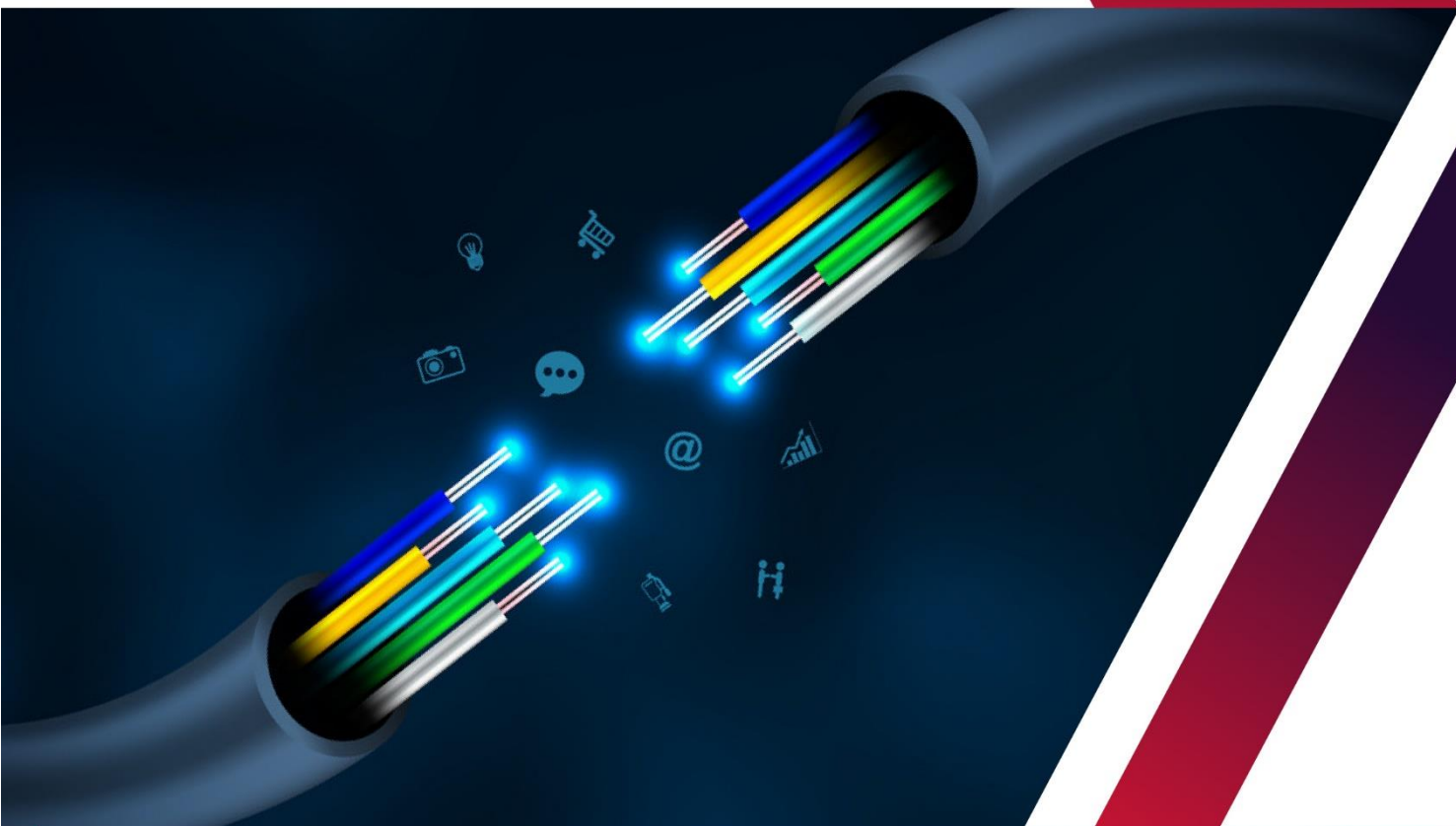




ROHINI

COLLEGE OF ENGINEERING & TECHNOLOGY

Approved by AICTE and Affiliated to Anna University, (An ISO Certified Institution)



