

BITS & BYTES e-Newsletter

2023-24-EVEN



ALVA'S
Education Foundation®

Volume 7, Issue 2



Principal Message



I would like to congratulate e-News Letter Editorial Team for bringing out 7th Edition of the **"Bits & Bytes"**. I am happy announce that, Institution got Autonomous Status from the Visveswaraya Technological University (VTU) from the A.Y 2024-25. I hope many more activities and events need to be recoded in near future by e-News Letter.

Inside The Issues

IEEE Student Branch Activities
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ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY, MOODBIDRI

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

(Accredited by NBA New Delhi 2019-2025 & NAAC with A+)

Department

Vision

"Engendering competent, excellent professionals by transforming the knowledge and computing skills to individuals through modern innovative tools and techniques"

Editorial Team

Editor in Chief: Dr.Manjunath Kotari

Issue Editor: Mr.H Harshavardhan

Members: Dr.Aslam Nandyal

: Mrs.Deepika Kamath

: Mr.Venkatesh

Students Members:

Mr.Prakhyat Shetty

Mr.Toshif Husaien Patil

Mr.Neerav Patel

DEPARTMENT MISSION

- To produce skilled, creative software developers through rigorous training.
- To conduct specific technical courses to keep abreast to the latest technological developments and transformations in the domain.
- To establish Industry-Institute Interaction programs to enhance the skills of employability and entrepreneurship.
- To implement the ideas of research and innovations in interdisciplinary domains

IEEE Student Branch Chapter

Date: 11 th and 12 th July

Resource Person : Dr. Roshan Fernandes ,Cyber Security expert, NMAM Institute of Technology, Nitte.

The workshop aimed to equip participants with a solid foundation in data structures essential for solving complex computational problems efficiently. The workshop covered fundamental data structures and explored advanced topics and practical applications, ensuring participants gained comprehensive knowledge applicable to both academic pursuits and professional endeavors.



Day 1:

Introduction to Data Structures Commenced with an engaging introduction by Dr. Roshan Fernandes, setting the stage by elucidating the theoretical underpinnings of data structures such as arrays, linked lists, stacks, and queues through a series of interactive lectures and hands-on exercises.

The practical sessions included writing code, execute algorithms, and analyze their performance.



Day 2:

Advanced Topics and Applications Coverage on complex topics such as graphs, hash tables, and trees, illustrating their role in solving sophisticated computational problems encountered in diverse domains including cybersecurity, artificial intelligence, and database management systems.



The sessions were designed to challenge participants with intricate algorithms and data manipulation techniques, practical examples and case studies.

About 57 students(including 31 IEEE members) were attended the training of Data Structures & Applications trained by Dr. Roshan Fernandes.



Cyber Security Finishing School (CSFS)

“A Rural Computer Education Camp ”

Date: 19th February to 22nd March,2024.

Alva's Institute of Engineering and Technology, Moodbidri and CySecK(Cyber Security Karnataka), Govt. of Karnataka, in association with Trishaka Foundations, Chennai organized a “Cyber Security Finishing School (CSFS)”- a pilot program on CSFS training for B.E Final year students of all the Engineering students of Karnataka.



Mr. Praveen Castelino, Co-Founder & CTO, CodeCraft Technologies, Mangalore was the Chief Guest of the program.



In the presidential address Mr.Vivek Alva said that “Most of the Social Media accounts are fake and keep posting wrong informations. People use to pass these informations to the others and finally wrong thing will become the truth of the life.



Cyber Security Club Coordinator of AIET, Moodbidri Mrs.Deepika Kamath welcome the gathering. Mrs Deeksha M & Mrs. Vidya introduced the guests to the audience. Ms. Bhagshree proposed the vote of thanks.



Dr. Manjunath Kotari, Professor & Head-CSE, Alva's Institute of Engineering& Technology, “Gave the statistics of the Cyber Attacks in the India & World.





Cyber Security Finishing School (CSFS) Features:

1. Foundations of Cyber Security
2. Cloud Security
3. Cyber Threat Intelligence
4. Malware Analysis
5. Secure System Operations



Program Director of Trishakha Foundation Mr.Mohan Ram, Principal AIET, Dr.PeterFernandes, Cyber Security Engineers Mr Vineeth Shetty and Mr.Kaushik,CySecK ,Banaglore also present.



Out of 50 participants, the students from following colleges got selected for the CSFS training.

