



ICT CHRONICLES

Annual Newsletter of the Department of Information and Communication Technology, Manipal Institute of Technology, Manipal Academy of Higher Education, Manipal-576104.

MESSAGE FROM HOD



It gives me immense pleasure to present the annual newsletter ICT Chronicles for the year 2022. After the struggle of two long years due to the pandemic, this year the department got into the full working mode with great enthusiasm. A series of events and activities were conducted to enhance the teaching-learning and research outlooks of the department. Our faculty, students, and alumni continued to contribute towards the growth of the department. I am pleased to recognize the contributions of each one of you who have upheld the image of the department and made all of us proud. I extend my best wishes to all new and old initiatives/ ventures and look forward to capturing more such achievements in the year 2023. I thank each one for their dedication and wish them a wonderful year ahead. ICT Chronicles is a wonderful platform for us to stay connected and continue to grow together.

♣ Patrons:

Dr. Anil Rana, Director, MIT

Dr. Somashekara Bhat, Joint Director, MIT

♣ Faculty Mentor:

- Dr. Smitha N Pai, Professor and Head, ICT, MIT

♣ Faculty Advisors:

- Dr. Manohara Pai M.M, Professor, ICT, MIT
- Dr. Preetham Kumar, Professor, ICT, MIT
- Dr. Balachandra, Professor, ICT, MIT

♣ Editor-in-Chief:

- Dr. Girija Attigeri, Faculty, ICT, MIT

♣ Editorial Team:

- Mrs. Swathi B. P, Faculty, ICT, MIT
- Mr. Mohammed Zuraique, Student, I M.Tech. (CNE)
- Mr. Kathiresan Kailasam, Student, I M.Tech. (SE)
- Mr. Deepesh Garg, Student, VI B.Tech. (IT)
- Mr. Siddhant Gupta, Student, VI B.Tech (CCE)

♣ WORKSHOPS

PING 2.0.2.2

The annual workshop of the ICT Dept., PING 2.0.2.2 with the theme " Artificial Intelligence and Cognitive Science " was conducted on 25th and 26th February, 2022 in online mode in association with Deutsche Bank, Bangalore. Mr. Gautham Bhat, Head of cloud architecture and artificial intelligence group, Mr. Rajneesh Rai, Senior cloud security architect, Mr. Kiran Puthukudy, senior cloud architect, Mr. Nalini Mathusoodanam, senior research scientist, and Mr. Sudhir Mahale, Lead of cloud and AI architecture were the resource persons. They focused on need of AI for adaptation and acceleration of business to achieve sustained development goals around the world. They delivered hands on sessions on AI and ML along with several case study discussions. **Dr. Smitha N Pai** and **Dr. Preetham Kumar** Faculty, ICT. were the conveners of the workshop.





ETHICAL HACKING

The workshop was conducted on 17th March, 2022 in association with IBM, Bangalore. It was Conducted through online mode. The speakers were **Ms. Lekshmi R Krishnan**, Software tech specialist, IBM, Bangalore and **Ms. Rekha Dhunale**, Senior QA Analyst, IBM Bangalore. The workshop covered on various sessions on the basics of Ethical Hacking and Pen Testing (EHPT) along with different types of EHPT. It has phases which involves Pen Testing with a few real-world examples of instances, tools and facts. The second half of the workshop was on top 5 commonly used tactics for Hacking/Pen Testing in detail with live demonstrations and examples for the participants to get a closer look at the tools and steps to go about. The workshop was coordinated by **Mrs. Nisha P Shetty**, Faculty, ICT.

C2C - CAMPUS TO CORPORATE

The workshop was conducted on 8th October, 2022 in association with office of the industry liaison, placement and practise school along with NOKIA UC, Bangalore. The Speaker was **Ms. Indumathi Sandirane**, Program Manager, Business Transformation & Global Programs, Core Networks, NOKIA. The following topics were covered in this workshop- Communication: Barriers, Effective communication styles, Best practices Trust & Collaboration: Building trust, Virtual teams, Teamwork, Self-reliance Organization Culture: Virtual offices and hybrid work , Etiquettes, Bias and Perceptions, Virtual collaboration. The workshop was coordinated by **Dr. Poornalatha G.**, Faculty, ICT.

HPC IMPLEMENTATION, USAGE, AND PRACTICAL APPLICATIONS

Dept of ICT organized a workshop on "HPC Implementation, Usage, and Practical Applications" coordinated by **Dr. Manohara Pai, M. M., and Dr. Veena Mayya**, Faculty, ICT. **Mr. Ravi Bhat**, Sr. Technical Consultant, Orchids Network and Systems India Private Limited delivered a session on HPC implementation and usage, while **Dr. Veena Mayya** conducted a hands-on session on practical applications.

DIGITAL FORENSICS

Dr. Balachandra, Mr. Akshay KC, Ms Nisha P Shetty Faculty from ICT Dept and Dr. Abhilash K Pai from DCA dept., had conducted a workshop on Digital Forensics from 9th to 10th September, 2022. They delivered talks on various digital forensic areas such as Cybercrime, Data Acquisition, Windows and Storage Forensics, Password cracking and Steganography with suitable Hands-on sessions for the participants from Forensic Medicine and Toxicology Department, KMC Manipal.