THE FAIRE CONNECTRONS

ELECTROVISION

**DEPARTMENT OF ELECTRONICS AND
COMMUNICATION ENGINEERING**

2019-2020

VOL 2 | 2020 APRIL EDITION

NEWSLETTER

Contents

Chairman's Message	:	01
Managing Director's Message	:	02
CFO's Message	:	02
Principal's Message	:	03
HOD's Message	:	03
Editor's Message	:	04
Editorial Board	:	04
Vision & Mission	:	05
PEO's & PSO's	:	06
Department Activities	:	07
Guest Lectures / Seminars	:	08
Department Activities	:	09
Students Achievements	:	12
Invited Articles	:	13

Dear All,

“Learning gives creativity, creativity leads to thinking, thinking provides knowledge, knowledge makes you great”

- Dr.A.P.J.Abdul Kalam.

From Chairman's Desk



These words by - Dr.A.P.J.Abdul Kalam perfectly describe our aim at Rohini College of Engineering and Technology. Beyond providing a sound education, we wish to provide our students a holistic learning experience for life. Our aim is to teach students to LEARN, not just STUDY. Hence, we strive to travel beyond the boundaries of mere books. We have realized that the future is abstract and unknown but the youth in our hands are real and can be Molded. Engineers play the most vital and important role in nation building. They create new inventions using best engineered technologies to make human life more comfortable, secure and productive. In modern times, nations which have rich engineering and experienced technological domains are flourishing economically and are providing better lives to their people. We have excellent potential to grow in diversified areas and excel in Engineering and technological fields. We need enormous number of engineers and managers to write next story of success.

We have identified the needs of modern engineering, technology for modern age students, with a vision and mission accompanying transparency, accountability and accessibility which keeps us abreast. I can proudly say that Rohini College of Engineering and Technology is the most modern and sophisticated multidisciplinary institution, imparting quality education and providing a wide and varied arena for the staff and students to showcase their academic and extracurricular talents. With relentless efforts, the college aspires to orchestrate the students' potential for the enrichment and progress of society by equipping them with technical expertise and soft skills. Our well qualified and experienced Teaching faculties guide the students to hone their talents to excel in this competitive world.

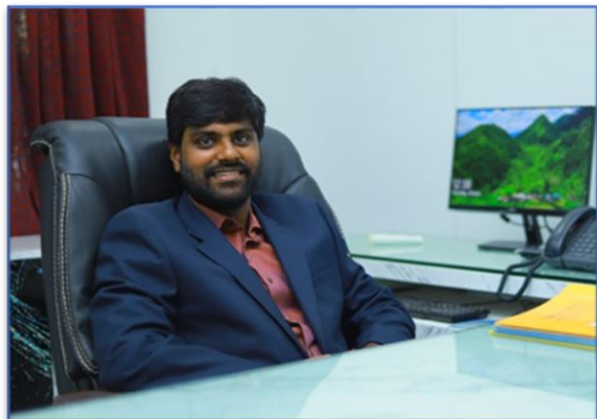
I am proud to say that once our students step in, they step out with self-confidence and knowledge to face all future endeavors with full conviction. Fly in the plane of Ambition, Land in the Airport of Success, The luck is yours the wish is mine. May your future always shine. Good Luck.

Cordially,

Shri.K.NEELA MARTHANDAN
Chairman, Rohini Groups.



Managing Director's Message



Dear All,

Endorsing creativity and stirring innovation are two of the vital elements of a successful education and Newsletter is the perfect amalgamation of both. It harnesses the nifty energies of the academic community and refines the essence of their inspired imagination in the most brilliant way possible.

