

Sri Srinivasa Educational and Charitable Trust®

SAPTHAGIRI COLLEGE OF ENGINEERING

(Affiliated to VTU, Belagavi, and Recognized by AICTE, New Delhi)
(ISO 9001-2015 and 14001-2015 Certified Institute)

(Accredited by NAAC with "A" Grade)

14/5, Chikkasandra, Hesaraghatta, Main Road, Bengaluru-560057

Department of Electronics and Communication Engineering

3 Days Workshop

Design, Development & Deployment of Electronic Products

In Association with

SCHEMAZEN TECHNOLOGIES, Bengaluru



28-Sept-2021 to 30-Sept. 2021



Principal
Sapthagiri College of Engineering
14/5, Chikkasandra, Hesaraghatta Main Road
Bengaluru - 560 057

VISION OF THE INSTITUTE

To be a best Institution imparting quality engineering to deal with community needs through learning and performance

MISSION OF THE INSTITUTE

- To implement path breaking student centric education methods.
- To augment talent, nurture teamwork to transform to develop individual as responsible citizen.
- To educate the students and faculties about entrepreneurship.
- To meet vibrant requirements of the society Strengthen Industry-Institute Interaction for knowledge sharing.

About the College

Sapthagiri College of Engineering stands on the strong edifice of Sri Srinivasa Educational & Charitable Trust® which was established in the year 2001 and completed 2 decades. SCE, Bengaluru is affiliated to VTU, Belagavi and approved by AICTE, New Delhi. It is ISO 9001:2015 & 14001:2015 certified Institute and Accredited by NAAC with 'A' Grade. The Institute is dreams come true of founder Chairman late Sri T.Giriappa. Following his footsteps, present Chairman Sri.G.Dayanada, is leading the Governing Council of the Institute - a visionary and an eminent industrialist and head of GD Group and Sri G.D. Manoj is the Executive Director of SCE.

The college has indeed come a long way offering 7 UG Courses in engineering namely Computer Science & Engineering, Information Science & Engineering, Electronics & Communication Engineering, Mechanical Engineering, Electrical & Electronics Engineering, Civil Engineering, Biotechnology and eight Research Centres. Students of SCE, so far have achieved 36 University Ranks and Gold Medals. It has Incubation Center with Industry Institute Labs and various MOUs with Industries for facilitating internships, projects and placement to students. Research activities from faculties & Students getting funds from various agencies like DST, KSCST, and VTU-VGST etc. The campus of Sapthagiri College of Engineering is spread across 6.5 acres of lush green land.

Vision of the Department

To be an endeavouring department for providing globally relevant learning experience to the students.

Mission of the Department

- To Enrich learning experience of students with creative and innovative teaching methods
- To Inculcate societal responsibility in students
- To Develop entrepreneurial skills of students to make them entrepreneurs rather than employees
- To Partner with Industry for focusing on real-life problems and make learning more practical

About the Department

The Department of Electronics and Communication Engineering was established in the year 2001 and intake of 120. The department has achieved academic milestones by securing 02 university ranks. The students of our department participated in student project program organised by KSCST (Karnataka State Council for Science and Technology) and secured the best project award. The department has collaborated with reputed industries for the purpose of MOUs, Industry established lab and Centre for Excellence, Training and Development (CETD).

Chief Patrons

SRI. G. DAYANAND

Chairman, Sapthagiri College of Engineering, Bengaluru.

SRI. G.D. MANOJ

Executive Director, Sapthagiri College of Engineering , Bengaluru.

Patrons

Dr. H RAMAKRISHNA Principal, SCE, Bengaluru.

Dr. H C SATEESH KUMAR HOD Dept. of ECE.

Sapthagiri College of Engineering
14/5, Chikkasandra, Hosanghatta Main Road
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Date	Topics	Time	Resource Person
28.09.21	Introduction to Electronics Industry, Products Role of Product Designers	9AM - 10:30AM	Mr. Karunakaran & Team
	Bridging the Gap between Industry and Academics		
	Introduction to System Design Life Cycle		
28.09.21	Introduction to Tools CADENCE ORCAD for Designing the Products [With Handson]	11AM - 12:30PM	
28.09.21	Hardware Design Life Cycle Various Types of Processors, ICS used for Product Design	2:30PM - 4 PM	
	Component Packages		
29.09.21	Designing a Real time Board	9AM - 10:30AM	
29.09.21	Schematics, PCB Design, BOM, Netlist	11AM - 12:30PM	
29.09.21	Manufacturing, Components Procurement for your board.	2:30PM - 4 PM	
30.09.21	IOT Product Demo's.	9AM - 10:30AM	
30.09.21	Career's in HW Design, QA Session	11AM - 12:30PM	
30.09.21	Test, Certification and Conclusion Manufacturing, Components Procurement for your board.	2:30PM - 4 PM	

