July, 2023

# ENQUEUE

## DEPARTMENT OF CSE
## RV College of Engineering

Issue 02 Volume 8

### MESSAGE FROM THE HEAD OF THE DEPARTMENT

I am thrilled to present this edition of our departmental newsletter, showcasing the remarkable achievements and efforts of our students and faculty during the ongoing pandemic's hybrid academic mode. Despite the challenges, our dedicated faculty and students have excelled not only in meeting academic responsibilities but also in various other areas beyond the academic realm. Although compiling data for the newsletter every six months requires substantial effort, the positive responses from our colleagues, alumni, and students make it a worthwhile endeavor. This edition reflects the increased efforts of our faculty and students in adapting to the hybrid work mode, overcoming barriers to online engagement, and achieving significant milestones. As we take stock of our progress towards excellence in diverse domains of Computer Science and Engineering in the online mode, we remain committed to research, consultancy, education, and community service. Our continuous collaboration with industry leaders further enhances our research and development capabilities, solidifying our position in the academic landscape.

### VISION

- To achieve leadership in the field of Computer Science & Engineering by strengthening fundamentals and facilitating interdisciplinary sustainable research to meet the ever growing needs of the society.

### MISSION

- To evolve continually as a centre of excellence in quality education in computers and allied fields.
- To develop state-of-the-art infrastructure and create environment capable for interdisciplinary research and skill enhancement.
- To collaborate with industries and institutions at national and international levels to enhance research in emerging areas.
- To develop professionals having social concern to become leaders in top-notch industries and/or become entrepreneurs with good ethics.

### Program Educational Objectives (PEOs)

- **PEO1:** Develop Graduates capable of applying the principles of mathematics, science, core engineering and Computer Science to solve real-world problems in interdisciplinary domains.

- **PEO2:** To develop the ability among graduates to analyse and understand current pedagogical techniques, industry accepted computing practices and state-of-art technology.
- **PEO3:** To develop graduates who will exhibit cultural awareness, teamwork with professional ethics, effective communication skills and appropriately apply knowledge of societal impacts of computing technology.
- **PEO4:**To prepare graduates with a capability to successfully get employed in the right role / become entrepreneurs to achieve higher career goals or take-up higher education in pursuit of lifelong learning.

## Training Programs Conducted by the faculty

### 1. Networking Fundamentals for BEL (Bharath Electronics) Employees

The faculty conducted a training program on Complete Networking Fundamentals. The training was held from September 20th to 22nd, 2023. The intensive 3-day training program, hosted at CLD, BEL Jalahalli Post, Bengaluru, brought together the expertise of distinguished faculty members from the Department of Computer Science and Engineering, RVCE for BEL. The program was diligently orchestrated by:

1. Dr. Ramakanth Kumar P (HOD. Dept. of CSE),
2. Dr. Nagaraja G S (Professor, Dept. of CSE),
3. Dr. Minal Moharir (Professor, Dept. of CSE),
4. Dr. Deepamala (Associate Professor, Dept. of CSE),
5. Dr. Sowmyarani C N (Associate Professor, Dept. of CSE),
6. Dr. Ashok Kumar A R (Associate Professor, Dept. of CSE),
7. Dr. Praveena T (Assistant Professor, Dept. of CSE),
8. Prof. Girish Solanki (Assistant Professor, Dept. of CSE),
9. Dr. Pavithra H (Assistant Professor, Dept. of CSE),
10. Dr. Vishalakshi Prabu (Assistant Professor, Dept. of CSE).

The training sessions, conducted from 8:30 AM to 5:00 PM, delved into a spectrum of topics, encompassing Network Fundamentals, Cryptography, Public Key Cryptography, Simulation Tools, Ethical Hacking, and Firewall Configuration. The hands-on approach, coupled with the wealth of experience brought by the faculty, created a dynamic learning environment. The culmination of the seminar with Security Demos and Hands-On exercises provided a practical edge to the acquired knowledge,

ensuring a thorough understanding of network security. We extend our gratitude to the faculty members and participants for making this training program a resounding success.

