



DAYANANDA SAGAR ACADEMY OF TECHNOLOGY AND MANAGEMENT

(Affiliated to Visvesvaraya Technological University, Belagavi & Approved by AICTE, New Delhi)

Opp. Art of Living, Udayapura, Kanakapura Road, Bangalore- 560082

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Accredited NBA, NAAC with A+, New Delhi

Faculty Name	Dr. Roopa R. Kulkarni	
Academic Designation	Associate Professor	
Educational Qualification	Ph. D.	
Experience in Years	23years	
Area of Interest	Low Power VLSI Design and Verification, IoT, AI, Embedded System Design.	
Date of Birth	21 st March 1978	
Email ID	roopakulkarni-ece@dsatm.edu.in/ roopa.patavardhan@gmail.com	

Educational Details

- Ph.D in Low Power VLSI from Visveswaraya Technological University, Belagavi in 2019
- M.Tech in VLSI Design and Embedded Systems from Visveswaraya Technological University, Belagavi in 2005
- B.E in Electronics and Communication Engineering, KLS Gogte Institute of Technology, Belagavi, in 1999

Personal Details

- Date of Birth: 13/06/1989
- Hobbies: Traveling
- Languages Known: English & Kannada

Professional Experience

- Working as **Associate Professor** in Department of Electronics and Communication Engineering, Dayananda Sagar Academy of Technology and Management from **November 2019 till date**
- Worked as **Associate Professor** in the Department of Electronics and Communication Engineering, at KLS Gogte Institute of Technology, Belagavi from **February 2019 to November 2019**.
- Worked as **Assistant Professor** in the Department of Electronics and Communication Engineering, at KLS Gogte Institute of Technology, Belagavi from **August 2007 to February 2019**.

- Worked as **Lecturer** in the Department of Computer Science and Engineering, at KLE Society's College of Engineering and Technology, Belagavi from **April 2001 to August 2007**.
- Worked as **Lecturer** in the Department of Electronics and Communication Engineering, at Manipal Institute of Technology, Manipal from **October 2000 to April 2001**.
- Worked as **Lecturer** in the Department of Electronics and Communication Engineering, at Maratha Mandal College of Engineering, Belagavi from **April 2000 to October 2000**.

Professional Membership

- Senior Member IEEE
- Life Member ISTE

Publications

Book Chapters:

- Atul Kumbhar, Manjula G, Roopa R Kulkarni, Prashant Patavardhan, "State-of-the-art Analysis and Research Direction towards Secure Mobile Edge Computing in Transport System" in Machine Learning Algorithms for Intelligent Data Analytics, ISBN 978-93-92104-07-7, Technoarete Publishing, December, 2022.
- Sudhakar Hallur, Roopa Kulkarni, Prashant Patavardhan, and Vishweshkumar Aithal, "IoT Security Issues, Challenges, Threats, and Solutions in Healthcare Applications", in Integrating AI in IoT Analytics on the Cloud for Healthcare Applications, IGI global platform, ISSN:2327-0411 (EISSN:2327-042X), Jan 2022, pp 104-130.
- Sudhakar Hallur, Roopa Kulkarni, Prashant P. Patavardhan and Vishweshkumar Aithal, "Integration Strategies, Challenges, and Merits of Renewable Resources in Electric Vehicles" in Internet of Things – Integration and Security Challenges, CRC Press 2021 Taylor & Francis Group ISBN 978-0-367-89387-3, 2021 pp 75-103.
- Sudhakar, Roopa R. Kulkarni and P. P. Patavardhan "Introduction, Security Challenges and Threats in IoT" in Internet of Things: Integration and Security Challenges, CRC Press 2021 Taylor & Francis Group ISBN: 978-0-367-89387-3, 2020, Pg 13-38.
- Roopa Kulkarni and Dr. S Y Kulkarni "Self-Driven Clock Gating Technique For Dynamic Power Reduction Of High-Speed Complex Systems", book Chapter (CH-10), VLSI Architecture for Signal, speech and image processing, AAP and CRC (Taylor and Francis Group) Press, 2020 pp 193-213.
- Roopa R. Kulkarni and S. Y. Kulkarni, "Power Optimization of a 32-bit ALU using Distributed Clock Gating Technique," Advances in Electrical and Computer Technologies, 2019, Springer's Lecture Notes in Electrical Engineering, (LNEE), volume 672, pg 831-841, 2019
- Sneha Mangalwade, Roopa R. Kulkarni and S. Y. Kulkarni, "Low Power Implementation of 32-bit RISC Processor with Pipelining," as book chapter in Scopus Book Series LNEE [Lecture Note in Electrical Engineering] Vol. 476, pp 307-320, Springer, Singapore, 2019

