SANTHIRAM ENGINEERING COLLEGE
(AUTONOMOUS)
Nandyal - 518501, Nandyal Dist., Andhra Pradesh
DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

NAAC A GRADE
NBA NATIONAL BOARD OF ACCREDITATION

AICTE APPROVED | AFFILIATED TO JNTUA, ANANTAPURAMU

SPECTRUM

Signals of Innovation, Waves of Excellence

ECE DEPARTMENT NEWSLETTER | VOL. 2 | ISSUE 1 | AY 2022-23 | JULY-SEPT-2022

IGNITING IDEAS, EMPOWERING FUTURES.

Driving innovation in Electronics & Communication Engineering for a smarter, connected tomorrow.



TECHNOLOGY
Emerging Technologies

COMMUNICATION
Wireless & Networks

INNOVATION
Research & Projects

ACHIEVEMENT
Student Success

ECE DEPARTMENT NEWSLETTER

TECHNOLOGY • COMMUNICATION • INNOVATION • ACHIEVEMENT

IGNITING IDEAS, EMPOWERING FUTURES



SANTHIRAM ENGINEERING COLLEGE
(AUTONOMOUS)
NANDYAL, ANDHRA PRADESH

AY 2022-23 | JULY-SEPT-2022

SANTHIRAM ENGINEERING COLLEGE
(AUTONOMOUS)

Nandyal - 518501, Nandyal Dist., Andhra Pradesh

NAAC A GRADE

NBA NATIONAL BOARD OF ACCREDITATION

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

AICTE APPROVED | AFFILIATED TO JNTUA, ANANTAPURAMU

SPECTRUM

Signals of Innovation, Waves of Excellence

ECE DEPARTMENT NEWSLETTER

VOL. 2 | ISSUE 1 | AY 2022–23 | JULY–SEPT–2022



INSIDE OF ISSUE

1. About the College
2. College Vision & Mission
3. About the Department
4. Department Vision & Mission
5. Programme Outcomes (POs)
6. Programme Specific Outcomes (PSOs)
7. Messages
8. Department Programs and Achievements
9. Faculty Achievements
10. Student Achievements

EDITORIAL BOARD

Chief Editor
Dr. Y. Mallikarjuna Rao

Student Coordinator
B. LASYAPRIYA

Editorial Team
Department of ECE

INNOVATE | CONNECT | TRANSFORM

SANTHIRAM ENGINEERING COLLEGE
(AUTONOMOUS)

Nandyal - 518501, Nandyal Dist., Andhra Pradesh

NAAC A GRADE

NATIONAL BOARD OF ACCREDITATION

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

AICTE APPROVED | AFFILIATED TO JNTUA, ANANTAPURAMU

ABOUT THE COLLEGE



Santhiram Engineering College (SREC), Nandyal, sponsored by M/s Sri Shirdi Sai Educational Academy, was established in 2007 under the able guidance of Dr. M. Santhiramudu, Chairman, with the noble motto "Education for Peace and Progress." The institution is autonomous from the academic year 2023–24 and is accredited by NAAC with Grade A (3.2/4.0) and by NBA for its B.Tech. programmes in ECE and CSE. Approved by AICTE, New Delhi, recognised by UGC under Sections 2(f) and 12(B), and permanently affiliated to JNTUA, Ananthapuramu, SREC is also a recognised research centre and spot evaluation centre of JNTUA. Spread across a serene 10.5-acre green campus, the college offers digitally equipped classrooms, state-of-the-art laboratories, quality research, publications, patents, funded projects, excellent placement opportunities, and secure hostel facilities for both boys and girls. With 19 years of academic excellence, University Gold Medals, State Prathibha Awards, and a wide range of undergraduate, postgraduate, MBA, and MCA programmes, SREC continues to nurture competent, innovative, and socially responsible professionals.

VISION

To become a nucleus for pursuing technical education and pool industrial research and developmental activities with social-conscious and global standards.

MISSION

To provide Advanced Educational Programs and prepare students to achieve success and take leading roles in their chosen fields of specialization by arising a self-sustained University.