ESTABLISHMENT OF INDUSTRIAL IOT APPLICATION LAB WITH HIGH PERFORMANCE COMPUTING

Industrial IOT systems and application research lab established in the Department of ICT was inaugurated by Ms. Chitra Sukumar, VP Research, Schneider electric. During inauguration Dr. Somashekar Bhat, Joint Director, MIT, Dr. Vasudha Devi, and Dr Smitha Pai were present. This lab is established for research in Artificial Intelligence, Machine Learning and Industrial IoT. The HPC configuration with state of the art GPU (Nvidia Ampere100) providing ~40TFlops power at 64 bits, ~100TFlops at Tensor 32 bit. **Dr. Manohara Pai M M**, Faculty, ICT is the Research Co-ordinator and Principal Investigator of the lab.



CENTER OF EXCELLENCE FOR CYBERSECURITY

Dr. Balachandra, is the Coordinator-Center of Excellence for Cybersecurity, Professional level Center of Excellence (CoE) at MIT, which is established as part of MoA between MAHE and Information Sharing and Analysis Center (ISAC). ISAC is a non-profit foundation. It is a Public-Private-Partner with the National Critical Information Infrastructure Protection Center (NCIIPC) and Partner with Indian Computer Emergency Response Team (CERT-IN). It is a Public-Private-Partner with the Ministry of Education under the NEAT 2.0 for various programs under the National Security Database and is a partner with the All India Council for Technical Education (AICTE) for cyber security education. The CoE is providing NSD certifications on various Cybersecurity courses to produce Cybersecurity professionals.



COLLABORATIVE DEGREE PROGRAM AT MAHE AND BINGHAMTON UNIVERSITY, NEW YORK.

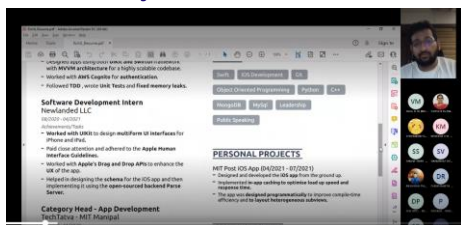


Dr. Preetham Kumar is a coordinator for a collaborative degree program for the engineering students of Manipal Institute of Technology, Manipal, a constituent unit of MAHE. This program will allow students from MIT to study for 3½ years at MIT and 1½ years at Binghamton University, resulting in a Bachelor's degree from MAHE and Master's degree from Binghamton University. This is established as part of Memorandum of Understanding to establish an academic and research cooperation between the two institutes. The signing ceremony took place on 28th April, 2022.

♣ GUEST LECTURES/SEMINARS/WEBINARS

Alumni Talk: Manipal to Microsoft

Mr. Rohit Rajesh Kuber, alumnus of B.Tech (IT 2018-22) batch delivered the guest talk on "Placement Experience" on 10th August, 2022

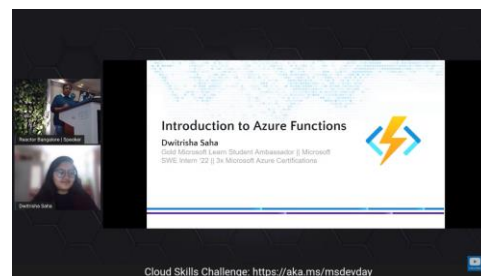


Mr. Aditya Gupta, alumnus of B.Tech (CCE 2014-18) batch delivered the guest talk on "From Manipal to Microsoft, a journey in between and beyond" was held on 12th August, 2022. He explained about how to prepare a good resume to get shortlisted for companies and gave tips on the expectations of the interviewer and how to get prepared for the placement interview. Around 40 students from different branches attended the session.



Alumni Talk : Introduction to Azure

Ms. Dwitrisa Saha, alumna of B.Tech (IT) delivered a talk during “Microsoft Student Developer Day” held at Microsoft Reactor India to empower & encourage students to share learning with the community via the “Microsoft Reactor platform on Introduction to Azure Functions” on 25th November, 2022.



Alumni Talk: Placements

Mr. Akshat Gupta, senior software engineer at Arcesium and alumna of B.Tech (IT 2015-19) batch delivered a talk on “Placement Interviews – Ultimate Guide and Roadmap” on 5th March, 2022 in online mode. Around 80 students from different UG and PG courses benefitted from the session. The guest lecture was coordinated by **Dr. Rashmi Naveen Raj**, Faculty, ICT.

IBM Talk Series : Cloud Expert Sessions

Dr. Smitha Pai and Dr. Veena Mayya, Faculty, ICT coordinated a six-day talk series on Cloud Computing by IBM experts from 3rd to 11th October, 2022.