International Journals:

- Roopa Kulkarni, Deepthi V, Charu S A, Durga Shree N V, Kathyayini D, "Smart Air Pollution Detecting and Monitoring System for Vehicles", Zeichen Journal, Volume 9, May 2023. ISSN No: 0932-4747 Scopus indexed

- Roopa R Kulkarni, Nandan N, Niranjana S Benakatti, Rakshitha M, Sanjay R, "Smart Farming of Leafy Vegetables Using Hydroponic System", International Journal of Innovative Research in Science, Engineering and Technology, Vol. 12, May 2023
- Roopa R Kulkarni, Nandan N, Niranjana S Benakatti, Rakshitha M, Sanjay R "Review on AI-based Smart Farming of Leafy Vegetables Using Hydroponics System", Journal of Electronics and Communication Systems, April 2023.
- Roopa R Kulkarni, Abhishek D Sharma, Bhuvan K Koundinya, Chokkanahalli Anirudh, Yashas N, "A Survey on Detection, Monitoring, and Control of Grape Leaf Diseases", Journal of Embedded Systems and Processing, vol. 8, April 2023.
- Roopa Kulkarni, Deepthi V, Charu S A, Durga Shree N V, Kathyayini D. "Review on Detection of Air Pollution in Vehicles", Journal of Automation and Automobile Engineering, Feb 2023.
- P R Yashaswini, Peravali Sowmya Sri, Pulla Rushika, Soundarya Shivakumar, Swamy Hiremath, Roopa R. Kulkarni, "IoT Based Efficient Contactless Bus Ticketing System", Journal of Telecommunication Study, Vol 6, issue 2, May-August 2021, pp29-39.
- Avanti D. Joshi and Roopa R. Kulkarni, "Data Analysis of Electric Vehicle Battery", International Research Journal of Engineering and Technology, May 2019.
- Roopa R. Kulkarni and S. Y. Kulkarni, "Power Efficient Design, Implementation and Analysis of 72-Point Pipelined FFT Using Clock Gating Techniques," Journal of Advanced Research in Dynamical and Control System, 15th-Special issue, pp 927-935, 2017. ISSN:1943-023X - SCOPUS Indexed
- Sudhakar Hallur, Roopa Kulkarni, and Dr. Prashant P. Patavardhan, "Smart Components for Smart Energy Meter," International Journal of Advance Research in Engineering Science and Technology, Volume 04, Issue 3, March 2017.
- Sudhakar Hallur, Roopa Kulkarni, and Dr. Prashant P. Patavardhan, "Smart Energy Meter - A Survey," International Journal of Advance Research in Engineering Science and Technology, Volume 04, Issue 04, April 2017
- Roopa R. Kulkarni and S. Y. Kulkarni, "Hierarchical Power and Activity Analysis of a Clock Gated ALU," International Journal for Research in Applied Science & Engineering Technology (IJRASET), May 2014. ISSN: 2321-9653
- Roopa R. Kulkarni and S. Y. Kulkarni, "High Speed Low Power Network Processors: Efficient Power Management Techniques," International Journal of Engineering and Innovative Technology, December 2012. ISSN: 2277-3754
- Mahesh Kamat and Roopa Kulkarni, "A Review -Analysis Of Lossy Video Compression Technique," International Journal For Technological Research In Engineering, Volume 2, Issue 12, August - 2015.
- Mahesh Kamat and Roopa Kulkarni, "Analysis of Lossy Video Compression Technique," International Research Journal of Engineering and Technology (IRJET), Volume 2, Issue 6 September 2015.
- Narasimalu N. S. and Roopa Kulkarni, "Energy Efficiency in Wireless Sensor Networks using BPR," International Research Journal of Engineering and Technology (IRJET), Volume 2, Issue 6, September 2015.

