



SM

Mahavir Education Trust's

SHAH & ANCHOR

KUTCHHI ENGINEERING COLLEGE



COMMUNIQUE

AUGUST - 2022

Department of Electronics & Telecommunication Engineering



Vision of the Institute

To become a globally recognized Institution offering quality education and enhancing professional standard

Mission of the Institute

To impact high-quality technical education to the students by providing an excellent academic environment, well-equipped laboratories, and training through motivated teachers.

Vision of the Department

To be recognized as the excellence centre in creating competent Electronics & Telecommunication professionals by imparting quality education.

Mission of the Department

1. To provide quality education through a blend of curricular, co-curricular and extracurricular activities.
2. To offer Industry-Institute interaction and skill enhancing projects for better higher education and career opportunities.
3. To enhance the capabilities of students through motivated, dedicated staff and laboratories equipped with the latest technology.

COMMUNIQUE

2022

EXTC DEPT.



Dr. T.P. Vinutha

- I/C Head of Department,
Department of Electronics &
Telecommunication
Engineering, SAKEC

From the HoD's Desk

“The objective of education is to prepare the young to educate themselves throughout their lives.”

-Robert M. Hutchins

It gives me immense pleasure to present the fifth edition of Communique that showcases the efforts of the department in enhancing the skills in students to groom them up as professionals. With the objective to empower our students with overall development, our team has conducted various workshops, industrial visits, guest lectures gelling up with the students. Activities that motivated and shaped students dreams, which can act as a stepping stone to their bright career ahead. Series of skills development activities involving self-learning and guided-learning modes with alumni gave a different direction to teaching-learning methodology

I congratulate the whole team for their innovative ways and whole hearted correlated efforts they put in!!



CONTENTS

| | |
|--------------------------|----|
| Meet the faculty | 01 |
| Departmental Events | 04 |
| ISRO-IIRS Courses | 16 |
| Departmental Accolades | 18 |
| Result Analysis | 22 |
| Spoken Tutorial | 27 |
| Topper | |
| Certified Ethical Hacker | 28 |
| Technical Writing | 29 |
| Alumni Talk | 37 |
| Talent Zone | 38 |
| Meet The Team | |

Meet the faculty



Ms. T.P. Vinutha
I/C HOD & Asst. Professor
(Digital Signal Processing,
Audio Signal Processing,
Pattern Recognition,
Machine Learning)



Ms. Mamta Tikaria
Assistant Professor
(Soft-computing
techniques in
Microwave Engineering,
UWB Communication)



Mr. Rohan Borgalli
Assistant Professor
(Signal Processing, Digital
System Design, &
Quantum Computing)



Ms. Gauri Chavan
Assistant Professor
(Real Time Operating
Systems, Embedded Systems,
& Microprocessor System)



Ms. Uma Raj
Assistant Professor
(MIMO and OFDM,
Communication Systems)



Mr. Shridhar Sahu
Assistant Professor
(Analog and Mixed
signal VLSI design,
Digital VLSI design,
Microelectronics)



Mr. Jagdish Sarode
Assistant Professor
(Embedded Systems and
Microprocessor systems)



Dr. Kalpana Chaudhari
Assistant Professor
(Wireless Communication,
Internet of Things,
Community based projects
under UN)



Ms. Seema Kawale
Assistant Professor
(Mobile Communication,
Cybersecurity
Image Processing,
Neural Networks)



Mr. Bhushan Pawar
Assistant Professor
(Wireless communication,
Antenna and Wave
propogation)



Ms. Shwetha Shetty
Assistant Professor
(Image processing,
Control system and
Machine learning)

Ms. Gauri Deshpande
Assistant Professor
(Digital Signal Processing,
Speech and Image
Processing)



Non Teaching Staff



**Ms. Shraddha
Avachat**
Lab Assistant
(B.Sc. Electronics)

Mr. Tukaram Chavan
Lab Assistant
(Diploma in Audio
& Radio Servicing)



Ms. Minakshi Sanas
Lab Assistant
B.E. (EXTC)

Ms. Tanuja Mahajan
Lab Assistant
(B.E. Inst.)



Departmental Events



“Weekly Webinar Series: Insight of Recent Technological Trends” August 2021



Department of Electronics & Telecommunication Engineering and IETE-SAKEC in collaboration with student chapters of other professional bodies organized, *‘Weekly Webinar Series: Insight of Recent Technological Trends’* from, 10th July to 7th August 2021.

The objective of this webinar series was to provide an insight of recent technological trends in research and development both locally and internationally. The speakers were faculties from reputed Institutes and Engineers from Entuple Technologies, Bangalore. There were a total of 207 participants including faculties and students from various colleges and Industry professionals. It was conducted for the duration of 13 hours (Approx 3 hour per week).





International Panel Discussion on “Adaptation of advanced technologies before reacting and responding to any natural disaster globally” September 2021

Mahavir Education Trust's
Shah & Anchor Kutchhi Engineering College
Affiliated to University of Mumbai, Approved by D.T.E & A.I.C.T.E.
Mahavir Education Chowk, W.T. Patil Marg, Next to Dukes Company, Chembur Mumbai- 400 088

Department of Electronics & Telecommunication Engineering
in association with
IETE SAKEC
Quality Oriented, Community Connected
organizes
an International panel discussion
on
*“Adaptation of advanced technologies before reacting and
responding to any natural disaster globally.”*

Dr. Maria Cerreta
admission@sakec.ac.in
@sakec_chembur

Dr. Pasquale De Toro
www.shahandanchor.com
@shahanchor

Dr. Giuliano Poli
02-2584954
school/sakec

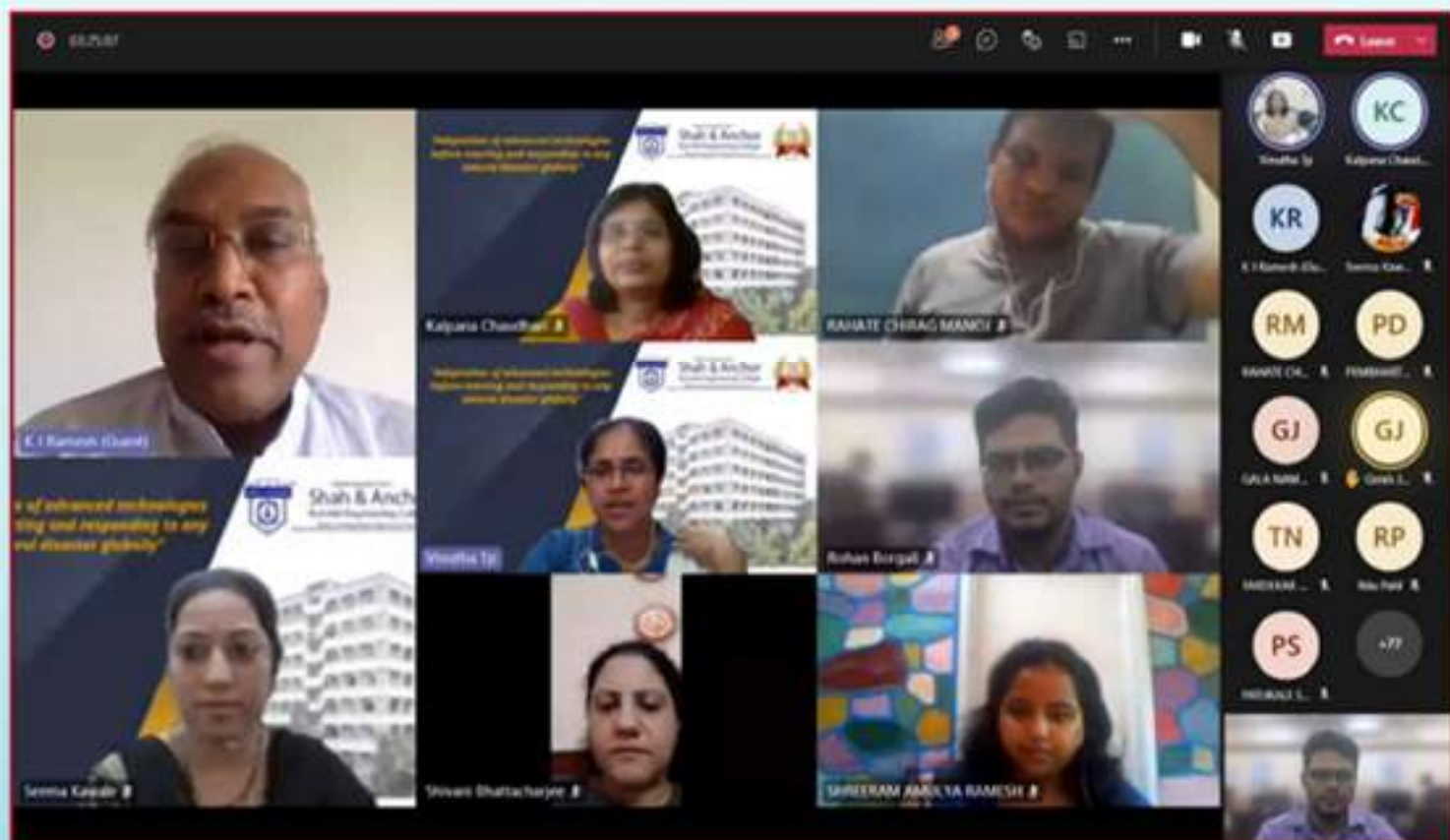
Dr. Mattia Leone
@sakectweets

Dr. K J Ramesh
Admission Enquiry: 09136400555

Date: 30/09/2021
Time: 11 AM
Venue: MS Teams

Department of Electronics & Telecommunication Engineering and IETE-SAKEC organized an International Panel Discussion on the topic ‘Adaptation of advanced technologies before reacting and responding to any natural disaster globally’ on 30th September 2021 through virtual platform.

