards ○ Beyond the campus environmental promotion activities ○ **Disabled-friendly, Barrier Free Environment** ○ Built environment with ramps/lifts for easy access to classrooms ○ Divyangjan-friendly washrooms ○ Signage including tactile path, lights, display boards and signposts ○ Assistive technology and facilities for Divyangjan accessible website, screen-reading software, mechanized equipment ○ Provision for enquiry and information: Human assistance, reader, scribe, soft copies of reading material, screen reading ○ **Initiatives in Providing an Inclusive Environment** ○ Weeklong induction boot-camp for the fresher students

				○ Admissions open to students from all over India – based on DSAT DSU entrance test, KCET from KEA, Uni-GAUGE, NEET, and so on ○ Regular common courses: ○ Constitution of India and Professional Ethics, ○ Law for Engineers, Indian Culture and Heritage, ○ Political Communication, ○ Media – Gender and Human Rights, ○ Employee Relations and Labour Laws ○ Cultural clubs - literary club, abhinaya club, fine arts club, and music club, foster the multicultural diversity ○ **Initiatives in Providing an Inclusive Environment** ○ Societal outreach activities - awareness program on AIDS, Unnat Bharath Abhiyan, Swachh Bharat Abhiyan and NSS activities ○ DSU celebrates the national commemorative days ○ **Duties and Responsibilities of citizens**

				○ To shape the students as responsible and discipline-driven citizens curricula mandate the courses: ○ Constitution of India and Professional Ethics ○ Law for Engineers ○ Economics for Engineers ○ Cyber Laws, policies ○ The national days, Republic Day and Independence Day, are celebrated with great pride ○ Organizes invited talks, debates, competitions, workshops, seminars, webinars, and guest Lectures to promote the values, duties, and constitutional obligations ○ Societal outreach activities - Voter awareness camps in rural areas, campaigning for environment protection and awareness camps, planting of tree saplings, street plays admonishing women empowerment, girl child education, dowry systems, blood donation camps ○ Active participation in the programs - Unnat Bharath Abhiyan, Swachh Bharat Abhiyan, Fit India

				movement to reinforce their responsibilities and constitutional obligations o **Code of Conduct** o The Code of Conduct is displayed on the website o There is a committee to monitor adherence to the Code of Conduct o Institution organizes professional ethics programmes for students, teachers, administrators and other staff o Annual awareness programmes on Code of Conduct are organized o **Outreach Activities:** o NSS Activity Village Visit – July 2023 o Suraksha Bandhan is celebrated by DSU – In association wirh Karnataka No for Tobacco - 2024 o Computer Education Awareness for Government School Children – August 2024

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