Faculty Profile



Dr. M. Navaneetha Velammal , M.E., Ph.D
Associate Professor –CSE

HIGHLIGHTS:

- Number of Journal Publications:16
- H-Index:4
- Patents Published:8

PROFESSIONAL LINKS:

- Scopus ID: 56604301200
- Scopus Link: https://www.scopus.com/authid/detail.uri?authorId=56604301200
- Google Scholar ID
  : https://scholar.google.com/citations?user=OKAkz1AAAAAJ&hl=en
- Anna University Faculty ID: 2666271982
- AICTE Faculty ID: 1-441462051

PROFESSIONAL BACKGROUND:

- Teaching Experience till date: 20 years 6 Months
- Industrial Experience: 7 Months

INTERNATIONAL EXPOSURE:

- N. M. Mary Sindhuja, M. Navaneetha Velammal, Hashim Elshafie, and Azath Mubarakali "Performance Analysis of InSb/InGaAs TFETs for Improved Electrical Characteristics with Black Phosphorus Channel for Analog/RF Applications" ECS Journal of Solid-State Science and Technology, June 11, 2025, IOP Science, Impact Factor: 1.8

- Mariselvi Kailasam, T. S. Arun Samuel, C. Balamurugan and M. Navaneetha Velammal "Design and Development of Wearable Microstrip Patch Antenna for ISM Application", Fifth Congress on Intelligent Systems CIS 2024, Volume 2, June 8, 2025, Lecture Notes in Networks and Systems

- K. Anguraju, C. Puvanadevi, R. Kirthiga, M. Navaneetha Velammal, P. Preethi & T. Saravanan "Approximated Ensemble Learning Driven Boosting Method for Breast Cancer Prediction on Multi-modal Clinical Datasets" Proceedings of the 15th International

Conference on Soft Computing and Pattern Recognition (SoCPaR 2023), 25 April 2025 Lecture Notes in Networks and Systems

- Abitha V. K. Lija, Aswathy M. P., G. Kavitha, M. Navaneetha Velammal, B. Maheswari, P. J.Beslin Pajila, Siva Subramanian R "A Review on Sustainable Development and Green Practices: Strategies, Challenges, and Future Directions", IGI Global Scientific Publishing. DOI: 10.4018/979-8-3693-7570-9.ch001, April 2025

- Navaneetha Velammal M, Nirmal Kumar P (2021), 'Efficient underdetermined speech signal separation using encompassed Hammersley- Clifford algorithm and hardware implementation', Microprocessors and Microsystems, Volume 85, June 2021, 104300 (ISSN:0141-9331) Publisher: Elsevier, Impact Factor: 1.525

- Navaneetha Velammal M, Nirmal Kumar, "A Speech Recognizer" a tool to recognize the high clarity speech signal based on existing speech using ISCA" An International Journal on Analog Integrated Circuits And Signal Processing. Publisher: Springer ISSN 0925-1030, 13 August 2018.

- Navaneetha Velammal P Hannah Blessy , J Friska and A Rajeshwari "Design of Quantum Encoders with Minimum Area Overhead" Springer-Lecture Notes in Electrical Engineering (LNEE ,volume 903), 12 September 2022

- J Friska A Rajeshwari Navaneetha Velammal and P Hannah Blessy "Identification of Rice Adulteration and Bacterial Blight Using Optimized Boosting Classifier" Lecture Notes in Electrical Engineering,Volume 903,2022.

- Navaneetha Velammal M,Steffi Anto "Design of High speed Nanoscale Adder logic circuit for Low Power Consumption", 2021 IEEE Pune Section International Conference, PuneCon 2021

- M.Navaneetha Velammal, M.Ajitha, P.Hari Priya, A.S.Bavadharani, 'Evaluation of FINFET And Nanowire MOSFET With High K Dielectric', (2021), 2nd International Conference on Smart Electronics and Communication (ICOSEC) , IEEE Conference, ISBN:978-1-6654-3368-6