The keynote speaker for the event was Dr. K.J. Ramesh, former Director General, India Meteorological Department, India. He briefed about cyclones, reasons that affect the strength of the cyclone, and the technology used for detecting the cyclone before they hit. The panelists Dr. Maria Cerreta, Dr. Pasquale De Toro, Dr. Giuliano Poli, Dr. Mattia Leone are from the department of Architecture, (DIARC) University of Naples “Federico II”, Italy. They presented the city port Napoli projects related to disaster management, circular economy and GIS technology, the directions of further research, information about the risk, exposure and vulnerability which can have serious impact earthquakes, volcanic eruptions, and hydrogeological events.





“Workshop on PCB Designing using KiCad” October 2021

The screenshot shows a Zoom meeting window. At the top, there are several circular icons representing participants. The main content is a presentation slide with the following text:

Shah & Anchor Kutchhi Engineering College
Department of Electronics & Telecommunication Engineering
In association with
IETE SAKEC
Organizes Workshop on
“PCB Designing using KiCad”

Speaker : Prof. Lakshmi Iyer
(Asstt. Professor, EXTTC, SAKEC)

Date: 08 October, 2021
Time : 10:00 AM
Venue : MS Teams

Admission Enquiry: 9913440551

Department of Electronics and Telecommunication Engineering in association with IETE SAKEC organized a workshop on “PCB designing using KiCad”. Dr. T.P Vinutha, I/C HOD EXTTC department and IETE-ISF coordinator addressed all the participants at 10AM. It was then followed by Ms. Lakshmi Iyer introducing students to the concept of General-purpose board & PCB.

Speaker explained in detail the importance of various layers involved in PCB like solder mask, silkscreen, copper pour etc. The speaker then introduced the open source software tool, KiCad and explained its functionality and the entire design flow. An example of 5V regulated power supply was taken and its PCB was designed.

Students performed the schematic flow using Eeschema right from setting up the page layout, adding and annotating symbols, associating each one of them with its footprint, doing ERC and generating the netlist. Once the netlist was produced, the students were introduced to PCB new tool on KiCad where they imported the netlist, created tracks, copper fills and did DRC and finally generated the required files for manufacturing.



“Gate Preparation- Future Opportunities” January 2022



Manavir Education Trust's
Shah & Anchor Kutchhi Engineering College

Affiliated to University of Mumbai, Approved by D.T.E & A.I.C.T.E
Mahavir Education Chowk, W.T. Patil Marg, Next to Dukas Company, Chembur Mumbai- 400 055



Department of Electronics & Telecommunication Engineering
in Collaboration with
IETE SAKEC



Organizes

GATE PREPARATION – FUTURE OPPORTUNITIES

on 29th January 2022 at 2:00 pm

Click on Link to



Speaker:-
Mr. Biswadeep Guha Roy & Team
ACE Engineering Academy, Pune

Session for S.E, T.E, B.E Students

admission@sakec.ac.in | www.shahandanchor.com | 022-25580854 | Admission Enquiry: 09136400555

@sakec_chembur

@shahanchor

school/sakec

@sakectweets



IETE SAKEC
Radiating Opportunities. Connecting Communities.



Department of Electronics and Telecommunication Engineering in association with IETE SAKEC organized an online webinar, 'GATE Preparation - Future Opportunities' on, 29th Jan. 2022 at 2:00 Pm. The event was started by welcoming speaker Mr. C Seravan Kumar, IES, Senior Teaching Faculty, and Mr. Biswadeep Guha Roy, Business Development Manager In ACE Academy. Following topics are covered in session, "Career Opportunities After B.E", "Preparation Tips and Tricks to Crack GATE Exam", "General Aptitude for GATE - Tips and Tricks".

Around 75 students from SE, TE & BE of all disciplines attended the event. The event was concluded by Dr. T.P. Vinutha, I/C HOD EXTC & ISF coordinator with her motivating words.





“Brahmavidya- your key to health and success” February 2022

Department of Electronics and Telecommunication Engineering in association with IETE SAKEC organized an Online Webinar, ‘Brahmavidya- your key to health and success’ on, 5th Feb. 2022 at 11.00 Am.



Brahmanidya, your key to Health & Success

Presenter: Mr. Ramesh Karandikar

The event was started with an introduction to NDLI Portal and Club by SAKEC Librarian Ms. Gauri Prasad and then welcoming the speaker Mr. Ramesh Karandikar, Brahmanidya followed by a soulful prayer of Brahmanidya, preparing everyone for the session. This event was coordinated by Mrs.Gauri Deshpande.



The speaker explained the following points:

What is Brahmavidya?

How it is useful for our mental and physical health, and

How it helps us breathe right and think right.

The session was very interactive. Around 56 attendees were present for the session. It ended with a 10 minutes meditation. All the participants received a certificate from MHRD through NDLI portal.





“Online Technical Paper Presentation Competition, Oscillation 2022” March 2022

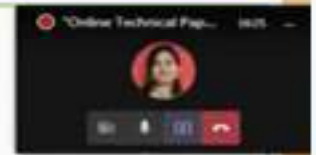
Department of Electronics and Telecommunication Engineering in collaboration with IETE-SAKEC conducted an event under Oscillation 2022, a technical initiative started under IETE on 23/03/2022, ‘Online Technical Paper Presentation Competition’



Dr. Uttara Gogate

Associate Professor & Deputy HoD
Department of Computer Engineering,

Shivajirao Jondhale College of Engineering, Dombivli (East)



- More than 22 years of experience.
- Honorary secretary of IETE Mumbai Center during 2016-2018.
- More than 40 papers published in National and International Conferences and Journals & book chapters.
- Application filed for patent “Prediction-based Intelligent HealthCare model using Diagnostic Decision Support System”, March 2019.
- Guided more than 50 UG degree projects and 8 PG projects from various colleges.
- Member of syllabus revising committee of University of Mumbai in Computer Engineering, Information Technology and Electronics Engineering.
- Chairman and Member of paper setting committee of UG and PG level at University.

All the final year SAKEC EXTC students participated in this event and around, 13 groups presented their project work through paper presentations. Each project group was given 8 min for the presentation followed by QA session with the expert panel and other faculties. This event was conducted in 2 days.

(Day1)23/3/2022: Presentation of all submitted papers in front of Internal panel.

(Day2)6/4/2022: Presentation of all shortlisted papers in front of External panel.

The event was judged by expert panel (Dr. Uttara Gogate and Ms. Preethi Warrior). Around 80 people witnessed this event which included all participating students and faculties.



IETE SAKEC
Radiating Opportunities. Connecting Communities.



The following groups are the winners of the ‘Online Technical Paper Presentation’


1st Prize: Parth Powale, Khushank Mehta, Sarvesh Naik, Rachit K
Paper Title:- “Stock Market Prediction Analysis using Machine Learning” Guide: Ms. Mamta Tikaria

2nd Prize: Mohit Naik, Shubham Raut, Nir Vadhan
Paper Title:- “Tagging boosted hadronically decaying top quark by Machine Learning” Guide: Dr. T. P. Vinutha

3rd Prize: Ritu Patil P, Pratik Nalawade, Aditya Joshi, Atish Dani
Paper Title:- “Smart Cap For Visually Impaired Person”
Guide: Mr. Jagdish Sarode

Quark

- Quark – elementary particle and fundamental constituent of matter.
- Quarks combine to form composite particles called hadrons.
- Quarks are the only elementary particles to experience all four fundamental interactions – electromagnetism, gravitation, strong interaction and weak interaction.
- There are six types (flavors) of quarks –
 - Up
 - Down
 - Charm
 - Strange
 - Top
 - Bottom



www.bbc.com/news/science-environment-2012-01-12-what-are-quarks-matter-png

The event was concluded by Dr. T.P. Vinutha, I/C HOD EXTC & ISF coordinator with her motivating words. All participants and winners were awarded certificates in Oscillation 2022 valedictory function on 16th April, 2022 at Shah and Anchor Kutchhi Engineering College, Chembur, Mumbai.



“Online Project Poster Presentation Competition 2022” April 2022

Department of Electronics and Telecommunication Engineering in collaboration with IETE-SAKEC conducted ‘Online Project Poster Presentation Competition 2022’ on 26th April 2022.

Mahavir Education Trust's
Shah & Anchor
Kutchhi Engineering College
Affiliated to University of Mumbai, Approved by U.T.S & A.I.C.T.E.
Mahavir Education Trust, W.T. Park Marg, Sector 10, Sakinaka, Chembur Mumbai - 400 044

NAKC
NBA

DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION ENGINEERING
IN ASSOCIATION WITH
IETE-SAKEC
PRESENTS
Project Poster Presentation

Live on
Microsoft Teams

16th April 2022

admission@sakec.ac.in www.shahandanchor.com 022-25560854 Admission Enquiry: 09136400555
@sakec_chembur @shahanchor school/sakec @sakectweets

All the Final Year SAKEC EXTC students participated in this event and around 10 project groups presented their project work through poster presentations. Each project group was given 8 min for the presentation followed by Q&A session with the expert panel and other faculties. The event was judged by expert panel , Ms. Asha Durafe (ECS SAKEC)and Ms. Archana Chaugule(IT SAKEC). Around 50 people witnessed this event which included all participating students and faculties.

The following groups are the winners of the ‘Online Project Poster Presentation’:

1st Prize: Durgesh Raut, Sahil Chari, Samrat Parab and Harsh Pawar.