International Conferences:

- Roopa R. Kulkarni and S. Y. Kulkarni, "Power Optimization of a 32-bit ALU using Distributed Clock Gating Technique," First International Conference on Advances in Electrical and Computer Technologies, 2019, at Coimbatore, 26th -27th April 2019. Accepted for presentation and considered for publication in Springer's Lecture Notes in Electrical Engineering (LNEE) series which is indexed in ISI Proceedings, SCOPUS etc.
- Sudhakar Hallur, Roopa Kulkarni, P. P. Patavardhan, and Sagar Santagi, "Web Based Smart Energy Metering System," Proceedings of IEEE International Conference on Circuits and Systems in Digital Enterprise Technology (ICCSDET-2018), 21st and 22nd

Dec. 2018.

- Roopa R. Kulkarni and S. Y. Kulkarni, "Energy Efficient Implementation of 16-Bit ALU using Block Enabled Clock Gating Technique," Proceedings of IEEE INDICON 2014, 11th Dec-12th Dec 2014. DOI: 10.1109/INDICON.2014.7030531
- Roopa R. Kulkarni and S. Y. Kulkarni, "Power Analysis and Comparison of Clock Gated Techniques Implemented on a 16-bit ALU," Proceedings of IEEE I4C2014, MSRIT, Bengaluru, 20th Nov - 22nd Nov 2014. DOI: 10.1109/CIMCA.2014.7057835
- Roopa R. Kulkarni and S. Y. Kulkarni, "Energy Efficient Implementation, Power Aware Simulation and Verification of 16-bit ALU using Unified Power Format Standards," Proceedings of International Conference on Advances in Electronics, Computer and Communications, 9th Oct-11th Oct 2014. DOI: 10.1109/ICAEECC.2014.7002460
- Roopa R. Kulkarni and S. Y. Kulkarni, "Implementation of Clock Gating Technique and Performing Power Analysis for Processor Engine (ALU) in Network Processors," Proceedings of International conference on Electronics and Communication Systems 2014, Coimbatore, 13th - 14th Feb 2014. DOI: 10.1109/ECS.2014.6892770.
- Sneha Mangalwade, Roopa R. Kulkarni and S. Y. Kulkarni, "Low Power Implementation of 32-bit RISC Processor with Pipelining," Proceedings of 2nd International Conference on Microelectronics, Computing & Communication Systems (MCCS-2017), Indian Society for VLSI, May 2017.
- Roopa R. Kulkarni and S. Y. Kulkarni, "Power Efficient Design, Implementation and Analysis of a 72-point Pipelined FFT using clock Gating Technique," Proceedings of International Conference on Recent Trends in Electrical Sciences & Medical Engineering, ICRITESME - 2017, MIT, Manipal, 9 - 10 August 2017.
- Roopa R. Kulkarni and S. Y. Kulkarni, "Low Power Strategies for Network Processors: A Survey," Proceedings of 5th IEEE International Conference on "Advanced Computing and Communication Technologies", APIIT SD India, November 2011.
- Roopa R. Kulkarni and Prof. Hansraj Guhilot, "Modelling of variable Threshold Floating Gate MOSFET for Analog Signal Processing," Proceedings of International Conference on RF and Signal Processing System (RSPS-2008), K.L. College of Engg., Guntur, A.P.

National Conferences:

- P R Yashaswini, Peravali Sowmya Sri, Pulla Rushika, Soundarya Shivakumar, Roopa R. Kulkarni, "Smart bus ticketing system", Proceedings of 7th National Conference on Convergence of Science, Technology and Management (NCCSTM- 2021)
- Abhishek K B, Sandeep .C, Jashwanth Kumar Reddy, Madhava Rao, Dr. Roopa Kulkarni, "Business Intelligence and Prediction in Automobile Industry", Proceedings of 7th National Conference on Convergence of Science, Technology and Management (NCCSTM- 2021)
- Hemant P R, Hemant Kumar M K, Babu H, Rahul B S, Roopa Kulkarni, "Smart Card with Iris Recognition for High Security Access Environment", Proceedings of 6th National Conference on Convergence of Science, Technology and Management, DSATM, Bengaluru, May 2020
- Supreet R., Shiv Prakash M C, Spandana H R, Vidhyashree H, Roopa Kulkarni, "Vehicle Motion Detection and Prediction Using Logistic Regression", Proceedings of Conference on Convergence of Science, Technology and Management, DSATM, Bengaluru, May 2020
- Roopa R. Kulkarni and S. Y. Kulkarni, "IO Standard Based Implementation and Power Analysis of a16-bit Processing Element (ALU) for a 45nm Technology," Proceedings of ATEES -2014, 21st and 22nd March 2014.
- Roopa Kulkarni and Hansraj Guhilot, "Sigma-Delta ADC for Bio-Informatics Data Logger, "Proceedings of National Conference on Bioinformatics Computing

