Pragyanjali

To reach out the outreach

PRAGYANJALI

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NEWSLETTER

Issue 3, Jan - June 2023

Department of Computer Science & Technology
Manav Rachna University

INDEX

With the blessings of...

Honorable
Vice - Chancellor
Prof. (Dr.) J.K Bhat

Esteemed
Pro - Vice Chancellor
Prof. (Dr.) Sangita Banga

Esteemed
Dean Academics
Prof. (Dr.) Shruti Vashist

HoD's Message

Dear Readers,

I always look forward to the next issue of the department newsletter "Pragayanjali" to share my heartfelt note with you all. In current issue, I planned to reflect on our shared commitment to sustainable development in engineering or better should be sustainable engineering. The department is committed to work towards meeting United Nations' Sustainable Development Goals (SDGs) guided by Mission of the department. The SDGs provide us with a comprehensive framework for addressing some of the most pressing global challenges, from climate change, health challenges to poverty alleviation. As computer engineers, we have a unique opportunity and responsibility to contribute to these goals through our work and research.

It becomes more significant to discuss about sustainable development especially when G20 Summit has just concluded this month successfully under the presidency of India under the theme "Vasudhaiva Kutumbakam" i.e. "We are One Earth, One Family, and we share One Future". The leaders of world's largest economies met to address critical global challenges, foster economic cooperation, and chart a course toward a sustainable and inclusive future.

After inception of Manav Rachna Centre of Peace and Sustainability in 2020 at the university level and with the aim of being the epicentre of academic endeavours, training, research, community awareness programmes in all spheres of peace and sustainability, Department also decided to align its functioning towards attaining following SDGs: SDG 3(Good health and well-being), SDG 4(Quality education), SDG 5(Gender equality), SDG 8(Decent work and economic growth), SDG 9(Industry, Innovation and Infrastructure), SDG 17(Partnership for the goals) through - Program Curriculum , Co-Curricular Activities , Research & Innovations , Internal Operations & Governance Community Engagement & Partnerships.

Through this page I want to request all Professional chapters and clubs to align their activities with SDGs so that chapters can contribute to sustainable development while inspiring future engineers to work towards sustainable solutions to global challenges. The chapters and clubs can host seminars, talks, and awareness campaigns to educate student community about the SDGs, their importance, and how their technical fields relate to them.

Let's use the power of words to convey and inspire the students to make a promise to leave behind a world that thrives, not just survives.

Dr. Manpreet Kaur,
HoD-CST

Chief Editor's Message

It was the "Beginners All Purpose Symbolic Instruction Code", in which;
once upon a time: a code: I wrote...
The problem I faced is worthy to note.

It was the period when "Structured Programming Techniques" were in vote,
It was the first time: I encountered the lacuna in the approach.

Along project was on system encroach...
On completion: each time the project was on execution,

The system used to hang up creating deadlock & confusion...
All the efforts to debug went in vain, I tried all commands and logic with a lot of pain...

It was the run-time error leading my endeavors to drain.
In search of the remedy: I was hypothetically insane...

Finally, after a lot of Herculean task.
The "reason": | succeeded to unmask..

It was the convoluted nesting of procedure calls that failed,
Revealing the drawback that Structured Programming entailed.

Finally. I had to "chain" all the procedure calls.
And I came out with flying colors: recovering all the pitfalls.

Mr. Ram Chatterjee
Assistant Professor

Editor's Message

Dear Readers,

It brings me great pleasure to welcome you to the third issue of Pragyanjali, the newsletter of Manav Rachna University. As we continue to embark on this journey of knowledge, exploration, and innovation, we are excited to share with you the latest developments, achievements, and inspiring stories from our vibrant academic community.

From faculty spotlights showcasing the expertise and dedication of our educators to student success stories that demonstrate the incredible talents and aspirations of our learners, Pragyanjali aims to capture the essence of MRU's spirit.

We encourage you to explore these pages, as they offer a glimpse into the ever-evolving landscape of our university.

We would like to express our heartfelt gratitude to all the contributors, writers, and editors who have been a part of Pragyanjali's journey. Your support and enthusiasm have been instrumental in making this newsletter a platform for sharing knowledge and fostering a sense of belonging within our MRU family.

As we move forward, we look forward to hearing your feedback and ideas to continuously improve and expand Pragyanjali. Together, we can ensure that this newsletter remains a source of inspiration and information for years to come.

Warm regards,
Dr. Rashmeet Toor
Editor
Manav Rachna University

Student Editor's Message

As the student editor of our esteemed departmental magazine, I am absolutely delighted to present to you this latest edition, overflowing with enthusiasm. It is my pleasure to unveil the 3rd Issue of "Pragyanjali", and I want to extend my heartfelt congratulations to the entire team for their unwavering commitment, tireless efforts, and consistent hard work, all of which have culminated in the success of this edition. I wish to express my deep gratitude and appreciation to Dr. Manpreet Kaur Ma'am, the Head of the CST Department, Dr. Rashmeet Toor Ma'am, our esteemed Assistant Professor, and Mr. Ram Chatterjee, our dedicated Assistant Professor, for their invaluable support and guidance in transforming this edition into a reality.

Our magazine serves as a platform to showcase the diverse talents, accomplishments, and creative expressions of our department's students, faculty, and alumni. It provides a canvas where your ideas can spring to life, your voices can resonate, and your stories can ignite inspiration. This edition affords me the opportunity to leave an indelible mark on our department's legacy and contribute to the rich tapestry of knowledge and inspiration that will be passed down to future generations of students.

Together, let us create an unforgettable anthology that embodies our collective brilliance!