Poster Title: – “Smart Agriculture Crop Monitoring System”

Guide: Ms. Gauri Chavan

2nd Prize: Sanjana Suresh, Vibha Manral, Khushi Punmiya and Siddhant Sharma

Poster Title: – “Unmanned Aerial Systems”

Guide: Mr. Rohan Borgalli

3rd Prize: Siddhi Sakpal, Rinkal Vaje and Nikam Kadambari

Poster Title: – “Touch less waste segregation from open space”

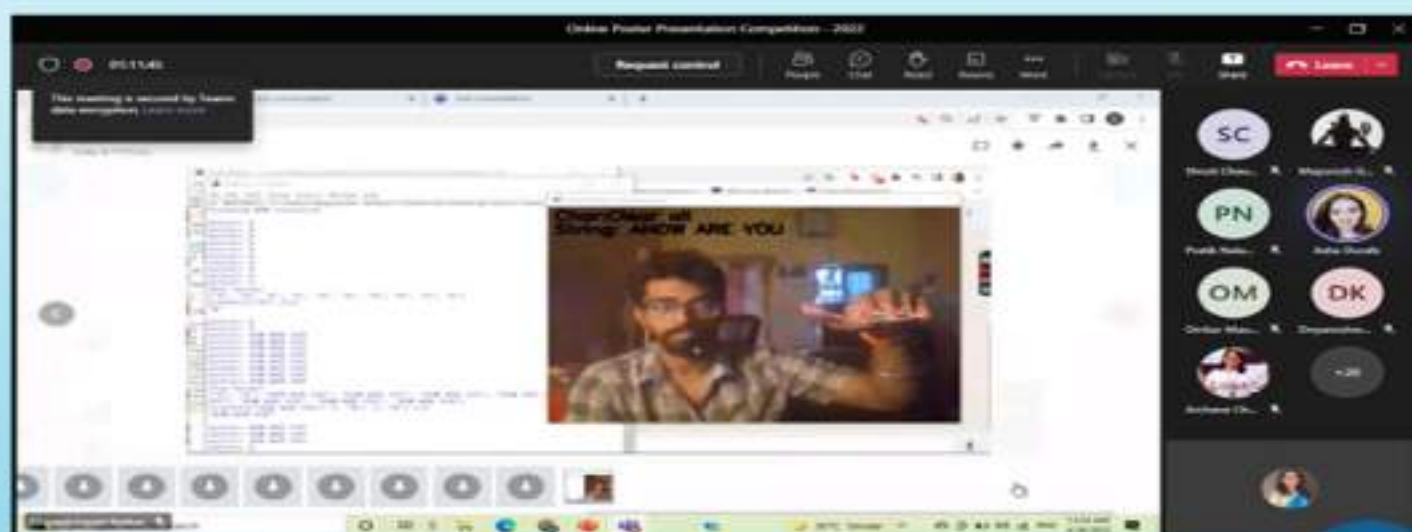
Guide: Dr. Kalpana Chaudhary.

3rd Prize: Dhyaneshwari Katkar, Mayuresh Gadkari, Shruti Chaudhari and Amey Shirke

Poster Title: – “Sign Language Recognition”

Guide: Dr. T. P. Vinutha.

The event was concluded by Dr. T.P. Vinutha, I/C HOD EXTC & ISF coordinator with her motivating words. All participants and winners were awarded certificates.



ISRO - IIRS Certificate Courses



Electronics and Telecommunication Department in association with IETE SAKEC organized various ISRO - IIRS online certificate courses. Mr. Bhushan Pawar is the coordinator for these courses.

| No. | Course Name |
|-----|--|
| 1 | 69th IIRS online Certificate Course on Remote Sensing & Geographical Information System Applications |
| 2 | 68th IIRS online Certificate Course on "Geographical Information System" |
| 3 | 64th IIRS online certificate Course on "Basics of Remote Sensing Geographical Information system & Global Navigation Satellite |
| 4 | 7001 Online Certificate Course on Remote Sensing & GIS Technology & Applications for University Teachers |
| 5 | 68th IIRS Outreach Programme "Geographical Information System" |
| 6 | 69th IIRS Outreach Programme "RS & Geographical Information System Application" |

100th Online Certificate Course on “Machine learning to Deep Learning A journey for remote sensing data classification”

Centre :- Indian Institute of Remote Sensing (IIRS), Indian Space Research Organization Department of Space, Government of India.

Venue:-Shah and Anchor Kutchhi Engineering College, Remote Centre

Date :- 4th to 8th July 2022

Topic of Chief Guest Speech & Highlights

- Remote Sensing and its sensors of various resolutions. Radiometry and Geometric corrections and basic understanding of Image.
- Basic classifier to Machine Learning – A Journey Python for Machine/Deep Learning Models
- Methods in Machine Learning: Supervised, Unsupervised and Reinforcement
- Earth Observation and its role in Soil Organic Carbon (SOC) Assessment
- Fuzzy based machine learning with application in Temporal data processing.
- Network based Learning algorithms – ANN to CNN/RNN/Deep Learning concepts through CNN, RNN, R-CNN, Faster RCNN, SSD, YOLO etc & their applications
- Generative Adversarial Networks for image transformation and their applications
- Machine learning through Google earth engine.



Mahavir Education Trust's
SHAH & ANCHOR
KUTCHHI ENGINEERING COLLEGE

AFFILIATED TO UNIVERSITY OF MUMBAI, APPROVED BY D.T.E & A.J.C.T.E



Department of Electronics & Telecommunication Engineering
in collaboration with
IETE SAKEC
organizes



**Indian Institute of Remote
sensing (IIRS)**
Sponsored

**MACHINE LEARNING TO DEEP LEARNING:
A JOURNEY FOR REMOTE SENSING
DATA CLASSIFICATION AND DETECTION
(5 DAYS)**

Duration of course:- 4th July 2022 - 08th July 2022

There are limited number of seats. Registration will be done on first come first serve basis

022-67978100 | admission@sakec.ac.in | www.shahandanchor.com | 022-25580854
@sakec_chembur | shahanchor | school/sakec | sakectweets

**NO REGISTRATION
OR EXAM FEES**





Departmental Accolades



FACULTIES



Dr. T. P Vinutha
I/C HoD, EXTC
Associate Professor,
SAKEC

- 1. Award :-** Received “IETE Women Achievers award” on 68th IETE Foundation Day Celebration on Nov 13, 2021 at L & T STA, Versova, Andheri .
- 2. Speaker of the webinar :-** “Audio Signal Processing” organized by PES University, Bangalore 6th May 2022.
- 3. Speaker of the webinar :-** "Information Retrieval from Music" organized by WIE IEEE-RITB MS Ramaih Inst of Technogy, Bangalore , June 2021.
- 4. Reviewer:-** "ISMIR 2022 conference” 2021.
- 5. Completion :-** Ph.D from EE, IITB , August 2021.



Dr. Kalpana Chaudhari
Assistant Professor

1. International Report /Research publication:

“Achieving global biodiversity goals by 2050 requires urgent and integrated actions”, One Earth, February 2022

2. Poster publications:

“Innovative Tools for Marine Litter Management: Emerging issues in Sustainable Urbanization in Coastal Zones”, Ocean Science meeting, 3rd March 2022.

- “Innovations and Alternate Platforms For Marine Risk Understanding: Lessons Learned From Societal Participation in Illegal, Unreported, and Unregulated Fishing” ,Ocean Science meeting, 1st March 2022.
- “Cloud computing for ocean data management” ,International digital twins of the ocean summit, London, UK, 4-5 May 2022.

Session Chair and Speaker:

- “Challenges in Urban Climate Data Management: Transformation of cities for climate change mitigations and adaptation targets”, The Sustainability Research & Innovation Congress, 20-24 June 2022. University of Pretoria, South Africa.
- “Rapid Urbanization: Empowering Smart Cities with Smart data management”, The Sustainability Research & Innovation Congress , 20-24 June 2022. University of Pretoria, South Africa.



Mr. Shridhar Sahu
Assistant Professor

- **Book Publication:**

Shridhar R. Sahu (Co-Author) “Basics of CMOS VLSI”, Narendra Publications, ISBN: 978-73-92572-47-0, April 2022.



Mr. Rohan Borgalli
Assistant Professor

Research Publications:

- **“Deep learning for Facial emotion recognition using Custom CNN Architecture” 2nd International Conference on Computational Intelligence & IoT 2021, Journal of Physics: Conference Series. IOP Publishing (Vol. 22)**
- **“Deep Convolution Neural Networks for Cross-Dataset Facial Expression Recognition System”, International Conference on Communications, Computing and Data Security March 2022, Thakur College of Engineering, India**
- **Mr. Rohan Borgalli “Deep learning framework for facial emotion recognition using CNN architectures”, Proceedings of the International Conference on Electronics and Renewable Systems published in IEEE Xplorer Publisher: Tuticorin, India**



Mr. Jagdish Sarode
Assistant Professor

Mr. Jagdish Sarode has mentored the team participated in Creative Ideas and Inovation in Actions exhibition. The working model exhibit Smart Cap for Visually Impaired Person was presented at the CHA exhibition. Student participants of the exhibition were Ritu Patil, Atish Dani, Aditya Joshi, Pratik Nalawade.



Ms. Mamta Tikaria
Assistant Professor

Ms.Mamta Tikaria and V. Saxena, "Analysis of Multipath Fading at Receiver in ISM-band using Diversity Based Antenna" 2021 IEEE International Conference on Mobile Networks and Wireless Communications (ICMN-WC), 2021, pp. 1-5, doi: 10.1109/ICMNWC52512.2021.9688541.