Hence, I am delighted to know that Newsletter of ECE Department "Electrovision" is ready for publication. I take this opportunity to congratulate the editorial board for bringing out this Newsletter, which in itself is an achievement considering the effort and time required. May all the students soar high in unexplored skies and bring glory to the world and their profession with the wings of education!

Best Wishes,

Dr.N.NEELA VISHNU, M.B.A.,

Managing Director

Chief Financial Officer's Message



Dear All,

It is a matter of great pride and satisfaction to bring out the News Letter "Electro Vision" released from the Department of ECE. I am confident that this issue of Department News Letter will send a positive signal to the staff, students and the person who are interested in the Technical education and Technology based activities.

A News Letter is like a mirror which reflects the clear picture of all sorts of activities undertaken by the Department and develops writing skills among students in particular and teaching faculty in general. I congratulate the Editorial Board of this News Letter who have played wonderful role in accomplishing the task in stipulated time. Also my heartfelt Congratulations to staff members and Students for their fruitful effort.

Best Wishes,

Dr.V.M.BLESSY GEO, M.Sc.,Ph.D.

Chief Financial Officer





Principal's Message

Dear All,

It gives me great pleasure, as a Principal of this college, to say a few words about Rohini College of Engineering and Technology. Any Institution, if it aims at reaching greater heights, needs to have clearly spelt Vision and Mission. Our college has set its Mission as to impart Quality Education to all the people, thereby developing the nation as a whole. Our long term vision being to achieve greater heights in the field of education by providing an opportunity to each and every individual to choose the right path,

realize the value of education and achieve their goals by adding values through quality education. We give more emphasis to the overall moulding of every student through quality education and In-plant training, right from the initial stage of education. Well-equipped laboratories and work shop with most modern and sophisticated instruments/machineries are provided to impart state-of-the-art education to the students. Ample opportunities are being provided to the students in Personality Development and other extracurricular activities. Well qualified and experienced teaching faculty is provided to impart quality education to the students. The placement cell has a vital role in placing the students in the reputed companies. With all these facilities in place and with the right attitude of the Management. The students who continue education in this esteemed Institution would be greatly benefited in future. Good Luck!

Best Wishes,
Dr.R.RAJESH, M.E., Ph.D.
Principal



HOD's Message

Dear All,

At the outset, I would like to thank the Management and Principal for their continuous support and Guidance, Faculties and students for doing exemplary support and contributions in the department! It gives me immense pleasure to note that the editorial board brings out another edition of newsletter "Electrovision". It is great to find students as winners and participants in co-curricular and extracurricular activities which certainly prove that our students are

adequately equipped and possess necessary skill-sets to bring such laurels to the Institution and Department. The Department aims academic progression, skill development, inculcating research value, bringing out hidden talent of students as well as faculty members through activities like Guest lectures, Faculty Development Programmes, Research workshops, Technical Symposium, Mini-Project Expo etc., This newsletter is a medium to present the glimpse of such activities and achievements of the department in each semester to all the stakeholders. I am sure that by reading these pages you will get a bird's eye view about activities of ECE Department.

Cordially,
Dr.S.MOHANALAKSHMI, M.E., Ph.D.
Professor & Head / ECE





Mr.P.BENESH SELVA NESAN
Assistant Professor
Department of ECE

Associate Editor's Message

Dear All,

It gives us great pleasure to bring you the first issue of "ElectroVision", the ECE department Newsletter of Rohini College of Engineering and Technology, Kanyakumari. We would like to place on record our gratitude and heartfelt thanks to all those who have contributed to make this effort a success. We profusely thank the management for giving support and encouragement and a free hand in this endeavor. With Best Wishes!