SANTHIRAM ENGINEERING COLLEGE
(AUTONOMOUS)
Nandyal - 518501, Nandyal Dist., Andhra Pradesh

NAAC A GRADE

NBA NATIONAL BOARD OF ACCREDITATION

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

AICTE APPROVED | AFFILIATED TO JNTUA, ANANTAPURAMU

ABOUT DEPARTMENT



Anticipating the growing importance of electronics and wireless communication in modern society, the Department of Electronics and Communication Engineering was established in 2007 with a vision to impart quality technical education and nurture innovation among young minds. The department began with an initial intake of 60 students, which was increased to 90 in 2008 and further to 120 in 2009, reflecting the rising demand for skilled electronics and communication engineers. To meet the expanding needs of the industry and academia, the department introduced a Master of Technology (M.Tech) program in VLSI System Design in 2011 with an intake of 18 students, recognizing the immense potential in the area of Very-Large-Scale Integration (VLSI) design. In tune with the advancements in embedded technology and its applications, a new postgraduate program. The department's B.Tech-ECE program has been accredited by the National Board of Accreditation (NBA) for a period of three years, from the academic year 2023–24 to 2025–26, in recognition of its robust academic framework, quality teaching, and outcome-based education.

VISION

Emerge as a centre for quality education in Electronics & Communication Engineering to create competent professionals

MISSION

1. Offer quality programs in Electronics & Communication Engineering aimed at fulfilling the needs of society and industry.
2. Impart skills and develop scientific temper to solve complex technological problems of current times.
3. Nurture ethics, talent, and entrepreneurship to inculcate professional development of students.

SANTHIRAM ENGINEERING COLLEGE
(AUTONOMOUS)
Nandyal - 518501, Nandyal Dist., Andhra Pradesh

NAAC A GRADE

NBA NATIONAL BOARD OF ACCREDITATION

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

AICTE APPROVED | AFFILIATED TO JNTUA, ANANTAPURAMU

PROGRAMME OUTCOMES (POs) & PSOs

1. **PO1: Engineering Knowledge:** Apply knowledge of mathematics, science, engineering fundamentals, and ECE specialisation to solve complex engineering problems.
2. **PO2: Problem Analysis:** Identify, formulate, review research literature, and analyse complex engineering problems to reach appropriate conclusions.
3. **PO3: Design and Development of Solutions:** Design solutions for complex engineering problems and develop system components or processes that meet specified needs, considering public health, safety, culture, society, and the environment.
4. **PO4: Conduct Investigations:** Use research-based knowledge and methods, including experimentation, analysis, and interpretation of data, to obtain valid conclusions.
5. **PO5: Modern Tool Usage:** Create, select, and apply suitable techniques, resources, and modern engineering and IT tools for modelling, analysis, and solution of complex engineering problems.
6. **PO6: Engineer and Society:** Apply contextual knowledge to assess societal, health, safety, legal, and cultural issues related to professional engineering practice.
7. **PO7: Environment and Sustainability:** Understand the impact of engineering solutions in societal and environmental contexts and demonstrate awareness of sustainable development.
8. **PO8: Ethics:** Apply ethical principles and commit to professional ethics, responsibilities, and norms of engineering practice.
9. **PO9: Individual and Team Work:** Function effectively as an individual and as a member or leader in diverse and multidisciplinary teams.
10. **PO10: Communication:** Communicate effectively with the engineering community and society through reports, documentation, presentations, and clear technical communication.
11. **PO11: Project Management and Finance:** Demonstrate knowledge of engineering and management principles and apply them in individual and team work to manage projects effectively.
12. **PO12: Life-Long Learning:** Recognise the need for and engage in independent and life-long learning to adapt to technological changes.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

- **PSO1:** Apply the principles of electronic devices, circuits, embedded systems, VLSI, and communication engineering to design, analyse, and implement electronic systems.
- **PSO2:** Design and develop solutions in analogue and digital communication, wireless networks, signal processing, and related applications using modern tools.
- **PSO3:** *Develop innovative, sustainable, and industry-oriented solutions through research, teamwork, ethical practice, and continuous learning in emerging areas of Electronics and Communication Engineering.*

SANTHIRAM ENGINEERING COLLEGE
(AUTONOMOUS)
Nandyal - 518501, Nandyal Dist., Andhra Pradesh

NAAC A GRADE

NBA NATIONAL BOARD OF ACCREDITATION

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

AICTE APPROVED | AFFILIATED TO JNTUA, ANANTAPURAMU

MESSAGES

CHAIRMAN'S MESSAGE



It gives me immense pleasure to present SPECTRUM, the newsletter of the Department of Electronics and Communication Engineering. It reflects the academic achievements, innovative activities, research contributions, and creative spirit of our students and faculty members.