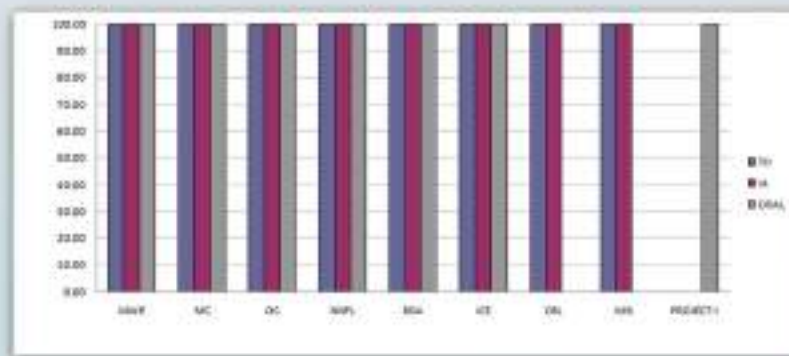
Result Analysis

2021-22

ODD SEMESTERS

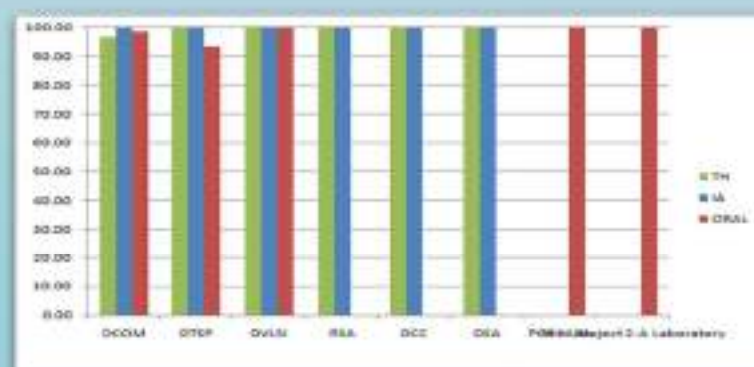
SEMESTER - VII

| PASS % | MWE | MC | NNFL | BDA | ICE | CBL | MIS | PROJECT-I |
|--------|-----|-----|------|-----|-----|-----|-----|-----------|
| TH | 100 | 100 | 100 | 100 | 100 | 100 | 100 | |
| IA | 100 | 100 | 100 | 100 | 100 | 100 | 100 | |
| ORAI | 100 | 100 | 100 | 100 | 100 | | | 100 |



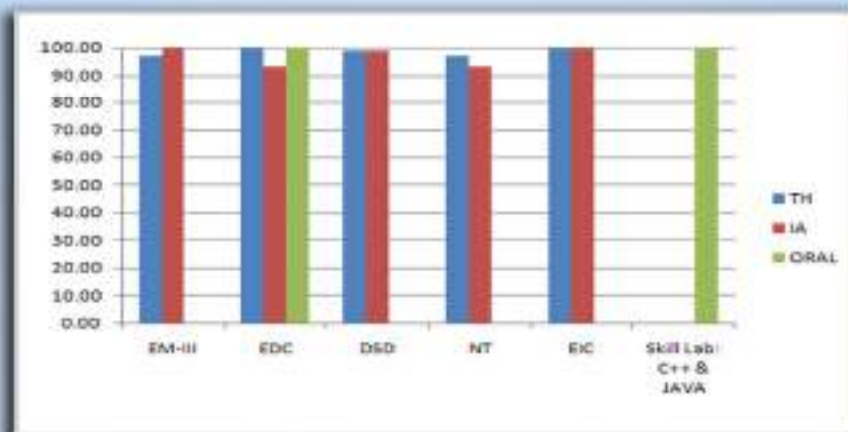
SEMESTER - V

| PASS % | DCOM | DTSP | DVLSI | RSA | DCC | DSA | PCE-II Lab | Mini Project 2A Lab |
|--------|-------|------|-------|-----|-----|-----|------------|---------------------|
| TH | 96.67 | 100 | 100 | 100 | 100 | 100 | 0 | 0 |
| IA | 100 | 100 | 100 | 100 | 100 | 100 | 0 | 0 |
| ORAL | 98.33 | 93 | 100 | 0 | 0 | 0 | 100 | 100 |



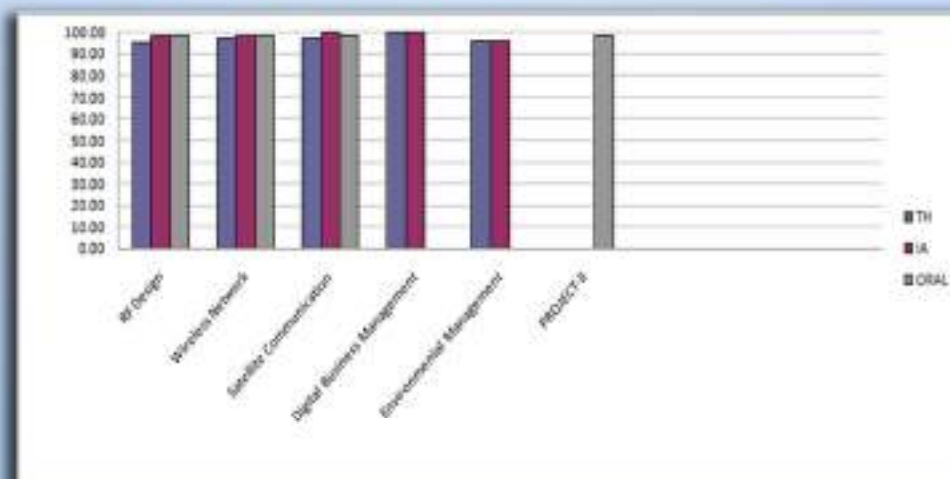
SEMESTER - III

| PASS % | EM-III | EDC | DSD | NT | EC | Skill Lab C++ & JAVA | Mini Project 1-A |
|--------|--------|-------|-------|-------|-----|----------------------|------------------|
| TH | 97.1 | 100 | 98.55 | 97.1 | 100 | | |
| IA | 100 | 92.75 | 98.55 | 92.75 | 100 | | |
| ORAL | | 100 | | | | 100 | 100 |



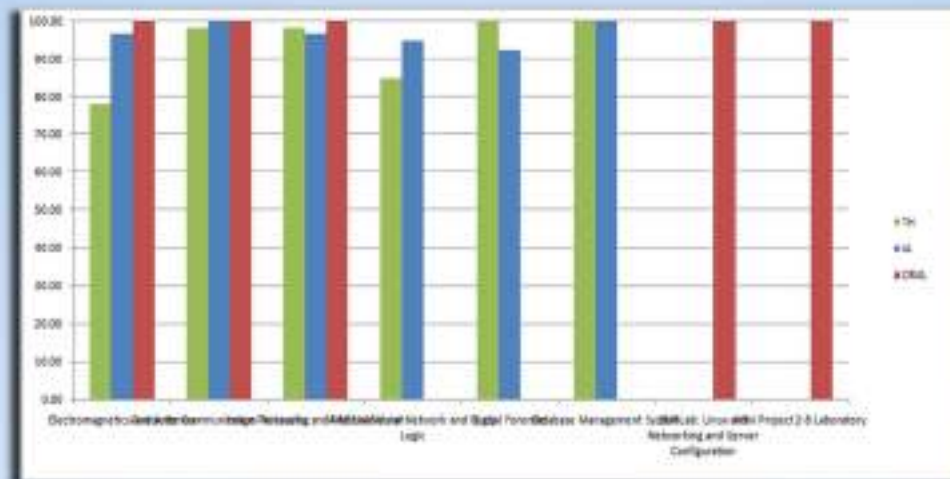
EVEN SEMESTERS SEMESTER - VIII

| PASS % | RF Design | Wireless Network | Satellite Communication | Digital Business Management | Environmental Management | PROJECT-II |
|--------|-----------|------------------|-------------------------|-----------------------------|--------------------------|------------|
| TH | 95.59 | 97.06 | 97.06 | 97.1 | 96.15 | |
| IA | 98.53 | 98.53 | 100 | 92.75 | 96.15 | |
| ORAL | 98.53 | 98.53 | 98.53 | | | 98.53 |



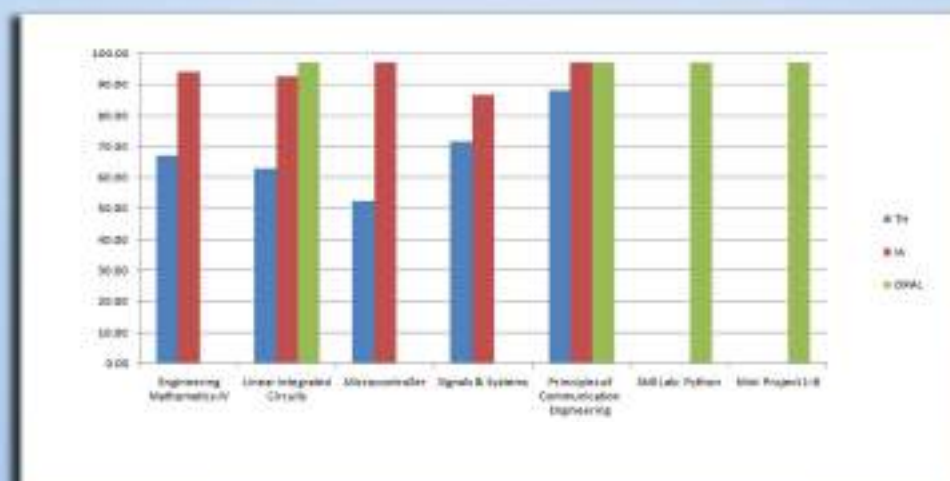
SEMESTER - VI

| PASS % | Electromagnetics and Antenna | Computer Communication Network | Image Processing & Machine Vision | Artificial Neural Network and Fuzzy Logic | Digital Forensic | Database Management System | Skill Lab | Mini Prjt 2-8 |
|--------|------------------------------|--------------------------------|-----------------------------------|---|------------------|----------------------------|-----------|---------------|
| TH | 78.33 | 98.33 | 98.33 | 85 | 100 | 100 | | |
| IA | 96.67 | 100 | 96.67 | 95 | 92.31 | 100 | | |
| ORAL | 100 | 100 | 100 | | | | 100 | 100 |



