• Magazine
2022-23

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

ELE-TIMES

-Volume-II

Contents

STUDENT CO-ORDINATORS

- K. V. S. Alekhya-ECE-III
- M. Sumath-ECE-III
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- P. Deepika-ECE-IV

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A. Hari Krishna
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GEETHANJALI INSTITUTE OF SCINCE AND TECHNOLOGY

A+
NAAC
ACCREDITED WITH GRADE
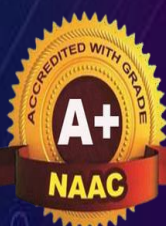
Head of the Department

The Department of Electronics and Communication Engineering is committed to render-quality and professional pedagogy to pioneering engineers. The Department magazine exemplifies the voyage transverse and exhibits the technical skills of our students. Congratulations to the editorial team for their determined efforts in bringing out this edition of technical magazine

I am proud to see that the students of our department have put in appreciable effort into creating the magazine. It is good to see that today's generation has not lost its literary roots, despite the perpetual efforts of e-Technology to extinguish the flames of the written word. This e-magazine is an exceptional proof that the literary flame is burning bright. I look forward to seeing the juniors taking up the reigns of this e- magazine in future, so that this tradition remains eternal.

Dr. U. PENCHAL REDDY
HOD Dept. of ECE.

VISION OF THE DEPARTMENT

Achieving academic excellence in Electronics and Communication Engineering by shaping next-generation technocrats keeping pace with socio-economic needs.

MISSION OF THE DEPARTMENT

M1
- Adopting outcome oriented teaching –learning processes to provide comprehensive knowledge in the application of Electronics and Communication Engineering principles

M2
- Striving for implementation of advanced technology to cater to industrial demands and societal concerns

M3
- Producing highly skilled and responsible professionals with robust ethical values

M4
- Integrating technical capabilities, life skills and entrepreneurship abilities to produce dynamic contributors to social advancement

Program Educational Objectives (PEOs)

After few years of graduation, the graduates of B.Tech. (ECE) will be:

PEO-1 — Demonstrating a deep passion for continuous learning through technical expertise for a promising career.

PEO-2 — Exhibiting a strong commitment to serving the society with adherence to professional ethics.

PEO-3 — Managing resources efficiently as competent engineers through effective social interaction.

PEO-4 — Engaging in advanced learning and contributing to technological innovations.

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

To impart value based technical education and train students to turn out full- fledged engineers in the field of Electronics & Communication Engineering with an overall background suitable for making a successful career either in Industry/Research or higher education i.e, from A.Y 2008-09 with an intake of 60 students. Presently, the intake of the ECE Department is 180 students. The department has faculty strength of 44 well qualified, experienced and dedicated Post graduates with seven Doctorates and some of them are pursuing Ph.D in different streams and 6 supporting staff.

The department encourages students into postgraduate studies and prepares
them for leadership roles in research and development.

The ECE department has good infrastructure with 8 different labs namely Microwave Engineering lab, Microprocessor Lab, Digital ICs Lab, Communications Lab, Computer Lab, EDC Lab, LIC Lab, DSP & VLSI Lab. All the labs are fully equipped to provide the present day advanced technology. ECE department has three Centre of excellences, Assistive Technology Lab (ATL), National Instruments lab (NI) .

The Department has student's chapters like IETE Student Forum and ISTE Student Forum conducts many technical talks, seminars, quiz etc. Every semester at least two guest lectures are being arranged in addition to above activities.

Very recently IEEE student chapter has been started; Students are encouraged to participate in International, National and State level technical contests. Every year our final year students are encouraged to write GATE, CAT, GRE, TOEFL & IELTS exams.

Program Outcomes

On successful completion of the Program, the graduates of B.Tech. (ECE) Program will be able to:

PO1	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4	Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
PO6	The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development
PO8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO11	Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes

On successful completion of the Program, the graduates of B. Tech. (ECE) program will be able to:

PSO1	Design and develop electronic circuits and communication systems, applying the principles of signal, image processing, VLSI, Embedded and wireless applications relevant to industry and society.
PSO2	Adopting software tools like Matlab, Xilinx, Microwind, NS-2 to develop intelligent systems to offer customized solutions.