Mr.C.K.MORARJI
Assistant Professor
Department of ECE

Assistant Editor's Message

It gives us great pleasure to bring you the first issue of "ElectroVision", the ECE department Newsletter of Rohini College of Engineering and Technology, Kanyakumari. The name and fame of an institute depends on the caliber and achievements of the students and teachers. The role of a teacher is to be a facilitator in nurturing the skills and talents of students. This newsletter is a platform to exhibit the literary skills and innovative ideas of teachers and students "Electrovision" presents the skills and innovative thinking of students and contributions of teachers.

Cordially,
Ms.C.MAGI SAHULIN
Final Year ECE

Editorial Board

Academic Year	:	2019-2020
Issue	:	IV
Volume	:	02
Editor in Chief	:	Dr.S.Mohanalakshmi, Professor & Head, Department of ECE
Associate Editors	:	Mr.P.Benesh Selva Nesan, Assistant Professor, Department of ECE
		Mr.C.K.Morarji, Assistant Professor, Department of ECE
Assistant Editor	:	Ms.C.Magi Sahulin, Final Year ECE
Editorial Board Members	:	Ms.P.Roselin Southri, Final Year ECE
		Mr.J.Jinu Krishnan, Final Year ECE
		Mr.S.Melben Raj, Final Year ECE



INSTITUTE VISION

📖 To be an Academic Institute of Continuous Excellence towards Education and Research in Rural Regime and Provide Service to Nation in terms of Nurturing Potentially Higher Social, Ethical and Engineering Companion Graduands.

📖 To Foster and Promote Technically Competent Graduands by Imparting the State of Art Engineering Education in Rural Regime.

📖 To Enunciate Research Assisted Scientific Learning by Dissemination of Knowledge towards Science, Agriculture, Industry and National Security.

INSTITUTE MISSION

DEPARTMENT VISION

📖 To promote ethical and innovative Electronics and Communication Engineers through excellence in teaching, training and research so as to contribute to the advancement of the rural society and mankind.




📖 To impart high quality technical education and exposure to recent trends in the industry, to ensure that the students are moulded with competent qualities of Electronics and Communication Engineering.

📖 To inculcate research capabilities and exemplary professional conduct to lead and to use technology in agriculture, industry and national security for the progress of our country.

DEPARTMENT MISSION



PROGRAM EDUCATIONAL OBJECTIVES (PEO's)

-  **PEO1: Lead a successful career by applying the Scientific and Engineering fundamentals to formulate and solve the real life problems.**
-  **PEO2: Practice the ethics of their profession, consistent with a sense of social responsibility and aptitude for innovations as they work individually and in multi-disciplinary teams.**
-  **PEO3: Be receptive to recent technologies so as to excel in industry and accomplish professional competence through lifelong learning.**

PROGRAM SPECIFIC OUTCOMES (PSO's)

PSO1: Ability to perform innovatively in the fields of Electronics and communication Engineering by utilizing the acquired knowledge and to progress in the profession by applying ethical values ultimately benefiting the rural society.

PSO2: Apply advanced engineering hardware and software tools to solve complex Electronics and Communication Engineering problems.



DEPARTMENT ACTIVITIES

Department of ECE successfully organized and conducted the Department Advisory Board (DAB) Meeting (First Meeting) for the Academic Year 2019-2020 on 25.01.2020 at Conference Hall, Rohini College of Engineering & Technology, Kanyakumari.



Department of ECE organized and celebrated The National Science Day on 28.02.2020 at Mini Seminar Hall, Rohini College of Engineering & Technology, Kanyakumari. Dr.R.Rajesh, Principal, RCET delivered the presidential address on the common science behind our day to day activities.



DEPARTMENT ACTIVITIES

IN-HOUSE MINI PROJECT EXPO - 2020

Department of ECE Association “The Faire Connectrons” organized and conducted the Mini Project Expo - 2020 on 28.02.2020 at Circuits & Simulation Laboratory, Rohini College of Engineering & Technology, Kanyakumari.