SEMESTER - IV

| PASS % | Engineering Mathematics-IV | Linear Integrated Circuits | Microcontroller | Signal & Systems | Principles of Communication Engineering | Skill Lab | Mini Project 1B |
|--------|----------------------------|----------------------------|-----------------|------------------|---|-----------|-----------------|
| TH | 67.16 | 62.69 | 52.24 | 71.64 | 88.06 | | |
| IA | 94.03 | 92.54 | 97.01 | 86.57 | 97.01 | | |
| ORAL | | 97.01 | | | 97.01 | 97.01 | 100 |



TOPPERS LIST



ODD SEMESTERS

SEMESTER - III

| Sr.no | Name | GPA |
|-------|--------------------|------|
| 1 | SANDHA VIJAY RAMJI | 10 |
| 2 | RAM ASMIT AKHILESH | 9.96 |
| 3 | TELKAR ESHA SHYAM | 9.92 |

SEMESTER - V

| Sr.no | Name | GPA |
|-------|---------------------|------|
| 1 | NANDOSKAR AARUSHI S | 9.96 |
| 2 | GAIKWAD SAYLI A | 9.74 |
| 2 | GUDELLY SAUMYA G | 9.74 |
| 2 | JOBANPUTRA YESHA J | 9.74 |
| 2 | WORLIKAR SHREYA S | 9.74 |
| 3 | JAISWAL SANDHYA R | 9.7 |

SEMESTER - VII

| Sr.no | Name | GPA |
|-------|-------------------------|------|
| 1 | MADRECHA SEJAL PRAKASH | 9.85 |
| 1 | NAIK MOHIT CHANDRAKANTH | 9.85 |
| 2 | RAUT SHUBHAM RAMAKANT | 9.81 |
| 3 | MARU DHANANJAY DINESH | 9.58 |

EVEN SEMESTERS

SEMESTER - IV

| Sr.no | Name | GPA |
|-------|--------------------|------|
| 1 | SANDHA VIJAY RAMJI | 9.88 |
| 2 | MAMTORA CHINMAY | 9.13 |
| 2 | RAM ASMIT AKHILESH | 9.13 |
| 3 | TELKAR ESHA SHYAM | 8.88 |

SEMESTER - VI

| Sr.no | Name | GPA |
|-------|-----------------------|------|
| 1 | SURYAWANSHI JAYESH P | 9.73 |
| 2 | PARIHAR NARENDRA R | 9.59 |
| 3 | YADAV SURYA PRAKASH R | 9.59 |

SEMESTER - VIII

| Sr.no | Name | GPA |
|-------|-------------------------|------|
| 1 | NAIK MOHIT CHANDRAKANTH | 9.5 |
| 2 | PUNIMYA KHUSHI GAUTAM | 9.5 |
| 3 | JOSHI ADITYA GURUNATH | 9.38 |
| 4 | SANJANA SURESH | 9.29 |



Spoken Tutorial Toppers (2021-22)



Mahavir Education Trust's
SHAH & ANCHOR
KUTCHHI ENGINEERING COLLEGE
CHEMBUR, MUMBAI-400088
AFFILIATED TO UNIVERSITY OF MUMBAI
Spoken Tutorial Toppers (2021-22)



Ms. Uma Raj
Electronics and Telecommunication
(Arduino)



Mahavir Education Trust's
SHAH & ANCHOR
KUTCHHI ENGINEERING COLLEGE
CHEMBUR, MUMBAI-400088
AFFILIATED TO UNIVERSITY OF MUMBAI



Department of Electronics and Telecommunication Engineering
Spoken Tutorial Toppers (2021-22)



FE
Volant Langi
(C Programming)



SE
Sarvesh Salkar
(Arduino)



TE
Shadab Khan
(Java)



TE
JAYESH SURYAWANSHI
(Java)



BE
SHUBHAM RAUT
(Python)

Certified Ethical Hacker certification (2021-22)

We congratulate Ms. Seema Kawale for successfully completing Certified Ethical Hacker Certification



Mahayji Education Trust's
Shri Chhatrapati Shivaji Maharaj Vastu Sangrahalaya Engineering College
Chembur, Mumbai - 400058
SAKEC-NPTEL





Department of Electronics & Telecommunication Engineering

NPTEL teaches us how to achieve success.

We Congratulate Our Faculties for NPTEL Certification
2021-22

| Faculty | Course | Certification |
|---|-----------------|---------------|
|  Ms. Seema Kawale | Ethical Hacking | Elite |



Certification Number
ECC9652701834



CEH
Certified Ethical Hacker

Certified Ethical Hacker



This is to acknowledge that

Seema Kawale

has successfully completed all requirements and criteria for

Certified Ethical Hacker

certification through examination administered by EC-Council

Issue Date: 25 June, 2022

Expiry Date: 24 June, 2025




 Sanjay Bavisi, President

Secure Quantum Steganography for Integrated fog cloud Internet of Things (IoT)

By Mr. Rohan A. Borgalli, Asst. Prof. EXTC

The security of sensitive information is most important in communication, especially in cloud and Internet of Things (IoT) environments. Therefore, a well-designed security mechanism is required. This article presents a framework for secure information in fog cloud IoT. In this framework, the user in one location embeds his/her valuable data via the quantum steganography protocol and uploads the covered data to the fog cloud. The intended receiver in another location accesses the data from the fog cloud and extracts the intended content via extraction approach. This quantum steganography protocol based on hash function and quantum entangled states. Where the hash function is utilized to authenticate embedded secret messages. The presented protocol is secure against many well-known attacks. In addition, it does not consume additional channels to send a secret message or verify security. This approach is nominated for use in fog cloud for IoT.

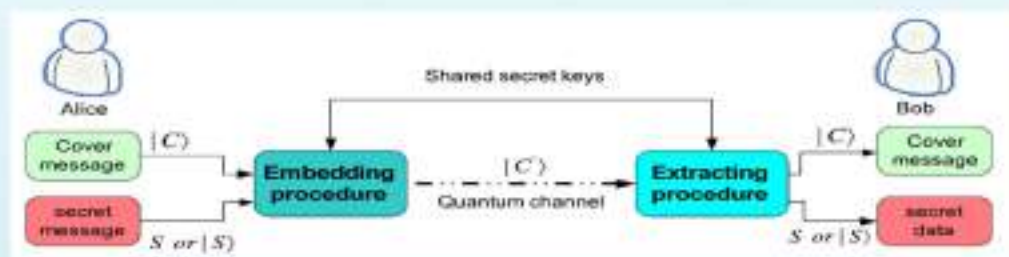


Figure 1: Quantum steganography overview

Fundamentals of Quantum Computing

Quantum computing is the use of quantum-mechanical phenomena such as superposition and entanglement to perform computation. Computers that perform quantum computation are known as quantum computers

qubit (quantum bit): unit of quantum information—the quantum analogue of the classical binary bit. A qubit is a two-state quantum-mechanical system, such as the polarization of a single photon: here the two states are vertical polarization and horizontal polarization.

Basis states: The two states in which a qubit may be measured are known as basis states $|0\rangle$ & $|1\rangle$

Quantum Superposition: In a classical system, a bit would have to be in one state or the other. However, quantum mechanics allows the qubit to be in a superposition of both states at the same time

Quantum Entanglement: The states of entangled qubits cannot be described independently of

Methodology:

Methodology includes:

1. Apply knowledge of Quantum information processing (QIP) for developing Algorithm for Steganography .
2. Methodologies of application of cryptography by applying authentication codes for secure communication.
3. Perform quantitative statistical test for evaluation of Vulnerability from well known attacks. Imperceptibility Analysis, Capacity Analysis.
4. Implication of this Model for Integrated fog cloud Internet of Things (IoT).

Overview of Literature:

In recent years, some papers have focused on several key topics of QIP, such as quantum cryptography [10],[11] and quantum steganography [12],[13],[14],[15],[17] among many others. The aim of quantum steganography is to transfer classical or quantum data covertly via open channels using quantum steganography protocols[6].

The security of quantum communication is guaranteed by the quantum no-cloning theorem and the quantum uncertainty principle to prevent eavesdroppers from unconditional attacks. The techniques of attack in quantum communication are based only on the principles of quantum mechanics. Authentication is considered necessary as a defense against active attacks. Without the authentication step legitimate users can be easily eavesdropped on and the secret message revealed. In [17], Xin et al. presented a quantum authentication protocol with hash function, which uses four unitary transformations to directly encode classical bits (message C hash value) into a Bell state.

In this proposal, quantum steganography framework for secure messages in fog cloud IoT[1],[2],[3],[6],[7],[8],[9] is proposed. The proposed approach is based on quantum entangled states [15], exclusive OR operation (XOR) , gray code, and Improved hash function[8]. Many Quantum Steganography algorithms are developed and interfaced to IF-C:IoT. The past work is shown in Figure 2.

