




VISION

 *To become a reputed Department of learning in Electronics and Communication in research and transform the students in to professional engineers.*

MISSION

 *To provide strong foundation in core electronics and communication engineering that will make students to explore advances in research for higher learning.*

 *To provide the learning ambience to nurture the young minds with theoretical and practical knowledge to produce employable and competent engineer.*

 *To imbibe moral values, professional ethics, team spirit and leadership qualities among students and faculties to contribute to the continuously evolving technologies.*

 *To inculcate empathy for societal needs and concern for environment in engineering research development and practices.*



E-Sancharika

DEPARTMENT OF ECE NEWSLETTER

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***“THE SCIENCE OF TODAY IS THE
TECHNOLOGY OF TOMORROW”
- EDWARD TELLER***



About The Department

The ECE Department was established in 2011 with an intake of 120 students. Dr. P. H. Gopal Mani, HOD ECE completed Ph.D in Embedded Systems and he has 36 years of experience. The department has excellent laboratories and well qualified faculty. The department trains the young engineers to cater to the technological needs of the nation. The faculty members are associated with IETE, IEEE & CSI. **The department supports the economically poor students in all aspects.**

From HoD Desk

The department has qualified and dedicated faculty members to provide good technical support and give individual attention to all the students. The department always tries to become a centre of excellence in the field of electronics and communication engineering. We hope that we will continue to deliver our best to serve the society and expect our students to pass on the skills that they have developed during their interaction with our department. Our motto being to upgrade the skills and knowledge of our young engineers to enable them to survive best in the best competitive world our students are encouraged to participate in various technical and extracurricular events. **I congratulate Dr. M. Sushanth Babu, Professor and Mr. K. Praveen Asst. Professor who have joined newly in ECE Department and I wish them all the best for their future.**

New Faculty Profile

S.N	Faculty Name	Profile
1.		Dr. M. Sushanth Babu Professor, mail ID: sushanth19.m@gmail.com
2.		Mr. K. Praveen Asst. Professor, mail ID: kundapraveen@gmail.com

Faculty Achievements

- ❖ Dr. Nookala Srinivasa Rao has been awarded as “Chartered Engineer” by Institute of Engineers(India) on 20th Nov. 2017
- ❖ Dr. Nookala Srinivasa Rao has received the “National award of Excellence” by Global management Council on 1st Aug. 2017
- ❖ Dr. Nookala Srinivasa Rao has received “Gyan Bharti Shiksha award” by Govt. of Gujrat on 5th Sept. 2017

Events organized by the Department

- ❖ A half day Tutorial has been organized on “Internet of Things and Applications” by Prof. C. R. Sarma on 03.11.2017
- ❖ A half day tutorial has been organized on “Digital Image processing Applications to Satellite Communication” by Dr. Koduri Srinivas
- ❖ A Three day workshop has been organized on “National Level Workshop on “Outcome Based Technical Education towards achieving NBA/ABET Accreditation Process” from 07.09.17 to 09.09.17
- ❖ One week workshop has been organized on “FDP on practical RF antenna Design with simulation studies” in collaboration with Electronics & ICT Academy, NIT Warangal 18.12.0.17 to 23.12.2017
- ❖ Three day workshop has been organized on “IEEE Workshop on outcome based technical Education towards NBA / ABET” on 07.09.17 to 09.09.17

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Editorial Team:

Dr. P. H. Gopal Mani,
Professor & Head, -Editor

Dr.Pallavi Khare, - Co-Ordinator
Mr.M.Naresh, - Co-Ordinator

Student Co Ordinators:

Mr. M.Sai Kumar, IV ECE

Ms. Srinija, IV ECE

Mr. Akshit Alwala, III ECE

Mr. K. Pavan Kumar III ECE

Mr. Sai Sri Harsha, III ECE

Mr. Rohith, II ECE

Ms.K.V.Mriganaini, II ECE

Faculty Publications

- ❖ Dr. M.SushanthBabu, “Design and Implementation of an Area Efficient Interleaver for MIMO-OFDM Systems” IJSDR, 2455-2631, in 2017.
- ❖ Dr. M.SushanthBabu, “A Survey on Quality of Service(Qos) in Data Networks:Past Present and Future” IJRTI, 2556-3315, in 2017.
- ❖ Mr. M.Naresh, “Discriminate vertical handover time using GRA and TOPSIS algorithms in heterogeneous networks by effect of metrix” IJERA, 2248-9622, July 2017.
- ❖ Mrs. A.S.Keerthi Nayani, Mrs. ArunaKokkula, “VLSI Architecture for Parallel Multipliers” IJSIET, ISBN 978-81-904760-9-6, May 2017.
- ❖ Mrs. A.S.Keerthi Nayani, “Performance Comparison of weighted modulo(2n+1)adderusing different prefix structures” IJEECS , 2348-117X on 6th Aug 2017.
- ❖ Mrs. A.S. Keerthi Nayani, Mrs. ArunaKokkula “Performance Comparison of weighted modulo(2n+1)adder using different prefix structures” IJEECS , 2348-117X on 6th Aug 2017.
- ❖ Mrs. A.S.Keerthi Nayani, Mrs. ArunaKokkula, “Power-Efficient Carry Select Adder” IJR, e-ISSN:2348-6848, November 2017.
- ❖ Mrs. B.Indira Priyadarshini, Mrs. B. Indira Priyadarshini and Mrs. Pallavi Khare, Mrs. K.Aruna “A novel algorithm for Detecting Heart Diseases” IJEEE, 2321-2045, June 2017
- ❖ Mrs. B.Indira Priyadarshini, “32-bit MAC unit design using Vedic Multiplier” IJSIET, 978-81-904760-9-6, in 2017.
- ❖ Mrs. B.Indira Priyadarshini, “High speed modified Booth encoder multiplier for signed and unsigned number” IJSIET, 978-81-904760-9-6, in 2017.
- ❖ Mrs. B.Indira Priyadarshini, “Defects detection in printed circuit Board using Integrated frame work” IJETSR, 2394-3386, in 2017.

Workshops attended by the Faculty

- ❖ Dr. N. SRINIVASA RAO, Prof attended FDP on signals & System conducted at Vignan University, Guntur in collaboration with NITW from 10.06.2017 to 15.06.2017.
- ❖ Total 17 members of the department attended FDP on “Effective Teaching methodologies “at MECS On 15.07.2017 .They are - P.H.Gopalamani, Dr. N. Srinivasa rao , Dr.K.Usha, Mrs. A. Narmada, Mr. V. Karunakarreddy Mrs. A. S. Keerthi nayani, Mrs. P. Sravani, mr.D.Nagaraju, Mr. P. Ravi kumar Reddy, Mrs. B. Indira priyadarshini, Mr. A. Abhishek reddy, Mrs. K. Aruna, Dr. Pallavi khare, Mr. Ch. Madhubabu, Mr. V. Suresh kumar, mr. K. Koteswarrao, Mr. M. Mahender.
- ❖ Dr.K.Usha , Mrs. A. S. Keerthi nayani, Mr. M. Naresh, Mr. A. Abhishek reddy attended workshop on “ **IEEE Workshop on outcome based technical Education towards NBA / ABET**” on 07.09.17 to 09.09.17 at MECS.
- ❖ Mrs. A. S. KEERTHI NAYANI. Mrs K. Aruna attended One Week FDP on Analog IC Design from 01.05.2017 to 06.05.2017 at MJCET.
- ❖ Mr. M. NARESH attended FDP on “Fundamentals of Analog & Digital Communication System” from 04.05.2017 to 09.05.2017 at NIT Warangal.
- ❖ Mr. D. NAGARAJU, Asst.Prof, attended seminar on :Youth Conclave” on 10.09.2017 at RK Matt, Hyderabad

Memberships

❖ **The Institute of Engineers (IEI)**

Matrusri Engineering College has been certified as Educational Institution Member by IEI with an Institutional Membership No: **IM000521-7** in November-2017.

Students' Participation in Intra-Institute Events

S.No	Roll No	Name of the Student	Event Attended	Date	Place of event
1	1608-16-735-057	B.Sudhamshu	Outcome Based Technical Education Towards Achieving NBA/ABET Process(Volunteer)	07 to 09.09.2017	Matrusri Engineering College
2	1608-17-735-067	K.Chandra shekar	Enterpreneurship & Emerging Technologies	30.10.2017	Matrusri Engineering College
3	1608-16-735-002	K.R.Meera	Outcome Based Technical Education Towards Achieving NBA/ABET Process(Volunteer)	07 to 09.09.2017	Matrusri Engineering College
4	1608-17-735-002	Y.Rajya Lakshmi	Enterpreneurship & Emerging Technologies	30.10.2017	Matrusri Engineering College
5	1608-17-735-018	Kodumuri sahith	Enterpreneurship & Emerging Technologies	30.10.2017	Matrusri Engineering College

About 5 students have been participated in various events conducted by the Matrusri Engineering College as given in the above list

Students' Participation in Inter-Institute Events

About 12 students have been participated in various events conducted at different places as given in the below list