“Overview of IBM Cloud” Session was coordinated by **Dr. Manjula Shenoy**, Faculty, ICT, which was conducted on 3rd October, 2022. The Mr. Samuel Stanely and Mr Hari K Arla, Application Architect, IBM were the resource persons. They gave an overview of IBM cloud, explained delivery models and deployment models, emphasized on what is Identity Access Management (IAM) and showed different ways to have IAM roles such as administrative and user roles etc.

II session "IBM Platform for Data Science." was coordinated by **Dr. Diana Olivia**, Faculty, ICT on 4th October 2022. The resource person was Mr. Akash V. Gunjal, Program Manager, Global University Programs, IBM Research, IBM India Pvt. Limited. Mr. Gunjal provided an overview of the principles of data science and led a comprehensive hands-on workshop on utilizing IBM Watson Studio to host project-related data, add services to projects, and execute various machine learning models.

III Session was on "Overview of IBM Cloud Compute, Storage, Network capabilities, Understand kubernetes with IBM Cloud IKS/ROKS. Deploying apps on IKS/ROKS cluster, Open Shift (creating cluster)" was coordinated by **Ms. Pooja S**, Faculty, ICT on 6th October, 2022. The resource person was Mr. Neeraj Kumar Kashyap & Mr. Arashad Ahamad, architects, IBM Bangalore, IBM India Pvt. Limited. They provided an overview of the compute resources, virtual server benefits, IBM cloud storage, Network and security capabilities through IBM cloud console. IV session was on “DevOps on IBM Cloud” conducted on 7th October, 2022. Coordinated by **Dr. Veena Mayya**.

V Session on “Overview of IBM Cloud Databases- Cloudant” was given by the speaker, software engineer for IBM Cloud databases on 10th October, 2022. VI Session on “Overview of creating secure Applications” was delivered by Mr. Pradeep Gopalgowda, DevOps architect for IBM Cloud platform on 11th October, 2022. These sessions were coordinated by **Dr. Sumith N**, Faculty, ICT.

Fundamentals of 3D Graphics

The Technical Talk was conducted on 21st February, 2022 in online mode. The resource person was **Mr. Abhishek Rhisheekesan**, Founder, MD, ai Render Technology Pvt Ltd. The session introduces you to the world of 3D computer graphics and the typical 3D graphics rendering pipeline. It walks you through the world of 3D geometry, different spaces in 3D and transformation between them, clipping, culling, rasterization, depth and stencil testing, texture sampling, lighting (types and sources of 3D lighting), lighting equation, blending, and shaders. **Ms. Chetana Pujari**, Faculty, ICT, coordinated the event.

Challenges and Pragmatic Solutions of Working Women

The Guest Talk was conducted on 8th March, 2022 on the occasion of Women’s day, in online mode. The speaker was **Dr. Saritha Tonse**, Dept. of Rog Nidan Abum Vikriti Vigyan, SDM College of Ayurveda. She talked about the challenges the working women face and she also talked about the solutions to overcome those challenges. The event was coordinated by **Ms. Nisha P Shetty**, Faculty, ICT.



IBM Platform for Data Science

Department of Information and Communication Technology organized a technical talk with hand-on session on "IBM Platform for Data Science" on 10th March, 2022. **Dr. Mani Madhukar**, Program Manager, Global University Programs, IBM Research, IBM India Pvt. Limited was the resource person. Dr. Mani briefed about the fundamentals of data science and delivered an in depth hands on session on using IBM Watson Studio for hosting data pertaining to project, adding services to the projects and running various models in machine learning. He also provided a glance over various services provided in IBM cloud for Data Analytics. Dr. Mani addressed various queries of students and faculty with respect to IBM cloud platform. A total of 93 undergraduate students and faculty of various branches in MIT and institutions of MAHE attended the talk. The talk was coordinated by **Mrs. Swathi B. P**, Faculty, ICT.

Customer Discovery and the Road to Product Market Fit

Resource Person **Mr. Abhishek Rhisheekesan** Founder and CEO at aiRender Technology Pvt Ltd. delivered a talk on 9th March, 2022. The session introduced the audience to Customer Discovery, the first step in Customer Development (a model pioneered by Steve Blank) and how it leads to Product Solution Fit. It introduced simple tools to aid customer discovery like BMC and VPC and the speaker's firsthand experience with it. It went through the role of Hypotheses in customer discovery and the process of validating/invalidating them to reach a Product Solution Fit. It also introduced the further steps in Customer Development and the road to Product Market Fit. **Ms. Veena K M**, Faculty, ICT, coordinated the event.

Emerging Technology Trends

The Guest Talk was conducted on 28th Sept, 2022 in online mode. It had total of 70 participants. The speaker was **Mr. Mahesh Srivastava**, CTO Louisa by Goldman Sachs. Technology is evolving at a rapid pace. Technology advances help organizations lift their productivity, invent, and reinvent offerings, and contribute to humanity's well-being. Organizations need to plan for trends that will create long-term roadmaps for reliant and sustainable business growth. They need to recognize these in advance and understand how their technology strategy could impact their business strategy. Not only has technology evolved, but a lot has changed since the outbreak of COVID-19. The role of IT professionals has not remained the same. Over the next 2-5 years, there will be a need to constantly learn, unlearn and relearn out of necessity if not desire. In this session, the guest speaker Mr. Mahesh Srivastava, covered several technology trends that could disrupt the world in the next 2-5 years. The talk was coordinated by **Dr. Preetham Kumar** and **Ms. Veena K. M**, Faculty, ICT.