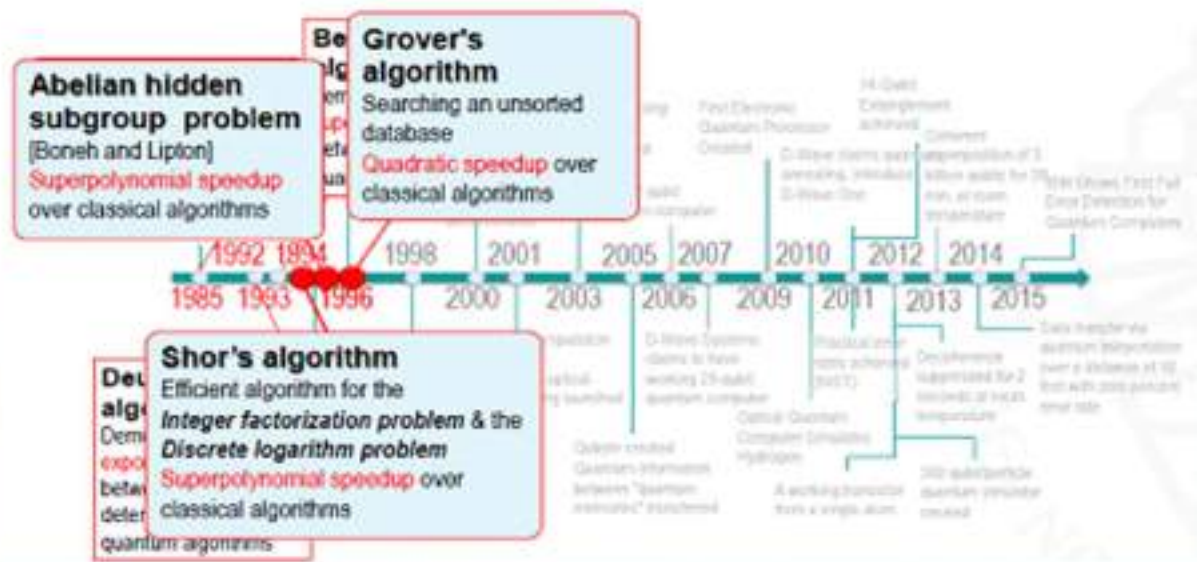
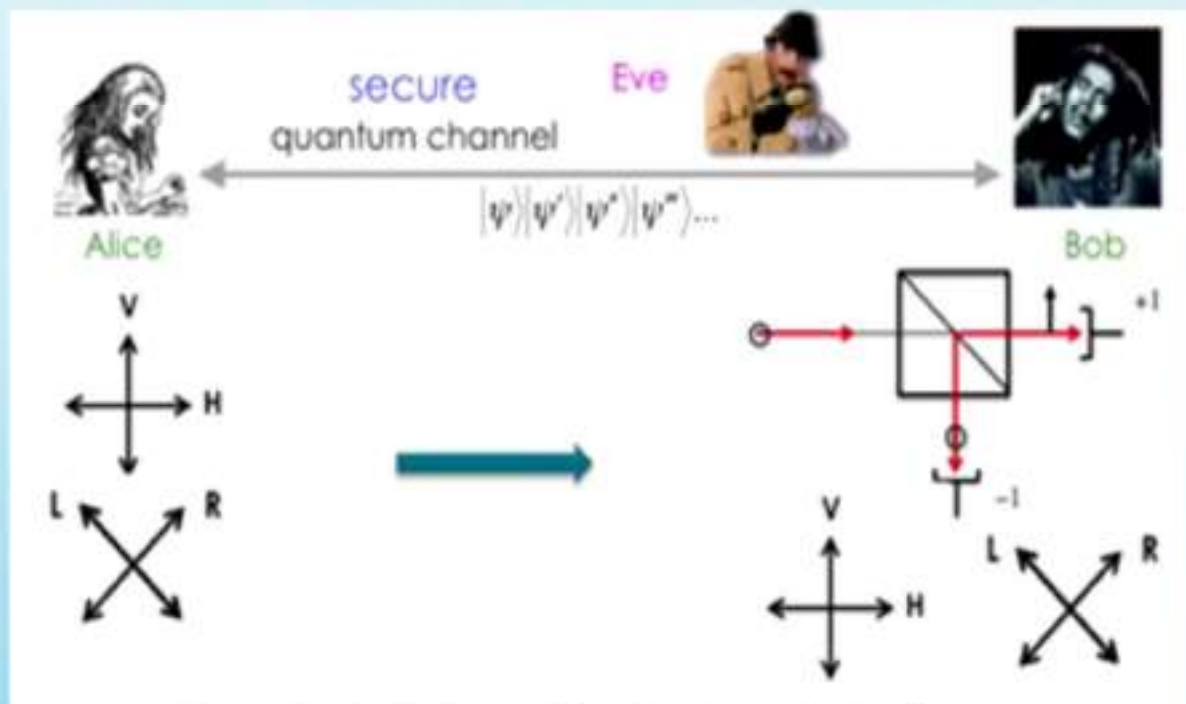


Figure 2. Quantum algorithms breakthroughs

Quantum Cryptography

It is a Science of exploiting quantum mechanics properties to perform cryptographic tasks. It can be done in two ways

1. Public Key Cryptography: Uses same key for Encryption & Decryption. In this Secure Key distribution is important as shown in Figure 3.
2. Private Key Cryptography: Uses different set of keys for Encryption & Decryption



Security of Quantum Key Distribution (QKD)

A good definition of security would allow the key generated by a QKD protocol to deviate by a small parameter ϵ , from a perfect key. This definition should be able to bound Eve's knowledge about the final key. A perfect key refers to a uniformly distributed bit string whose value is completely independent and remains unknown to an eavesdropper [16]. The main requirement that the definition of security must fulfil is compositability [5]. The composable definition characterises the security of a protocol with respect to the ideal functionality. This means that the security of the key generated could be used in any subsequent cryptographic task such as the one-time pad for message encryption, where an ideal key is expected. However, there always exist some challenges in constructing security proofs without making any assumptions either about the devices or the parties. Some of the assumptions made in the definition of QKD security are as follows:

1. There should be no side channels. Side channels are basically discrepancies between the theoretical model and a practical implementation. They always exist if some information about the raw key is encoded in degrees of freedom not considered in the theoretical model. Therefore, this leads to a wrong assessment of the dimension of the Hilbert space which describes the protocol.
2. There should be access to perfect or almost perfect randomness (locally) and quantum theory is correct and complete.

Security of QKD is demonstrated in Figure 4.

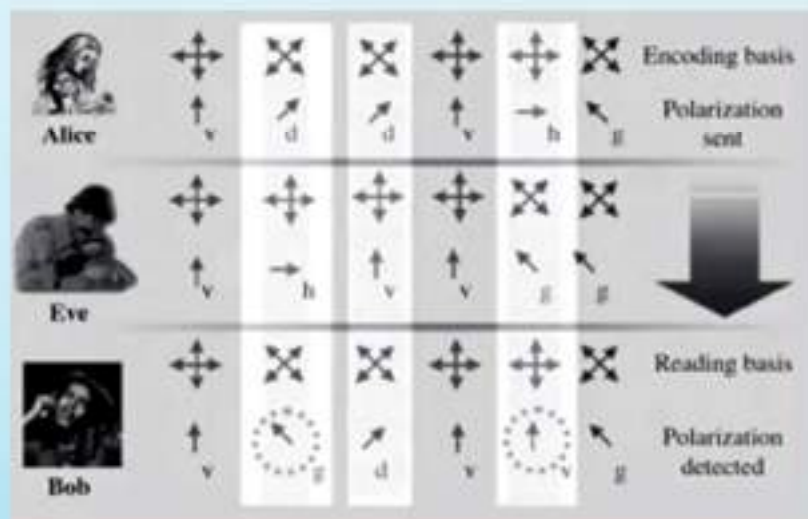


Figure 4: Security of QKD

Quantum steganography protocol

Quantum steganography is used to embed or hide a classical/ quantum information under the cover of a normal quantum channel. In protocol, the embedding technique is based on the hidden rule between the Bell states and the unitary transformations. To embed the secret message uses four sequences of particles of maximally entangled states labeled as A1, A2, B1, and B2. The sequences of particles A1 and A2 belong to Alice, and the other two sequences belong to Bob. The particles in sequences A1 and A2 are in the maximally entangled state with the particles in sequences B1 and B2, respectively. The embedding and extracting procedures of the protocol are given in Figure 5