SATELLITE COMMUNICATION

Satellite Communication have recently entered a period of renewed interest motivated by technological advances and nurtured through private investment and ventures. The present survey aims at capturing the state of the art in SatComs, while highlighting the most promising open research topics. The fundamental principle to be understood concerning satellites is that a satellite is a projectile

Firstly, the main innovation drivers are motivated, such as new constellation types, on-board processing capabilities, non-terrestrial networks and space-based data collection/processing. Secondly, the most promising applications are described, i.e., 5G integration, space communications, Earth observation, aeronautical and maritime tracking and communication.

A. 5G Non Terrestrial Network

5G will be more than just an evolution of the previous standards, embracing a wide new range of applications so as to satisfy future important market segments, such as the automotive and transportation sectors, media and entertainment, e-Health, Industry 4.0, etc .

B. VLEO and SatCom-Assisted Aerial Networks

During the last years, intermediate layers of communications systems between terrestrial and traditional satellite segments have emerged thanks to the technological advance of the aerial and miniaturized satellite platforms.

agencies to report the weather, monitor the oceans, detect Regardless of the application, these new platforms can be classified according to their operation altitude.

C. Aeronautical and Maritime Tracking and Communication

In addition to the above-mentioned uses cases, satellites can also play an important role in the aeronautical and maritime tracking systems. These systems share many similarities with other kinds of Device-to-Device (D2D) communications and the IoT.

D. Earth Observation Data Collection

Traditionally, Earth Observation (EO) has been used by Governmental or International angles in vegetation and analyze the damage done by natural disasters, like earthquakes or hurricanes.

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IV-ECE

Workshop on Emerging trends in Communication Systems and signal Processing

One Week Workshop on "Emerging trends in Communication Systems and Signal Processing" was organized under the department of Electronics and Communication Engineering at Geethanjali Institute of Science & Technology From 13-02-2023 & 18-02-2023 in association with IETE sub center, Tirupati and SAK Informatics, Hyderabad. The resource person Mr. N. Vamsi Krishna, SAK Informatics, Hyderabad. Total 63 students from IV B.Tech ECE are attended the Workshop. After inaugural session resource person briefed out concepts such as Communication system design Technology, design flow and architectural level optimization techniques such as pipelining, parallelism and hands-on MATLAB programming. In few sessions also conduct the hands-on training on MATLAB -based implementation and discussion was on recent trends in Communication system domain and research issues. Finally students learn the concepts of Robotics and also discussed about Power reduction on in spintronic devices

After the end of the sessions students gain better practical exposure on Communication system projects and research activities in Emerging trends in Communication system and signal processing In the valedictory session speaker was facilitated and a vote of thanks was presented by workshop coordinator.

Resource person: Mr. N. Vamsi Krishna
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The Switchboard Design Requirements

Switchboard Areas

The goal of that architecture is to separate the switchbound in different function of each professional user

- Devices zone =>panelbuilder and explainer
- Busbars zone=> panelbuilder
- Cable connection zone=> installer and maintenance

Design Rules

The switchboard must be designed the way to have a clearly while separation between the 3 following zones

• One dedicated for the devices installation

• One dedicated for the busbars mounting

• One dedicated for the outgoes cables connections

In order to facilitate the access within the switchboard for the maintenance. covering panels must be dismountable on all surfaces for any IP degree To insure the maximum protection of people around the electrical installation front plates must be installed in front of all control and protection equipment order to avoid a direct access without a tool to the devices and consequently the active

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III-ECE

Workshop on Emerging trends in VLSI Design

One Week Workshop on "Emerging trends in VLSI Design was organized under the department of Electronics and Communication Engineering at Geethanjali Institute of Science & Technology From 13.02 2013 & 18:02 2023 in association with IETF

sub center, Tirupati and SAK Informatics, Hyderabad The resource person Mr. Tulluru Guru, SAK Informatics, Hyderabad. Total 65 students from IV B Tech ECE are attended the Workshop.