Smart India Internal Hackathon (SIH 2022)



MIT organized an Internal Hackathon as a preliminary round to select and nominate best 10, 5 Shortlisted and Waitlisted teams in Software and Hardware Projects for Problem Statements of Govt or as Student Innovations. The Internal Hackathon was organized on 12th March, 2022 for a duration of 12 hours, from 8.00 AM to 8.00 PM, for MIT students. Total 26 teams (6 members per team with one female member compulsory) had participated in the event. Teams selected problem statements which are provided by various industries and government sectors. Among the 26 teams, 16 teams selected software domain problem statements and 10 teams selected problem statements of hardware domain. The faculty of the department, Dr. Raghavendra Achar, Prof. Chethan Sharma, Prof. Akshay K C, Prof. Veena K. M, Dr.



Adesh, Dr Raghavendra S, Dr. Kaliraj, Dr. Raghavendra Ganiga, Prof. Chetana Pujari, Dr. Veena Maiya, Dr. Sameena B. P, Dr. Vignesh U, Ms. Ipsita Upasana were actively involved in the process of hackathon, headed by SPOC, **Dr. Sucheta Kolekar**, Faculty, ICT.

Academia-Industry conclave 1.0 Hackathon

MIT, Manipal and Innovation Centre, MAHE in association with CII Mangalore conducted Academia-Industry conclave 1.0 on 10th September, 2022. As a part of the conclave, a hackathon was conducted on 9th September, 2022 in which around 23 teams participated from various colleges. Out of 23 teams top 3 winners along with 5 consolation prize winners were shortlisted. Top 3 place winning teams got Rs. 15000/-, Rs. 10000/- and Rs.5000/- respectively and remaining 5 consolation prize winners bagged Rs. 4000/- each. Total prize amount will be Rs. 50000/- which is sponsored by Novigo Solutions Pvt. Ltd. and Arkieva Supply Chains Technologies Pvt. Ltd.

The faculty of the department, Dr. Raghavendra Achar, Mr. Chethan Sharma, Ms. Veena K. M, Dr Raghavendra S, Dr. Girija Attigeri, Dr. Sivakumar were actively involved in the process of hackathon.

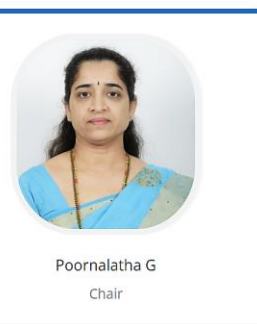
♣ FACULTY ACHIVEMENTS

National Technical Best Teacher Award From AICTE



Dr Manohara Pai M M, has received the prestigious National Technical Best Teacher award from AICTE. The award is introduced by AICTE for identifying the exceptional teachers at the national level in field of technical education. Teachers with unique contributions from the AICTE approved institutions offering Degree and Diploma in the country are considered for the award. This scheme, formerly called AICTE - Visweswaraya Best Teacher award is aimed to recognize 20 meritorious and outstanding teachers on Teacher's Day i.e., 5th September every year at National level. Dr Manohara Pai M M. was nominated by MIT Manipal and was selected by a panel of experts constituted by AICTE for the award. He received the

award on 6th September, 2022 at a function organized in Dr Ambedkar International Centre, New Delhi by the Ministry of Education, Government of India, in presence of Smt. Annapurna Devi, Shri Rajkumar Ranjan Singh, and Dr Subhash Sarkar, Ministers of State (MoS) for Education, Government of India. The award comprises cash prize of `Rs. 25,000/- along with a medal and certificate of excellence in recognition of teaching excellence in technical education.



ExeCom 2022
Chair



Award Outstanding Women In Engineering

Dr. Poornalatha G, was awarded “Outstanding Women in Engineering Volunteer Award” in recognition of her outstanding contribution to IEEE Mangalore Sub Section activities on 16th January, 2022.



Special Mention of The Jury

Dr. Sameena Begum Pathan's PhD Thesis “Automated Detection of Melanocytes Related Pigmented Skin Lesions Using Image Processing” won “Special Mention of the Jury for the year 2020” in the category of CSE and allied branches by the BITES Best PhD Thesis Awards for the year 2020.

Master’s Program

Dr Manohara Pai M M, initiated and coordinated Masters program for Schneider Electric employees at Bangalore established in the ICT department.

Editorial Board Members



Dr. Sanjay Singh became Editorial board member of the Journal Applied Soft Computing

Dr. Raghavendra S has been invited as an Editorial board member of “Journal of Engineering” Hindawi from 5th December, 2022. He is an associate editor of “Human-centric Computing and Information Sciences (HCIS)” journal from 2018 to the current year.