- Acharya Institute of Technology, Bangalore -7 students
- Sharanabasva University, Kalburgi-4 students
- Govt. Sri Krishnarajendra Silver Jubilee Technological Institute, Bangalore(Govt SKSJTI)-3 students
- IIIT Raichur-2 students
- Appa Institute of Engineering and Technology, Gulbarga -2 students
- Reva University, Bangalore-1 student
- M S Ramaiah Institute of Technology, Bangalore -1 student
- Amrita School of Engineering, Bangalore -1 student
- Bangalore Institute of Technology, Bangalore -1 student
- Dayananda Sagar College of Engineering, , Bangalore -1 student
- Jain Institute of Technology, Davangere-1 student
- SambhramInstitute of Technology, Bangalore-1 student
- Alva's Institute of Engineering & Technology, Moodbidri -25 students

“INTRODUCTORY SESSION ON CAPTURE THE FLAG(CTF)”

Resource Person:-

Mr.Baskaran–Lead Trainer-Lead Security Analyst ,Hyperfocus (Pinaca Group).
Mr.Kannandasana-Security Analyst Hyperfocus(Pinaca Group).

Date: 12 th March 2024.

The session was delivered with valuable informations to the students on capture the Flag(CTF) also other topics like Attack –Defence, Kali Linux,BlackArch, Arch Linux



Prof. Deepika Kamath, Coordinator of Cyber Security club, was present. More than 20 students from 5th semester attended the workshop and benefited from it.



“HANDS ON SESSION FOR IOT STUDENTS”

Date: 2nd JULY 2024

Club Coordinator: Mrs. Deepika Kamath

This workshop aimed at exploring various cyber security tools and techniques using Kali Linux, a widely used distribution for penetration testing and security auditing

Understanding basic Linux commands is crucial for navigating the operating system and performing tasks efficiently.

Network Scanning with Nmap (Zenmap)

Methodology

Nmap, a powerful network scanning tool, and Zenmap, its graphical interface, are used to conduct network reconnaissance.



Findings

The results of network scans provide insights into the network's topology, the services exposed to the internet, and potential security vulnerabilities. Identifying outdated services or open ports can help prioritize security patches and configurations to reduce attack surfaces.

Conclusion

Network scanning is a foundational step in cybersecurity assessments, aiding in identifying potential entry points for attackers and guiding defensive strategies such as firewall configurations and network segmentation.



Phishing Simulations

Tools Used

Google's G Suite, LUCY, and GoPhish are commonly used tools for creating and executing phishing simulations.

Methodology

Phishing simulations involve designing email templates that mimic legitimate communications, configuring landing pages to capture credentials.

Outcome

Analysis of phishing simulation provides insights into organizational susceptibility to social engineering attacks.

Packet Analysis using Wireshark Installation

Wireshark, a popular packet analysis tool, is installed on Kali Linux to capture and analyze network traffic.

Methodology

Capturing packets involves monitoring network traffic in real-time or analyzing saved packet captures.

Protocols such as TCP and UDP are dissected to examine packet headers, payloads, and interactions between network nodes.

Ransomware Tabletop Exercise

Scenario Designing a tabletop exercise involves creating a hypothetical ransomware attack scenario initiated by an insider threat. Participants simulate their roles and responses to the ransomware incident, focusing on containment, eradication, and recovery strategies.

Methodology

The tabletop exercise unfolds through scenario-based discussions, decision-making processes, and coordination among stakeholders.

Outcome

Lessons learned from the tabletop exercise inform improvements in incident response capabilities, including updating backup strategies, enhancing endpoint security controls, and refining communication protocols during ransomware incidents.

SQL Injection with BurpSuite

Methodology

BurpSuite, an integrated platform for web application security testing, is used to simulate SQL injection attacks against vulnerable web applications. Techniques such as SQL payload injection, error-based SQL injection, and blind SQL injection are employed to exploit database vulnerabilities.



Packet Analysis with Wireshark and Tcpcat

Installation and Setup Wireshark and Tcpcat are installed and configured on Kali Linux to capture and analyze UDP/TCP datagrams exchanged in client-server communications.

Methodology

Capturing and analyzing UDP/TCP datagrams involve inspecting packet headers, payloads, and sequence numbers to understand data flows, identify communication patterns, and detect anomalies indicative of potential security threats.



In conclusion, the practical exercises conducted using Kali Linux and various cybersecurity tools demonstrate the importance of hands-on training in developing technical skills and enhancing cybersecurity awareness. .