Warm regards,
Liza Kansal

Our Team

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Student editor, Proof reader

Stuti Thakur
Student editor, Proof reader

Anoushka Pandey
Student editor, Proof reader

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Content writer

Manav Rachna University

Manav Rachna University has been acknowledged as one of the top emerging universities in India. Manav Rachna University is among the Top 2 Emerging Engineering Institutions of India and has been ranked the No.1 Engineering Institution in India for Research Capability & Placements in the Times Engineering Survey 2022. These rankings and the quality of education that they imply are a reflection of the university's continuous efforts to establish a culture of academic excellence and its commitment to research.

Manav Rachna University has been bestowed with QS I-GAUGE, Overall DIAMOND rating. It has received QS I-GAUGE DIAMOND RATING for Excellence in Teaching and Learning, Faculty Quality, Facilities, and Social Responsibility, and QS I-GAUGE PLATINUM RATING for Employability and Academic Development. The accreditations/rankings are testimonial to the trust of accrediting bodies in the quality of education being offered, a well-established teaching and learning process guided by the global best practices and a culture of academic excellence promoting research, innovation & entrepreneurship.

Institute Vision

To educate students in frontier areas of knowledge enabling them to take up challenges as ethical and responsible global citizens.

Institute Mission

UM1: To impart outcome based holistic education.
UM2: To disseminate education in frontier areas.
UM3: To produce globally competitive, ethical and socially responsible human resources.
UM4: To produce human resources sensitive to issues of Environment and Sustainable Development.
UM5: To develop Environment and Sustainable development as a thrust area of research and development.

Department Vision

To be quality conscious, research centric and change oriented technological leader in the relevant areas.

Department Mission

The Department of Computer Science & Technology has laid down the following missions to achieve its vision which will lead to the betterment of the students' future and the country:

DM1: To develop and impart knowledge and skills in the field of Computer Science and Engineering.
DM2: To encourage and support the generation and implementation of innovative ideas.
DM3: To focus on new techniques, tools and technology, in ethical and responsible manner.
DM4: To carry out collaborative inter-disciplinary Academic and Research activities with a focus on Sustainable Development.
DM5: To create employment-ready human resources.

About Department
The School of Engineering at Manav Rachna University has earned its name and set itself apart as a Centre of Excellence in Technical Education in the country. There are three main domains offered by the Engineering Department – Computer Science & Technology, Mechanical Engineering, and Electronics & Communication Engineering. Amongst Computer Science and Technology(CST), there are many specializations offered like Artificial Intelligence and Machine Learning, Cyber Security and Threat Intelligence, and Cloud, DevOps and Full Stack Development.

These specialization Course Curriculam and E-Course material are prepared by experts from Tech giants like Xebia and QuickHeal, according to the current technology required in the industry. This will inculcate a solid understanding of core concepts fundamental to Computer Science, good problem-solving skills and the ability to work and communicate effectively as ethically socially responsible professionals.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

The graduate will assimilate knowledge to become a technical, ethical, and socially responsible professional.

PEO-I: Core Competency
To inculcate analytical, design and implementation skills required to provide software solutions in industry.

PEO-II: Breadth
To groom graduates to innovate, design and develop products to provide sustainable solutions to contemporary societal and business problems.

PEO-III: Professionalism
To instill the ability to work in teams, communicate effectively and lead as ethically and socially responsible professionals and entrepreneurs.

PEO-IV: Lifelong Learning
To foster the ability of Lifelong Learning to constantly adapt to emerging technologies, to pursue higher education and instill life skills for a successful career.

PROGRAM OUTCOMES (POs)

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

2. **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.

3. **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.

4. **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.

5. **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.

6. 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.

7. 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.

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

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

10. 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.

11. 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.

12. 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 SPECIFIC OUTCOMES (PSOs)

PSO1:
Design and develop computer programs and possess acquaintance with emerging technologies and open-source platforms in the area of mobile app development, artificial intelligence, machine learning, web development, data analytics, cloud computing , networking , cyber security , gaming and animation to build effective computer-based systems.

PSO2:
Acquire technical competency to deliver computer-based innovative and effective solutions to tackle business and societal challenges, for pursuing successful career, entrepreneurship, research and higher studies.

Knowledge Partners

Xebia: Xebia is a specialized global IT Consultancy and Services company focusing on Enterprise development, Agile development, DevOps, and Outsourcing services. Xebia also provides Internship support and Placement opportunities for students within Xebia and Client-Partner network.

Quick Heal: Quick Heal is a leading provider of Security Software Products and Solutions, under the widely-recognized brand names 'Quick Heal' and 'SEQRITE' across various operating systems and devices. Cyber security experts from Quick Heal train the students on these courses, giving the exposure to real case studies in this domain. Quick Heal also supports students in Internship and Placement.

AWS: Computer Science & Technology Department, MRU has adopted Cloud Computing curriculam from the Amazon Web Services (AWS) Educate global initiative into its mainstream university syllabus to help develop the next generation of cloud professionals. The cloud computing content from AWS Educate has been offered as part of Bachelor of Technology (B.Tech.) in Computer Science and Engineering program, since 2020.

Infosys: Department of Computer Science & Technology, MRU has been associated with Infosys since 2009 for training the students & faculty members under the purview of the Infosys Campus Connect Programme. Moreover, students are offered lot of opportunities for competitions, internships, Infosys springboard online courses and learning pathways which provide industry ready content to the students.

Artificially Intelligent Workforce: AIW has collaborated with CST MRU under " No Code Clique" which will be referred to as a program for students who will be able to use AIW Builder, get access to variety of industries, case studies and use a no code platform to deploy AI workers. This MOU would lay down opportunities for student internship/ placement, projects, R&D in the field of Machine Learning, Neural networks, Big Data and Blockchain Technology.

Coding Ninjas: Manav Rachna University has collaborated with Coding Ninjas to provide students with the exposure to the Coding rounds of companies like Amazon, Microsoft, etc. The "Coding Prep" course currently being run, includes the fundamentals, applications and advanced problems.

NPTEL: Provides e-learning through video lectures and web courses in Engineering, Science, Technology, Management and Humanities equipped with internship and employment opportunities.