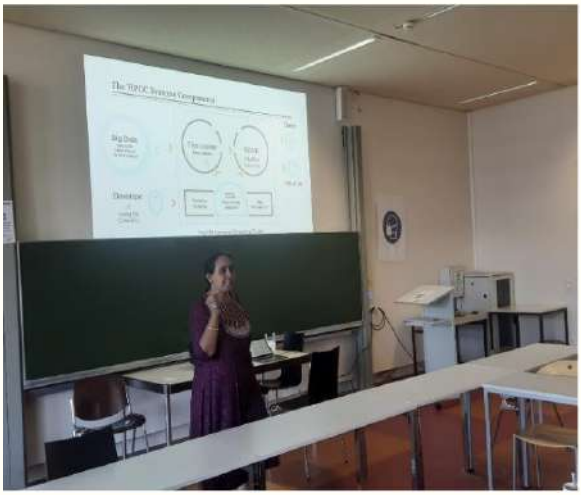
**2. Linux Internal Programming for BEL (Bharath Electronics) Employees** The Training Program on "Linux Internals and Programming Essentials" held at CLD, BEL Jalahalli Post, Bengaluru, from December 5th to 9th, 2023, provided an extensive and enlightening exploration into Linux. Led by a distinguished team of faculty, including Dr. Ramakanth Kumar P, Dr. Deepamala N, Dr. Girish Rao Salanke, Dr. Suma B, Dr. Vinay Hegde, Dr. Vishalakshi Prabhu, Dr. Azra Nasreen, Dr. Jyoti Shetty, and Dr. Ashok Kumar AR, the sessions covered a broad spectrum.

Beginning with an introduction to Linux and spanning system calls, Linux tools, and process management, the seminar delved into multithreaded programming, concurrency, race conditions, memory management, kernel modules, process management at the kernel level, Linux kernel scheduling, and practical insights using Kali Linux. The program further explored topics such as character, block, network device drivers, USB drivers, Linux file systems, file handling, Inter-Process Communication (IPC), memory management in the kernel, interrupt handling, shell scripting, and Ext2 and Journal File systems. The well-structured schedule and the collective expertise of the faculty ensured a comprehensive understanding of Linux internals and programming essentials, making the seminar a valuable and enriching experience for all participants.

**3. Visit to UNIVERSITY OF BREMEN Germany**

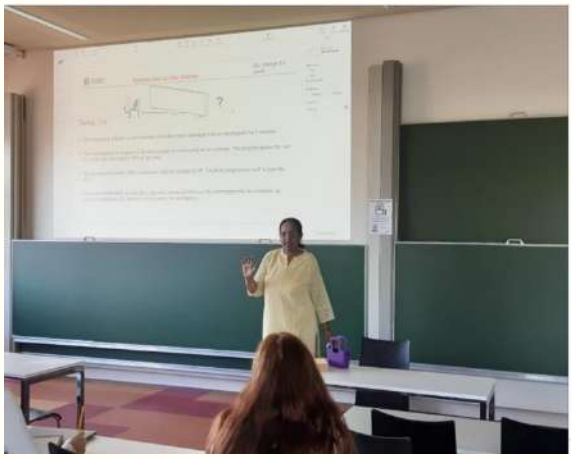
Two faculty members from Department of Computer Science & Engineering, Dr. Shobha G and Dr. Jyoti Shetty, conducted two courses, "Relational Database, Data Warehousing, and Analytics" and "Artificial Intelligence and Machine Learning for Sustainability," at the University of Bremen in Germany from August 16th to August 31st, 2023. The University of Bremen, established in 1971, hosts approximately 20,000 students and offers a diverse range of over 100 master's and bachelor's degree programs, including state law exam preparation. It holds a global standing with a QS World Ranking of 514 and a Times Higher Education (THE) Ranking falling within the range of 314-500.

**a. Course on Relational Database, Data Warehousing, and Analytics:**



The training program covered essential concepts in the field of data management, including data warehousing, Online Analytical Processing (OLAP), reporting, data visualization tools, dimensional modelling, and analytics using High-Performance Computing Cluster (HPCC Systems). The primary objective was to provide students with skills in conceptual database design, user-level database management, system-level database design, and practical application of SQL. The participants, with diverse backgrounds from various universities, represented fields such as Geoinformatics, Life Science Engineering, Business Administration, Geospatial Technology, and Computer Science. The program aimed to equip students with a comprehensive set of skills applicable across different disciplines within the realm of data management and analysis.