Aim of this Mini Project Expo 2020 is providing platform for students to exhibit the talents. This would encourage student's curiosity and creativity. The function was inaugurated by Honorable chairman Shri.K.Neela Marthandan and it was presided over by Managing Director Dr.Neela Vishnu, Chief Financial Officer Dr.V.M.Blessy Geo, Dr. R. Rajesh, Principal of RCET, Heads of the Department, Teaching and Non-Teaching Faculty. Apart from their curriculum, to gain practical knowledge about the Electrical Sciences this expo was conducted. Projects like Home Automation by Speech, Smart Road System, Ultra Sonic Blind Walking Stick, Heart Beat Sensor, EH tracker, Li-Fi, etc., The projects of the students were judged and evaluated by the respected faculty expertise of the department on the basis of performance, quality, social responsibility, innovative idea and implementation strategy of the project. Good interactions between the judges and team members made students to know about different emerging technologies in various fields. The best three projects were awarded on the day of Symposium RONIX 2K20. This act as a great motivation for the upcoming engineering graduates.



GUEST LECTURES / SEMINARS

SPECIAL LECTURE ON “CAREER OPPORTUNITIES IN DEPARTMENT OF ATOMIC ENERGY”

Department of ECE conducted a Special Lecture on “Career Opportunities in Department of Atomic Energy” on 25th February 2020. Dr.S.Mohanalakshmi, Professor & Head, Department of ECE introduced the Chief Guest. Mrs. Jalaja Madhan Mohan, Head, TCPAS, RSED, IGCAR, in her chief guest address briefed out the importance of Nuclear Energy and the various functions of IGCAR.



She delivered the special lecture on “Need for Nuclear Energy and the Job Opportunities Available in the Atomic Research Field”. She emphasized the need for alternative source, as the conventional fuels are in depleted state and also stated that Nuclear energy is the key energy source that can meet the need of our power generation.

GUEST LECTURE ON IMPEDANCE MATCHING USING QUARTER WAVE TRANSFORMER

Department of ECE organized a guest lecture on impedance matching using quarter wave transformer on 12/12/2019. The students were explained know detail about impedance matching with real time examples and applications.



DEPARTMENT ACTIVITIES

NATIONAL LEVEL TECHNICAL SYMPOSIUM “RONIX 2K20”

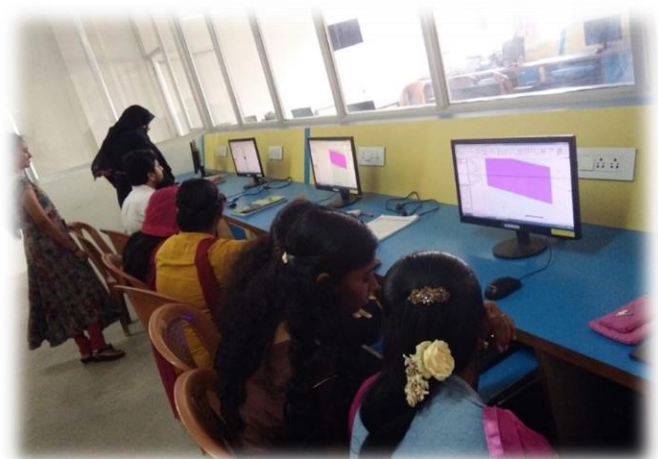
The Association of ECE ‘the faire connectrons’ organized a National Level Technical Symposium “RONIX 2k20” on 29.02.2020 in The Grand Arena for the benefit of the students and the function was presided over by Honorable Chairman Shri K.Neela Marthandan, Managing Director Dr.Neela Vishnu, Chief Financial Officer Dr.Blessy Geo V.M, Principal Dr.R.Rajesh, Heads of various departments, Teaching and Non-Teaching Faculty. Dr.T.Ramesh, General Manager, ISRO Propulsion Complex, Mahendragiri was the Chief Guest of the day. Students from various colleges participated actively in this Symposium. The symposium was inaugurated auspiciously by the lightening of Kuthuvilakku. Following the welcoming remarks, Dr.R.Rajesh delivered the presidential address, in his speech highlighted the importance and objectives of any technical symposium. He talked about the purposes of organizing such symposiums to develop the skill set of promising engineering students. Followed by him, Prof.C.K.Morarji briefed the gathering and the Chief Guest. Dr.T.Ramesh, General Manager, ISRO Propulsion Complex, Mahendragiri consented to deliver the chief guest address. He talked about the current challenges engineers face in the society. The expectations from the industry and wished every participant great success. Technical Events such as Paper presentation, Circuit Debugging, Quiz, E-Waste Constructo, Non-Technical Events like Photography, Link Wizard, etc. were conducted. This symposium witnessed the enthusiastic participation of over 200 students from other colleges. RONIX2K20 ended with distribution of awards and certificates followed by the vote of thanks.