IIT Delhi for Virtual Labs: A project initiated by MHRD, GoI, under the aegis of National Mission on Education through Information and Communication Technology (ICT). Provides remote-access to laboratories in various disciplines of science and engineering for students at all levels from under-graduate to research.

Research Reflections

Research Papers published for publication in International Journals

1.Dr. R Girija published a research paper titled **"High-Performance Classifier for Brain Tumor Detection Using Capsule Neural Network"** in the journal Computer Vision and Machine Intelligence Paradigms for SDGs on January 1, 2023 and indexed by SpringerLink. The paper was authored by Dr. R. Girija, J. S. Thanga Purni, R. Vedhapriyavadhana, and S.L. Jayalakshmi.

2. Mr. Manoj Kumar published a research paper titled **"Performance Evaluation of LSB Steganography based on Multiple Image Formats"** in the journal Discrete Mathematical Sciences & Cryptography. The paper was authored by Urmila Pilania, Manoj Kumar, Vivaan Mittal, and Mohd Anas Khan and indexed by Scopus.

3. Mr. Manoj Kumar published a research paper titled **"A Noble Approach for Secure Online Transaction using IWT-SVD Steganography"** in the Journal of Information and Optimization Sciences. The paper was authored by Urmila Pilania, Manoj Kumar, and Vivaan Mittal and indexed by ESCI(WOS).

4. Dr. Shalu published a research paper titled **"A Bio-inspired VM Migration using Re-initialization and Decomposition Based-Whale Optimization"** in the journal ICT Express. The paper was authored by Dr. Shalu, Dr. Dinesh Singh published on February 2023 and indexed by SCIE.

5. Dr. Deepti Thakral, along with co-authors Ajit Noonia, Vikas Rathi, Rajeev Pandey, Ruben Dario Tapia Silguera, and Juan Carlos Cotrina-Aliaga, published a paper titled **"An Upgraded Mobile Ad-hoc Network Enactment Based on Optimized Signal Strength Based Routing Algorithm".** The paper was published in the "International Journal of Electrical and Electronic Engineering & Telecommunications (IJEETC)" under the special issue "Emerging Trends in Computational Intelligence, Networks Technologies, and Wireless Communication Systems." The paper is indexed in Scopus.

6. Dr. R. Girija's research paper titled **"Image Encryption Based on Watermarking and Chaotic Masks Using SVD,"** co-authored with S. L. Jayalakshmi and R. Vedhapriyavadhana, has been published in the "Futuristic Communication and Network Technologies" journal. This paper, encompassing image encryption techniques utilizing watermarking and chaotic masks via SVD, is set to be featured in the June 2023 issue of the journal, available through SpringerLink.

Research Papers published for publication in National Journals

1.The paper titled **"A cryptoanalysis of elliptic curve cryptography based on phase truncation in the domain of hybrid gyrator Hartley transform"** authored by Hukum Singh,Dr. R Girija, and Dr. Manoj Kumar was published in the journal "Optical and Quantum Electronics". It was published in April 2023. The journal is indexed by the Science Citation Index Journal (SCI).

2. Another paper titled **"Optical medical image encryption based on digital hologram in various domains"** authored by Dr. R Girija, H Singh, and G Abirami was published in the "Journal of Optics". The paper was published on April 22, 2023 and is indexed by SCOPUS.

Research Papers published for publication in International Conferences

- Ms. Drishti Kemni, Charu Goyal, Avanya Chaudhary, Saksham Sharma, and Dr. Alpana published a paper titled **"Uncovering the Applicability of Machine Learning in Genomic Disease Prediction"** at the IEEE 3rd International Conference on Advance Computing and Innovative Technologies in Engineering (ICACITE) in 2023. The conference took place at Galgotias University, Greater Noida, in May 2023.

- Ms. Meenakshi Gupta and Dr. Alpana published a paper titled **"Exploratory Data Analysis in Engineering Admission Prediction for Indian Universities"** and presented it at the IEEE 3rd International Conference on Advance Computing and Innovative Technologies in Engineering (ICACITE) in 2023. The conference was held at Galgotias University, Greater Noida, in May 2023.

- Priya Bhatnagar and Dr. Alpana published a paper titled **"Machine Learning based Rainfall Prediction on Indian Agriculture Land"** which was presented at the IEEE 3rd International Conference on Advance Computing and Innovative Technologies in Engineering (ICACITE) in 2023. The conference took place at Galgotias University, Greater Noida, in May 2023.

- Dr. Manoj Kumar published a paper titled **"Securing Confidential Information on WhatsApp with Blockchain Technology"** at the 3rd International Conference on Pervasive Computing and Social Networking held in Salem, India, on 19-20 June 2023. The paper was authored by Prateek Adhalkha, Urmila Pilania, Manoj Kumar, Sanjay Singh, and Tushar Satija.

- Dr. Manoj Kumar published a paper titled **"Enhancing Biometric Performance through Mitigation of Sleep-Related Breaches"** was presented at the 3rd Emergent Converging Technologies and Biomedical Systems (ETBS 2023) conference held at Jaypee University of Information Technology in collaboration with DST iHub – AWaDH, Indian Institute of Technology Ropar, from 15-17 May 2023. The paper's authors included Yash Madan, Urmila Pilania, Manoj Kumar, Sanjay Singh, Granth Aggerwal, and Vaibhav Aggarwal.

- Dr. Shalu published a paper titled **"IoB Based Intelligent Healthcare System for Disease Diagnosis in Humans"** at the 4th International Conference on Data Analytics & Management (ICDAM-2023) hosted by London Metropolitan University in London, UK. The co-authors of this paper were Neha Saini, Pooja, and Dinesh Singh. The conference took place on 23-24 June 2023.

- Ms. Chandni Magoo published a paper titled **"A Proposed Architecture of Mobile Service Provider Based Interactive Systems"** at the 2023 IEEE 8th International Conference for Convergence in Technology (I2CT) held in Pune, India, from Apr 7-9, 2023.