- M Navaneetha Velammal, P Hannah Blessy , J Friska and A Rajeshwari "A Novel Coplanar Based Adder Logic Design Using QCA" International Conference on Recent Trends in Computing (ICRTCE- 2021) Journal of Physics: Conference Series 1979 (2021) 012052 IOP Publishing doi:10.1088/1742-6596/1979/1/012052

- J Friska, M Navaneetha Velammal, A Rajeshwari, and P Hannah Blessy, Random Forest (RF) based identification of rice powder mixture using terahertz spectroscopy" International Conference on Recent Trends in Computing (ICRTCE- 2021), Journal of Physics: Conference Series, 1979 (2021) 012056 , IOP Publishing doi:10.1088/1742-6596/1979/1/012056

- M. Suryaganesh, T. S. Arun Samuel. Ananth Kumar. Navaneetha Velammal "Advanced FET-Based Biosensors—A Detailed Review" , Contemporary Issues in Communication, Cloud and Big Data Analytics pp 273-284, Part of the Lecture Notes in Networks and Systems book series (LNNS, volume 281, 01 December 2021)

- Navaneetha Velammal, Nirmal Kumar, A Getzie Prija, "Testing of Faults in VLSI Circuits Using Online BIST Techniques Based On Window of Vectors", published in ARPN Journal of Engineering and Applied Sciences, ISSN - 1819-6608 April 2015.

- Navaneetha Velammal, Nirmal Kumar, P Surya Priyanka, "Independent Component Analysis Based on Blind Source Separation by Using Markovian and Invertible Filter Model", published in ARPN Journal of Engineering and Applied Sciences, ISSN - 1819-6608 April 2015.
- P. Thayammal M.Navaneetha Velammal "Multichannel Complex Nonnegative Matrix Factorization in Beamforming of Sound Source Separation", Published in International journal of Applied Engineering Research, ISSN - 0973-4562 -10(20), pp. 15780–15785, May 2015.

AREA OF SPECIALIZATION:

- Digital/Analog VLSI
- Digital Communication

PATENTS PUBLISHED/GRANTED:

- An Intelligent Wearable Shield for Women and Children Safety – Application Number 202241001124 A - Published on 11/03/2022
- Autonomous Robotic Foliar Sprayer for Precision Agriculture- Application Number 202441047082 A - Published on 28/06/2024
- Explainable AI System with Interactive Visualisation of Decision-Making Processes - Application Number 202441066014 A - Published on 13/09/2024
- Real-Time Voice-Activated Humanoid Information Assistant - Application Number 202441071360 A - Published on 04/10/2024
- Real-Time Ground Water For Identification And Monitoring System - Application Number 202441080354 A - Published on 25/10/2024
- Secure Multi-Party Computation in Blockchain Networks With AI-Driven Optimisation-Application No.202541013218 A – Published on 21/02/2025
- AI-Based Robots for Pipeline Inspection And Maintenance -Application No.202541017831 A Published on 21/03/2025.
- Voice-controlled Farm Monitoring ROBOT, Design No 448744-001, 21-02-2025

COURSES CERTIFIED:

- VLSI Design Flow - RTL to GDS-12 Week Course- July –Oct 2024- Awarded with Elite+Silver - NPTEL
- Accreditation and Outcome Based Learning - 8 Week Course - July-Sep 2021 - Awarded with Elite - NPTEL
- NBA Accreditation and Teaching – Learning In Engineering - 12 Week Course - Jan-April -2021 - Awarded with Elite - NPTEL
- Digital VLSI Design - 8 Week Course - Jan-Mar 2021 - Awarded with Elite - NPTEL

- Introduction to Embedded System Design - 12 Week Course - July-Dec 2020 - Awarded with Elite - NPTEL
- Digital Circuits - 12 Week Course - July-Dec 2020 - Awarded with Elite - NPTEL
- VLSI physical design - 12 Week Course - Jan –Apr 2020 - Successfully completed – NPTEL
- Hardware Modelling using Verilog - 12 Week Course - Aug-Oct 2019 - Completed – NPTEL
- Advanced Diploma in ASIC Design - VLSI Design Centre, Bengaluru

ACHIEVEMENTS AND AWARDS:

- Received best performance award for the paper presentation during the year 2009
- Received Best Department award during 2014
- Awarded a cash prize for the centum results produced for the following courses

III-Sem/II PG	VL5091 MEMS &NEMS
VII-Sem/IV(UG)	VLSI Design
III-Sem/II(UG)	Digital Electronics
II-Sem/I(PG)	System On Chip Design
III-Sem/II(PG)	Testing of VLSI Circuits
II-Sem/I(PG)	ASIC Design
VIII-Sem/IV(UG)	Embedded Systems

SPECIAL SESSIONS DELIVERED:

- Resource Person for an online Faculty Development Program on "Outcome-Based Education (OBE) and NBA Accreditation," held from 3 to 8 January 2022; delivered two-day lectures on "NBA SAR Filing (Criterion 5 and Criterion 8)", sponsored by AICTE (Margdarshan Scheme for Sharing and Mentoring Institutions).
- Resource Person for a two-day online Faculty Development Program on "Outcome-Based Education Framework and Its Process", delivered a lecture on "Documentation on NBA Criteria 4, 5, and 6" on 24 September 2021, sponsored by AICTE (Margdarshan Scheme for Sharing and Mentoring Institutions).
- Resource Person for a one-week online Faculty Development Program on "Outcome-Based Education Framework and Its Process", delivered a lecture on "NBA SAR Filing: Criterion 8" on 16 July 2021, sponsored by AICTE (Margdarshan Scheme for Sharing and Mentoring Institutions).
- Resource Person for a one-week online Faculty Development Program on "Outcome-Based Education Framework and Its Process", delivered a lecture on "NBA SAR Filing: Criterion 5" on 15 July 2021, sponsored by AICTE (Margdarshan Scheme for Sharing and Mentoring Institutions).
- Resource Person cum Coordinator for a one-day online seminar on "CO vs PO Mapping and Assessment in the NBA Accreditation Process", delivered a lecture on "Attainment of Course Outcomes" on 9 April 2021, sponsored by AICTE (Margdarshan Scheme for Sharing and Mentoring Institutions).

- Presented a webinar on “Emerging Trends and Solutions for Low Power VLSI Circuits” on 10 June 2020. The event was hosted on the YouTube channel Fx-ETuber.

- Delivered a guest lecture on “Digital Communication” at SCAD College of Engineering and Technology, Department of ECE, Tirunelveli, in March 2020.

- Guest Speaker on “An Overview of Digital Nanoscale System Physical Design” at the AICTE-sponsored five-day workshop on Nanotechnology-Based VLSI Physical Design, Francis Xavier Engineering College, Department of CSE, Tirunelveli, on 7 December 2017.

- Delivered a guest lecture on “Corporate Etiquette” to third-year students of Computer Applications, Francis Xavier Engineering College, Department of MCA, Tirunelveli, on 4 July 2016.

- Delivered a guest lecture on “Electronic Circuits-II” at the one-week Faculty Development Training Programme sponsored by Anna University, Chennai, at Francis Xavier Engineering College, Department of Electronics and Communication Engineering, Tirunelveli, on 2 December 2015.

- Delivered a guest talk on “Corporate Etiquette” to third-year students of Computer Applications, Francis Xavier Engineering College, Department of MCA, Tirunelveli, on 22 June 2015.

CONFERENCES/SEMINARS/WORKSHOPS ATTENDED:

CONFERENCES:

- Presented a paper titled “An Efficient Low Power Circuit Design for High Performance of ASIC Using Threshold Logic” at the National Conference at Dr. M.G.R. Educational and Research Institute, on 27 and 28 April 2017.

- Presented a paper titled “Underdetermined Source Estimation Using Sparse Component Analysis” at the National Conference at St. Xavier’s Catholic College of Engineering, Nagercoil, on 29 March 2016.

- Presented a paper titled “Design of an Efficient Multi-Modulus Prescaler Unit Using Gate Diffusion Input” at the International Conference on Green Technologies for Power Generation and Communication, 2014.

- Presented a paper titled “Design of SMO Chip Feasible for Large Number of Training Samples” at the DRDO-sponsored National Conference “ETVIPC-13,” Jayaram College of Engineering and Technology, 2013.