“Cyber Awareness and Internet Safety”

Date: 4th JULY 2024

The session aimed to educate participants on the importance of cyber awareness, the potential threats in the digital world, and practical steps to ensure internet safety.



Objectives

The primary objectives of the session were:

1. To raise awareness about common cyber threats and vulnerabilities.
2. To educate participants on best practices for online safety.

3. To provide practical tips for securing personal and professional data.
4. To promote responsible digital behaviour.

Key Topics Covered

1. Introduction to Cybersecurity
2. Understanding Cyber Threats
3. Best Practices for Internet Safety
4. Protecting Personal Information
5. Responding to Cyber Incidents



Interactive Activities

To ensure active participation and better understanding, the session included several interactive activities:

Quiz on Cybersecurity Basics: A quick quiz to test participants' knowledge and reinforce key concepts.

Phishing Simulation: A demonstration on identifying phishing emails and avoiding scams. .

Feedback and Evaluation

The session received positive feedback from participants. Many expressed that they found the information valuable and applicable to their daily online activities.



“Industrial Visit”

Date: 16th JULY 2024

Introduction

The Cybersecurity club from Alva's Institute of Engineering and Technology visited the Manipal Institute of Technology's Centre of Excellence in Cybersecurity.

We explored advanced cybersecurity infrastructures and observed practical applications across various industries.

The highlight of the tour was a detailed model demonstrating the integration of cybersecurity in smart cities and industrial systems, emphasizing the importance of safeguarding data and infrastructure in the digital era



Objectives

The primary objectives of the session were:

1. **Enhance Knowledge:** Gain a deeper understanding of the latest cybersecurity technologies and methodologies.
2. **Practical Exposure:** Observe and learn about practical applications of cybersecurity in various industries.
3. **Industry Insight:** Acquire insights into current .



Centre of Excellence in Cybersecurity

This center was established through a Memorandum of Agreement (MoA) between MAHE, Manipal, and the Information Sharing and Analysis Center (ISAC). ISAC, a public-private partner of several government bodies in India, aims to advance cybersecurity capacity building and train 100,000 professionals for the National Security Database (NSD) program and the Clean Exit, Ethics at Workplace initiative.

Key Highlights

- Live Cyber Attack Demonstrations.
- Cybersecurity Infrastructure .
- world applications of cybersecurity measures.
- Hands-on Experience.



Manipal Universal Technology Business Incubator

The club toured the Manipal Universal Technology Business Incubator (MUTBI). Established in March 2010 with support from the National Science & Technology Entrepreneurship Development Board (NSTEDB) and the Department of Science & Technology (DST), Government of India,

MUTBI supports students, faculty, alumni, and the local community in starting their own ventures.

Key Highlights:

- Startup Ecosystem.
- CEO's Address:
 1. Innovation.
 2. Strategic Planning.
 3. Resource Utilization.



Key Topics Covered

1. Introduction to Cybersecurity
2. Understanding Cyber Threats
3. Best Practices for Internet Safety
4. Protecting Personal Information
5. Responding to Cyber Incidents



The session with the CEO of MUTBI was particularly impactful, providing actionable advice on starting and sustaining a successful startup.

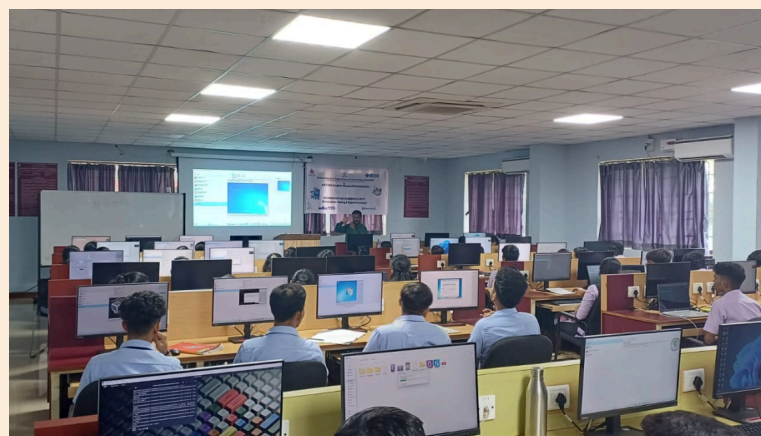


The emphasis on innovation, strategic planning, and resource utilization resonated well with participants, inspiring many to consider entrepreneurial ventures.