DEPARTMENT ACTIVITIES

HANDS ON TRAINING ON RF AND ANTENNA DESIGN USING ANSYS HFSS

Hands on training on RF and antenna design using Ansys and HFSS was handled by the Expert Dr. Jeyanand Thulasiraman, CEO, Tesla Minds, Chennai on 12.12.2019. The students were explained about simulations using HFSS Software and also trained them by practical hands on sessions.



GUEST LECTURE ON RESEARCH OPPORTUNITIES IN BIO MEDICAL ENGINEERING

Dr.Rama Shanker Verma, Professor, Department of Biotechnology, Indian Institute of Technology, Madras was the resource Person of the day. He delivered his lecture and moulded the students to get in depth knowledge on research opportunities in the field of bio medical engineering on 31.01.2020 at Mini Seminar Hall.



STUDENTS ACHIEVEMENTS

The Student Ms.Adlin Mahiba from II Year, Department of ECE has received the winner award (First Prize) for “District Skill Competition 2020” in the Electronics skill category from Sh.Prashant M.Wadnere, IAS., District Collector of Kanyakumari on 03.02.2020. Also, she was qualified and entered into the State Level Competition.



The Student Ms.M.Aziha from II Year, Department of ECE has received the runner up award (Second Prize) for “District Skill Competition 2020” in the Electronics skill category from Sh.Prashant M.Wadnere, IAS., District Collector of Kanyakumari on 03.02.2020. Also, she was qualified and entered into the State Level Competition.

- ✚ Won 1st prize in Paper Presentation in Technical Symposium conducted by Loyola Institute of Technology and Science, Thovalai.
- ✚ Won 2nd prize in technical fest Quiz conducted by Loyola Institute of Technology and Science, Thovalai.



INVITED ARTICLES

ENGINEERING YOURSELF INTO A CORNER WITH A PCB DESIGN

As a Electronics Engineering Student, I see many different flavors of PCBs. The complexity of a printed circuit board has changed greatly over the years. In this article, I will discuss the top design issues we see repeatedly that cause process challenges, scrap, and fallout. This PCB has many cuts creating the profile, without a supplied outline and a dimensional drawing it would be difficult to interpret what the actual should be. We can measure and create a routing profile from the 1:1 Gerber file. When we receive a PDF or other Word document and no Gerber file with an outline, the outline layer must be created from the drawing; it must exactly match the desired shape. Creating an outline that is not supplied leaves room for human error.