(NCBC'05), Thapar Institute of Engineering and Technology, Patiala • Roopa Kulkarni and Hansraj Guhilot, "Design and Implementation of Low-Drop out Voltage regulator," Proceedings of National Conference on VLSI Design and Embedded Systems, Adhiyaman College of Engg., Hosur.
Conference Attended
• Attended the "IEEE International Conference CENTCON-2021" organized by Dayananda Sagar Group of Institutions, 19-21 November 2021. • Attended the virtual 34th International Conference on VLSI Design and 20th International Conference on Embedded Systems VLSID - 2021 organized VLSI Society, India, 20th - 24th February 2021
Seminar Attended
• Attended webinar on VLSI Lab Courses: An Industry Perspective, organized by Entuple Technologies, 22nd October 2021 • Attended webinar on "Reimagining IT Education for Atmanirbhar Bharath" organized by BITES and RVCE September 17th 2021 • Attended webinar on "Mental Wellness & Emotional Empowerment" organized by Dayananda Sagar Academy of Technology and Management, in collaboration with Skilling India on 30th July, 2021. • Attended webinar on "Scientific Writing for Journals organized" by Springer Nature on 30th Sep in collaboration with VTU Consortium. 30th September 2020 • Attended the webinar on "Cyber Security in Lockdown Times" organized by CSI Student Branch, SAIT- Indore, M.P. jointly with Computer Society of India on 30th April 2020.

Workshop Attended

- Attended online workshop on VLSI Digital Laboratory Primer Training Program - UART, organized by Entuple Technologies, Bengaluru, 28th and 29th November 2021
- Attended online workshop on VLSI Digital Laboratory Primer Training Program -Two Stage Op-Amp, organized by Entuple Technologies, Bengaluru, 16th and 17th November 2021
- 3-day Faculty Workshop on "Embedded Systems - An Application-Driven Approach organized by Arm Education, AICTE and STMicroelectronics" from 25th August to 27th August 2021.
- 3-days National Supercomputing Mission's WORKSHOP ON ARM BASED HPC organized by C-DAC and the NSM Nodal Centers for Training in HPC and AI at IITs Goa, Kharagpur, Madras, Palakkad online on 2nd and 3rd March 2021.
- One-week ISTE STTP coordinators workshop on "CMOS, Mixed Signal and RF VLSI Design", during September 2016 at IIT, Kharagpur.
- Two day Workshop on "Introduction to LATEX" , Department of Mathematics, KLS Gogte Institute of Technology, Belagavi, 3rd and 4th March 2016
- One - day workshop on "Neuro-Linguistic Programming", organized by Rotary Club, Hubballi on 28th June 2015.
- Two-week ISTE workshop on, " Pedagogy for Effective use of ICT in Engineering Education", June - July 2014, conducted by IIT Mumbai
- Two weeks ISTE workshop on, "Signal & Systems", December 2013, conducted by IIT Kharagpur.
- Two- week ISTE workshop on, "Analog Electronics", June 2013, conducted by IIT Mumbai.
- Two-day ISTE workshop on "Aakash", during 10th -11th Nov 2012, conducted by IIT Mumbai
- Ten-days ISTE workshop on "Introduction to Research Methodologies", June-July 2012, conducted by IIT Mumbai.
- Two-day workshop on MSP430 Processor, 16th April – 17th April 2012, at KLESCET, Belgaum
- Four-day workshop on Network Simulation – A beginners Approach during 16th Feb – 19th Feb 2012, at VTU, Belgaum
- Two-day workshop on OBE during 20th Jan – 21st Jan 2012 at GIT, Belgaum
- Four-day training on "Cadence VLSI Tools", conducted by the Cadence Design Systems, VTU, Belgaum, 2008
- Two-day workshop on "Embedded System Software", conducted by IIT, Bombay. 2008
- Two-day workshop on "Embedded Systems and Energy Management", conducted by KLECET, Belgaum, 2006
- Four-day workshop on "Microcontroller, Embedded System Design and its Industrial Applications", conducted at K.L.E. College of Engg. and Tech., Belgaum, 2006
- Workshop on "Latest Trends in VLSI Design & Embedded Systems", conducted by V.T.U., Belgaum, 2002