- Dr. Manpreet and Ms. Chandni Magoo published a paper titled **"Student Writing Segmentation Using Various Classification Techniques"** which was presented at the International Conference on Intelligent Technologies 2023 held in Karnataka, India, from 23-25th June 2023.

- Dr. Deepti Thakral, along with Dr. Nikhil Govil, Ms. Neha Batra, Dr. Shalini Garg, and Dr. Shivani Jain, published a paper titled **"Analysis of Information Technology Outsourcing Services as Future Scope in Indian IT Industries"**. This paper was showcased at the 2nd International Conference on Applied Artificial Intelligence and Computing (ICAAIC 2023) held in Salem, India, from 4th to 6th May 2023 and published in IEEE Explore.

- Dr. Mamta Arora, collaborating with Mrinal Pandey, Siddhartha Das Gupta, Teja Kolla, and Ravi Yadav, published a paper titled **"Forecasting Cryptocurrency Prices using Sequential and Time Series Models"**. This paper was published in the proceedings of ICIMMI '22: the 4th International Conference on Information Management & Machine Intelligence, hosted by Poornima University Jaipur on 31st May 2023.

- Ms. Chandni Magoo and Dr. Manpreet Kaur combined their efforts for a paper titled **"Student Writing Segmentation using Various Classification Techniques"** presented at the 3rd International Conference on Intelligent Technologies in Pune in June 2023.

Ph.D. Awardees

Details of Ph. D Thesis awarded

Mr. Manoj Kumar submitted a Ph. D Thesis titled **"Automatic detection of moving object in the video for smart surveillance system"** and was awarded on February 20, 2023 under the supervision of Dr. Susmita Ray.

Ms. Meena Chaudhary submitted a Ph. D Thesis titled **"A Hybrid Approach Solution for web page segmentation using Clustering and Optimizing Techniques"** and was awarded on February 24, 2023 under the supervision of Dr. Jyoti Pruthi.

Details of PG Dissertation submitted

Two scholars have made notable contributions through their insightful theses under the guidance of esteemed supervisors. Mohit, under the supervision of Dr. Sanjay Singh, presented a compelling thesis titled **"A Block and Pixel Level Parametric Fuzzy Analysis to Improve Fusion Process on Real Time Sequence Images".** This significant work, submitted in June 2023, underscores the advancement of image fusion techniques for real-time sequence images, further enriching the realm of image processing.

Rudra Kant Verma, guided by Dr. Ranjna, embarked on a significant journey with his thesis on **"Application Based on Mobile Agent in VANET for Measuring Environmental Data".** This innovative endeavor, submitted in June 2023, delves into the utilization of mobile agents within Vehicular Ad Hoc Networks (VANETs) to gather crucial environmental data. Both these scholarly contributions signify a dedication to advancing knowledge and addressing pertinent challenges within their respective domains, serving as a testament to their academic prowess and the guidance of their mentors.

Patent Panorama/ Details of Patents granted

A patent titled **"INTELLIGENT AND PORTABLE RAIN WATER HARVESTING KIT FOR SMART GARDENS BASED ON BICONVLSTM"** was filed on January 18, 2023, at a national conference authored by Hukum Singh, Dr. R Girija, Varun Kumar Gera, S.L. Jeyalakshmi and S.L. Jyothi Lakshmi.

A patent titled **"IOT BASED COAGULATION ANALYZER"** granted on January 27, 2023, at a national conference authored by Subhangi Tidake, Rani Tidake, Priti Sagar, Dr. Shalu, and Prof. Ramesh Panda.

A patent titled **"Fractional Order Polar Harmonic Transforms with Funk Singular Value Decomposition for Secure Image Watermarking Technique"** was filed at a national conference authored by Rohit Tanwar, Neha Nandal, Shailee Lohmor, Dr. Manoj Kumar, Dr. Urmila Pilania and Dr. Sanjay Singh.

The patent titled **"System and Method for Monitoring Water Quality of Biofloc Fish Culture"** was granted on March 31, 2023, at the national level. The authors of the patent include Dr. Shalu, Pooja Bhardwaj, Miss. Shyla, Miss. Uma Tomer, Preeti Raturi, Dr. Prerana Rai, Dr. Parul Gandhi, Gaurav, Miss. Shruti Sinha, S.V.G.V.A Prasad, Dr. Lakshmi D, and Prof. Ramesh Chandra Panda.

A groundbreaking invention, the **"Blind People's Intelligent System based on IoT, AI, Machine Learning, and Cloud Computing"** has earned recognition in which the system conceptualized to empower and assist visually impaired individuals, intertwines the realms of the Internet of Things (IoT), Artificial Intelligence (AI), machine learning, and cloud computing was granted issued on May 19, 2023, on a national scale. This ingenious creation stands as a testament to the collaborative efforts of a dedicated team, including the esteemed names of Dr. Mahboob Alam, Dr. Pradeep Kumar, Dr. Tapas Kumar, Mr. Kaushal Kumar, and Mr. Anup Kushwaha. Their collective innovation holds the promise of transforming the lives of the visually impaired through cutting-edge technological integration and embodies the spirit of progress in addressing real-world challenges.