S.No	Roll No	Name of the Student	Event Attended	Date	Place of event
1	1608-15-735-062	Nikhitha Kulkarni	Internship on Design & Implementation of Vedic Multiplier In VLSI	12.06.2017 – 11.07.2017	ECIL, Hyderabad
2	1608-15-735-004	N.Anuhya	Workshop on ANDROID MOBILE APP Development	22.06.2017 – 24.06.2017	Stanely college of Engineering & technology for Women.
3	1608-15-735-006	Sampath	Workshop on ANDROID MOBILE APP Development	22.06.2017 – 24.06.2017	Stanely college of Engineering & technology for Women.
4	1608-15-735-007	Puli manasa Gayathri	Workshop on ANDROID MOBILE APP Development	22.06.2017 – 24.06.2017	Stanely college of Engineering & technology for Women.
5	1608-15-735-015	K.Veena Vishnu Kruthi	Workshop on ANDROID MOBILE APP Development	22.06.2017 – 24.06.2017	Stanely college of Engineering & technology for Women.
6	1608-15-735-087	Narla Varsha	Internship on BSNL RTTC, Gachibowli	19.06.2017 – 30.06.2017	RTTC, Gachibowli
7	1608-15-735-115	M.Kalpana	Internship on BSNL RTTC, Gachibowli	19.06.2017 – 30.06.2017	RTTC, Gachibowli
8	1608-14-735-066	R.Sai Akhil	Completed project / training on Akash Missile control unit final testing	20.06.2017 – 19.07.2017	ECIL, Hyd.
9	1608-14-735-097	NVSB Shankar	Completed project / training on Akash Missile control unit final testing	20.06.2017 – 19.07.2017	ECIL, Hyd.
10	1608-14-735-061	K.Vinitha	Completed project / training on Akash Missile control unit final testing	20.06.2017 – 19.07.2017	ECIL, Hyd.
11	1608-15-735-062	Nikhitha Kulkarni	IEEE HYD SECTION STUDENT CONGRESS 2017	04 – 05.11.2017	PGRRUDE, OU
12	1608-14-735-004	V.Mounika	IEEE HYD SECTION STUDENT CONGRESS 2017	04 – 05.11.2017	PGRRUDE, OU

Students' Placements

S.No	Enrolment Number	Name of the Student Placed	Name of the Employer	Appointment Letter Reference No with Date
1	1608-14-735-004	Nannapaneni Niharika	Amazon	8 th November 2017
2	1608-14-735-010	Fatima Fouzia	Amazon	8 th November 2017
3	1608-14-735-011	Akhila Mende	Amazon	8 th November 2017
4	1608-14-735-018	Ashwith Guntha	Amazon	8 th November 2017
5	1608-14-735-026	R. Akhila	Amazon	8 th November 2017
6	1608-14-735-032	VamshiKrishna Thanda	Amazon	8 th November 2017
7	1608-14-735-033	Lakuma Rakesh	Amazon	8 th November 2017
8	1608-14-735-042	Mogili Shivani	Amazon	8 th November 2017
9	1608-14-735-061	Vinitha Kotla	SoCtronics	18 th December 2017
10	1608-14-735-067	K. Vinay	Amazon	8 th November 2017
11	1608-14-735-073	K Gopi Krishna	Amazon	8 th November 2017
12	1608-14-735-076	Ch Lakshmi Sowmya	Amazon	8 th November 2017
13	1608-14-735-080	Sai Anirudh	Amazon	8 th November 2017
14	1608-14-735-106	Prastuthi Gerri	Genpact	14 th October 2017

About 14 students have been placed in various companies from July 2017 to December 2017 which is listed in above table.

Technical Articles

CNTFET

Mrs.A.Narmada, Asst. Professor, ECE Department

The earliest techniques for fabricating carbon nanotube (CNT) field-effect transistors involved pre-patterning parallel strips of metal across a silicon dioxide substrate, and then depositing the CNTs on top in a random pattern. The semiconducting CNTs that happened to fall across two metal strips meet all the requirements necessary for a rudimentary field-effect transistor. One metal strip is the "source" contact while the other is the "drain" contact. The silicon oxide substrate can be used as the gate oxide and adding a metal contact on the back makes the semiconducting CNT gateable.

This technique suffered from several drawbacks, which made for non-optimized transistors. The first was the metal contact, which actually had very little contact to the CNT, since the nanotube just lay on top of it and the contact area was therefore very small. Also, due to the semiconducting nature of the CNT, a Schottky barrier forms at the metal-semiconductor interface, increasing the contact resistance. The second drawback was due to the back-gate device geometry. Its thickness made it difficult to switch the devices on and off using low voltages, and the fabrication process led to poor contact between the gate dielectric and CNT.