After inaugural session resource person briefed out concepts such as VISI design Technology, design flow and architectural level optimization techniques such as pipelining, parallelism and hands on Verilog/VHBI programming. In few sessions also conduct the hands-on training on Xilinx Spartan #E FPGA based implementation and discussion was on recent trends in VI SI domain and research issues. Finally students learn the concepts of Nano electronics and also discussed about Power reduction in spintronic devices. After the end of the sessions students gain better practical exposure on VESI projects and research activities in Emerging trends in VLSI Design In the valedictory session speaker was facilitated and a vote of thanks was presented by workshop coordinator

Resource person :Mr. Tulluru Guru 9000199406

Gurutulluru1985@gmail.com

Workshop on Emerging trends in Iot &Embedded Systems

One Week Workshop on "Emerging trends in Iot & Embedded Systems" was organized under the department of Electronics and Communication Engineering at Geethanjali Institute of Science & Technology From 13-02-2023 & 18-02-2023 in association with IETE sub center, Tirupati and SAK Informatics, Hyderabad. The resource person Mr.M. Venkatesh, SAK Informatics, Hyderabad Total 61 students from IV B.Tech ECE are attended the Workshop. After inaugural session resource person briefed out concepts such as IOT design Technology, design flow and architectural level optimization techniques such as pipelining, parallelism and hands-on MATLAB programming. In few sessions also conduct the hands-on training on MATLAB -based implementation and discussion was on recent trends in Embedded domain and research issues. Finally students learn the concepts of Nano-electronics and also discussed about Power reduction in spintronic devices. After the end of the sessions students gain better practical exposure on IoT & Embedded projects and research activities in Emerging trends in Iot & Embedded Systems In the valedictory session speaker was facilitated and a vote of thanks was presented by workshop coordinator.

Resource person: Mr. M. Venkatesh

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Hybrid Electric Vehicles
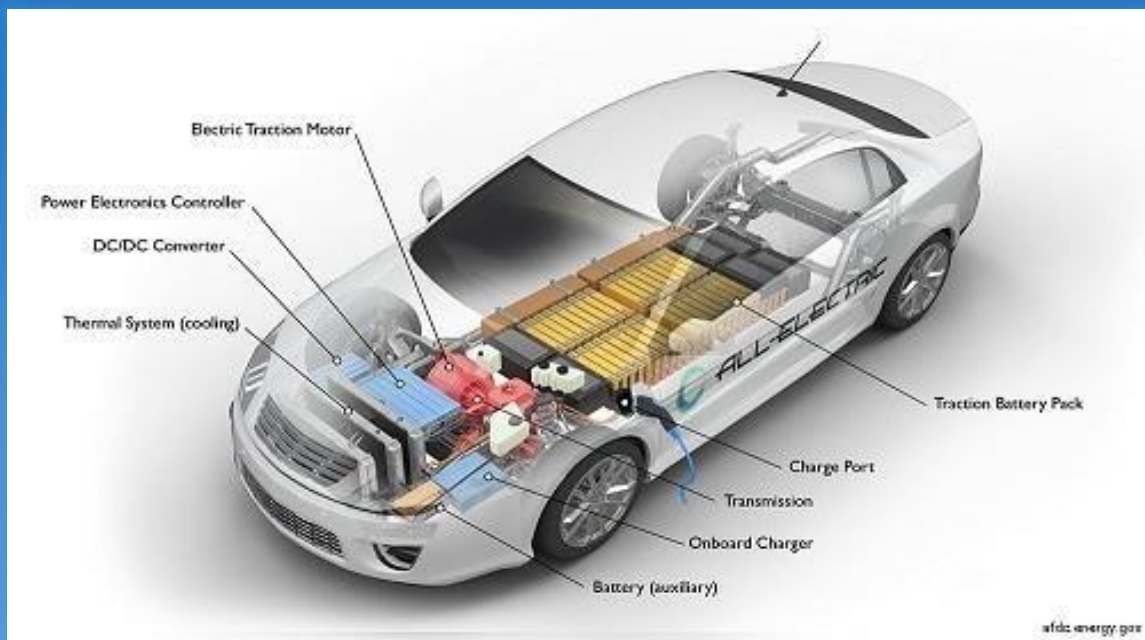
CLASSIFICATION OF HYBRID VEHICLE

Hybrid power system according to the structure divided into three main

forms, including series, parallel and hybrid .