Students of Semester VII & V can register using the link



Sri Srinivasa Educational and Charitable Trust®

SAPTHAGIRI COLLEGE OF ENGINEERING



Department of Electronics and Communication Engineering

State Level Paper Poster Presentation Competition

In Association with

Institution of Electronics and Telecommunication Engineers

(IETE) Bengaluru

On

30-Sep-2021



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14/5, Chikkasandra, Hesaraghatta, Main Road,

Bengaluru-560057, Karnataka, India.

Principal

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Sri. G.D. Manoj,

Executive Director, Sri. Srinivasa Educational & Charitable Trust, Sapthagiri Group of Institutions, Bengaluru.

Patrons

- **Dr. H RAMAKRISHNA** Principal, SCE, Bengaluru.
- **Dr. H C SATEESH KUMAR** HOD Dept. of ECE.

Conveners

Sapthagiri College of Engineering & Technology
4/5, Chikkasandra, Heggarahatta, Bengaluru - 560 057

Prof. DR. SHOBHA H Asst. Prof. Dept. of ECE
Prof. DR. RASHMI B J Asst. Prof. Dept. of ECE

Coordinators

- **Prof. SHILPA V** Asst. Prof. Dept. of ECE
- **Prof. VINAY H C** Asst. Prof. Dept. of ECE

Staff Coordinators

- **DR. VIJAY KUMAR A KULKARNI** Prof. Dept. of ECE
- **DR. PRAKASH JADHAV** Assoc. Prof. Dept. of ECE
- **Prof. AGALYA P** Assoc. Prof. Dept. of ECE
- **Prof. SHOBHA S** Assoc. Prof. Dept. of ECE
- **Prof. RAVISHANKARA M N** Assoc. Prof. Dept. of ECE
- **DR. SUDHA M S** Asst. Prof. Dept. of ECE
- **Prof. SUMA V SHETTY** Asst. Prof. Dept. of ECE
- **Prof. SHOBHA H** Asst. Prof. Dept. of ECE
- **Prof. PRATHIBHA P** Asst. Prof. Dept. of ECE
- **Prof. PREETHI T S** Asst. Prof. Dept. of ECE
- **Prof. VARSHINI K** Asst. Prof. Dept. of ECE
- **Prof. SUMA C** Asst. Prof. Dept. of ECE
- **Prof. PADMAVATHI C** Asst. Prof. Dept. of ECE
- **Prof. KAVITHA R J** Asst. Prof. Dept. of ECE
- **Prof. SHWETHA M** Asst. Prof. Dept. of ECE
- **Prof. MADHU H M** Asst. Prof. Dept. of ECE
- **Prof. RANI B A** Asst. Prof. Dept. of ECE
- **Prof. VEENA N** Asst. Prof. Dept. of ECE
- **Prof. RASHMI B J** Asst. Prof. Dept. of ECE

REGISTRATION FEE: Rs 50/- (FIFTY RUPEES ONLY)

Mode of Payment: CASH PAYMENT

Topic for paper poster presentation: Mini Projects

Last Date of Submission: 23/9/2021

Date of Notification: 27/9/2021

Date of Presentation: 30/9/2021

Size of the Poster Paper : A2 Size Colour Print

Template format for Poster Presentation: Attached here with

Contact No: Prof. VINAY H C- 8792526968; Prof. SHILPA V- 9538959760.

Mail-id: vinayhc@sapthagiri.edu.in; shilpav@sapthagiri.edu.in.

Venue: Department of ECE, Rabindranath Tagore Block.