Books / Chapters published by the faculty member

A book titled **"A Creative Domain of Blockchain Application: NFTs"** was published by Springer Nature Singapore in 2023. The book was authored by Dr. Urmila Pilania, Pulkit Upadhyay, Rohit Tanwar, and Dr. Manoj Kumar. The book contributed to the Mobile Radio Communications and 5G Networks: Proceedings of Third MRCN 2022.
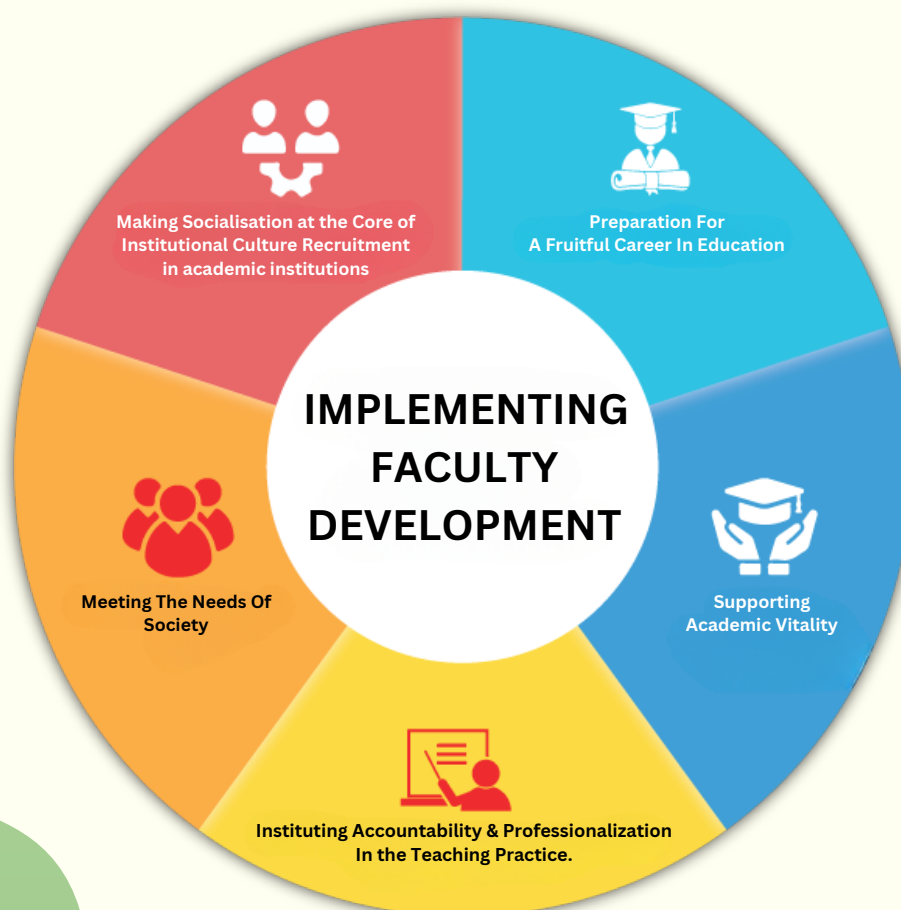
Dr. Harsh Bhasin contributed a chapter titled **"Data Structures with Python"** to a book. The chapter is included in the book published by BPB in the year 2023.

Faculty Development Programmes

Dr. Yojna Arora attended in a dynamic two-hour session on **"Team Building and Collaborative Associations"** organized by Central HR. The insightful event took place at the I Block Auditorium on May 20, 2023, fostering a conducive environment for enhancing teamwork and collaboration skills.

A noteworthy **"Informative Session Samsung SFT 2023"** was conducted in May 2023, featuring distinguished speakers Ms. Kritika Kakkar from Samsung and Mr. Manveen from FITT-IIT Delhi. Dr. Parneeta Dhaliwal expertly organized the event, which took place at the A Block Auditorium. This insightful workshop, spanning from 9:30 am to 12:30 pm on May 12th, 2023, aimed to provide valuable insights into the latest trends and advancements in the field. The session was undoubtedly a platform for rich knowledge exchange and valuable discussions, further underlining the commitment of participants to stay abreast of industry developments.

Extra-Curricular / Co-Curricular Events

A "Final Year Youth Empowerment" event was organized through ICT Fena, Honey Well organization from January 3, 2023 to January 20, 2023 by Mr.Shakeel and Mr Vikas. The event was organized by CST MRU.

An event "Capacity Building For Innovation (ML Model Building, DL, NLP, Web Scrapping, Project work)" was organized by IIC and RCC, and CST MRU from January 11, 2023 to January 25, 2023. The expert of the event was Mr. Harshit Dawar.

A "Coding Club Bi-annual event" : A New Dawn was held on February 9, 2023, to felicitate the students who secured the first three positions in the three coding competitions, in the last 2 semesters and awarding certificates to the students for their contribution to social causes during Covid-19 and website for Sanjeevani Hospital. The event was organized by Dr. Harsh Bhasin.

On March 16, 2023, the Coding Club at CST, MRU, organized the "Coding Contest - II" event. The contest had 30 participants competing in various coding challenges. An expert in coding and programming led the event.

On April 12, 2023, a "Technical Writing Competition" was organized as part of Innoskill 2023 at Manav Rachna University. The event saw participation from 10 teams and was conducted by Dr. Neerja and Dr. Rashmeet.

Also on April 12, 2023, a "Code Debugging Competition" took place during Innoskill 2023 at Manav Rachna University. Five teams participated in the event, which was organized by Dr. Mamta Arora and Mr. Nikhil (FCA).

A "DevOps workshop" was conducted on April 18, 2023, and April 21, 2023, as part of the Xebia Academic Alliance Workshop Series 2023. The workshop was facilitated by Dr. Ankur Sharma, an Xebia Expert and Dr. Mrinal Pandey.

A "Workshop on Transfer Learning Models" was held on April 19, 2023, and April 20, 2023, as part of the Xebia Academic Alliance Workshop Series 2023. The workshop had 52 students participating and was led by Mr. Vineet Sharma, an Xebia Expert, and Dr. Mrinal Pandey.