Cyber Security Ethical hacking

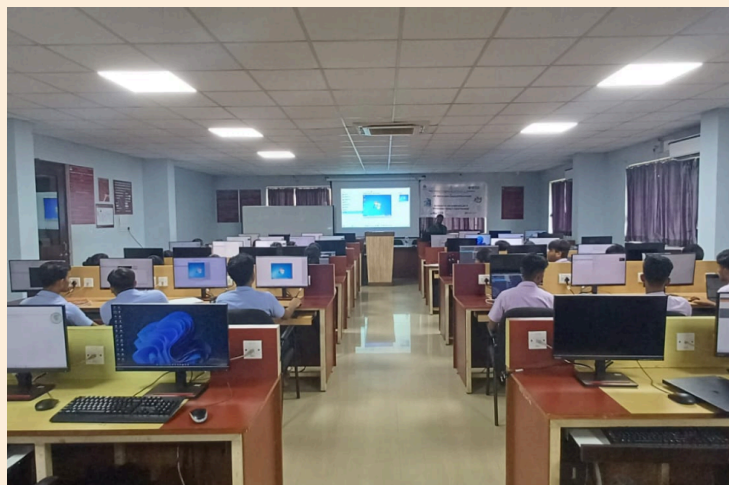
Date: 27 th JULY 2024

Resource Person: Ravi B, Professor NMAMIT, Nitte



Cybersecurity ethical hacking topics.

1. installation and setting up virtual machine
2. demonstration of basic stages of an attack
3. password cracking
4. demonstration of windows7 attack data stealing(keylogging and password stealing)



5. Phishing attack demonstration
6. post exploitation on windows
7. demonstration of steganography in cyber security
8. Sql injection attacks
9. Website pen testing : Cross site Request Forgery ,HTML injection and brute force attack demo
10. Man in the middle attacks demo

“6 Day Faculty Development Program on Cyber Security”

Date: 15th to 20th April 2024

Organized by: Cyber Tech Associate

Resource person: Anveeksh Rao,
MD Cyber Tech Associate



Department of Computer Science and Engineering in association with Cyber Tech Associates organized a one week faculty development program for the faculties of CSE department.





Apple iOS LAB

“FUNDAMENTALS OF iOS PROGRAMMING”

Date: 29th APRIL 2024 to 25th JULY 2024

Training Program Coordinator: Mr. Venkatesh

For IV SEM CSE Students

Mr. Venkatesh, Senior Associate Professor in the Department of CSE AIET, was the Trainer of this training Program. As per the direction of Dr. Manjunath Kotari, HOD CSE, all the students of fourth semester CSE class were the participants of this program.



Syllabus Covered

The trainer Mr. Venkatesh started with Simple Program execution using Swift C Language. He covered various basic features of Swift C Programming Language like Strings, Arithmetic Operators, Logical Operators, Control Statements, Looping constructs, Arrays, Structures, Classes, Swift Optionals etc... He took around three weeks session for swift C

After Swift C, he started the iOS Programming. He begins with introducing the Components of the iOS Programming environment and its usage. He started with designing a simple iOS App called “LightOnOff”. He continued his training by guiding the students to implement the similar App called “ColourToggle”. He guided the students to implement these apps in many ways, by using UIButtons, by using UISwitches etc...



List of Programs

The trainer covered the all the fundamentals of iOS App Development during his training period. Few fundamental iOS Apps were developed by the students. He also engaged the students in building three Apple guided projects.

The students are actively participated in the training program. The trainer guiding the students how to clear the different types of bugs. The bugs created by outlets and actions, the bugs created by swift files, etc....



The campus resident students show keen interest in working during late evening from 5 PM to 8 PM.

If any students wish to finish pending works of program implementation, they finish it by late evening in the Apple iOS Lab till 8 PM.

Apple Guided Projects

1. Standard Simple Calculator App:

The trainer guided the students how to develop the basic calculator prototype containing various components. This project covers the iOS Auto Layout features and Stack view concepts. After designing the calculator prototype using Auto Layout and stack view features, he guided how to develop the program for it. All the students successfully build their simple calculator in iOS

2. Apple Tree Game:

This is an image view application and random number based project. This is a simple word-guessing game. Each player has a limited number of turns to guess the letters in a word. Each incorrect guess results in an apple falling off the tree.