STATE LEVEL POSTER PAPER PRESENTATION IN ASSOCIATION WITH IETE

COLLEGE
LOGO

TITLE of the Poster

IETE
LOGO

AUTHORS NAME & COLLEGE ADDRESS

ABSTRACT

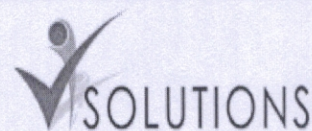
METHODOLOGY / IMPLEMENTATION

RESULTS & CONCLUSION

INTRODUCTION

ACKNOWLEDGEMENTS


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Do Engineering using Graphical Programming Tool

Hands on workshop using NI LabVIEW
Venue: Sapthagiri College of Engineering, Bangalore

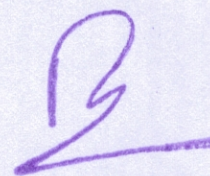
Date	9:00am to 10:30am	15 min	10:45am to 12:15pm	60 min	1:15pm to 2:45pm	15 min	3:00pm to 4:30pm
Day-1	Engineering solutions using Graphical Systems Design WHY? WHAT?? HOW???	Tea	Hands on LabVIEW Programming concepts LabVIEW Environment	Lunch	Hands on LabVIEW Programming concept – Decision Making structures	Tea	Hands on LabVIEW Programming concepts - Loops
Day-2	Hands on LabVIEW Programming concepts - Creating Re-usable code, Arrays		Hands on LabVIEW Programming concept – Data Logging		Hands on LabVIEW Programming concept – Data Visualization		Hands on LabVIEW Application Development, Building .exe's

NOTE: Participants per batch is 30-40

DATE: 29-10-2021 & 30-10-2021

Prerequisites for the Workshop:

- Good ventilated hall preferably, low SUN light intensity to improve visibility of the PPT slides;
- White Board with colour marker pens; Collar Mike; LCD projector.
- One System per participant or max 2 in a system
- Internet connections to be disabled in all systems during Training.



Principal
Sapthagiri College of Engineering
14/5, Chikkasandra, Hesaraghatta Main Road
Bengaluru - 560 057

Corporate office: No. 22, 2nd floor, AKAI Plaza, Opp to AXIS Bank, Sanjaynagar, Bengaluru. Phone: 91-80-40948484
www.visolutions.org Email: support@visolutions.org





Sri Srinivasa Educational & Charitable Trust F-IAT-01/RO

SAPTHAGIRI COLLEGE OF ENGINEERING, BENGALURU-57

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Web: www.sapthagiri.edu.in, Email: principal@sapthagiri.edu.in, Phone: 080-28372800/1/2, Fax: 080-28372797

AY: 2021-2022

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

FIRST INTERNAL ASSESSMENT TIME TABLE (2021-22-ODD)

DATE	TIMINGS	5 th SEM (2018 Scheme)	7 th SEM (2018 Scheme)	7 th SEM (2017 / 2015 scheme)
08/11/2021 Monday	9.00AM - 10.00 AM	18EC51 Technological Innovation Management & Entrepreneurship	18EC71 Computer Networks	17EC71 / 15EC71 Microwave and Antennas
	2:30 PM - 03:30 PM	18EC52 Digital Signal Processing	18EC72 VLSI Design	17EC72/ 15EC72 Digital Image Processing
09/11/2021 Tuesday	9.00AM - 10.00 AM	18EC53 Principles of Communication	18EC732 Satellite Communication	17EC73/ 15EC73 Power Electronics
	2:30 PM - 03:30 PM	18EC54 Information Theory & Coding	18EC743 / 18EC745 Multimedia Communication / Machine Learning	17EC741 / 15EC741 Multimedia Communication
10/11/2021 Wednesday	9.00AM - 10.00 AM	18EC55 Electromagnetic Waves	----	-----
	2:30 PM - 03:30 PM	18EC56 Verilog HDL	18XX75X Open Elective	17EC755 / 15EC755 Satellite Communication
11/11/2021 Thursday	3:30 PM - 4:30 PM	18CIV59 Environmental Studies	--	

IA-Coordinator

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HOD

Head of the Department
Electronics & Communication

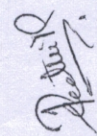
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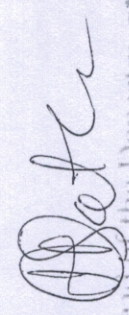
APR 2022

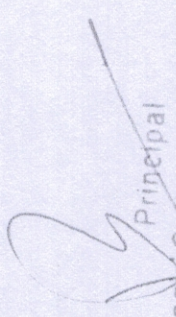
SECOND INTERNAL ASSESSMENT TIME TABLE (2021-22-ODD)

DATE	TIMINGS	7 th SEM	7 th Parallel Course
21/12/2021 Tuesday	10.45AM – 11.45 AM	18EC71 Computer Networks	17EC71/15EC71 Microwave & Antenna
	3:15 PM – 4:15 PM	18EC72 VLSI Design	17EC72/15EC72 Digital Image Processing
22/12/2021 Wednesday	10.45AM – 11.45 AM	18EC732 Satellite Communication	17EC755/15EC755 Satellite Communication
	3:15 PM – 4:15 PM	18EC743/18EC745 Multimedia Communication/ Machine Learning	17EC741/15EC741 Multimedia Communication
23/12/2021 Thursday	10.45AM – 11.45 AM	18XX75X Open Elective	17EC73/15EC73 Power Electronics
	3:15 PM – 4:15 PM	----	-----


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IA-Coordinator


Head of the Department
HOD
Electronics & Communication
Sapthagiri College of Engineering


Principal
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Chikkasandra, Hosuraghatta Road,
B...