Faculty as Convener/Session Chair/Judge

Dr Manohara Pai M M, Chief guest for closing ceremony of IEEE N K Subsection International conference, 20th to 21st November, 2022.

Dr Manohara Pai M M, Chaired a session of Plenary speaker of Prof. Dr. M. Michael Grohima, Professor of Biotechnology, Indian Institute of Technology, Madras on 5th November, 2022.

Dr. Sanjay Singh chaired sessions on 2022 IEEE 22nd International Conference on Communication Technology (ICCT 2022) held during 11th -14th November, 2022 in Nanjing, China (virtual conference) and ICHTR-2022 held at Manipal Academy of Higher Education, Manipal during 25th -26th November , 2022.

Dr. Poornalatha G inaugurated the following IEEE student branches as a guest at Mangalore University Student Branch and AJIET Student Branch.

Dr. Poornalatha G was IEEE Conference General Chair for 2022 IEEE International Conference on DISCOVER, JNNCE Shivamogga, IEEE International Conference on AIDE - 2022, NMAMIT Nitte.

Dr. Poornalatha G was a Member of Organizing Committee of IEEE ICWITE 2022, IISc Bangalore.

Dr. Poornalatha G was a Member of Steering Committee of 7th IEEE International Conference on RAIE, NITK Surathkal.

Dr. Poornalatha G was Member of Operational Committee of Hackathon Go AI for Good, CDAC Bangalore.



Faculty as keynote speaker/resource person

Dr. Ajitha Shenoy delivered talk on Mathematics for Data Science during Five-Day Workshop on Data Science Using Python conducted by the Department of Mathematics and Department of Computer Science of the Rajiv Gandhi National Institute of youth Development (RGN[YD]) in association with Department of Computer Applications, CUSAT, Cochin from 7th to 11th February, 2022.

Dr. Sumith N was resource person for course on deep learning in summer school program 2022, organized by MAHE student research forum, under the aegis of directorate of research mahe held on 17th June, 2022

Dr. Veena Mayya was the resource person for the three-day Workshop on “Research in Artificial Intelligence by Domain: Applications and Technologies”, organized by the Department of Computer Science and Engineering, St Joseph Engineering College, Mangaluru, held on 21st to 23rd March 2022.

Dr. Poornalatha G was a guest speaker at the event "New Learning Methodologies in Engineering & Medical Education - Role of Faculties & Libraries" organized by EBSCO, Mangalore

Dr. Poornalatha G was a guest speaker for the session on “ IEEE Membership Benefits” at BIT Mangalore

Dr. Poornalatha G was speaker at IEEE Conference Organizers Education Workshop (COEW 2022) - IEEE Bangalore Section



Dr. Raghavendra S was the resource person for the two-day Workshop on “Machine Learning Tool organized by the Department of Computer Science and Engineering, Vivekananda College of Engineering & Technology, Puttur, held on 18th and 19th November, 2022.

Interaction with Outside World

Mr. Arjun C. V. is currently carrying out research at Technological University Dublin. The research work aims at modelling cognitive load with EEG and deep learning for human computer interaction and instructional design.

Dr. Raghavendra Ganiga is currently carrying Postdoctoral research fellowship at Department of Computer Engineering, College of IT Convergence Engineering, Chosun University, Gwangju, South Korea. The research work focuses on the classification and analysis of EMG signals.

Publications

The faculty members have published around seventy-six research papers in various Scopus and Web of Science indexed journals and also presented around fifteen papers in various international conferences. Students of the department have also contributed for publications.

Patents and Grants

- * Two patents were filed by **Dr. Manohara Pai M. M.**, two patents were filed by **Dr. Kaliraj S.**
- * **Dr. Manohara Pai** has received Research Grants worth \$6936 for the research titled “Anomaly detection and predictive analysis research” from Schneider Electric India, Hyderabad.

Awards and Recognitions

Mrs. Nisha P. Shetty, Dr. Balachandra and students Mr. Pratyay Prakhar, Mr. Angad Singh, Mr. Gunveen Batra, Ms. Akshita Puri, Ms. Divya Bhanu Manjunath and Mr. Vidit Vinay Jain, won Best Paper Award for the paper entitled to Trust based resolving of conflicts for collaborative data sharing in Online Social Networks in the session Technical Session 4.4/ Data Science and Data Analytics III in International Conference on Emerging Technologies in Data Mining and Information Security (EMIS) 2022 conducted during 23rd to 25th February, 2022.



Ph.D. Awardees

Mr. Santhosh Kamath has been awarded a doctoral degree by MAHE, Manipal, for his thesis titled “SDN based Traffic Management for OTT applications in Cellular Networks” under the guidance of **Dr. Sanjay Singh** Professor, Dept. of Information and Communication Technology, MIT, Manipal.