### b. Course on Artificial Intelligence and Machine Learning for Sustainability:



The training program covered fundamental AI concepts, including decision-making, data processing, clustering, regression, and classification. Participants, with diverse backgrounds from various universities, engaged in hands-on Python programming using real-world datasets focused on environmental and social issues. The primary goal was to equip attendees with AI skills for addressing societal challenges, emphasizing key concepts, algorithms, and practical applications in Python. The program fostered a multidisciplinary approach, attracting participants from fields such as Neuroscience, Psychology, Informatics, Business Administration, Applied Data Science, Artificial Intelligence, Produktionstechnik, Educational Technology, and Microsystems Technology.

## 4. Visit to Roboticist FORUM at THWS, SCHWEINFURT, GERMANY

The 2nd International Roboticist forum was organized to find new ways and methods of organizing science in robotics globally on 20th – 21st November 2023. Roboticists from 10 countries and various higher education institutions have come together to discuss and reconceptualise how to strengthen global networking in teaching, research and technology transfer. In view of the rapidly growing global market for robots, robotics experts in academia need to develop new models to better work together and align our students, research and collaborations with practitioners to changing conditions.

The main aim of this forum was to network in teaching, research and practice transfer, as well as through input from the accomplished international experts. The 2nd International Roboticists Forum made a significant contribution to the academic exchange in the field of robotics and expanded the network to partner universities from Bavaria and countries from all over the globe. It formed a basis for international activities ranging from student exchange to joint lectures all the way to joint research projects. The 2nd International Roboticist Forum tried to bring this idea to the next level by considering global transfer capabilities, which can be a gain to all partnering universities as well as their associated companies.

## R&D Grants Received:

- **Dr. Jyoti Shetty and Dr. Shobha G** were actively engaged in a collaborative project titled "Enhancing Legal Assistance through Data Enrichment using HPCC Systems." This project, funded with a budget of 30.38 lakhs, is conducted in partnership with LexisNexis Risk Solutions Inc. The aim is to leverage HPCC Systems to enrich legal assistance processes, utilizing advanced data analytics and technologies to enhance the efficiency and effectiveness of legal support services provided by LexisNexis Risk Solutions Inc.
- **Dr. Jyoti Shetty and Dr. Shobha G** are collaborating on a project focused on Implementing Conditional Cleanup after Regression Test for HPCC Systems at LexisNexis Risk Solutions Inc. The innovative initiative, backed by a substantial funding of 30.38 lakhs, aims to enhance efficiency and reliability in post-regression testing scenarios, showcasing their collective dedication to advancing solutions in the realm of data management and analysis.
- **Dr. Shobha G, Dr. Vishalakshi Prabhu H, and Dr. Shanta Rangaswamy** are collectively engaged in developing a Natural Language Processing (NLP) pipeline for Electronic Health Records (EHR). This project is sponsored by HPCC Systems, a division of LexisNexis Risk Solutions Inc. The allocated budget for this endeavor amounts to 30.38 lakhs, highlighting a significant investment in enhancing healthcare technology and data analytics through collaboration with an industry leader.
- **Dr. Shanta Rangaswamy** is received the grant from ISRO under RESPOND project, with an allocated amount of 22.06 lakhs. This initiative focuses on the design, development, and implementation of a real/near real-time low Signal-to-Noise Ratio (SNR) target detection and tracking system. As of now, 6.78 lakhs have been released for the project, which is set to span from 2023 to 2026.

## FACULTY DEVELOPMENT PROGRAM

### AICTE Training and Learning Academy (ATAL) Sponsored One week Faculty Development Program on CyberSecurity for Industry 4.0 Technically supported by EC-Council

**Main Coordinator:**
Dr. Ramakanth Kumar P, Prof & HoD, CSE
**Co-Coordinator:**
Dr. Minal Moharir, Prof, CSE (CY), RVCE

Organizing Committee:

- Dr.Ashokumar A R
- Dr.Mohana
- Dr.Pavithra H
- **Dr. Satish V. Motammanavar**

**Amount Sanctioned: Rs.3.5 Lakhs**
**Dates of the Training : 9th to 14th October 2023**

Department of Computer Science and Engineering has MoUs for Research, Consultancy and training with multinational companies and government agencies such as CISCO, Citrix, Nihon, Gnostice, Sapient ,Infosys Technologies and Karnataka Forest department. The faculty of our department actively participated in a one-week Faculty Development Program on **Cybersecurity for Industry 4.0 sponsored by the AICTE Training and Learning Academy (ATAL).** The program took place from 9th to 14th October 2023 and received technical support from EC-Council. The program aimed to enhance faculty expertise in addressing cybersecurity challenges within the context of Industry 4.0 and was supported by technical insights from EC-Council.