Student Project Funds Fetched with Grant No.

Karnataka State Council for Science and Technology (KSCST) sponsored projects:

- Soil Sensor for Macro-Nutrients Detection and Estimation in collaboration with **ISRO, Bangalore**, 41S_BE_1732
- IOT Enabled Smart Solar Inverter, 40S_BE_2256
- Automated Helping Aid using Wireless Communication, 36th Series, reference number 36S0909

- Master -Slave Robotic Arm Using Microcontroller (Best Student Project), 33rd Series, reference number 33S0684

Awards

Certification Courses:

- NPTEL 4-week Online Certification Course on “Outcome Based Pedagogic Principles for Effective Teaching”, March 2023
- NPTEL 12-week Online Certification Course on “Digital System Design”, April 2023
- Coursera Certificate of four week on “AI for Every One”.
- NPTEL Online Certification Course and half FDP of one week on "Effective Engineering Teaching in Practice" with Elite.
- NPTEL Online Certification Course and One and a half week FDP on "Introduction to Industry 4.0 and Industrial Internet of Things" with Elite

Recognitions:

- Mentored two teams to participate at ACCS ARM Design Contest 2023, one team won the second place while the second team won the consolation prize.
- As a mentor during six months mentorship program Mentor4you, organized by IEEE Young Professionals Affinity Group, Bengaluru, during 2020-21
- Fellowship certificate at 34th International conference on VLSI Design and 20th International Conference on Embedded System held during 20th February -24th February 2021.
- Won the best paper award at National Conference ATEES - 2014
- Won the best paper award at Second National Conference on “Emerging Trends in VLSI Design”, Organized by PSG College of Technology, Coimbatore-2006
- Awarded with Dale Carnegie – High Impact Training Skills certificate

Academic Activity

- **IQAC** Coordinator since June 2022, DSATM, Bengaluru
- **NBA Coordinator** at department of ECE and **Member coordinator** for **NAAC Criteria 2**, DSATM, Bengaluru
- Research Cell Coordinator from Jan 2022, DSATM, Bengaluru
- Internship Coordinator for 2021-22, DSATM Bengaluru
- IA Time Table Coordinator during 2019 (Even) and 2020-21, DSATM, Bengaluru
- **Faculty Advisor of International Society of Automation**, Student Chapter during 2018-19, at KLS Gogte Institute of Technology, Belagavi
- **Organized a Two-Day Technical Symposium** on "**Career Horizon in Automotive Industries**" on 12th and 13th April 2017, for the students, faculty and Industry, at KLS Gogte Institute of Technology, Belagavi
- Member representative of **Academic Audit Committee**, DSATM, Bengaluru
- **Faculty Coordinator** of **Association of Electronic Engineers** at KLS Gogte Institute of Technology, Belagavi, 2017
- **Squad/anti ragging Committee member** during 2015-16 and 17-18, at KLS Gogte Institute of Technology, Belagavi
- **Committee member in the Cultural fest** at KLS Gogte Institute of Technology, Belagavi.