3. Personality Quiz:

Players are presented with a lighthearted topic and answer questions that align them to a particular outcome. Here are some examples of personality quiz topics: What animal are you? What country should you visit next? Which Apple product are you? There are no correct answers to quiz questions.

For example, suppose you design a quiz called “What country should you visit next?” You could pose the question “What is your favorite color?” and decide that the answer “green” aligns to Italy and not to France. Other questions and answers might make more sense. If the player prefers sushi over pasta, you could award points for Japan instead of for Italy.



This guided project will use “Which animal are you?” as the quiz topic. The four possible outcomes are: dog, cat, rabbit, and turtle. But if you prefer to choose your own topic and outcomes, go ahead. As long as you’re following the steps in the project, any topic is fine. You will learn more if you are having a good time.

Finally, the trainer strongly suggested the students to continue the self-study of advanced topics in the iOS Programming and try to develop the real time applications in iOS Environment and try to upload it to iOS App Store



Workshop on BlockChain Technology

Interactive Session

Resource Person: Dr. Shasidhar R, an expert in Security and Blockchain from Samsung Research Institute, Bangalore.

Date: 20th and 21st May 2024.

Target Audience : IEEE Student Members and 4th Semester B.E. Students of CSE Streams.

Event Outcomes: Students are able to understand Blockchain technology tools and use cases.

The Department of Computer Science & Engineering organized a hands-on workshop on Blockchain Technology in the Data Structure Lab.



Mr. Pramod, a student from the 4th semester, welcomed the gathering and introduced the expert to the audience.

Dr. Manjunath Kotari, Professor and Head of the Department of Computer Science and Engineering, and Dr. Chandra Naik, Associate Professor and coordinator of the event, were present.

Workshop highlights:

1. Blockchain and Crypto Fundamentals

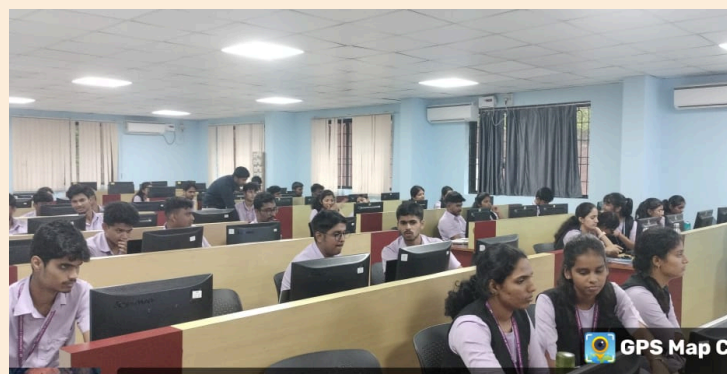


2. Smart contracts and Solidity Programming

3. Blockchain use cases and research directions

Day-1:

Introduction to Blockchain and Crypto Fundamentals. Discussion on various components of Blockchain such as transactions, decentralized peers, encryption processes, consensus mechanisms, crypto wallets, transactions, and smart contracts.



Day-2:

Discussion on running a private blockchain network, focusing on the Geth node and setting up a personal blockchain network.

Developing decentralized applications and discussed a few mini-projects using the Ethereum Blockchain.

The event coordinator Dr. Chandra Naik gave a vote of thanks and presented a memento to the expert on behalf of AIET.

ALGORIS CLUB

“Insights on Swift C and X Code”

Resource Persons:

Mr. Amith Gulati, Director at Codevarsity New Delhi, Apple Certified Trainer

Dr. Shashidhara H S, Professor, MS Ramaiah Institute of Technology, Bangalore. Apple Certified Trainer

Date: 2nd February 2024.

Morning Session

Mr. Amith Gulati initiated the training by guiding participants through the creation of Apple IDs and registration into Slack for classroom discussions. He highlighted on basics of functions and introduced iOS programming using Swift C by creating small gadgets in the view. He explored the layers of Xcode and demonstrated the creation of simple applications in iOS. He also covered basic concepts of structures in Playground. and elaborated on structures, classes, and basics of collections.



Afternoon Session:

Dr. Shashidhara H S conducted a hands-on session focusing on executing simple programs on Swift C in the Xcode Playground platform. Topics covered included displaying messages, creating constants and variables, different data types, arithmetic operations, type inferences, and type annotations. concepts of control flow and strings, strings, functions, and structures in Swift C.