- Presented a paper titled “ASIC Design of SVM Training and Recognition Suitable for Standalone Devices” at the National Conference at Einstein College of Engineering, Tirunelveli, 2013.

- Presented a paper titled “Architecture for SMO Chip Viable for Large Data” at the National Conference on Computing and Application (NACCA ‘13), National Engineering College, Kovilpatti, on 10 April 2013.

- Presented a paper titled “A Redesigned FIR Filter Architecture to Improve the Power and Performance Using Pipelining” at the National Conference held at University College of Engineering, Nagercoil, on 9 April 2013.

- Presented a paper titled "A Signal Identification Model for MIMO Design" at the National Conference held at Cape Institute of Technology, Levengipuram, on 7 March 2013.
- Presented a paper titled "Design of a Low Power Multiprocessing Element Coprocessor Architecture for Continuous Hidden Markov Model-Based Speech Recognition System" at the International Conference on Modelling, Optimisation and Computing, Noorul Islam Centre for Higher Education, Kumaracoil, Nagercoil, on 10 and 11 April 2012.
- Presented a paper titled "FPGA Coprocessor Architecture for Speech Recognition" at the DRDO-sponsored National Conference on Emerging Trends in Signal Processing and Wireless Technology (New Delhi), Dr. Sivanthi Aditanar College of Engineering, Tiruchendur, on 17 March 2012.
- Presented a paper at the International Conference on Current Research in Engineering Science and Technology (ICCREST-2018), Jayaram College of Engineering and Technology, on 30 April 2018.
- Presented a paper titled "High Fault Coverage Test Pattern Generation of Asynchronous Circuits Using ATPG" at the 4th National Conference on Electrical and Instrumentation Systems (NCEIS 2011), Government College of Technology, Coimbatore, on 17 March 2011.
- Presented a paper titled "VLSI Implementation of Pipelined FastICA" at the National Level Conference at PET Engineering College, Tirunelveli, and received the Best Performance Award, 2009.

SEMINARS

- Participated in the AICTE-sponsored three-day National Seminar on "Research Issues and Opportunities in VLSI Nanoelectronic Devices," Thiagarajar College of Engineering, Department of ECE, Madurai, from 12 to 14 April 2019.
- Participated in the ICMR-sponsored two-day International Seminar on "IoT Technologies for Healthcare," Francis Xavier Engineering College, Department of Electronics and Communication Engineering, Tirunelveli, on 28 and 29 December 2017.
- Participated in the ICMR-sponsored two-day National Seminar on "A Multidisciplinary Activity in Wireless Sensor Network Regarding Structural Health Monitoring," Francis Xavier Engineering College, Department of Electronics and Communication Engineering, Tirunelveli, on 27 and 28 November 2017.
- Participated in the ICMR-sponsored two-day National Seminar on "Computational Intelligence in the Future of Bioinformatics, Forensics and Biomedical Engineering Sciences: Strategies and Innovation," Francis Xavier Engineering College, Department of Information Technology, Tirunelveli, on 23 and 24 November 2017.
- Participated in the two-day Seminar on "Contemporary Research Avenues and Challenges in Intelligent Control Systems Using LabVIEW," Francis Xavier Engineering College, Department of Information Technology, Tirunelveli, on 7 and 8 October 2016.
- Attended the one-day National Level Seminar on "Clustering Techniques in Fuzzy Sets and Systems," University V.O.C. College of Engineering, Anna University (Thoothukudi Campus), Departments of Mathematics and ECE, on 30 October 2015.
- Attended the National Level Seminar on "Big Data Analytics, Hadoop and MapReduce," Department of Information Technology, Francis Xavier Engineering College, Tirunelveli, on 13 April 2015.

- Attended the International Seminar 2015 on "Sustainable Development: India's Urban Future," Francis Xavier Engineering College, Department of Management Studies, Tirunelveli, on 5 February 2015.

- Attended the two-day Seminar on "Solid State Device Modelling," Francis Xavier Engineering College, Department of ECE, Tirunelveli, on 18 and 19 November 2013.