- **Organized a National Conference** on “Emerging Trends in IT – iflip „07” during May 2007 at KLECET, Belgaum

Faculty Development Program-Attended

- One Week AICTE – VTU Joint Training Programme for Teachers on “An Overview of Teaching Techniques in Basics of Electronics and Communication Engineering” on 13th to 17th December 2021 Organized by VTU Human Resource Development Centre (VTU - HRDC), Centre for PG Studies, VIAT, Muddenahalli, Chikkaballapur.
- One Week AICTE – VTU Joint Training Programme for Teachers on “An Overview of Teaching Techniques in Innovation & Design Thinking” on 6th to 10th December 2021 Organized by VTU Human Resource Development Centre (VTU - HRDC), Centre for PG Studies, VIAT, Muddenahalli, Chikkaballapur (Dist.) - 562101
- 5-day ATAL AICTE FDP on “Formal Verification of Digital Designs”, organized by PES University during 7th June -11th June 2021.
- 12-days DST FDP on “Entrepreneurship and Innovation”, organized by DSATM, Bengaluru during 22nd February -06th March 2021.
- AICTE sponsored One Week Online Short Term Training Program (STTP) on “Recent Trends & Application in Digital VLSI Design ” organized by Internal Quality Assurance Cell & Department of Electronics Engineering, Priyadarshini College of Engineering , from 14 to 19 December 2020
- Participated & completed successfully AICTE Training and Learning (ATAL) Academy Online FDP on " Leadership & Excellence" from 22nd Sept -26th Sept 2020.
- Five-day online FDP on “Natural Language Program behind Data Science”, organized by BVC group presented by Codegnam IT Solutions, A.P. from 22nd June to 26th June 2020.
- One-week FDP on “Recent IT Technology, Writing Paper and Funding Proposals”, organized by RIT – Centre for Teaching and Learning in association with CSI & IEEE Bombay Section, during 20th June to 24th June 2020.
- FDP on Recent Trends in Computer Architecture, VLSI and Embedded System (RCAVES-2020), organized by GRIET, Hyderabad during 8th June to 13th June 2020.
- Virtual FDP on “Neural Network and Deep Learning using Python”, organized by REVA University, Blore during 1st June to 5th June 2020.
- 5-Day Online FDP on “Contemporary Research Trends in Electronics & Communication and Computer Science” organized by Dept of ECE, VTU Centre of PG studies in association with IETE, 6th July to 10th July 2020.
- 5-day AICTE sponsored QIP Short Term Course on IoT-Enabled Analog Systems Design, organized by the Centre for Continuing Education, Indian Institute of Science, Bengaluru during 12th - 17th January 2020
- 3-days international web Symposium on Technology and Management conducted by VTU in collaboration with Aspire For You, 2019
- One week Faculty Development Programme on "Advanced Microcontrollers for Embedded Systems" KLE Dr. M. S. Sheshgiri College of Engineering and Technology, Belagavi. 19th to 24nd January 2016

- Six-days training on “Cadence VLSI Tools (Virtuso, IUS, Encounter, SOC)”, conducted by the Cadence Design Systems, Bangalore during March 2003
- Two day Faculty Development Programme on "Graphical System Design Approach in Engineering Education and Research", Department of Electronics & Communication Engineering, KLS Gogte Institute of Technology, Belagavi, 28th and 29th January 2016.
- One - day Symposium on "Flexible Manufacturing Systems and Robotics", organized by Industry Institute Partnership Cell, KLSGIT, Belagavi, on 8th July 2015.
- One - day faculty development program on "ANN and Fuzzy Logic Implementation using MATLAB", on 7th May 2015, at KLSGIT, Belagavi
- Five-day Faculty Development Training Program “mission10x”, conducted by Wipro, India during March 2008.

Faculty Development Programs Organized

Total number of FDP organized till November 2019: 07

- ❖ Five-day Faculty Development Programme on "Skills and Opportunities in VLSI", during 27th July – 31st July 2020.
- ❖ Five-day Faculty Development Programme on " Faculty Development Program on Artificial Intelligence –MLT & Deep Learning using LabVIEW", during 29th January – 01st February 2020.

Workshops Organized for Students

Total number of workshops organized till November 2019: 10

- Organized a webinar on “Recent Trends in VLSI, RF and IoT”, 28th June 2021, DSATM, Bengaluru.
- Organized a webinar on “Artificial Intelligence and Assistive Technologies in Digital Transformation”, 8th June 2021, DSATM, Bengaluru.
- Organized a webinar on “Economy of Convergence – Blockchain and IoT”, 11th May 2020, DSATM, Bengaluru.

Contact Details

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