Series Hybrid Electric Vehicle

Series Hybrid Electric Vehicle (Series Hybrid Electric Vehicle, SHEV) is the main characteristic of the driving force of the vehicle only from the motor. SHEV drive system of the three powertrains: engine, generator and drive motor are composed of a series of ways, the engine does not directly participate in the SHEV drive, it is combined with the generator only as a power supply system.

Parallel Hybrid Vehicle

The main feature of a parallel hybrid electric vehicle (PHEV) is that the engine and the motor can provide the driving force of the vehicle simultaneously or separately. The PHEV drive system consists of two main power sources: When the load is low, the engine or the motor is used alone as the power source, and when the high power is needed, the motor and the engine can be used simultaneously as the power source to drive the vehicle. Since the two power supplies of the PHEV drive system are superposed on each other in the form of mechanical energy and require corresponding mechanical transmission, the system is not as simple as the tandem type, and the arrangement of the apparatus has some limitations.

Combined Hybrid Vehicle

Combined Hybrid Electric Vehicle (CHEV) directly combines the series and parallel, which can work in series mode or in parallel mode. Hybrid electric hybrid system is characterized by the internal combustion engine system and the motor drive system with mechanical transmission mechanism, the two sets of agencies or through the gear train or planetary gear structure connected to regulate the relationship between the internal combustion engine and the motor speed. Compared with parallel hybrid systems, hybrid powertrain systems have more flexibility to adjust the engine's power output and motor operation based on operating conditions. This connection system is complex and costly. When the vehicle starts or runs at a low speed, the engine is shut down and only the motor is used to provide the power output. When the car is running at high speed, the engine runs while the generator takes on power generation or speed regulation according to the actual working conditions. When the vehicle is braked, the system is also capable of converting mechanical energy into electrical energy stored in a battery pack.
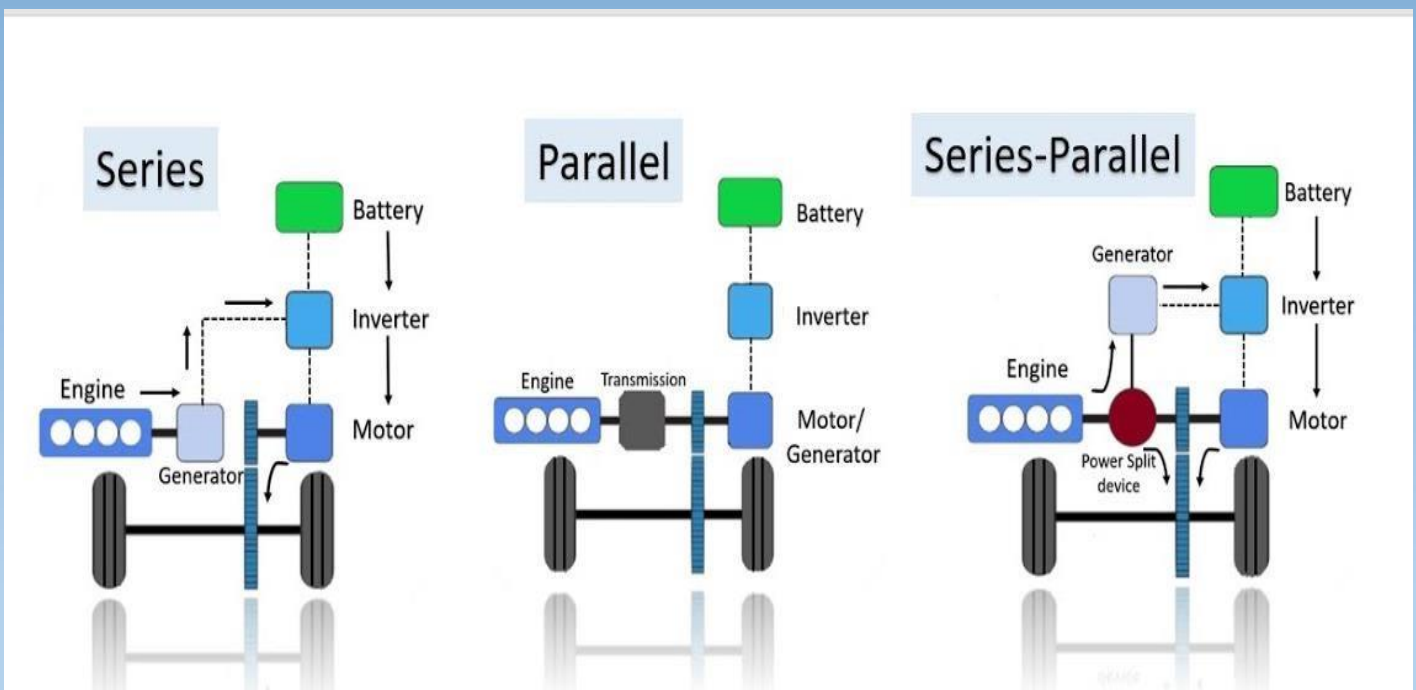
K. V. Saketh
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IV-ECE