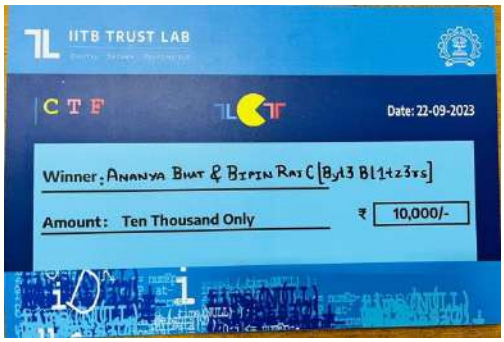
India assumed the presidency of G20, the grouping which brings together 20 of the world's largest economies. Enhanced cybersecurity cooperation at the G20 forum can contribute to ensuring the security and integrity of critical infrastructure and digital public platforms. Therefore, cybersecurity must be a key focus area in the digital agenda under India's presidency in 2023. With this motivation a 6-day workshop on Cyber Security in Industry 4.0 is proposed. Industry 4.0, also known as the fourth industrial revolution, is characterized by the integration of advanced technologies, such as the Internet of Things (IoT), artificial intelligence, big data, cloud computing, and automation, into traditional manufacturing and industrial processes. While these technologies bring tremendous opportunities for efficiency and productivity, they also introduce new cybersecurity challenges. The objectives of a Faculty Development Program (FDP) on cybersecurity and Industry 4.0 are to equip educators and researchers with the knowledge, skills, and tools necessary to understand, address, and mitigate the cybersecurity challenges arising from the integration of advanced technologies in the context of Industry4.0.

## SPONSPORED LEARDERSHIP AWARDS

- **Dr. Prapulla S B** was felicitated with the ICTIEE 2024 Teaching and Learning Leadership Award. This entitles to Free Registration for ICTIEE 2024 and a Rs. 10,000 Award for Travel Support.

## STUDENTS ACHIEVEMENTS

- The final round of the IITB Trust lab CTF was at IITB where the 52 finalist teams had a separate round. Our students, Ananya Bhat and Bipin Raj, finished 7th and won a prize of 10k. CY student Bipin Raj won CTF event @ Indian Institute of Information Technology, Nagpur. This is 5th CTF wining event in this semester.



- · Ananya Bhat secured the third prize in the CyberVijayi Hackathon organized in the CTF event, bagging a whooping cash prize of Rs 2000, whereas Bipin Raj clinched the second position in the CyberVijayi Hackathon's CTF event, securing an impressive cash prize of Rs 3000.

- Mr. Shreyas Karanth, CS Alumnus, 2012-2016 UG Batch, sponsored the best outgoing PG students' awards, representing company Sorocco.

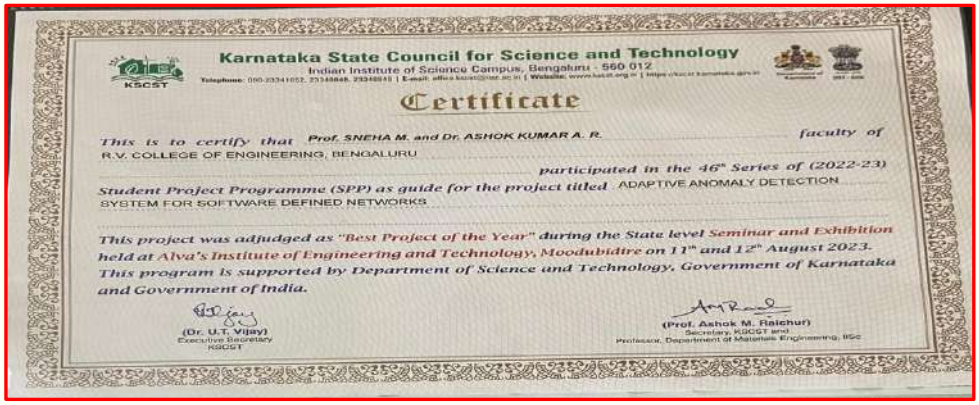
- As part of Productathon-2023, 4th A students participated from 9-5 pm without break, and external really appreciated the innovative products demonstrated by student. The students shared very good feedback and wanted more of such events.

- Fourth Intel FPGA and SoCs Participants.

- VTU Bangalore Zone winners & Inter-zone Runner Up in Tennis, MM Arjun 7th semester student.