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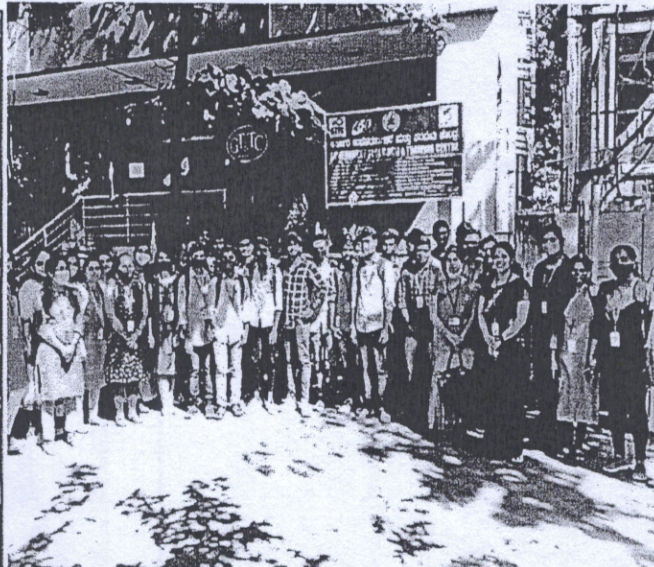
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

INDUSTRIAL VISIT REPORT

An Industrial visit to "Government Tool Room & Training Centre", Rajajinagar, Bangalore was organized by Electronics and Communication Department of Sapthagiri College of Engineering on *Tuesday, 23rd November 2021*. 118 students of Electronics and Communication Engineering along with two professors visited GTTC to interact with the Electronics Industry.



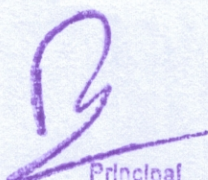
Students ready to depart from college



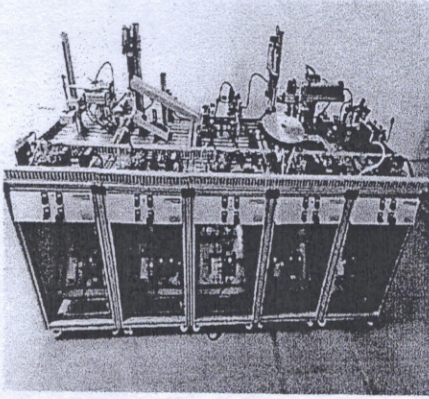
Students at GTTC

This one-day Industrial visit was organized to educate the students on how an organization works and to learn about the work culture. We reached GTTC campus at 10:30 AM. After the security check we were then taken to the seminar hall and given a briefing of rules and guidance's to be followed by everyone inside the industry. The Technical head of GTTC gave an introduction for 60min and told us about the origination of the industry, a overview of what the students would experience for the rest of their afternoon.

An interaction with different laboratories like robotics, mechatronics, process instrumentation, renewable energy gave a very good exposure to the students and it created an interest among the students.


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Automation laboratory



The Automation Lab imparts skills & knowledge on complete factory automation with PLC, HMI, SCADA Industrial Communication-Networking. Participants are trained on concept of automation, programming of PLC, Screen designing, setting up communication with PROFINET, Diagnostic & troubleshooting strategies.

Equipment & Software Siemens 571200 with KTP700 comfort touch panel & 57-300 test kit with TP700 comfort touch panel Siemens 11A Portal V13/V14.