An event focused on "Natural Language Processing" took place on April 24, 2023, as part of the Xebia Academic Alliance Workshop Series 2023. Mr. Navdeep, an Xebia Expert, delivered insights during the event, organized by Dr. Mrinal Pandey.
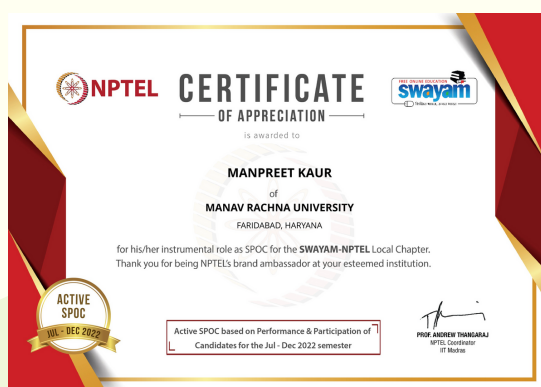
On April 25, 2023, a Leadership Talk on "Academia to Corporate" was delivered to 70 students during the Xebia Academic Alliance Workshop Series 2023. The talk was presented by Mr. Ajay Kabra, Senior Director of Business Excellence at Xebia, and organized by Dr. Mrinal Pandey.

Awards & Recognitions

Faculty

1. Dr. Priyanka Gupta was awarded **Microsoft Certified Azure AI Fundamentals Global Certificate** by Microsoft Azure on January 19, 2023.
2. Dr. Jyoti Pruthi was awarded the **Professional Scrum Master (PSM-1)** by Scrom on January 12, 2023.
3. Dr. Hanu Bhardwaj was awarded the **Professional Scrum Master (PSM-1)** by Scrom on January 12, 2023.
4. Dr.Mamta Arora was awarded as **Reviewer in ICRTEC-2023 IEEE International Conference on Recent Trends in Electronics and Communication (ICRTEC)** by the National Institute of Engineering, Mysuru (Dept of ECE) on February 10, 2023.
5. Dr.Mamta Arora was awarded as a mentor in the **5th Technovation Hackathon & Innovation Budge** by Sharda University from January 30 - February 4, 2023.
6. Dr. Manpreet Kaur was awarded a certificate in the **SWAYAM-NPTEL SPOC** Felicitation workshop organized by IIT, Kanpur at the IIT Outreach Centre at Noida on February 19, 2023.
7. Mr. Anup Singh Kushwaha, Ms. Chandni Magoo, and Dr. Priyanka Gupta, all esteemed members of the department, were each appreciated for their outstanding achievements. These prestigious accolades were bestowed upon them as part of the Honeywell CSR program on May 29, 2023, a testament to their commitment to excellence and their valuable contributions to their respective fields. These commendations, thoughtfully granted by the ICT ACADEMY, underscore the significant impact that these individuals have had within their academic realm and the broader community. Through their continuous dedication, they have exemplified the spirit of accomplishment and the pursuit of excellence that serves as an inspiration to their colleagues and students alike.
8. Dr. Sanjay Singh was awarded a **Certificate of Volunteering for the title of Kaushal Karyashala** by Manav Rachna University on June 27, 2023.

Awards & Recognitions

Students

1. Ms. Khushi Arora (2K20CSUN01058) 3rd year won the award titled Data-O-Thon: biggest data bricks hackathon of the year by Celebal Technologies under the mentorship of Dr. Urmila Pilania.

2. Mr. Rehan Aziz and Mr. Tuhin Tarafdar students from Manav Rachna University, achieved recognition for his project titled **"Mental Health counselling using AI."** He was shortlisted for the NewGen IEDC scheme for a prototype development grant on March 15, 2023.

3. Mr. Jai Tewatia participated in the TWO DAYS NATIONAL CONFERENCE ON INNOVATIVE TRENDS IN ENGINEERING AND MANAGEMENT (ITEM-23) organized by RITM, AKTU LUCKNOW, during the academic year 2022-2023. He presented two papers at the conference under the supervision of his mentor.

4. Mr. Satvik Asthana also participated in the TWO DAYS NATIONAL CONFERENCE ON INNOVATIVE TRENDS IN ENGINEERING AND MANAGEMENT (ITEM-23) at RITM, AKTU LUCKNOW, during the academic year 2022-2023. He presented two papers under his mentor's guidance.

5. Mr. Aan Sharma showcased his research at the TWO DAYS NATIONAL CONFERENCE ON INNOVATIVE TRENDS IN ENGINEERING AND MANAGEMENT (ITEM-23) held at RITM, AKTU LUCKNOW, during the academic year 2022-2023. Under the mentorship of his guide, he presented two papers focusing on the recent trends in robot-assisted welding and robotic surgery.

6. Ms. Nandini Sah participated in the TWO DAYS NATIONAL CONFERENCE ON INNOVATIVE TRENDS IN ENGINEERING AND MANAGEMENT (ITEM-23) at RITM, AKTU LUCKNOW, during the academic year 2022-2023. She presented two papers under the supervision of her mentor, focusing on the study of recent trends in robot-assisted welding and a review of recent trends in robotic surgery.

7. Ms. Gaurvi Khatri also attended the TWO DAYS NATIONAL CONFERENCE ON INNOVATIVE TRENDS IN ENGINEERING AND MANAGEMENT (ITEM-23) held at RITM, AKTU LUCKNOW, in the academic year 2022-2023. She presented two papers during the event, which were supervised by her mentor. The topics of her papers were **"Study of recent trends in robot-assisted welding - A review"** and **"A review on recent trends in robotic surgery."**

8. Mr. Aayush Yadav actively participated in the TWO DAYS NATIONAL CONFERENCE ON INNOVATIVE TRENDS IN ENGINEERING AND MANAGEMENT (ITEM-23) organized by RITM, AKTU LUCKNOW, during the academic year 2022-2023. He presented two papers under the guidance of his mentor. The subjects of his papers were **"Study of recent trends in Robot-assisted Welding - A Review"** and **"A Review on recent trends in robotic surgery."**

9. Ms. Khushi Kathuria, under the mentorship of Dr. Manpreet Kaur, received the J.K Pal Memorial award in 2023 from IEEE MANAV RACHNA University.