## FACULTY ACHIEVEMENTS

- KSCST we have got the certificate of best project and cash award of 1250/- each faculty.



Karnataka State Council for Science and Technology
Indian Institute of Science Campus, Bengaluru - 560 012

Certificate

This is to certify that Prof. SNEHA M. and Dr. ASHOK KUMAR A. R. faculty of R.V. COLLEGE OF ENGINEERING, BENGALURU participated in the 46th Series of (2022-23) Student Project Programme (SPP) as guide for the project titled ADAPTIVE ANOMALY DETECTION SYSTEM FOR SOFTWARE DEFINED NETWORKS

This project was adjudged as "Best Project of the Year" during the State level Seminar and Exhibition held at Alva's Institute of Engineering and Technology, Moodubidire on 11th and 12th August 2023. This program is supported by Department of Science and Technology, Government of Karnataka and Government of India.

(Dr. U.T. Vijay) Executive Secretary KSCST

(Prof. Ashok M. Raichur) Secretary, KSCST and Professor, Department of Materials Engineering, IISc

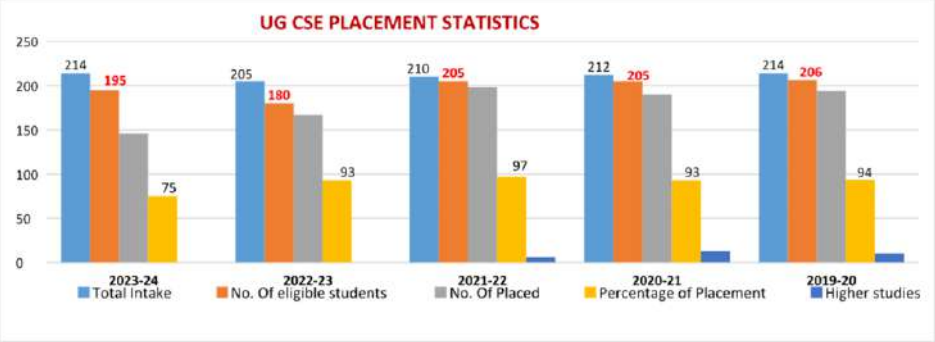
- On 8th September, 2023 our faculty started skill development program for 32 students of MS Ramaiah polytechnic under CCTV research centre.

## PLACEMENT STATISTICS

Department of Computer Science and Engineering has consistent and excellent placement record since its inception. The graduates and post-graduates of CSE department are placed across leading software companies like Cisco, PayPal, Akamai, Qualcomm, IBM, Salesforce, Oracle, Wipro, Cloudera, Udaan, Walmart, Citrix, VMware, SAP, Hewlett Packard, Fidelity Investments, JP Morgan Chase & Co., Morgan Stanley, Goldman Sachs, Samsung, Juniper Networks and many more. A good percentage of students opt for higher studies abroad, civil services and entrepreneurship. The students are prepared for placements by offering project based curriculum and personality development programs. The average salary for year 2022-23 so far is 20 lacs/annum and highest salary offered is above 48 lacs/annum. This academic year i.e. 2023-24, the highest salary is 62lakhs. It is observed that there is consistent improvement in placement statistics every year. A brief overview of UG and PG placement statistics is as given below:

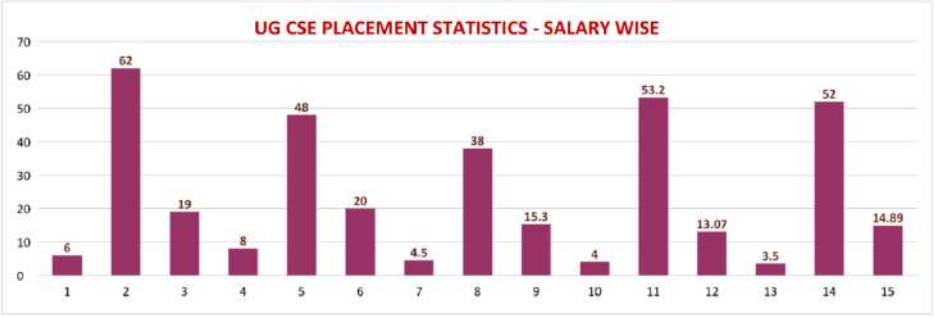
| UG CSE PLACEMENT STATISTICS | | | | | |
|---|---|---|---|---|---|
| **Item** | **2023-24 *** | **2022-23** | **2021-22** | **2020-21** | **2019-20** |
| Total Number of students | 214 | 205 | 210 | 212 | 214 |
| Number of students eligible and interested | 195 | 180 | 205 | 205 | 206 |
| Number of students obtained job | 147 | 167 | 198 | 190 | 194 |
| Placement % | 75 | 93 | 97 | 93 | 94 |
| Higher studies | | | 06 | 13 | 10 |