WORKSHOPS

- Attended an online training course on Cadence Static Timing Analysis on 4 July 2026.

- Attended a workshop on "APR (Auto Place and Route) Flow: Quick Review of Cadence Strategies," Saveetha Engineering College, Chennai, on 29 and 30 July 2024.

- Attended a one-week international virtual Faculty Development Programme on "Exploring Emerging Trends and Future Directions in Machine Learning-Integrated VLSI Design," SRM Institute of Science and Technology, Ramapuram, Chennai, from 3 to 10 July 2024.

- Attended a one-week online Faculty Development Programme on "Synergizing VLSI Design with Artificial Intelligence and Machine Learning Techniques," SRM Institute of Science and Technology, Ramapuram, Chennai, from 27 May to 3 June 2024.

- Attended a workshop on Cadence EDA Tools, Saveetha Engineering College, Chennai, on 11 and 12 January 2024.

- Attended an online familiarization workshop on "Nanofabrication Technologies," INUP-i2i, IISc Bangalore, from 17 to 19 July 2023.

- Attended a two-week international online Faculty Development Programme on "Research Tools," Department of Artificial Intelligence and Data Science, Easwari Engineering College, from 3 to 14 July 2023.

- Attended a hands-on training programme on "Synopsys Technology CAD," Department of Micro and Nano Electronics, VIT Vellore, from 20 to 22 April 2023.

- Attended a two-week Faculty Development Programme on "ASIC Design Flow: Low Power Perspective," E&ICT Academy, NIT Warangal, from 1 to 10 July 2021.

- Attended a one-week online AICTE-recognized Faculty Development Programme on "ECE Virtual Lab Practices Using Free Online Simulations," Department of Electronics and Communication Engineering, NITTTR, Chandigarh, from 14 to 18 June 2021.

- Attended a one-week online AICTE-recognized Faculty Development Programme on "NBA Accreditation and Examination Reforms," Department of Electronics and Communication Engineering, NITTTR, Chandigarh, from 17 to 21 May 2021.

- Attended a one-week online AICTE-recognized Faculty Development Programme on "Free and Open Source Software (FOSS) Tools for Effective Teaching-Learning," Department of Electronics and Communication Engineering, NITTTR, Chandigarh, from 15 to 19 February 2021.

- Attended a Faculty Development Programme on "Management Education" on 28 November 2020.

- Attended a 12-day AICTE-funded online programme on "Outcome-Based Education," Saintgits Institute of Management, Kottayam, from 16 to 28 November 2020.

- Attended a one-week Short-Term Training Programme (ICT mode) on "Designing Teaching under Outcome-Based Education," NITTTR, Kolkata, from 6 to 10 July 2020.
- Attended a one-week online AICTE-recognized Faculty Development Programme on "Advances in Antenna Design Techniques and Simulations Using CST Studio Suite," NITTTR, Chandigarh, from 22 to 26 June 2020.
- Attended a five-day virtual Faculty Development Programme on "EC8791 – Embedded and Real-Time Systems," Saveetha Engineering College, Chennai, from 15 to 19 June 2020.
- Attended a three-day virtual Faculty Development Programme on "OBE Framework and Process for Mentee Institutions," sponsored by AICTE (Margdarshan Scheme for Sharing and Mentoring Institutions), FXEC/ECE, from 11 to 13 June 2020.
- Attended a one-day Faculty Development Programme on "Outcome-Based Education and Examination Reforms," Francis Xavier Engineering College, Tirunelveli, on 17 June 2019.
- Participated in a two-day technical workshop on "Intellectual Property Rights," organized by the Centre for Research and Development, Francis Xavier Engineering College, Tirunelveli, and sponsored by the Tamil Nadu State Council for Science and Technology, on 8 and 9 April 2019.
- Participated in a guest talk on "Electronics Performance Quality Metrics: An Interdisciplinary Approach," organized by the Department of Information Technology, Francis Xavier Engineering College, Tirunelveli, on 26 March 2019.
- Participated in a one-day faculty workshop on "Arduino Programming," organized by the Department of Information Technology, Francis Xavier Engineering College, Tirunelveli, on 26 April 2018.
- Attended an INUP hands-on workshop on "Nanofabrication Technologies," IIT Bombay, Mumbai, from 16 to 20 April 2018.
- Participated in a five-day Training of Trainers (ToT) Programme conducted by the Indian Centre for Research and Development of Community Education (ICRDCE), Bangalore, and organized by Francis Xavier Engineering College, Tirunelveli, from 23 to 27 January 2018.
- Participated in the AICTE-sponsored five-day workshop on "Nanotechnology-Based VLSI Physical Design," Francis Xavier Engineering College, Department of CSE, Tirunelveli, from 4 to 8 December 2017.
- Participated in a one-day workshop on "Internet of Things," KKM Soft Pvt. Ltd., Chennai, in association with Francis Xavier Engineering College, Department of CSE, Tirunelveli, on 30 November 2017.
- Attended a two-day national workshop on "Applications of Soft Computing Techniques in Engineering," organized by the Department of EEE, Francis Xavier Engineering College, Tirunelveli, on 16 and 17 February 2017.
- Attended a one-day workshop on "Research Methodology" at Kings Engineering College on 3 December 2016.
- Attended a five-day Faculty Development Programme on "Data Science and Big Data Analytics," EMC2 Academic Associate, from 6 to 10 June 2016.