Antenna for Internet of Things

The modern wireless technologies drive this world in the direction of a new pattern which includes Internet of Things (IoT) and Internet of Everything (JOE) The Internet of Things (IoT) allow an emerging combined wireless platform, in which physical and virtual things can be exclusively identified on a global scale and are connects with a global network. IoT becomes frequent in both research and industries due to its exclusive emerging applications like vehicles which is connected with smart cities, healthcare monitoring system and so on. Modules for Internet of Things (IoT) applications are streaming the consumer and industrial markets with the purpose of sensing, computing, and connecting all things within extend. A wealth of clever strategies is needed to shrink the size of these devices while maintaining highly reliable remote performance under low-power conditions. As a result, IoT-module antenna designers face the restrictions of maintaining reasonable performance in ever- shrinking footprints and under extreme interference conditions. For the purpose of antenna dimension reduction and decreasing the size and cost of IoT modules Antenna folding techniques can be used. Because of low cost, small size, design effort, and manufacturing complexity in loT modules engineer's faces much more challenge. There some common type of antenna, which is used in this technology are Chip Antennas, Proprietary Antennas Wire Antennas. Whip Antennas, PCB Antennas Chip Antennas This is very small size antenna even at low frequency Chip antennas could aid in maintaining low reproducibility issues when large manufacturing runs are required. However, chip antennas are costly and no flexibility in design. Proprietary Antennas: Proprietary antenna designs are owned by a designer or design company This antenna is generally short in size and test cycle. The cost for these antennas begins with the purchasing of the intellectual property (IP). although this option usually comes with support from the antenna design company Wire Antennas. This antenna has lowest- cost and highest-flexibility options These antennas generally demand electromagnetic (EM) simulation for optimal designs. But the size of the antenna Is varying with frequency The size of antenna may large at low frequency

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ECE-1V

Drone Technology

DRONE DEFINITION: WHAT IS A DRONE?

A drone refers to any aerial vehicle that receives remote commands from a pilot or relies on software for autonomous flight. Many drones display features like cameras for collecting visual data and propellers for stabilizing their flight patterns. Sectors like videography, search and rescue, agriculture and transportation have adopted drone technology.

4 COMMON TYPES OF DRONES

Single-Rotor Helicopter Drones
Multi-Rotor Drones
Fixed-Wing Drones
Fixed-Wing Hybrid VTOL Drones

Single-Rotor Helicopter Drones

Single-rotor helicopters look like tiny helicopters and can be gas or electric-powered. The single blade and ability to run on gas help its stability and fly for longer distances.