I appreciate the efforts of the Department of ECE in nurturing competent professionals through quality education, innovation, and value-based learning. I extend my best wishes to the editorial team, faculty members, and students for the continued success of SPECTRUM.

Chairman

MANAGING DIRECTOR'S MESSAGE



I am delighted to share my message for SPECTRUM, the newsletter of the Department of Electronics and Communication Engineering. This publication is a proud reflection of the department's commitment to academic excellence, innovation, research, and student development.

I encourage students to make the best use of the opportunities provided by the institution, strengthen their technical knowledge, and develop the skills needed to serve society with responsibility and confidence. I convey my best wishes to the faculty, students, and editorial team.

Managing Director

SANTHIRAM ENGINEERING COLLEGE
(AUTONOMOUS)
Nandyal - 518501, Nandyal Dist., Andhra Pradesh

NAAC A GRADE

NBA NATIONAL BOARD OF ACCREDITATION

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

AICTE APPROVED | AFFILIATED TO JNTUA, ANANTAPURAMU

MESSAGES

PRINCIPAL'S MESSAGE



It gives me immense pleasure to present SPECTRUM, the newsletter of the Department of Electronics and Communication Engineering. The newsletter reflects the academic achievements, innovative activities, research contributions, and creative spirit of our students and faculty members. I encourage students to pursue knowledge with curiosity, discipline, integrity, and a commitment to excellence. I appreciate the Department of ECE for nurturing competent professionals through quality education, innovation, and value-based learning. My best wishes to the editorial team, faculty members, and students for the continued success of SPECTRUM.

Principal

HoD'S MESSAGE



I am delighted to share my message for SPECTRUM, the newsletter of the Department of Electronics and Communication Engineering. This publication reflects our department's commitment to academic excellence, innovation, research, and student development. We aim to provide a strong learning environment that enables students to build sound technical knowledge, problem-solving ability, professional ethics, and confidence. I encourage every student to participate actively in academic, research, and co-curricular activities. My best wishes to all faculty members, students, and the editorial team.

Head of Department

SANTHIRAM ENGINEERING COLLEGE
DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

SPECTRUM

Vol. 2 | Issue 2 | OCTOBER–DECEMBER 2022 | AY 2022–23

DEPARTMENT ACTIVITIES & FACULTY DEVELOPMENT

WORKSHOP PROGRAMMES

PCB Design

19–20 December 2022 | 97 students

Organized by the Department of ECE.
Resource person: Mr. Hameed Raza,
Senior Developer, Ar. Design Services.
Participation: 97 students.

CAREER GUIDANCE PROGRAMMES

Job Opportunities in VLSI / Semiconductor Design

26 November 2022 | 85 students

One-day webinar in association with Takshila.
Organized by the Department of ECE.
Resource person: Ms. Medha, VLSI Trainer,
VLSI Institute, Bangalore.
Participation: 85 students.

ENTREPRENEURSHIP PROGRAMMES

Entrepreneurship and Innovation as a Career Opportunity

26 November 2022 | 97 students

One-day workshop.
Organized by the Department of ECE.
Resource persons:

- **Gopi Yarru** — Managing Director I, Senior RTL Design Engineer.
- **Bhanu Chander M** — Managing Director II, Senior Python Developer.
- **Santosh Ch** — Senior Embedded Design Engineer.

Participation: 97 students.

INDUSTRIAL VISITS

- **BSNL, Kurnool**
  09 November 2022 | 87 students
- **Uyyalawada Narasimha Reddy Airport, Oravakal**
  16 December 2022 | 97 faudents

Both visits organized by the Department of ECE.

FDP PROGRAMMES ORGANIZED

Analog and Digital System Design Using CADENCE Tool

12–17 December 2022 | 35 faculty members

One-week Faculty Development Programme.
Organized by the **Department** of ECE.
Participation: 35 faculty members.

FACULTY ATTENDED FDPs / WEBINARS / WORKSHOPS

1 India's 5G Future

Ms. S. Jaya Mangala, Assistant Professor.