- Attended a one-day Faculty Development Programme on "Quality Improvement Assurance," SCAD College of Engineering, Cheranmahadevi, Tirunelveli, on 25 May 2016.

- Attended a two-day Faculty Development Programme on "EC6711 Embedded Laboratory," organized by the Department of ECE, Francis Xavier Engineering College, Tirunelveli, on 17 and 18 May 2016.

- Attended a two-day workshop on "Image and Signal Processing Using MATLAB," Pantech ProEd Pvt. Ltd., in association with the Department of ECE, Francis Xavier Engineering College, on 11 and 12 August 2015.

- Attended a two-day workshop on "Image and Audio Processing Using MATLAB," Francis Xavier Engineering College, Department of ECE, Tirunelveli, on 16 and 17 October 2014.

- Attended a two-week ISTE workshop on "Signals and Systems," conducted by IIT Kharagpur, at the Regional Centre of Anna University, Tirunelveli, from 2 to 12 January 2014.

- Attended a two-day workshop on "Trends and Developments in Signal Processing and Its Applications," SSN College of Engineering, Kalavakkam, Chennai, on 19 and 20 August 2013.

- Attended an NPTEL workshop, National College of Engineering, Maruthakulam, on 5 October 2012.

- Attended a three-day workshop on "Soft Computing Tools in Signal and Image Processing," Research and Development Centre, St. Xavier's Catholic College of Engineering, Nagercoil, from 21 to 23 May 2012.

- Attended a national workshop on "VLSI Signal Processing," Musaliar College of Engineering and Technology, Pathanamthitta, in association with IETE, on 1 and 2 March 2012.

- Attended a Faculty Development Programme on Cadence EDA Software, Francis Xavier Engineering College, Tirunelveli, on 10 and 11 January 2012.

- Attended a three-day Faculty Development Programme on "Advanced VLSI Design," SSN College of Engineering, Kalavakkam, Chennai, from 17 to 19 November 2011.

- Attended a three-day workshop on "Advanced Signal Processing: Theory and Practice," TIFAC-CORE and Thiagarajar College of Engineering, Madurai, from 10 to 13 August 2011.

- Attended a two-day workshop on "Digital Image Processing Using MATLAB," Francis Xavier Engineering College, Tirunelveli, in association with Raghuram Associates, Chennai, on 6 and 7 September 2010.

- Attended the Mission 10X Workshop, Francis Xavier Engineering College, Tirunelveli, in association with Wipro and ISTE, from 19 to 23 April 2010.

- Attended a one-week AICTE-ISTE Orientation/Refresher Programme on "Low Power VLSI System Design," Walchand Institute of Technology, Solapur, Maharashtra.

PROFESSIONAL MEMBERSHIPS:

- CSTA