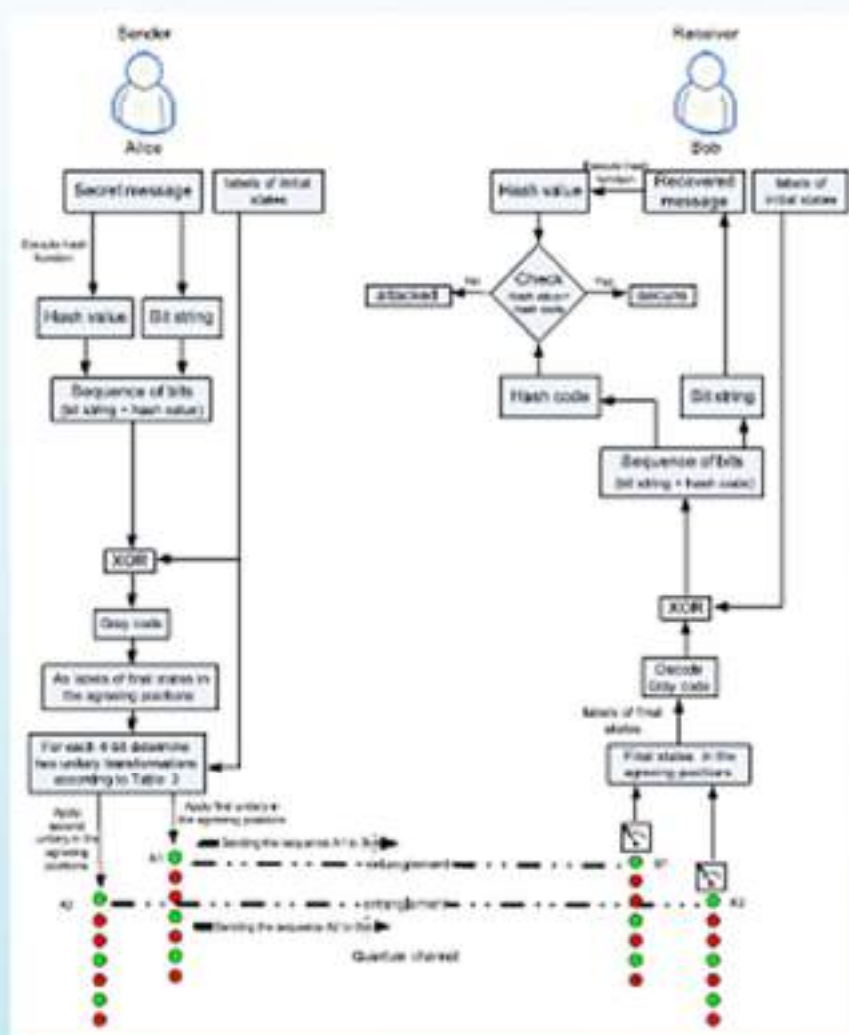


Figure 5: Quantum steganography protocol

Secure quantum steganography in fog cloud IoT

Figure 6 shows the framework of the proposed secure quantum steganography in the scenario of fog and mobile edge computing. The user in one location embeds important and sensitive information via the quantum steganography scheme shown in Figure 5 and sends the covered secret information to the fog cloud. The user in another location accesses the data from the fog cloud and recovers the content via the proposed extraction approach. The proposed quantum steganography system ensures the authentication and security for fog cloud IoT user.



Figure 6: Secure quantum steganography in fog cloud IoT

Comparison of Cloud Computing and Fog Computing

The word “fog” in fog computing conveys the idea of bringing the advantages of cloud closer to the data source (cf. meteorology: fog is simply a cloud that is close to the ground). Cloud computing is usually a model for enabling convenient and on-demand network use of a shared pool of configurable computing resources, such as networks, servers, storage, applications, and services, that may be rapidly provisioned and released with minimal management effort or vendor interaction. Cloud computing permits options for renting of storage and computing infrastructures, business processes, and overall applications. Fog computing extends cloud computing and services to the edge of the network. Fog computing can be distinguished from cloud computing based on various metrics as discussed in the following Table 1:

| Requirements | Cloud Computing | Fog Computing |
|------------------------------------|---------------------|----------------------------------|
| Latency | High | Low |
| Delay Jitter | High | Very low |
| Location of Service | Within the Internet | At the edge of the local network |
| Distance between client and server | Multiple hops | One hop |
| Security | Undefined | Can be defined |
| Attack on data enroute | High probability | Very low probability |
| Location awareness | No | Yes |
| Geo-distribution | Centralized | Distributed |
| No. of server nodes | Few | Very large |
| Support for Mobility | Limited | Supported |
| Real time interactions | Supported | Supported |
| Type of last mile connectivity | Leased Line | Wireless |

Table 1: Comparison of Cloud and Fog

Implications:

This is applied for secure communication over Fog Cloud in IoT[4],[7],[9],[16] also applicable for medical big data in a healthcare cloud[8].

References:

- [1] Mahmoud, M.S. and Mohamad, A.A.H. (2016) A Study of Efficient Power Consumption Wireless Communication Techniques/Modules for Internet of Things (IoT) Applications. *Advances in Internet of Things*, 6, 19-29.
- [2] Blockchains and Smart Contracts for the Internet of Things, Konstantinos Christidis, (Graduate Student Member, Ieee), And Michael Devetsikiotis, (Fellow, Ieee), *IEEE ACCESS VOLUME 4*, 2016, 2292-2303.
- [3] A Novel Scheme for an Energy Efficient Internet of Things Based on Wireless Sensor Networks , Shalli Rani, Rajneesh Talwar, Jyoteesh Malhotra, Syed Hassan Ahmed, Mahasweta Sarkar and Houbing Song, *Sensors* 2015,15, 28603-28626.
- [4] High-Throughput Area-Efficient Processor for Cryptography, HUO Yuanhong and LIU Dake, *Chinese Journal of Electronics*, Vol.26, No.3, May 2017, 514-520.
- [5] Comprehensive survey of 3D image steganography techniques, Ashish Girdhar , Vijay Kumar, *IET Image Process.*, 2018, Vol. 12 Issue. 1, pp. 1-10ISSN 1751-9659.
- [6] A. A. Abd El-Latif et al.: Secure Quantum Steganography Protocol for Fog Cloud Internet of Things, *IEEE ACCESS, VOLUME 6*, 2018.
- [7] A. Munir, P. Kansakar, and S. U. Khan, ``IFCIoT: Integrated fog cloud IoT:A novel architectural paradigm for the future Internet of Things," *IEEE Consum. Electron. Mag.*, vol. 6, no. 3, pp. 74_82, Jul. 2017
- [8] H. A. A. Hamid, ``A security model for preserving the privacy of medical big data in a healthcare cloud using a fog computing facility with pairing based cryptography," *IEEE Access*, vol. 5, pp. 22313_22328, 2017.
- [9] H. M. Raafat et al., ``Fog intelligence for real-time IoT sensor data analytics," *IEEE Access*, vol. 5, pp. 24062_24069, 2017.
- [10] C. H. Bennett and G. Brassard, ``Quantum cryptography: Public key distribution and coin tossing," *Theor. Comput. Sci.*, vol. 560, pp. 7_11, 2014.

- [11] S. Lin, Q. Y. Wen, F. Gao, and F. C. Zhu, "Quantum secure direct communication with n -type entangled states," *Phys. Rev. A*, vol. 78, no. 6, p. 064304, 2008.
- [12] Sayantan Gupta. (2017). "Quantum Fog Cloud Model In Internet Of Things With Analysis Of Green Computing." *International Journal of Research - Granthaalayah*, 5(1), 230-238.
- [13] X. Xin, X. Hua, J. Song, and F. Li, "Quantum authentication protocol for classical messages based on bell states and hash function," *Int. J. Security Appl.*, vol. 9, no. 7, pp. 285_292, 2015.
- [14] Post Quantum Cryptography for the IoT, Simona Samardjiska , Digital Security Group –Radboud University.
- [19] IBM Q Experience <https://quantumexperience.ng.bluemix.net/qstage/#>
- [15] Cisco Ix <https://www.cisco.com/c/en/us/products/cloud-systems-management>

ALUMNI TALK

MY JOURNEY AT SAKEC

It gives me immense pleasure and satisfaction when I recall my Engineering life in Shah and Anchor Kutchhi Engineering College. Our peers and professors were well experienced and knowledgeable people around us by which they inculcated their best teachings with theoretical and practical approach.



With well in class Infrastructure and robust course outcomes, this college facilitated us with great study opportunities. Being an office bearer for over three years in IETE (Institution of Electronics and Telecommunications Engineers), I have coordinated and managed esteemed events like international conferences, industrial visits and many more.

From completing internships from BARC till getting placed in NSE India, was a great learning experience. Extending my passion in technology and business I would be pursuing MBA from IIFT (Indian Institute of foreign trade) in international business – Ranked as Top 10 B-Schools in India. Thanking & Remembering all my peers and professors who helped me in engineering days.



- Mr. Krishnakant Mukta,
BE (EXTC 2018-19)