15 October 2022 | Webinar organized by IFERP.

2 Robotics

Dr. G. Sowmya, Associate Professor.

26 November 2022 | Workshop organized by Pantech, Hyderabad.

3 Advances in Wireless and Antenna Technology

07–12 October 2022 | FDP organized by MSSCE, Belagavi.

Participants:

- Mr. N. Sreenivasa Rao, Assistant Professor.
- Mr. K. Vinod Kumar, Assistant Professor.

4 Machine Learning

07–12 December 2022 | One-week online FDP.
Organizer/location as reported: Lonavala, Pune.

Participants:

- Dr. G. Sowmya, Associate Professor.
- Ms. V. Nagamani, Assistant Professor.
- Ms. S. Jaya Mangala, Assistant Professor.
- Mr. M. Mahesh Kumar, Assistant Professor.
- Mr. S. Munawwar, Assistant Professor.
- Mr. N. Sreenivasa Rao, Assistant Professor.

SANTHIRAM ENGINEERING COLLEGE

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

SPECTRUM

Vol. 2 | Issue 1 | JULY–SEPTEMBER 2022 | AY 2022–23

FACULTY ACHIEVEMENTS

FACULTY ATTENDED FDPs & WORKSHOPS

1. **Mr. S. Girish Babu**
   IoT Based Smart Automation System
   22–27 August 2022
   MVGR College of Engineering.

2. **Mr. N. Sreenivasa Rao**
   Amazon Web Services
   22–27 August 2022
   Santhiram Engineering College.

3. **Ms. Nagella Jyothsna**
   Amazon Web Services
   22–27 August 2022
   Santhiram Engineering College.

4. **Ms. B. Alekya Himabindu**
   Amazon Web Services
   22–27 August 2022
   Santhiram Engineering College.

5. **Ms. S. Jaya Mangala**
   Success Strategy to Publish in Journals with High Impact Factor
   26–29 September 2022
   IFERP

6. **Mr. N. Sreenivasa Rao**
   SERB–INAE sponsored workshop: Innovation, Entrepreneurship, and Start-Up for Young
   26–30 September 2022
   National Institute of Technology Mizoram.

7. **Dr. P. Udaya Bhaskar**
   SERB–INAE sponsored workshop: Innovation, Entrepreneurship, and Start-Up for Young
   26–30 September 2022
   National Institute of Technology Mizoram.

8. **Mr. S. Girish Babu**
   System Design through Verilog
   July–September 2022
   NPTEL–AICTE FDP

FACULTY JOURNALS / CONFERENCES

Ms. Paradesi Mary Swetha

"Optimization of an all-optical three-input universal logic gate with an enhanced contrast ratio by exploiting a T-shaped photonic crystal waveguide."
Applied Optics, ISSN 2155–3165; July 2022.

FACULTY PATENTS

Published in September 2022

1. **Ms. Sowmya Galli**
   ADAPTIVE MULTIMODAL MEDICAL IMAGE USING GRADIENT COMPASS FOR CT AND MRI SCANNED IMAGES

2. **Ms. N. Jyothsna**
   ATTRIBUTABLE RESEARCH WITH CSRO LAYOUT AT 16NM TECH

3. **Ms. B. Alekya Hima Bindu**
   NOVEL DESIGN OF TERNARY ADDER & MULTIPLIER

4. **Mr. S. Rambabu**
   VOICE & PHYSICAL BASED HOME APPLIANCE CONTROLLER

5. **Ms. S. Jaya Mangala**
   MOBILE NETWORK SIMULATION ANALYSIS OF A COOPERATIVE NOMA-VLC SYSTEM WITH A PERFECT SIC

6. **Ms. T. Nagamani**
   DYNAMIC CEUS IMAGING WITH A HIERARCHICAL TEMPORAL ATTENTION NETWORK FOR THYROID NODULE RECOGNITION

SANTHIRAM ENGINEERING COLLEGE
DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

SPECTRUM

Vol. 2 | Issue 1 | JULY–SEPTEMBER 2022 | AY 2022–23

STUDENT JOURNALS / CONFERENCES

Research Publications | August 2022

1. **Novel Design of Ternary Arithmetic Circuits**
   B. Alekya Himabindu, D. Sai Kumar, G. Mahendra, D. Madhu Srikanth, K. Dinesh Reddy
   International Journal of Innovative Research in Engineering
   Vol. 3, Issue 4 | ISSN 2582-8746