Mechatronics laboratory

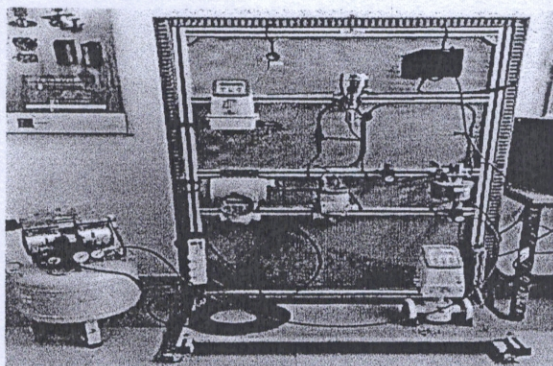
The Mechatronics Lab imparts expertise in the field of Mechatronics system /Process. Participants are trained on various Electrical Components, Mechanical Components, Pneumatics, Digital Fundamentals and troubleshooting Techniques with System Approach. It benefits students of all streams to acquire hybrid Technical Skills

Equipment & Software Modular Automation and Production System (MAPS 6S), 5 Individual Station of MAPS-6S, Siemens S7-1200 PLC's, Diagnostic Kit 2006, Siemens TIA Portal V1



Students at PLC laboratory

Process Instrumentation laboratory



The Process Instrumentation Lab enables Participants to work on Advanced Automation using Distributed Control Systems (DCS) and understanding the working of the various process equipment in Plants.

Equipment & Software Magnetic Flow Meter, Mass Flow Meter, Ultrasonic Flow Meter, Ultrasonic Level Transmitter, Absolute pressure Transmitter; Radar Level Transmitter, Temperature Transmitter, SIMATIC PCS7, PDM V8.2/9.0

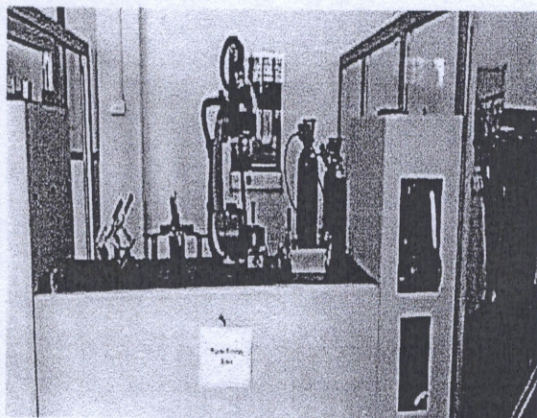


Students at process instrumentation laboratory

Robotics laboratory

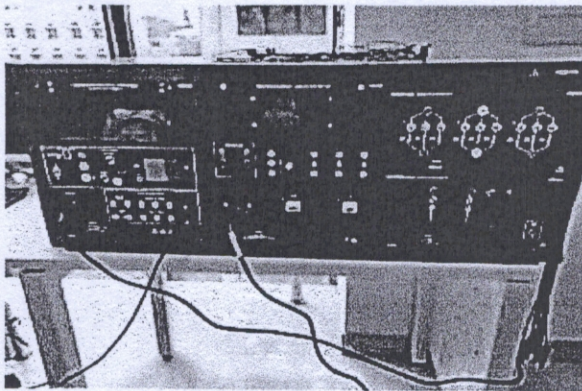
Robotics play an important role in the manufacturing Industry, ensuring that the quality of the product is not compromised, and the production volumes are met. In the Robotics Lab, participants will be taught on working principles of programming and application of Robotics.

Major equipment software Robotic Pick and Place Cell Robotic Arc Welding Cell Robotic Spot-Welding Cell Rob CAD, ABB Robot Studio simulation and offline Programming Software.



Plasma welding robot

Renewable Energy Laboratory



The different kinds of energy was highlighted - how solar and wind energy is converted into electricity using a 'Solar Test Bench' and 'Wind Turbine Controller' respectively, where the power generated to run the bulb and the turbine was generated by a '4 Quadrant Dynamometer'. They showed us how the speed of wind generated could be controlled by the computer using a software.



Students at Renewable energy laboratory

The industrial visit made the students think about the following points:

- Renewable sources of energy (Solar and Wind)
- Robotics
- PLC, HMI
- SCADA

Industrial Visit Co ordinators

Prof. Kavitha R. J.
Prof. Prathibha P.

Principal

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Is hosting a technical talk on 13th December - 2021 at 2:30pm

On
"Pathway to your Career Growth"

By

Mr. SAMEER TARHANE
T.I.M.E. Malleshwaram
Bengaluru.

Dr. Ramakrishna H.
Principal, SCE

Dr. H. C. Sateesh Kumar
Prof. & Head, Dept. of ECE, SCE

For any Query Contact Coordinator-Prof. Kavitha R J, Prof. Prathibha P.
Email: kavitharj@sapthagiri.edu.in, Mobile Number: 9448934042, 9448914448
Students Co ordinators: Harshitha N, Varun L.