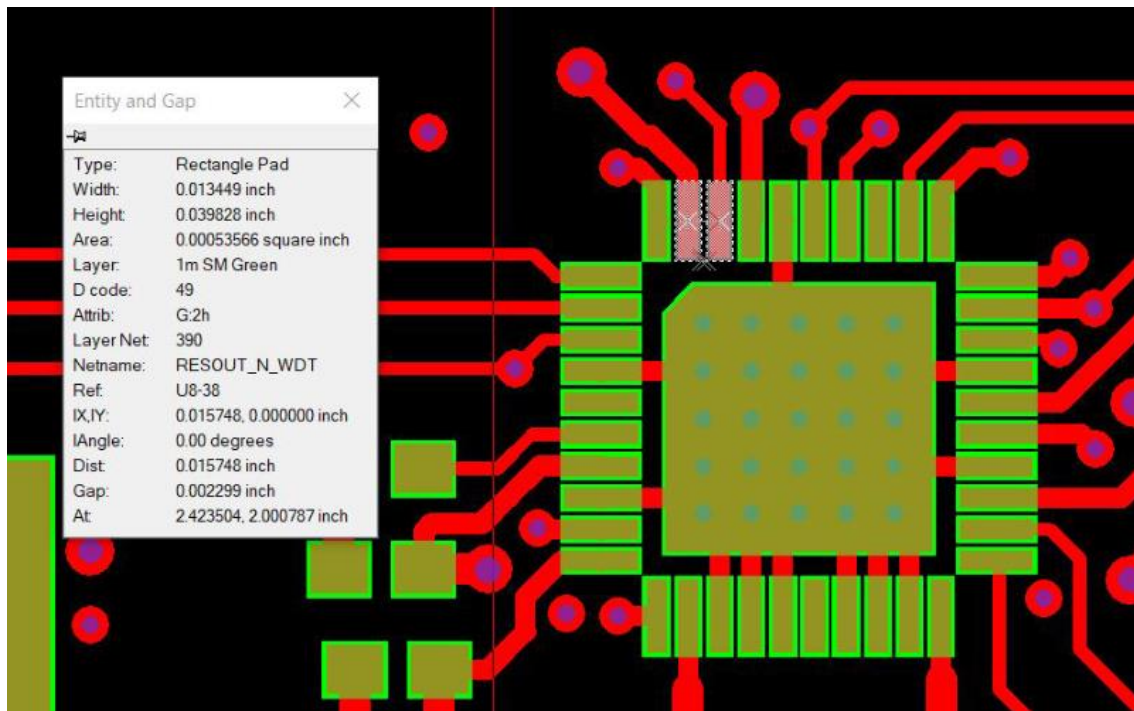
We often find critical errors where the numeric dimension does not match the outline. All dimensions are verified within the CAD tool. Determining the drill location start position within the outline for one. All holes are based off an X and a Y coordinate and consecutive coordinate from that first drilled location to the next. Placement of data in relation to the board edge is critical to processing challenges. Copper features to board edges should be considered. When a circuit board is routed the minimum distance of any copper should be to the actual board edge is 0.010.” During the routing process, the router bit travels along the edge of the PCB, rotating to cut the part from the panel. As in all equipment, parts, and manufacturing there is a tolerance needed. A +/-0.005” is standard processing tolerance for routing. Keeping metal 0.010” from the edges allows for standard processing. Knowing the hole to board edge is critical to the routing or scoring program details, without this critical placement dimension it is unknown where the holes lie within the profile of the PCB.

Copper features are critical to functionality of the product, impedance values, component placement and longevity of your device. Let's discuss copper a little further in regard to layout or routing of the copper layers. Copper to edge is a problem; any exposed copper will oxidize and is prone to shorting the PCB to components, casing, and final assembly.



INVITED ARTICLES

All copper is typically covered with solder mask or surface finish. When copper is exposed by end processing, either routing or scoring, this is after mask and surface finish leaving little option to correct. Mask touchup can be used, however, it is time-consuming and not appealing to the eye. For this reason, pulling copper back from the edge is important.



When the copper-to-copper space is less than 0.008", the risk of mask loss in areas where shorting is a concern is greater than normal. Removing the mask or gang masking the soldermask relief areas is recommended to prevent mask lifting and redepositing on to the part. Using GREEN mask as a standard processing color is also the preferred color over red, black, or white. The pigment in the mask color is also a factor unknown to most that has processing challenges related to mask adhering.

--- Ms.C.BAVITHRA, III Year ECE (A)