*Still in progress




| UG CSE PLACEMENT STATISTICS - SALARY WISE | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year** | **2023-24* (Salary in Lakhs)** | | | **2022-23 (Salary in Lakhs)** | | | **2021-22 (Salary in Lakhs)** | | | **2020-21 (Salary in Lakhs)** | | | **2019-20 (Salary in Lakhs)** | | |
| **Discipline** | **Min** | **Max** | **Avg** | **Min** | **Max** | **Avg** | **Min** | **Max** | **Avg** | **Min** | **Max** | **Avg** | **Min** | **Max** | **Avg** |
| **CSE** | **6** | **62** | **19** | **8** | **48** | **20** | **4.5** | **38** | **15.3** | **4** | **53.2** | **13.07** | **3.5** | **52** | **14.89** |

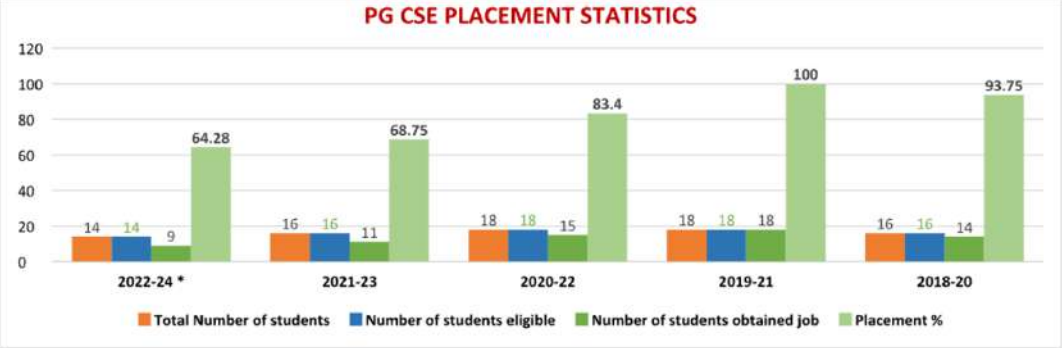
*Still in progress



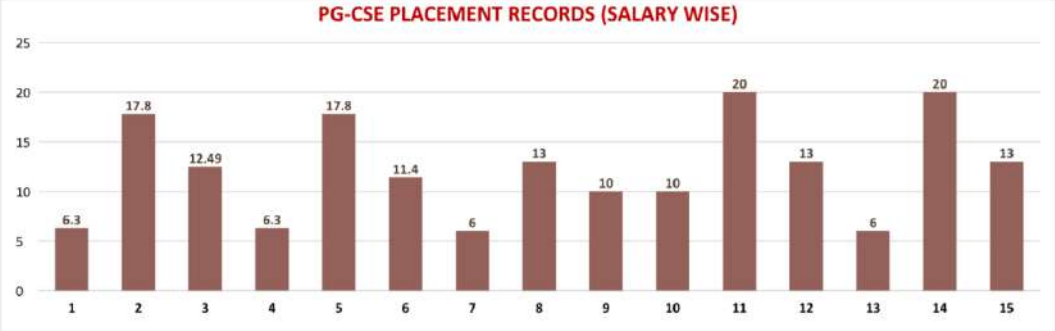
## PGCSE

| PG CSE PLACEMENT STATISTICS | | | | | |
|---|---|---|---|---|---|
| Item | 2022-24 * | 2021-23 | 2020-22 | 2019-21 | 2018-20 |
| Total Number of students | 14 | 16 | 18 | 18 | 16 |
| Number of students eligible | 14 | 16 | 18 | 18 | 16 |
| Number of students obtained job | 9 | 11 | 15 | 18 | 14 |
| Placement % | 64.28 | 68.75 | 83.4 | 100 | 93.75 |