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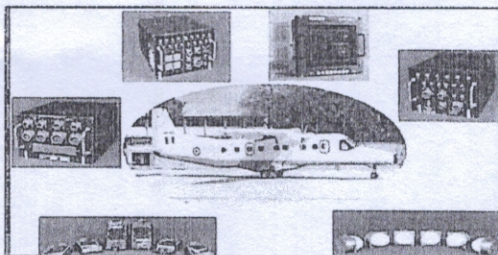
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
(NBA Accredited)

REPORT ON INDUSTRIAL VISIT TO BEL

Bharat Electronics Limited (BEL) is a Navratna PSU under the Ministry of Defence, Government of India. It manufactures state-of-the-art electronic products and systems for the Army, Navy and the Air Force. BEL has also diversified into various areas like homeland security solutions, smart cities, e-governance solutions, space electronics including satellite integration, energy storage products including e-vehicle charging stations, solar, network & cyber security, railways & metro solutions, airport solutions, Electronic Voting Machines, telecom products, passive night vision devices, medical electronics, composites and software solutions.

An industrial visit was organized from Electronics and Communication Department, Sapthagiri College of Engineering to BEL located near Jalahalli, Bangalore on 17th December, 2021. It was planned for a batch of 102 students accompanied by 2 teachers. This one-day Industrial visit was organized to educate the students on various aspects of an organization. The divisions which were visited were

Radar Electronic Support Measures (ESM) Systems



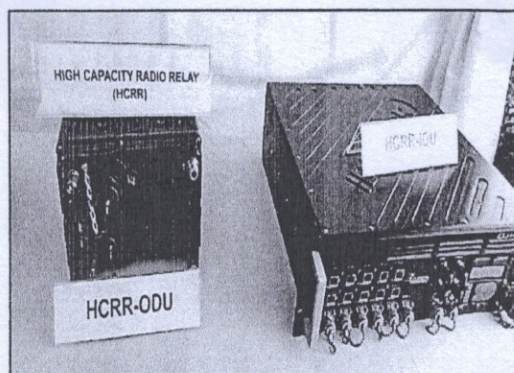
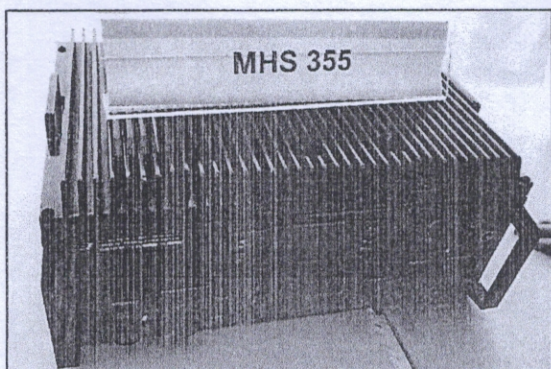
This air borne ESM system provides reconnaissance of ground based, airborne, ship-borne and submarine radars, both static and mobile. The system intercepts, detects and identifies radar signals and displays all the parameters of radar emission. The system is in

frequency (D to J band), provides 100% probability of intercept and processes radar signals with very low reaction time. It also carries out threat prioritization and provides threat warning by using a built-in radar library. The system sensitivity is adequate to meet the range requirements of most of the radars.

FEATURES

- Wide open in spectral and spatial domain
- High Probability of Intercept (POI)
- High sensitivity and good DOA accuracy
- Light weight and Modular construction
- Automatic tracking of large number of emitters
- Data recording and replay facility for Post Mission Analysis


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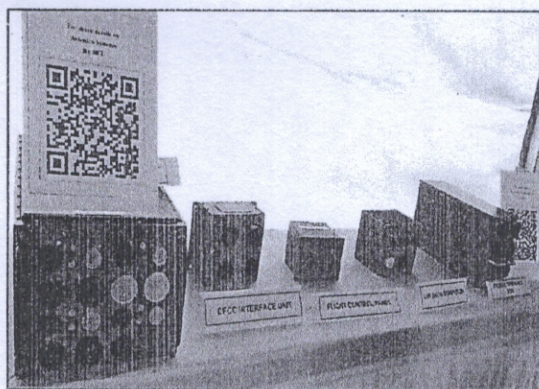


It employs mono-pulse amplitude comparison technique on a four antenna system configuration, it provides high DOA accuracy. The ESM system features an integrated DIFM receiver for highly accurate instantaneous frequency measurement.