Multi-Rotor Drones

Multi-rotor drones are usually some of the smallest and lightest drones on the market. They have limited distance, speed and height, but make the perfect flying vehicle for enthusiasts.

Fixed-Wing Drones

Fixed-wing drones look like normal airplanes, where the wings provide the lift instead of rotors- making them very efficient. These drones usually use fuel instead of electricity, allowing them to glide in the air for more than 16 hours. Since these drones are usually much larger, and because of their design, they need to take off and land on runways just as airplanes do.
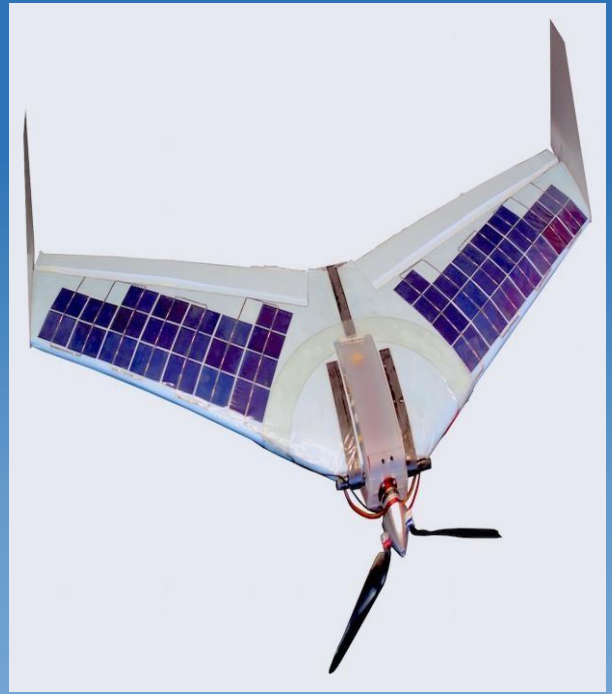
Fixed-Wing Hybrid VTOL Drones

Fixed-wing hybrid VTOL drones are a blend of fixed-wing drones and rotor-based drones, featuring rotors that are attached to the wings. Due to its hybrid approach, this technology offers users the endurance of a fixed-wing design and the vertical flying capabilities of a rotor-focused design.

M. Bhargavi
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ECE-III

LIST OF STUDENTS PLACEMENTS IN 2022-2023

S.NO	ROLL NUMBER	NAME OF THE STUDENT	COMPANY	PACKAGE
1	192U1A04B0	PAMANJI DEEPIKA	LUMEN DATA	740000
2	192U1A04H1	TANGUTURU MANASA	LUMEN DATA	740000
3	192U1A04E1	SHAIK AYESHA TABASUM	TCS NQT(DIGITAL)	700000
4	192U1A0431	GADI VENKATA KAVITHA HIRANMAI	BLAZE AUTOMATION	500000
5	192U1A0484	SURYA KARTHIKEYA	FULL CREATIVE	450000
6	192U1A04A9	PALAKURU CHARAN KUMAR REDDY	IQUADRA	420000
7	192U1A0472	KUNAPA REDDY SAI ABHINAV	BIGWORKS	400000
8	192U1A04A8	PALAPATI VENKATA NITHISH	BIGWORKS	400000
9	192U1A0419	CHAMARTHI TARUN	HEXAWARE	400000
10	192U1A0491	MUPPALLA POOJITHA	HEXAWARE	400000
11	192U1A04C3	PEMMARAJU BHARATI SAI SAILAJA	HEXAWARE	400000
12	192U1A04E5	SHAIK MOHAMMAD JAVAD	HEXAWARE	400000
13	192U1A04G4	SYED MUSKAN	HEXAWARE	400000
14	192U1A0406	BASIM VAMSI	HEXAWARE	400000
15	192U1A0408	BATHINI CHARITHA VENKATA SAI	HEXAWARE	400000
16	192U1A0414	BOGALA SUCHARITHA	SONATA SOFTWARE	400000
17	192U1A0492	NADENDLA HARIKA SRI	SONATA SOFTWARE	400000
18	192U1A0496	NANDAM SRAVANI	SONATA SOFTWARE	400000
19	192U1A04B5	PASUPULETI BHAVANA	SONATA SOFTWARE	400000
20	192U1A04B8	PATHIPATI CHANDU PRIYA	SONATA SOFTWARE	400000