Mrs. Manjula C Belavagi has been awarded a doctoral degree by MAHE, Manipal, for her thesis titled “Efficient Intrusion Detection using Traffic Logs in Wireless Sensor Networks” under the guidance of **Dr. Balachandra** Professor, Dept. of Information and Communication Technology, MIT, Manipal



Mr. Raviraja Holla M has been awarded a doctoral degree by NITK, Surathkal, for his thesis titled “Analysis and Design of GPGPU-based Secure Visual Secret Sharing (VSS) Schemes” under the guidance of **Dr. Alwyn R Pais**, Associate Professor, Department of Computer Science and Engineering, NITK, Surathkal.



Mrs. Veena Mayya has been awarded a doctoral degree by NITK, Surathkal, for her thesis titled “AI-based Clinical Decision Support Systems Using Multimodal Healthcare Data” under the guidance of **Dr. Sowmya Kamath S**, Assistant Professor, Department of Information Technology, NITK, Surathkal



Mrs. Diana Olivia has been awarded a doctoral degree by MAHE, Manipal, for his thesis titled “Prediction of Clinical Status and Triaging in Mass Casualty Incident using QoS-aware Routing Protocol and Optimization Framework.” under the guidance of **Dr. Ashalatha Nayak**, Professor, and **Dr. Mamatha Balachandra**, Associate Professor (Sr. sclae), Dept. of Computer Science and Engineering, MIT, Manipal.



Faculty Sports Achievements

Mr. Akshay M J, Faculty, ICT was part of MIT Manipal faculty badminton team which bagged the position of Winners in the Annual Inter Collegiate Staff Tournament in badminton team event organized by PES University, Bangalore from 25th to 27th February, 2022.



Dr. Santhosh Kamath, **Mr. Akshay M. J**, Faculty, ICT were part of team A and **Dr. Raghavendra Ganiga**, **Dr. Raghavendra S**, Faculty, ICT were part of team B of Computer Science Stream cricket team. Team A won the Runners up trophy during LAGAAN Cricket Tournament was organized by MIT-FOA Faculty club on 6th March, 2022



Dr. Santhosh Kamath was a member of the MIT Faculty cricket team, which won the inter MAHE cricket cup tournament on 7th December, 2022.



♣ STUDENT ACHIVEMENTS

Mr. Suvam Poddar B.Tech (CCE), secured II prize for the event “Virtuoso” of Crescendo in Revels’22 on 13th April, 2022.

Mr. Arushi Gandhi, B.Tech (IT) was selected as 2022 Generation Google Scholar by Google on 30th April, 2022.

Mr. Sakshat Gandhi, B.Tech (IT) and Team participated in “E-Samudaay Hackathon” during 29th-30th July, 2022. and secured 3rd prize . They created a fully functional website in a 48 hours extensive hackathon where the team had to make an API call to E-Samudaay’s compliance report API, process the response, and prepare a user-friendly UI to display the compliance report to necessary stakeholders.

Mr. Jayant Taneja, B.Tech (CCE), participated in Inter MAHE boxing championship, he secured 2nd place in the championship. Category- 92+ kg on 11th April, 2022.

Mr. Srijith Radhakrishnan, B.Tech (IT) and Mr. Manthena Manisimha Verma B.Tech (CCE), participated 2022 IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW) on Affective Behavior Analysis in-the-wild (ABAW) on 19th June, 2022 and presented their paper titled "Cross Transferring Activity Recognition to Word Level Sign Language Detection" .

Mr. N R Deva Charith, B.Tech (CCE) is awarded the International award for young people on 24th June, 2022 based on his physical activity, social service, skill, adventurous journey, and residential project.

Mr. Prakhar Bhatnagar, B.Tech (CCE) has achieved the IBM Qiskit Advocate badge, which signifies a deep understanding of circuits, algorithms, simulators, qubits, and noise within Qiskit on 1st August 2022.

SMART INDIA HACKATHON WINNERS



Team iPanda became the Winner (Sharing) of Smart India Hackathon 2022 Grand Finale. Team won winning trophy and Cash Prize Rs. 1 Lakh. Team was lead by Mr. Arnav Agarwal B.Tech (CSE), other team members were Ms. Ishita Saha, B.Tech, (DSE), Mr. Nishant Dash B.Tech, (CSE), Mr. Swamiraju Satya Praveen Varma B.Tech, (CSE), **Ms. Aiswarya Anand B.Tech, (CCE)** and Mr. Divyansh Kulshreshtha B.Tech, (EEE 2nd Year). The team was mentored by **Dr. Girija Attigeri**, Faculty, ICT and Dr. Niranjan U C, MDN Manipal. Their problem statement was Heritage & Culture and built application KalaKart

Ms. Muskan Budhraja, B.Tech (IT) participated in the event “Formula Student Germany” during 15th to 21st August, 2022. She is a part of Formula Manipal, a Business Plan lead, and a Management Team member. She also Participated in the Business Plan event at Formula Student Germany and bagged 6th place in the international event.