10. Mr. Simar Jyot Singh Narang, guided by Dr. Manpreet Kaur, achieved the WIE COORDINATOR designation from IEEE MRU in 2023 at IEEE MANAV RACHNA University.

11. Ms. Charu Goyal, guided by Dr. Manpreet Kaur, received the Outstanding WIE Student Volunteer Award from IEEE MRU in 2023 at IEEE MANAV RACHNA University.

12. Mr. Surya, mentored by Ms. Anu Priya Sharma, was appreciated with a Letter of Appreciation and an Internship opportunity in 2023 from IEEE MANAV RACHNA University-LAW.

13. Mr. Nidhish, under the mentorship of Ms. Anu Priya Sharma, received a Letter of Appreciation and an Internship opportunity in 2023 from IEEE MANAV RACHNA University-LAW.

14. Mr. Rajat, mentored by Mr. Ram Chatterjee, secured the first position in INNOSKILL 2023 competition held in 2023 at MANAV RACHNA University.

15. Mr. Jai, guided by Mr. Ram Chatterjee, achieved the second position in INNOSKILL 2023 competition held in 2023 at MANAV RACHNA University.

16. Ms. Riya, under the guidance of Mr. Ram Chatterjee, secured the first position in INNOSKILL 2023 competition held in 2023 at MANAV RACHNA University.

17. Mr. Aan Sharma, guided by Mr. Ram Chatterjee, participated in the INNOSKILL 2023 competition held in 2023 at MANAV RACHNA University.

18. Ms. Neha, under the guidance of Mr. Ram Chatterjee, also participated in the INNOSKILL 2023 competition held in 2023 at MANAV RACHNA University.

19. Mr. Ashwani Soni, mentored by DR. GIRIJA, achieved All Indian Rank 104 in the ACM International Collegiate Programming Contest (ICPC) held in April 2023.

20. Mr. Pratyush Mishra, guided by DR. GIRIJA, also secured All Indian Rank 104 in the ACM International Collegiate Programming Contest (ICPC) held in April 2023, organized by ICTC.

21. Mr. Dheeraj, under the mentorship of DR. GIRIJA, achieved All Indian Rank 104 in the ACM International Collegiate Programming Contest (ICPC) held in April 2023, organized by ICTC.

22. Ms. Khushi Arora, guided by Dr. Manpreet Kaur, achieved a remarkable milestone in 2023 by securing the position of **"IEEE India Council Student Coordination Team"** for the year 2023-2024. This prestigious recognition within IEEE's India Council, encompassing over 50,000 members across 1000 student branches, highlights Ms. Arora's dedication to IEEE activities in India, under the umbrella of IEEE Region 10 - the Asia Pacific region.

23. Ms. Charu Goyal, under the guidance of Dr. Mamta Arora, made a significant impact by presenting her insightful work titled **"Uncovering the Applicability of Machine Learning in Genomic Disease Prediction"** at the 3rd International Conference on Advanced Computing and Innovative Technologies held on May 23, 2023. This presentation, held at Galgotias College of Engineering and Technologies, underscored her dedication and expertise in the realm of machine learning and its potential applications in the field of genomic disease prediction.

Placement Profiles

- **Devansh Rao (2K19CSUN01132)** of the CSE branch was placed with **TCS** at a package of **7 LPA**.

- **Kunal Kukreja (2K19CSUN01032)** of the CSE branch was placed with **TCS** at a package of **3.36 LPA**.

- **Aman Sharma (2K19CSUN01009)** of the CSE Branch was placed with **GlobalLogic-Hitachi** at a package of **5.5 LPA**.

- **Deepanshu Thakur (2K19CSUN01075)** of the CSE Branch was placed with **GlobalLogic-Hitachi** at a package of **5.5 LPA**.

- **Prince Pandey (2K19CSUN01159)** of the CSE Branch was placed with **Magic Edtech** as Software Developer at a package of **6 LPA**.

- **Maneet Singh (2K19CSUN01147)** of the CSE Branch was placed with **Credex Technology** at a package of **5 LPA**.

- **Prince Ojha (2K19CSUN01103)** of the CSE Branch was placed with **Credex Technology** at a package of **5 LPA**.

- **Kunal Kukreja (2K19CSUN01032)** of the CSE branch was placed with **DBS Tech India (DBS Bank)** at a package of **10.8 LPA**.

- **Kolla Teja (2K19CSUN04013)** of the CSE branch was placed with **AIW WORKS PVT LTD** at a package of **19.8 LPA**.

- **Hardik Arora (2K19CSUN03008)** of the DTE branch was placed with **Lumiq** in a package of **8 LPA**.

- **Shubham Yadav (2K19CSUN03022)** guided by his dedication and the expertise gained through the B.Tech program in Computer Science and Engineering (Digital Transformation Engineering). His prowess in the field has been acknowledged through a well-deserved package of **6 LPA**.

- **Swati Nautiyal (2K19CSUN01115)** is accentuated by the acknowledgment of her talents with a notable package of **6.5 LPA**.

- **Jatin Goyal (2K19CSUN01138)** has garnered a significant placement at **Noventiq**. This accomplishment is a testament to his competence and unwavering pursuit of excellence. Jatin's capabilities have been aptly acknowledged with a commendable package of **3.5 LPA**.

- **Rachit Arora (2K19CSUN01160)** has culminated in an esteemed placement at **Noventiq**, a testament to his dedication and competence in the field. Rachit's abilities have been appropriately acknowledged with a noteworthy package of **3.5 LPA**, underscoring the value he brings to the professional landscape.

- **Sarthak Rastogi (2K19CSUN04022)** achieved a coveted position at **Space and Time Labs in Newport Beach, California, United States**. This international accomplishment is accentuated by an impressive package of **55 LPA**, reflecting the remarkable recognition of Sarthak's capabilities and his potential to make substantial contributions to the field of DSML.