Dr. Shashidhara H S guided participants in implementing a light app in the iOS platform, focusing on structures, classes, and various controls like switches and sliders. He covered detailed portions on various collections, and instructed participants to implement small apps using switches, sliders, and multiple view controllers in the iOS platform.



The training program provided faculty members with comprehensive knowledge and practical experience in Apple iOS development, equipping them to impart relevant skills to students effectively.

“Company Specific Training”

Interactive Session

Resource Person: Mr. Pavan, Mr. Greeshis S P, Mr. Japesh kumar reddy, Associate Trainer, Qspider, Bangalore

Date: 21st May 2024 to 31st May 2024

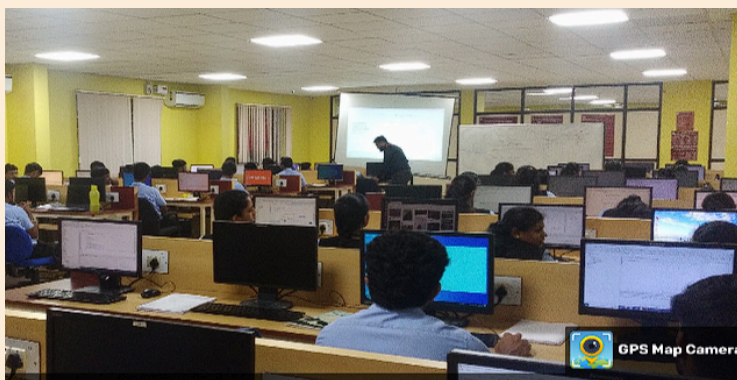
Training Program Coordinator: Dr. Bramha Prakash H. P.

Organized by : DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

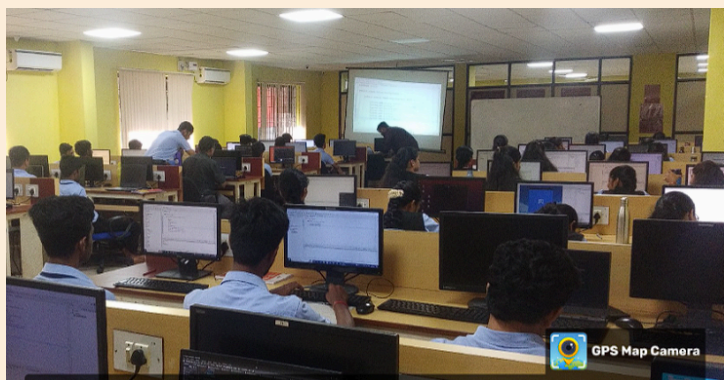
In Association with : DEPARTMENT OF TRAINING & PLACEMENT

“Ten day Training Program”

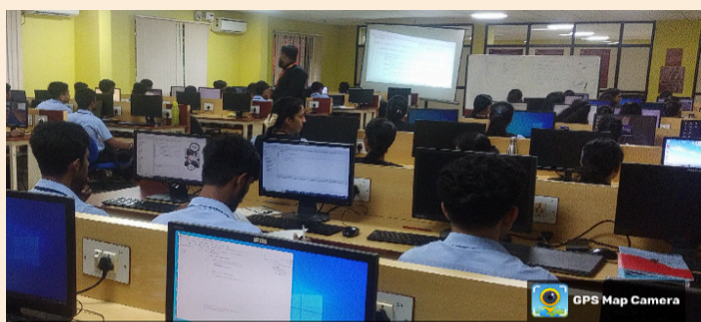
TRAINING PROGRAM



Day 1:The trainer Mr. Pavan started with problem solving using java. In the afternoon session, the students learned some of the important MS-Word and short keys, networking, operating system .

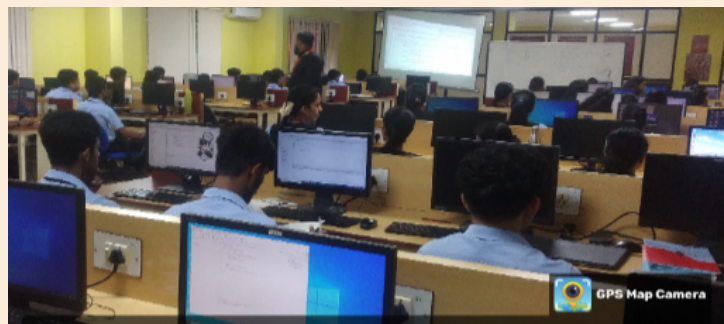


Day 2: The trainer Mr. Greeshis started with objective based code problem solving using array and strings .