Mr. Ayush Kumar, B.Tech, (CCE) was part of MIT Team (Project SANAM) which won 2nd Runner Up position with Rs. 30K Cash Prize in DVCon India 2022 Hackathon. The problem statement of the hackathon was to Accelerate AI algorithms on an FPGA. The event was conducted online on 5th and 6th September, 2022.

ACADEMIA-INDUSTRY CONCLAVE 1.0 HACKATHON WINNERS

- **Mr. Killana Praneeth Chand Baba** ,B.Tech (IT) and Team were **First Runners Up** during Academia-Industry Conclave 1.0 Hackathon held on 9th September, 2022 at Manipal Institute of Technology, MAHE, Manipal .
- **Mr. Yash Bijalwan**, B.Tech (CCE) and team, **Mr. Harshith**, M, B.Tech (CCE), **Mr. Manas**, B.Tech (CCE), **Ms. Aarushi**, B.Tech (CCE) and team , **Mr. P N V S S Harshit** , B.Tech (IT), **Mr. Vyshnav D N**, B.Tech (IT) and team and Team comprising of **Mr. Nishant Gupta**, B.Tech (IT) **Ms. Ashita Rastogi**, B.Tech (IT) **won consolation prizes** during Academia-Industry Conclave 1.0 Hackathon held on 9th September, 2022 at Manipal Institute of Technology, MAHE, Manipal



Ms. Rithika, B.Tech (CCE) presented a papers “Interstellar Space Exploration using Photon Propulsion” and “Demystifying The Mysterious Properties Od Saturn’s Dead Star Moon” at the International Astronautical Congress conference in Paris, which was held from 18th to 22nd September, 2022.

Mr. Saksham, B.Tech (IT), served as General Secretary - Apple Developers Group (Served as the General Secretary for ADG for the term 2021-22). He started a nonprofit NGO “Laadki” in the state of Haryana to uplift the status of rural women. He also, bagged a Deloitte Applause Award for his excellent service as an intern at Deloitte on 24th November, 2022.

Ms. Sriya Rallabandi, B.Tech (IT) presented the poster presentation of the research paper "Performance Evaluation Of Deep Segmentation Models On Landsat-8 Imagery" at Tackling Climate Change with Machine Learning Workshop at NeurIPS 2022 to be held on 9th December, 2022.

Mr. Aditya Pandey and **Mr. Kartik Warriar**, of B.Tech (IT), are members of the social service organization PARIJAT. They visited three Old Age Homes and helped over 70 people with oral health and other products for daily use such as soaps and tissues.



Vishranthi Dhama- Manipal



Aradhana Old Age Home and Care Takers- Ambalapadi



Life Care Old Age Home- Uppur

♣ ALUMNI ACHIEVEMENTS

Mr. M. Satyam Mishra, alumnus B.Tech (IT) . has been chosen as the first educator from Eastern India to have made it to the Top 50 Finalists, Global Teacher Prize, Varkey Foundation for his contributions to the education sector. For his service to the education sector, he has been elected to be one of the Shapers at the Global Shapers Community (GSC), an initiative of the World Economic Forum.



Meghana Munshi from Telangana and Satyam Mishra from Bhagalpur in Bihar have been shortlisted for this year's Global Teacher Prize. (Photo: File.)



Mr. Rahul Gupta, alumnus B.Tech (IT 2009-13) batch is awarded as 30under30 disruptor by Business World. Rahul Gupta is a serial tech entrepreneur (1 successful exit + 1 profitable startup) with a proven track record of leading and building global data science functions with US\$ 1B+ of revenue and 100s of millions of users spanning over 80+ countries. He is currently CEO & founder of Singularity AI Labs.

Mr. Arpit Jain, alumnus B.Tech. (IT 2009-13) batch has donated an amount of 4 lakhs towards the travel grant for students. Mr. Arpit is working in computer vision group of Amazon Physical Stores Just Walk Out.



Ravi Kashyap, alumnus B.Tech (IT 2008-12) batch, Authored a **book** “SAP on Microsoft Azure: Architecture and Administration”. He works at Microsoft as an architect and customer advocate for SAP systems on Microsoft Azure.

Mrs. Garima Vishal, alumnus B.Tech (IT 2006-10) batch. Mrs. Garima was a speaker for budding entrepreneurs of MAHE in "Manipal Entrepreneurship Summit 2022. She was felicitated on 8th March, 2022 during International Women’s Day Celebration at MIT, Manipal.





MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL
(A constituent unit of MAHE, Manipal)

MIT's Vision: Excellence in Technical Education through Innovation and Teamwork.

MIT's Mission: Educate students professionally to face societal challenges by providing a healthy learning environment grounded well in the principles of engineering, promoting creativity, and nurturing teamwork.