Expert lectures - organized/delivered

Details of extension/expert lectures organized by the department

A lecture was delivered by Ms. Sanjeeda Siafi from Quick Heal on the topic Cyber Shiksha Fundamentals: QUery Session on February 16, 2023, as a trainer.

On April 28, 2023, an Industry Expert Session took place featuring Divyanshi Kamra as the speaker. The session focused on the topic of Data Science. Divyanshi Kamra, a Software Engineering intern at Google India, presented insights from her experience at IBM. The event was targeted towards first, second, and third-year Computer Science Engineering (CSE) BTech students.

Details of extension/expert lectures delivered by faculty members

Dr. Mamta Arora delivered a lecture on Awareness Session on the E-Learning Platform at **"DAV Centenary College"**, Faridabad on February 10, 2023 for UG students.

Mr. Aarsh Dhingra delivered a lecture titled **"Manipal University Jaipur"** at Manipal University Jaipur this event lasted for 3 days, starting on 15th March 2023.

Dr. Harsh Bhasin conducted a one-day lecture on **"Applications of Machine Learning in Production"** for Hyundai Turkey. The lecture was held online on 17th March 2023 for the staff of Hyundai Turkey.

Dr. Mamta Arora delivered a compelling lecture titled **"The Impact of Artificial Intelligence on a Smart Society"** at the First International Conference on Humanities for Smart Societies 2023 (HMSS 23). The event spanned two days, taking place on the 27th and 28th of May 2023. The lecture provided valuable insights into the intersection of artificial intelligence and societal advancement. The target audience for this engaging presentation included research scholars and faculty members, fostering a meaningful exchange of ideas at the conference.

Professional Societies and Technical Clubs

1. IEEE MRU Student Branch/Computer Society (CS) Chapter
2. IEEE Women in Engineering (WIE)
3. Ureka Data Science & Analytics Club (DSAC)
4. ICT(Information Communications Technology) ACADEMY
5. Google Developer Student Club (GDSC)
6. Institution Innovation Council (IIC)
7. Coding Club
8. Research Cluster of Computing (RCC)

Pragyanjali
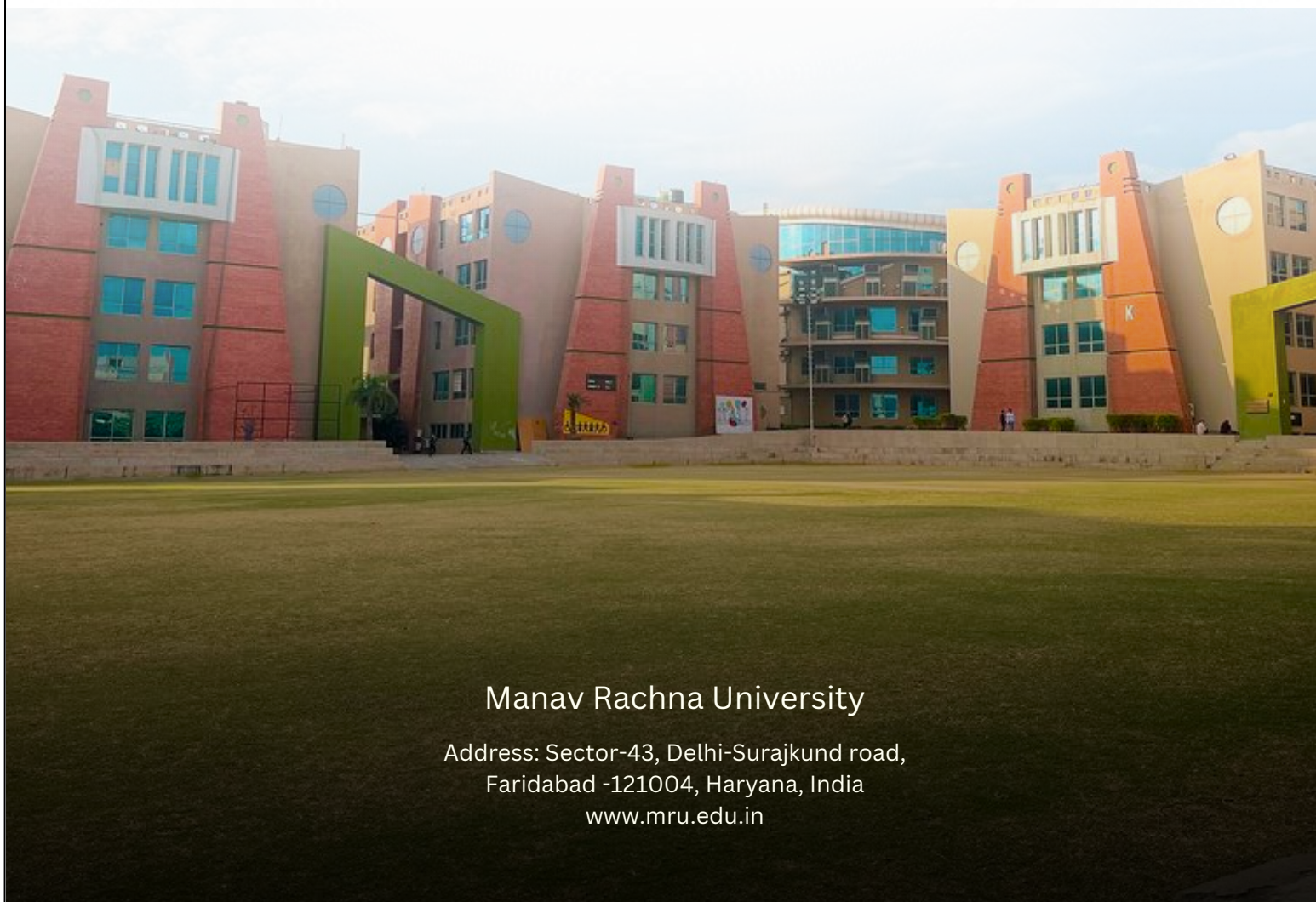
To reach out the outreach