In the afternoon session, the students Executed code and shown the results.

Day 3:
The trainer Mr. Japesh Kumar Reddy started with objective based code problem solving using operator in java.

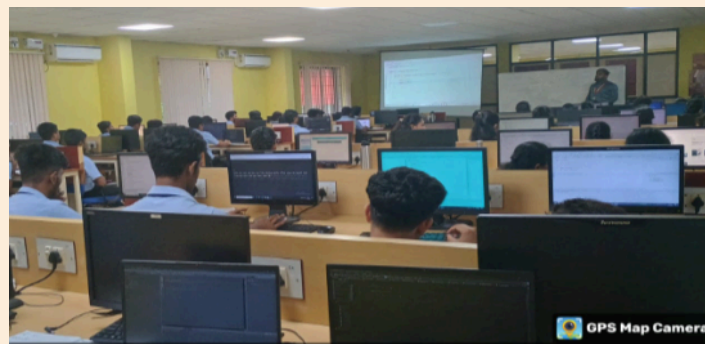


Day 4:
The trainer Mr.Pavan started with objective based code problem solving using looping. In the afternoon session, the students Executed code and analysed the results.

Day 5:
The trainer Mr. Greeshis started with objective based code problem solving using class .



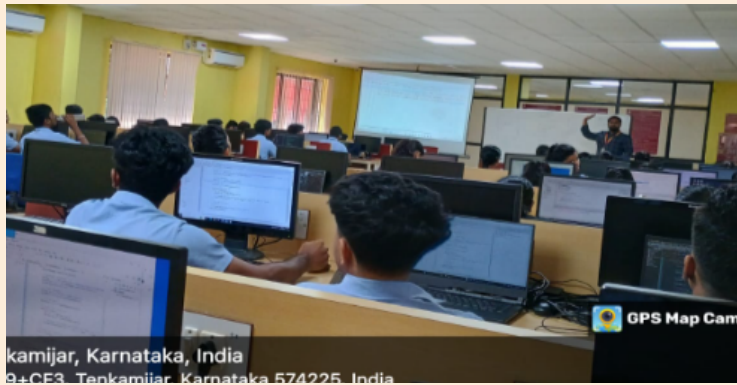
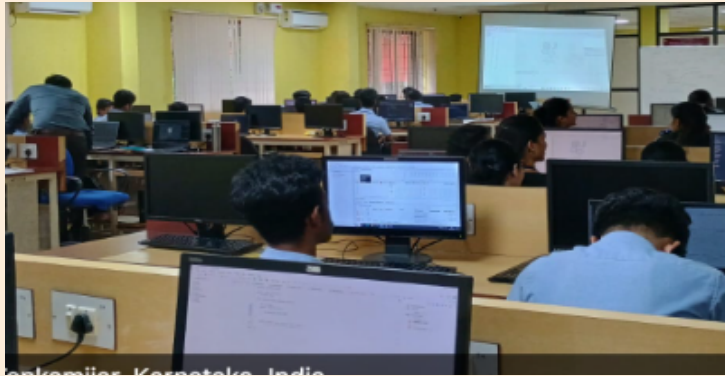
Day 6:
The trainer Mr. Japesh Kumar Reddy started with objective based code problem solving using exception handling . In the afternoon session, the students Executed code and shown the results.



Day 7:
The trainer Mr. Pavan started with objective based code problem solving using decision making and looping.

Day 8:

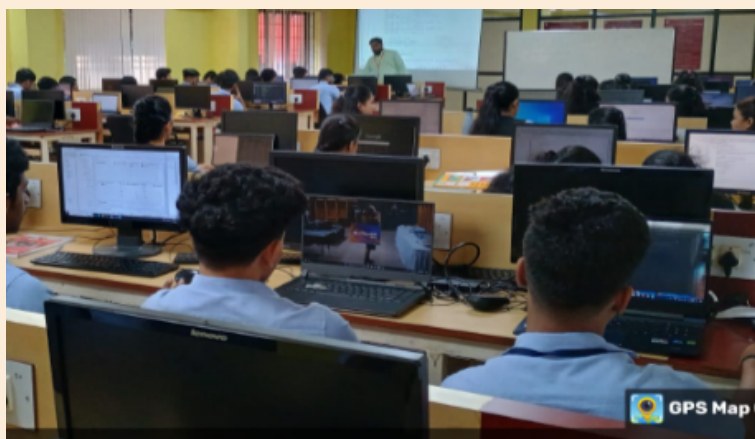
The trainer Mr. Greeshis started with objective based code problem solving using inheritance.