FEATURES

- Simple configuration & modular construction
- Designed using state-of-art devices
- Near 100% Probability of Intercept (POI)
- Wide frequency coverage with good dynamic range
- Auto-tracking of large number of emitters
- Extensive Built-in Test for self diagnosis
- Large Radar Library for threat identification and prioritization
- Data recording and replay facility for post mission analysis

Flight Control System for Light Combat Aircraft(LCA)



DFCC is an on board computer used for the flight control functions of the Aircraft. The on board computer has quadruplex construction. Each channel has got Multi layer Board which employs SMD components. All the PCBs are interconnected through the mother board, which is of polyamide material.

FEATURES

- Processes the various transducer signals and discrete related to flight control in the Aircraft
- Provides the basic hardware interface, which controls the Computer
- Converts the 28V dc input from the Aircraft into regulated voltage for use by internal PCBs
- All the hardware interfaces of analog, digital and power supply cards are accessed by software to a valid address

Air Data Computer (ADC) is part of flight control system of the aircraft. It performs air data computation like atmospheric pressure, temperature and angle of attack by taking input from air data sensors like pressure transducers, temperature sensor and angle of attack sensor.

The Stores Interface Box (weapon computer) is front-end weapon management computer based on open architecture concept. It is part of weapon control system of the aircraft and controls Pylon Interface Boxes. It controls Pylon Interface Boxes based on high level commands received from open architecture computer over 1553B bus.

Ground Control Station and Datalink For UAV



ROLE: The Ground Control Station of R-II provides the interface between UAV and the ground-based operator.

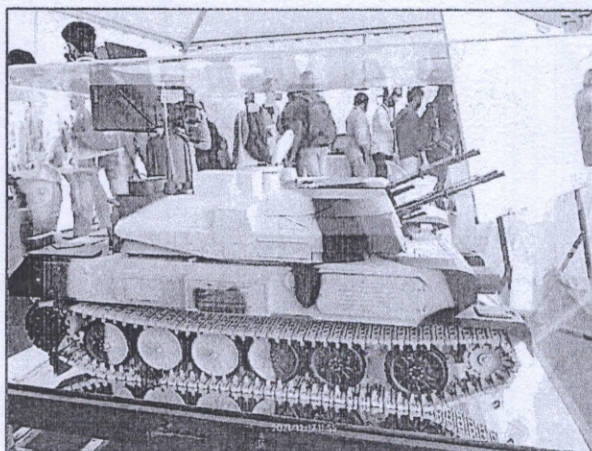
FUNCTION: The functional requirements of GCS include communication, mission planning, Air vehicle control, payload management, payload video processing and recording, flight

data recording, post flight analysis and replay.

FEATURES

- Testing of UAV using inbuilt Flight Line Tester (FLT)
- Mission planning and validation
- Monitor and Control of UAV in all the modes of Flight
- Monitor and Control of all the UAV parameters in all the phases of flight
- External Pilot interface
- Payload control and monitoring
- Automatic takeoff and landing system (ATOL) interface
- Health monitoring of UAV systems, GCS, GDT, EP and SATCOM
- Recording of UAV and Payload data
- Synchronization of all the UAV parameters
- Dissemination of UAV sensors data to services in required format
- Replay of recorded information
- Post flight analysis
- Inter and Intra communications

Upgraded Schilka Weapon System



The Upgraded Schilka system is a ZSU 23 mm, 4 barrel, advanced all weather self-propelled Air Defence Weapon System primarily designed to protect mobile formations against aircraft and helicopters. The Upgraded Schilka provides drastic improvements in operational performances, accuracies and power consumption. It consists of state of the art 3D planar Active phased array solid state Radar and Electro Optical Fire Control system that ensures Day and night capability for detection, acquisition and tracking of targets. The various phases of operation such as rapid acquisition of fast moving target, determination of the aiming point for the guns and ballistics of the projectiles, rapid laying of the guns on to the target and firing can be carried out when the vehicle is on the move or at halt.