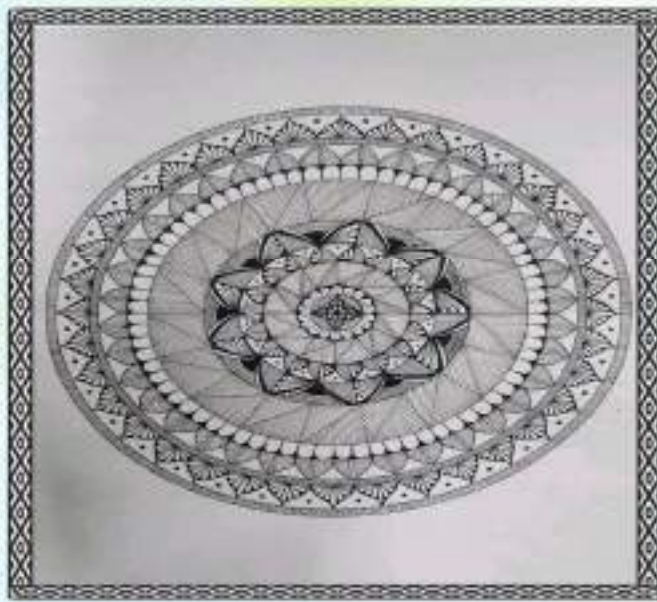
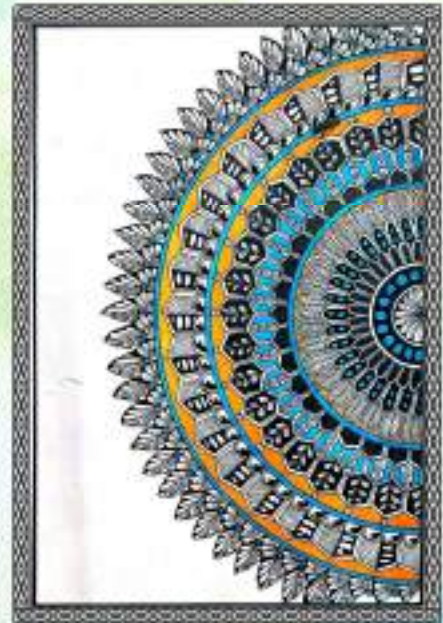
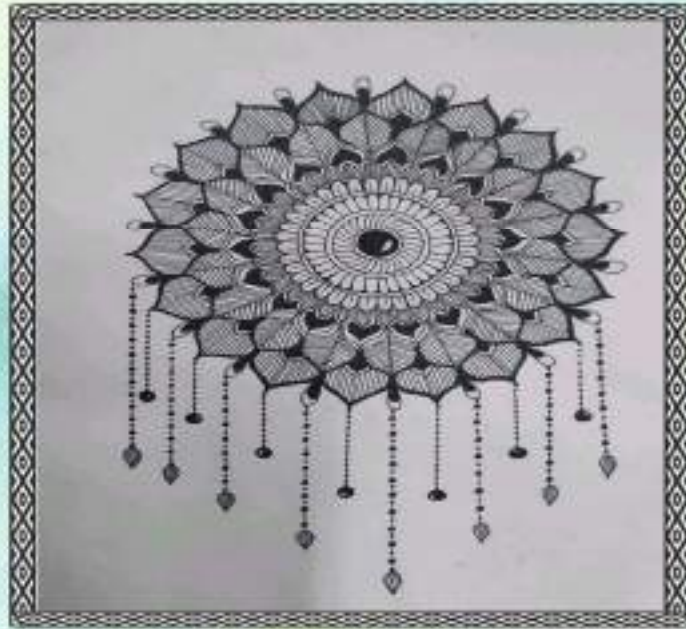




ART WORK

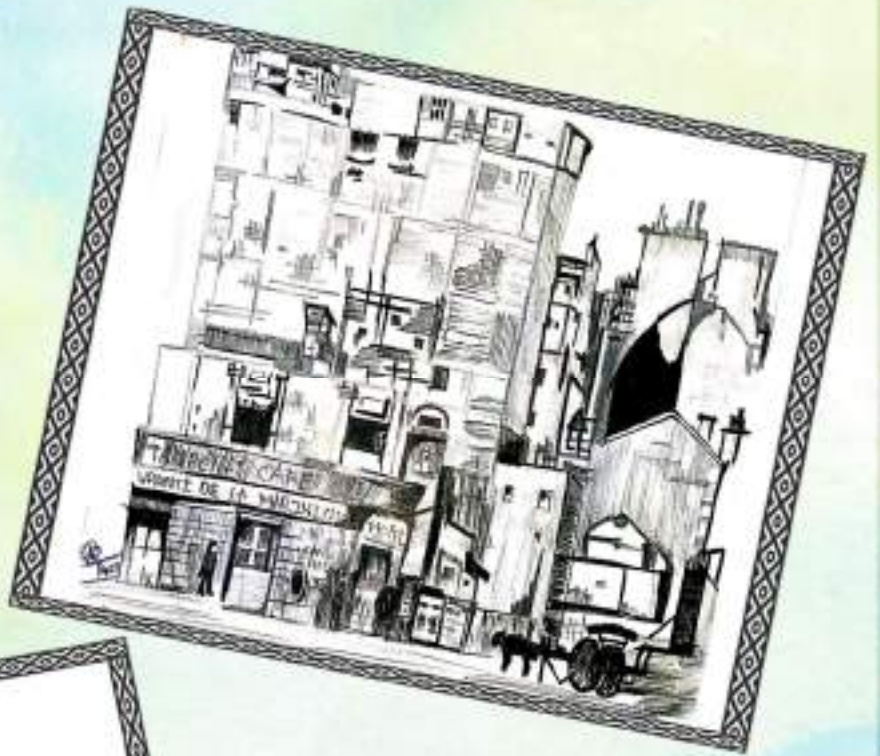


ART DESK



**- ART WORK BY,
NIDHI TANK
BE-7, EXTC**

ART DESK



**-BY,
RAJ TAVDE
BE-7, EXTC**

Photography



**-BY,
ASHITOSH JADHAV
BE-7, EXTC**



ARTICLES

What is 5G?

5G is next generation wireless network technology that's expected to change the way people live and work. It will be faster and able to handle more connected devices than the existing 4G LTE network.

Why 5G?

Many companies are racing to have the fastest or largest 5G networks. Countries are competing to be the first to deploy fully functional, nationwide 5G. That's because the benefits of the new technology are expected to fuel transformative new technologies in every sector.

Benefits of 5G Technology-

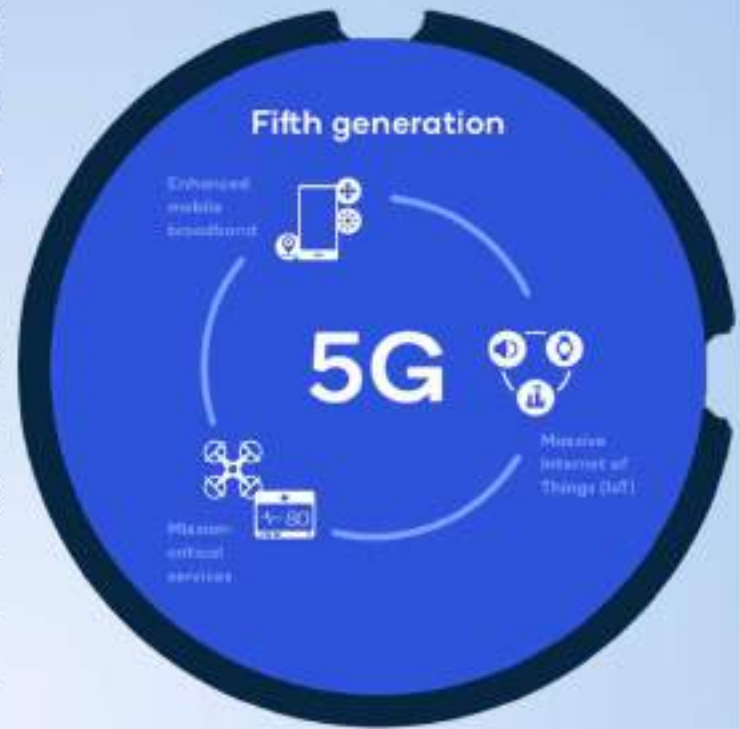
5G will have greater bandwidth, meaning it can handle many more connected devices than previous networks. 5G will also reduce latency and it will make communication with cloud platforms faster and easier.

Drawbacks of 5G Technology-

Significant adoption of 5G is going to take years — industry trade group GSMA estimates that by 2025, around half of mobile connections will be 5G. There are also concerns among regulators and others about the security of 5G, especially since crucial technologies such as self-driving cars and healthcare systems will be built on top of the network.

-by

Deepmala Singh (TE-7)



EVOLUTION OF COMMUNICATION

Communication is the most significant and complex part of our existence. It's how we express ourselves, interact with others. As technology has progressed now we have different channels to connect with each other, styles have evolved from primitive cave drawings all the way to online chatbots and automated phone calls. Evolution of communication can be ranged as

- 1876 — Alexander Graham Bell received the patent for the telephone
- 1880s — Motion picture camera invented
- 1890s — Guglielmo Marconi invented the radio
- 1920s — Television invented
- 1960s — Internet developed
- 1980s — Internet connects U.S. to Europe and Asia
- 1989 — Email and public access services
- Early 1990s — World Wide Web being invented
- 1998 — Google founded
- 2001 — Wikipedia launched
- 2006 — Twitter becomes available to the general public



by
Kshitija Bhise(TE-7)



MOBILE PHONE FACTS

In 2012 Apple sold 340,000 phones per day. The first smartphone was the Apple iPhone in 2007..

China has more internet users on mobile phones than on PC.

Over 90% of adults have their phone within arms reach at all times.

In 2015 more people died from taking selfies than shark attacks.

The technology behind smartphones relies on up to 250,000 separate patents.

Meet The Team



Ms. Seema Kawale



Nayan Shinde



Ashitosh Jadhav



Deepmala Singh

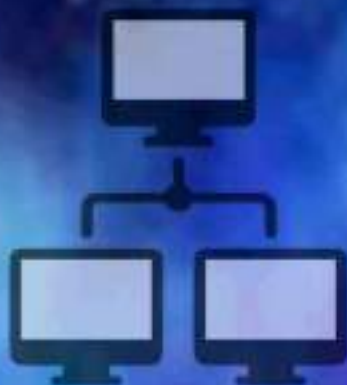


Program Educational Objectives

1. To produce Electronics & Telecommunication engineers, having a strong theoretical foundation, good design experience and exposure to research and development.
2. To develop an ability to identify, formulate and analyze technical concepts to solve engineering problems in the latest technology from application to product design.
3. To prepare them for graduate studies and successful career in industry to meet needs of Indian and multinational companies.
4. To inculcate team spirit to work on multidisciplinary projects, with ethics and codes of professional conduct.



(www.SAKEC.ac.in)



SM

Mahavir Education Trust's
SHAH & ANCHOR
KUTCHHI ENGINEERING COLLEGE

Department of Electronics & Telecommunication Engineering