DEPARTMENT OF INFORMATION AND COMMUNICATION TECHNOLOGY

Vision: Excellence in Information and Communication Technology education through continuous learning and teamwork

Mission: To provide expertise in planning, designing, implementing and deploying IT infrastructure, to realize information systems aiming at providing solutions to societal requirements, and to promote quality education and research

B.TECH IN INFORMATION TECHNOLOGY

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO 1: Demonstrate technical competence to work in IT sector

PEO 2: Analyse, design, and provide solutions to professional needs

PEO 3: Pursue higher studies, carry out research and development in evolving technologies, and demonstrate professionalism

PEO 4: Engage in life-long learning, communicate effectively, and exhibit leadership skills

PEO 5: Demonstrate sensitivity towards ethical and environmental issues, and social responsibilities

PROGRAM OUTCOMES (POs)

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

PO 2: Problem analysis: Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO 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.

PO 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.

PO 5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO 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.

PO 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.

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

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

PO 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.

PO 11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to ones own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO 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)
<p>PSO 1: To identify, analyse and develop software systems using appropriate techniques and concepts related to information technology</p> <p>PSO 2: To design an algorithm or process within realistic constraints to meet the desired needs through analytical, logical and problem-solving skills</p> <p>PSO 3: To apply state of the art IT tools and technologies, IT infrastructure management abilities in treading innovative career path as a prospective IT engineer</p>

B.TECH IN COMPUTER AND COMMUNICATION ENGINEERING

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)
<p>PEO 1: Demonstrate technical competence in Computer Communication and applications</p> <p>PEO 2: Formulate software solutions for computer communication systems</p> <p>PEO 3: Pursue higher studies to carry out research and development in evolving technologies</p> <p>PEO 4: Engage in lifelong learning, communicate effectively and exhibit leadership skills</p> <p>PEO 5: Demonstrate sensitivity towards professional ethics.</p>

PROGRAM OUTCOMES (POs)
<p>PO 1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.</p> <p>PO 2: Problem analysis: Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.</p> <p>PO 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.</p> <p>PO 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.</p> <p>PO 5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.</p> <p>PO 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.</p> <p>PO 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.</p> <p>PO 8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.</p> <p>PO 9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.</p> <p>PO 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.</p> <p>PO 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.</p> <p>PO 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</p>

PROGRAM SPECIFIC OUTCOMES (PSOs)
<p>PSO 1: Design algorithms or processes within realistic constraints to meet the desired needs through analytical, logical and problem-solving skills.</p> <p>PSO 2: Develop software systems using software processes and models.</p> <p>PSO 3: Apply the knowledge of architecture, operating protocols, telecom networks and software skills to develop software for communication domain</p>



M.TECH IN COMPUTER AND NETWORK ENGINEERING

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

- PEO 1: Demonstrate technical competence to work in the computer networking domain
- PEO 2: Formulate innovative and traceable solutions for network communication systems
- PEO 3: Pursue higher studies, and contribute to research and development
- PEO 4: Collaborate in interdisciplinary projects and exhibit a high level of professional and ethical values

PROGRAM OUTCOMES (POs)

- PO 1: Independently carry out research/investigation and development work to solve practical problems
- PO 2: Write and present a substantial technical report/document
- PO 3: Demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program.

PROGRAM SPECIFIC OUTCOMES (PSOs)

- PSO 1: Design network hardware architecture and software for wired and wireless communication networks
- PSO 2: Model and Simulate Network topologies using Network Elements to demonstrate and analyze the performance • PO6: Apply concepts and processes to develop intelligent and secure networks

M.TECH IN SOFTWARE ENGINEERING

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

- PEO 1: Demonstrate technical competence in software system development.
- PEO 2: Analyse and design optimal software solutions for societal problems
- PEO 3: Pursue higher studies and contribute to research and development.
- PEO 4: Collaborate in interdisciplinary projects and exhibit a high level of professional and ethical values.

PROGRAM OUTCOMES (POs)

- PO 1: Independently carry out research /investigation and development work to solve practical problems
- PO 2: Write and present a substantial technical report/document
- PO 3: Demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program.

PROGRAM SPECIFIC OUTCOMES (PSOs)

- PSO 1: Design software systems by applying software engineering principles and practices to provide solutions to complex engineering problems
- PSO 2: Model and verify software systems using the latest tools and technologies
- PSO 3: Ability to use the techniques, tools, and processes for software architecting, testing, and Quality assessment

M.TECH IN MACHINE INTELLIGENCE & DECISION SCIENCE

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

- PEO 1: Demonstrate technical competence in intelligent system development.
- PEO 2: Analyse and design optimal intelligent solutions for societal problems
- PEO 3: Collaborate in interdisciplinary projects and exhibit a high level of professional and ethical values.
- PEO 4: Pursue lifelong learning in generating innovative engineering solutions using research and complex problem-solving skill

PROGRAM OUTCOMES (POs)

- PO 1: Independently carry out research /investigation and development work to solve real-life problems
- PO 2: Write and present a substantial technical report/document.
- PO 3: Demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program.



PROGRAM SPECIFIC OUTCOMES (PSOs)
PSO 1: Design intelligent systems by applying engineering principles and practices to provide solutions to complex engineering problems
PSO 2: Provide automation/software solution for societal problems
PSO 3 Ability to use the tools and techniques for developing decisive and intelligent solutions.