Principal

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FEATURES

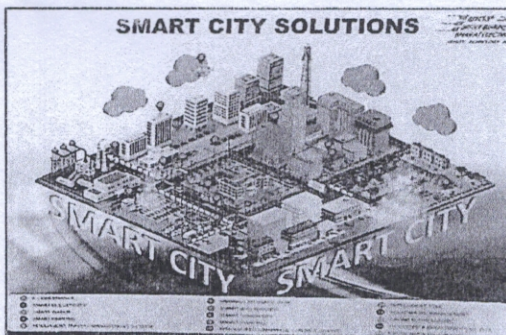
- State-of-the-art, coherent, 3D planar Active phased array solid state search/track Radar
- Electronic Beam Steering in Elevation. TWS search capability in circular and sectors scans.
- Advanced ECCM capabilities.
- Single Target Tracking (STT) and Multi Target Tracking (MTT) Capability.
- Cueing to target data received from external surveillance radar.
- Modern digital Fire Control Computer.
- Advanced Inertial Navigation System(INS) with GPS for the system stabilization and navigation.
- Passive mode of target engagement with the introduction of Electro Optical (Day/Night camera, LRF) fire control system..
- Latest state of the art fire detection and suppression system. Modern high power engine for system mobility.
- Entire system operates on 128 VDC. Auxiliary Power Engine to cater for system power supply requirements.
- User friendly operator displays with facility to introduce maps.
- Air condition (AC) system to enhance the crew comfort.
- Built-in simulator for operator training.
- Nuclear Biological Chemical (NBC) protection system
- Data recording capability for offline debriefing.

PCB MANUFACTURING

The visit gave us an insight from Circuit design, pcb design, prototype development and testing of the PCB.

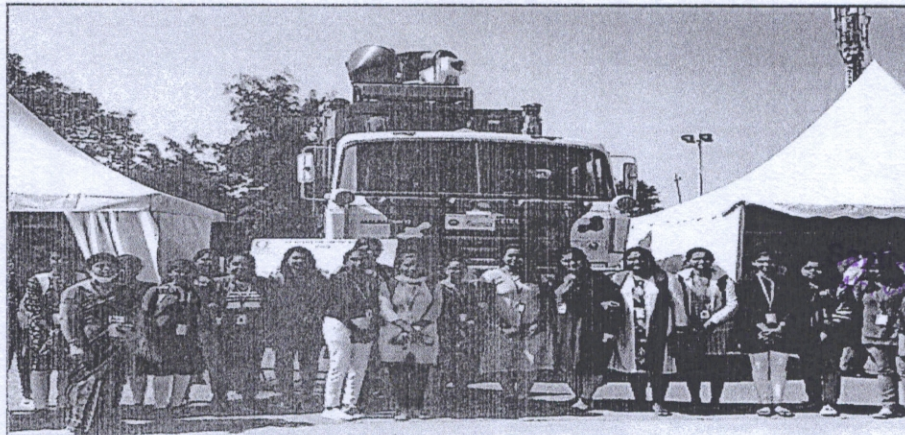
ADDED FEATURES

It was a feat to the eyes to see the innovations for the benefit of mankind. Projects that are required for smart city like controlling the traffic, avoiding accidents etc were exhibited.

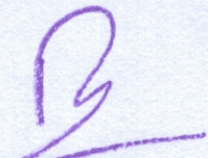


One could witness the projects meant for agriculture that is making the interference of mankind less. The projects that caught our attention was with helping the covid patients – a pandemic which brought fear into the people. Environmental projects like purifying water, recycling water and keeping the environment clean were witnessed.

The best part is the cleanliness and the hospitality of the BEL that caught our attention. Indeed visiting this massive organization once again, the work of this organisation can be better understood.

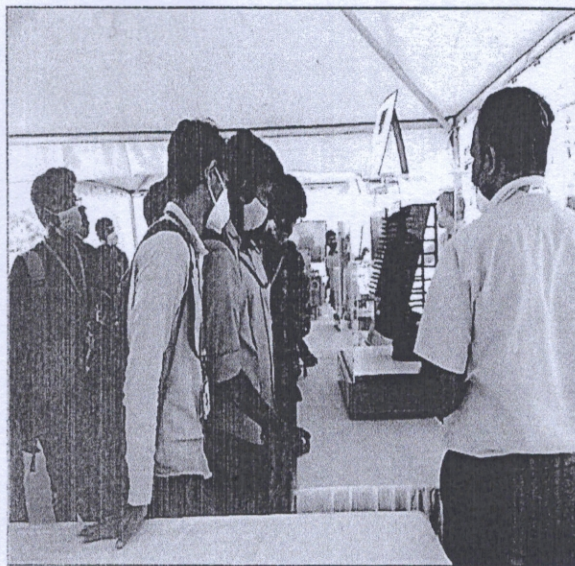


Students departing for industrial visit


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Students in the session at the venue



Students in the interactive session

Industrial visit Coordinators

Prof Kavitha R J

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