*Placement going on

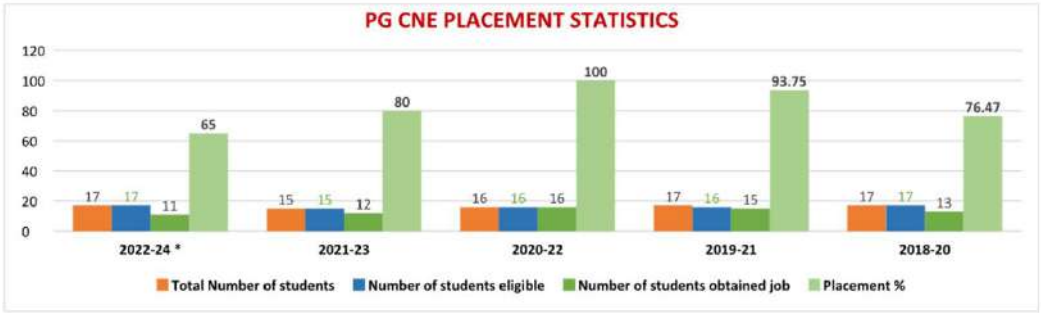



| PG-CSE PLACEMENT STATISTICS - SALARY WISE | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | 2022-24 * (Salary in Lakhs) | | | 2021-23 (Salary in Lakhs) | | | 2020-22 (Salary in Lakhs) | | | 2019-21 (Salary in Lakhs) | | | 2018-20 (Salary in Lakhs) | | |
| Discipline | Min | Max | Avg | Min | Max | Avg | Min | Max | Avg | Min | Max | Avg | Min | Max | Avg |
| PG-CSE | 6.3 | 17.8 | 12.49 | 6.3 | 17.8 | 11.4 | 6 | 13 | 10 | 10 | 20 | 13 | 6 | 20 | 13 |



| PG CNE PLACEMENT STATISTICS | | | | | |
|---|---|---|---|---|---|
| Item | 2022-24* | 2021-23 | 2020-22 | 2019-21 | 2018-20 |
| Total Number of students | 17 | 15 | 16 | 17 | 17 |
| Number of students eligible | 17 | 15 | 16 | 16 | 17 |
| Number of students obtained job | 11 | 12 | 16 | 15 | 13 |
| Placement % | 65 | 80 | 100 | 93.75 | 76.47 |

*Placement going on




| PG-CNE PLACEMENT RECORDS (SALARY WISE) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | 2022-24 * (Salary in Lakhs) | | | 2021-23 (Salary in Lakhs) | | | 2020-22 (Salary in Lakhs) | | | 2019-21 (Salary in Lakhs) | | | 2018-20 (Salary in Lakhs) | | |
| Discipline | Min | Max | Avg | Min | Max | Avg | Min | Max | Avg | Min | Max | Avg | Min | Max | Avg |
| PG-CNE | 4.8 | 16.99 | 8.28 | 6 | 37.33 | 11.09 | 6 | 10 | 8 | 8 | 13 | 10 | 6 | 13 | 8 |

## EDITOR'S NOTE

We are grateful to our department for granting us the opportunity to publish the eighth issue of our newsletter -Enqueue(). Here, we provide you a brief glimpse of the various activities and events that our department arranged and hosted from July to December of 2023. We also highlight the excellent accomplishments of our academics, their research and consulting endeavors, as well as their publications in a range of reputable journals and conferences. Finally, we highlight the numerous accolades and prizes received by our incredibly gifted pupils. We appreciate all of our instructors and students who so willingly provided articles and other content.

As we draw the curtain on another edition of our Department of Computer Science newsletter, we express our gratitude for joining us on this journey of exploration, discovery, and accomplishment. In these pages, we've shared stories of triumphs, innovative research, and the unwavering spirit of our students and faculty. From hackathons to cutting-edge projects, our community's passion and commitment continue to be the driving force behind our success.

Celebrating the outstanding achievements of our students, whose accomplishments exemplify the spirit of excellence and innovation within our department. Our faculty members, too, have demonstrated a commitment to continuous learning, as seen in their active participation in the AICTE Training and Learning Academy-sponsored Faculty Development Program on Cybersecurity for Industry 4.0.

As we navigate the ever-evolving landscape of computer science, we invite you to reflect on the inspiring stories and achievements shared within these pages. We are collectively shaping the future of computer science education and research, and your support is integral to our success. Thank you for being a part of our journey. Until we meet again in the next edition, stay inspired, stay curious, and keep exploring the limitless possibilities within the world of computer science.

Prof. Pavithra H
Assistant Professor
CSE Dept, RVCE.

Nandini Moonka
Student
CSE Dept, RVCE.