2. **Image Enhancement for Under WAter Depiction using Homomorphic Filter**
   B. Alekya Himabindu, G. Vinitha, S. Karishma, S. Mabhi, B. Mounika
   International Journal of Research Publication and Reviews
   Vol. 3, Issue 8 | ISSN 2582-7421

3. **A Smart Helmet for Air Quality and Hazardous Event Detection for the Mining Industry**
   G. Sowmya, D. Venkateswara Reddy, M. Thirumalesh, M. Hari Krishna, G. Hemanth
   International Journal of Progressive Research in Engineering Management and Science
   Vol. 2, Issue 8 | ISSN 2583-1062

4. **Gradient Compass-Based Adaptive Multimodal Medical Image Fusion**
   G. Sowmya, Y. Jyothirmai, G. Sirisha, T. Bhargavi, K. Greeshma Gayathri
   International Journal of Progressive Research in Engineering Management and Science
   Vol. 2, Issue 8 | ISSN 2583-1062

5. **Assistive Cloth Pattern Recognition for Visually Impaired People**
   M. Maheshkumar, D. Karthik Naik, T. Jayachandra, B. Nagasurendra, S. Samer
   International Journal of Research Publication and Reviews
   Vol. 3, Issue 8 | ISSN 2582-7421

6. **Automatic Plane Level Maintenance Mechanism for Robotic Vehicles Employing Accelerometer**
   M. Maheshkumar, Munagala Venkata Rishivarun Reddy, Baggari Naga Kalyan, Bandaru Mahesh, Gunde Sivakumar, Chakali Naveen Kumar
   International Journal of Research Publication and Reviews
   Vol. 3, Issue 8 | ISSN 2582-7421

7. **Relative Study and Design of CSRO in 16 nm Technology**
   N. Jyothsna, K. Rajesh, S. Sameer Basha, A. Sai Pranith, Y. Chandra Sekhar
   International Journal of Research Publication and Reviews
   Vol. 3, Issue 8 | ISSN 2582-7421

8. **Image Processing Based Alarm System for Rod Cutters to Prevent Finger Cutting using CNN**
   Kachireddy Siva Jyothi, Boyapalli Gayatri, Cheva Navyasri, Billapati Sowmya, N. Sreenivasa Rao
   International Journal of Research Publication and Reviews
   Vol. 3, Issue 8 | ISSN 2582-7421

9. **Photo Resistor Sensor Array Based Automatic Sunshade Umbrella Tilting Mechanism**
   Nidiganti Vineeth Kumar Goud, Shaik Mahammad Rafi, Pobbathi Shalem Raju, Thurlapati Sree Guru Charan, N. Sreenivasa Rao
   International Research Journal of Modernization in Engineering Technology and Science
   Vol. 4, Issue 8 | ISSN 2582-5208

10. **Fundus Images for Diagnosis of Diabetic Retinopathy using Segmentation of Blood Vessels**
    K. Renu Sree, K. Divya Vani, G. Samyuktha Rani, N. Shilpa Reddy, N. Sreenivasa Rao
    International Journal of Progressive Research in Engineering Management and Science (IJPREMS)
    Vol. 2, Issue 9 | ISSN 2583-1062

11. **Analysis of a Cooperative NOMA–VLC System with a Perfect SIC for Mobile Network Simulation**
    S. Jaya Mangala, Mahammad, Jabeer Basha, Naga Pramod Kumar
    International Journal of Scientific Research in Engineering and Management
    Vol. 6, Issue 8 | ISSN 2582-3930

12. **Smart School Bus System with Accident Avoidance and Location Tracking System**
    S. Rambabu, Chennakesavula Lakshmi Prasanna, Sangati Hymavathi, Muppidi Rechal
    International Journal of Science, Engineering and Technology
    Vol. 6, Issue 8 | ISSN 2582-3930

SANTHIRAM ENGINEERING COLLEGE

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

SPECTRUM

Vol. 2 | Issue 2 | OCTOBER–DECEMBER 2022 | AY 2022–23

DEPARTMENT GALLERY