21	192U1A04E6	SHAIK MOHAMMAD TAJ	SONATA SOFTWARE	400000
22	192U1A04E8	SHAIK MUZAMIL	SONATA SOFTWARE	400000
23	192U1A04G3	SYED HEENA	SONATA SOFTWARE	400000
24	192U1A04I4	VESAPOGU MINI ESTHER	SONATA SOFTWARE	400000
25	192U1A0494	NANDAM AAKARSHA LEKHANA	TVARANA	400000
26	192U1A04G5	SYED NEHA	TVARANA	400000
27	192U1A04B2	PAPISETTY SIVA SAI RAJESWARI	CSS CORP/MOVATE	375000
28	192U1A0423	CHOWDAMJOLLU SAI SIDDARTHA	TCS NQT(NINJA)	336000
29	192U1A0431	GADI VENKATA KAVITHA HIRANMAI	TCS NQT(NINJA)	336000
30	192U1A0441	GONU LAKSHMI SWETHA REDDY	TCS NQT(NINJA)	336000
31	192U1A0495	NANDAM SRAVANI	TCS NQT(NINJA)	336000
32	192U1A04D2	RENANGI VENKATA NIVAS	TCS NQT(NINJA)	336000
33	192U1A04D3	SAJJANAPU ANUNYA	TCS NQT(NINJA)	336000
34	202U5A0407	SHAIK WASEEM	TCS NQT(NINJA)	336000
35	192U1A0406	BASIM VAMSI	TCS NQT(NINJA)	336000
36	192U1A0408	BATHINI CHARITHA VENKATA SAI	TCS NQT(NINJA)	336000
37	192U1A0423	CHOWDAMJOLLU SAI SIDDARTHA	TECH MAHINDRA	325000
38	192U1A0428	EEDALA SIVA POOJITHA	TECH MAHINDRA	325000
39	192U1A0474	MADALA GAYATHRI	TECH MAHINDRA	325000
40	192U1A04D8	SHAIK ARSHIYA	TECH MAHINDRA	325000

41	192U1A04F2	SHAIK SAFA THAHSEEN	TECH MAHINDRA	325000
42	192U1A04I7	YALAKANTI VENKATA NAGA CHANDRA NIKHITHA	TECH MAHINDRA	325000
43	192U1A0407	BATHINA KEERTHI REDDY	TECH MAHINDRA	325000
44	192U1A0454	KATA ANILA	APT ONLINE	300000
45	192U1A0497	NANDIGAMA UMADEVI	APT ONLINE	300000
46	192U1A0403	ATMAKURU PENCHALA KALPANADEVI	APT ONLINE	300000
47	192U1A0417	BYNA VENKATESH	MCORETA	300000
48	192U1A0422	CHOPPA PALLAVI	MCORETA	300000
49	192U1A0460	KOLAPALLI VYSHNAVI SAI	MCORETA	300000
50	192U1A0410	BELLAMKONDA PRAVALLIKA	SBCS INDIA LTD	300000
51	192U1A0413	BOGALA SNEHA	SBCS INDIA LTD	300000
52	192U1A0423	CHOWDAMJOLLU SAI SIDDARTHA	SBCS INDIA LTD	300000
53	192U1A04B1	PAMUJULA PRATHYUSHA	SBCS INDIA LTD	300000
54	192U1A04B9	PATTAPALLI SANDHYA	SBCS INDIA LTD	300000
55	192U1A04G2	SYED AYESHA	SBCS INDIA LTD	300000
56	192U1A04G8	SYED SUMAYA	SBCS INDIA LTD	300000