Day 9:

On the ninth day of morning session, the trainer Mr. Japesh Kumar Reddy started with objective based code problem solving using database concept .

After the development phase, the testing phase took place where the various levels of testing techniques are carried out and the creation and execution of test cases are analyzed.



Day 10:

On this day the trainer Mr. Pavan discussed object based code problem solving using hospital management project . The afternoon session was followed with executing the codes to achieve the required results.



ANDROID CLUB

“Android Mobile App Development Workshop”

Date: 25 th May, 2024

Coordinator: Mr. Rizwan N Shaikh

Trainer: Mr. Mahammed Jameer Ghori and Mr. Mohammed Uzair Pasha



More than 20 students from different branches of 1 st and 2 nd year AIET took part in workshop.

The session included the following discussion topics.

1. Key features of Android.
2. History and Evolution of Android
3. Major Releases and Milestones
4. Current Trends
5. Setting Up The Development Environment



Afternoon session included hands on activity where students learnt about setting up an Android Virtual Device (AVD) for Testing and android app development taking a sample project.



The workshop was very interactive where the trainers helped all the students to notable understanding of the app development.

Kaliyona Computer

“A Rural Computer Education Camp ”

Date: 20 and 21 February 2024.



Alvas Institute of Engineering and Technology, in Association with Grama Vikasa Samithi , Siddapura, organised a two day programme for the benefits of the students studying in rural schools.





Students of second year and third year Computer Science and Engineering shared their knowledge with the children of the rural school.

Teaching staff from CSE of AIET also shared their knowledge with the children's of the school.



About 250 students from the school participated in the event and engaged themselves in the learning activity.



About 30 students from Alva's Institute of Engineering participated in the Computer Fundamental Features to the School Students and School students provided very good feedback about the program..



PLACED STUDENT LIST (Jan-June)



Shreya R

Kavya

Akshata Jagadeesh H

Lavanya

Hamsa N

Ranjana R Shetty



Monika L R

Shashank Shyam

VEENA G T

Ikshu B A

Likhith C G

Mohammed Shoaib



Gaurika G N

Karthikeyan J

Ananya Preethi



Sahana G S

ABHIRAM H A

Fathimutul Ramzeena

PLACED STUDENT LIST

Shreya P J



Ramyashree



Ankith D



Athmashree H A



Anu K



Ajila Adarsh Suresh



Farheen Sadia



Gagandeep M D



B Poonam



Ruchitha M R



Shobith S Shetty



Mohith S Shetty



Keerthi R

Mohith Shetty

Afran S Karim

Shivaprasad H S

Divya B Netalkar

Adithi

Manoj Sanikam M

Nanda C Banger

Pratheek P Shetty

Spandana

INSTITUTE VISION

“Transformative education by pursuing excellence in engineering and management through enhancing skills to meet the evolving needs of the community”

INSTITUTE MISSION

- To bestow quality technical education to imbibe knowledge, creativity and ethos to students community.
- To inculcate the best engineering practices through transformative education.
- To develop a knowledgeable individual for a dynamic industrial scenario
- To inculcate research, entrepreneurial skills and human values in order to cater the needs of the society.

PROGRAM SPECIFIC OUTCOMES

A graduate of the Computer Science and Engineering Program will exhibit:

- **PSO1: Professional Skills:** The ability to understand & implement the computer programs in the areas of Computer Architecture, System Software, Database Management Systems, Web Design, Multimedia and Computer Networking.
- **PSO2: Problem-Solving Skills:** The ability to solve real-world problems by suitable mathematical model with strong technological concepts in rapidly growing arena of computer technology.
- **PSO3: Successful Career and Entrepreneurship:** Knowledge in diverse areas of Software Engineering and Management & Entrepreneurship for IT Industry, conducive in cultivating skills for successful career development.

PROGRAM EDUCATION OUTCOMES

- **PEO1:**To provide students with fundamental strength in core disciplines of computer engineering to solve the problems of computing world
- **PEO2:**To ensure that graduates conquer the difficulties of emerging adaptive technological changes.
- **PEO3:**To prepare students for successful career in the industry of international standard.