Mixed-signal Integrated Circuits

Mrs K. Aruna, Asst. Professor, ECE Department

A **mixed-signal integrated circuit** is any integrated circuit that has both analog circuits and digital circuits on a single semiconductor die. In real-life applications mixed-signal designs are everywhere, for example, smart mobile phone. However, it is more accurate to call them mixed-signal systems. Mixed-signal ICs also process both analog and digital signals together. For example, an analog-to-digital converter is a mixed-signal circuit. Mixed-signal circuits or systems are typically cost-effective solutions for building any modern consumer electronics applications. An analog-mixed-signal system-on-a-chip can be a combination of analog circuits, digital circuits, intrinsic mixed-signal circuits (like ADC), and embedded software.

Integrated circuits (ICs) are generally classified as digital (e.g. a microprocessors) or analog (e.g. an operational amplifier). Mixed-signal ICs are chips that contain both digital and analog circuits on the same chip. This category of chip has grown dramatically with the increased use of 3G cell phones and other portable technologies.

Mixed-signal ICs are often used to convert analog signals to digital signals so that digital devices can process them. For example, mixed-signal ICs are essential components for FM tuners in digital products such as media players, which have digital amplifiers. Any analog signal (such as an FM radio transmission, a light wave or a sound) can be digitized using a very basic analog-to-digital converter, and the smallest and most energy efficient of these would be in the form of mixed-signal ICs.

Mixed-signal ICs are more difficult to design and manufacture than analog-only or digital-only integrated circuits. For example, an efficient mixed-signal IC would have its digital and analog components share a common power supply. However, analog and digital components have very different power needs and consumption characteristics that make this a non-trivial goal in chip design.

What is Image Processing?

Mr. K. Pavan Kumar III ECE

Image processing is a method to convert an image into digital form and perform some operations on it, in order to get an enhanced image or to extract some useful information from it. It is a type of signal dispensation in which input is image, like video frame or photograph and output may be image or characteristics associated with that image. Usually **Image Processing** system includes treating images as two dimensional signals while applying already set signal processing methods to them.

It is among rapidly growing technologies today, with its applications in various aspects of a business. Image Processing forms core research area within engineering and computer science disciplines too.

Image processing basically includes the following three steps:

- Importing the image with optical scanner or by digital photography.
- Analyzing and manipulating the image which includes data compression and image enhancement and spotting patterns that are not to human eyes like satellite photographs.
- Output is the last stage in which result can be altered image or report that is based on image analysis.

Purpose of Image processing

The purpose of image processing is divided into 5 groups. They are:

1. Visualization - Observe the objects that are not visible.
2. Image sharpening and restoration - To create a better image.
3. Image retrieval - Seek for the image of interest.
4. Measurement of pattern – Measures various objects in an image.
5. Image Recognition – Distinguish the objects in an image.

Massive MIMO for Fifth Generation (5G): Opportunities and Challenges

Mr.Ch.Sai Sri Harsha, IV ECE

Multiple-input and multiple-output (MIMO) is a wireless technology that can provide significant performance improvement over the traditional single- input and single-output system, has attracted growing interest since being introduced in the past two decades. It is a key technology that takes the advantage of multiple antennas at transmitter and/or receiver that can substantially improve the network throughput, capacity, and coverage without requiring additional bandwidth or transmit power level. The idea is to utilize multiple antennas at both the transmitting ends and receiving ends to separate independent wireless channels in a rich multipath environment, and uses them to transmit multiple data streams simultaneously to increase the channel capacity by applying diversity combining approach. To date, MIMO technology has been utilized in the fourth generation (4G) wireless communication standards, such as Long Term Evolution (LTE), wireless LAN (IEEE 802.11n), and Worldwide Interoperability for Microwave Access (WiMAX). The use of MIMO antennas, coupled with modulation formats, such as Orthogonal Frequency Division Multiple Access (OFDMA) can provide both increased channel capacity and protection against multi-path fading due to their rich scattering nature that provides improved spectral efficiencies.

Valuable Quotes

To succeed in your mission, you must have single-minded devotion to your goal.

-Dr. A. P. J. Abdul Kalam

Teaching is a very noble profession that shapes the character, caliber, and future of an individual. If the people remember me as a good teacher, that will be the biggest honour for me.

- Dr. A. P. J. Abdul Kalam

Take up one idea. Make that one idea your life - think of it, dream of it, live on that idea. Let the brain, muscles, nerves, every part of your body, be full of that idea, and just leave every other idea alone. This is the way to success.

-Swami Vivekanada