Gujarat Technological University
Graduate School of Engineering and Technology
Short Term Training Program
On
"Cyber Security Trends in IoT and Data Science"
Under
Information Security Education and Awareness

23rd May-27th May 2022

The IoT offers new ways for businesses to create value, however, the constant connectivity and data sharing also create new opportunities for information to be

compromised. Exploring some of the more notable developments in the battle to combat cyber risks. A 5-day short-term training program on "**Cyber Security Trends in IoT and Data Science**" under Information Security Education and Awareness (ISEA) has recently been conducted by the Graduate School of Engineering and Technology (GSET) managed by Gujarat Technological University (GTU). The STTP was coordinated by Prof. Margam Suthar and Prof. Deepak Upadhyay. In this STTP more than 60 students and faculties from different states of the country had joined the 5-day training program from 23rd May to 27th May 2022 from 10 AM to 5:45 PM in three sessions.

The program's inauguration ceremony was held on 23rd May at 10 AM in the presence of Chief guests on occasion were Dr.Jignesh Patoliya, Sr. Engineer in eInfochips Ltd and GTU GSET Director Prof. Dr. S. D. Panchal was present.

Chief Guest Dr.Jignesh Patoliya demonstrated the IoT technological device and model benefits for society and industry perspective. In particular, there was an elaborative discussion on End to end IoT Architecture.

The first-day sessions were conducted by Dr.Jignesh Patoliya. In the first session, he briefly demonstrated the end-to-end architecture of IoT, the chain of IoT applications, and the difference between IoT and embedded devices and he take a lab session on the experiments on sensors and actuators. In second and third sessions were laboratory practical based. There he implemented practically on Embedded IoT Devices: NodeMCU,

ESP32, and Raspberry Pi, Implementation of NoT and IoT, and Demonstration of MQTT protocol.


On 24th May Dr. Vishal J. Rathod, Senior Project Scientist, CDAC, Bengaluru was took the first session in online mode on Contiki - an operating system for IoT that specifically targets small IoT devices with limited memory, power, bandwidth, and processing power and Contiki supports standard protocols and recent enabling protocols for IoT. Furthermore, he discussed, its use in a minimalist design while still packing the common tools of modern operating systems. The second last two sessions were conducted by Dr.Jignesh Patoliya. He discussed IoT and device security in various layers. He highlighted the most challenging security issues and their mitigation and the difference between IoT and traditional security.
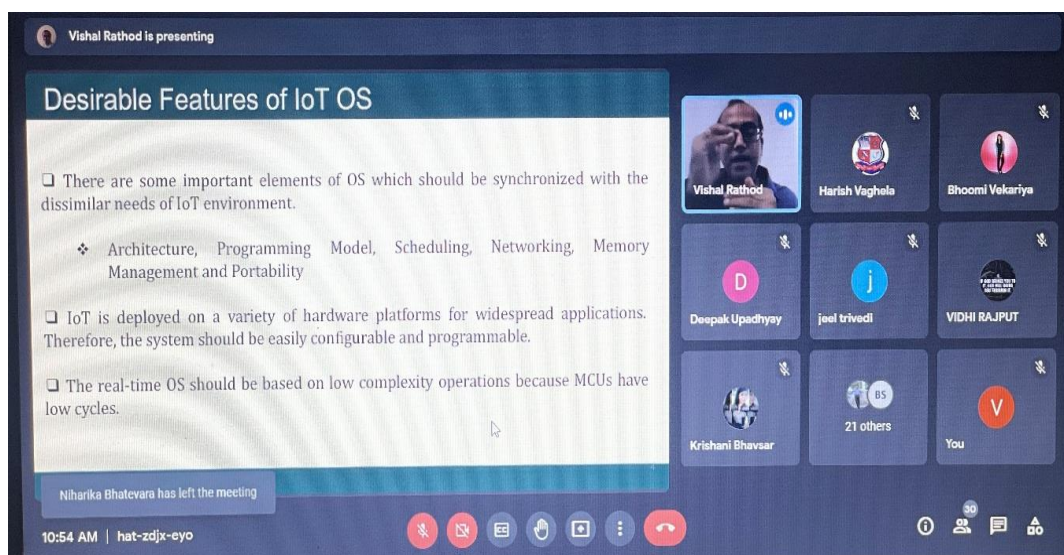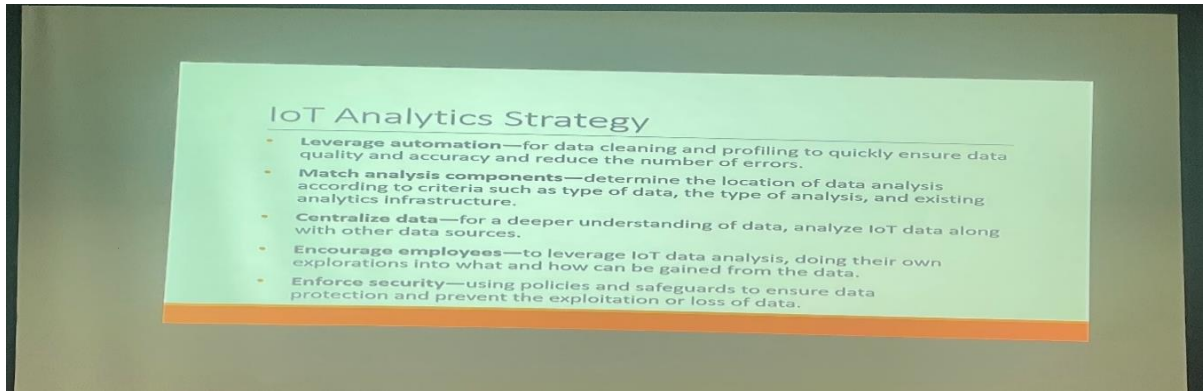
On 25th May, Mr. Smit Patel, Cyber Security Analyst-Pristine Infosolutions was take the session on Cyber Security's latest challenges with a case study and popular Ethical Hacking Modules and tools such as Invicti, Acunetix, SolarWinds Security Event Manager, Traceroute NG, Nessus, Burp Suite, Ettercap, Aircrack, and its use. In the last two sessions, he did experimental Hands-on with various tools for cyber security.
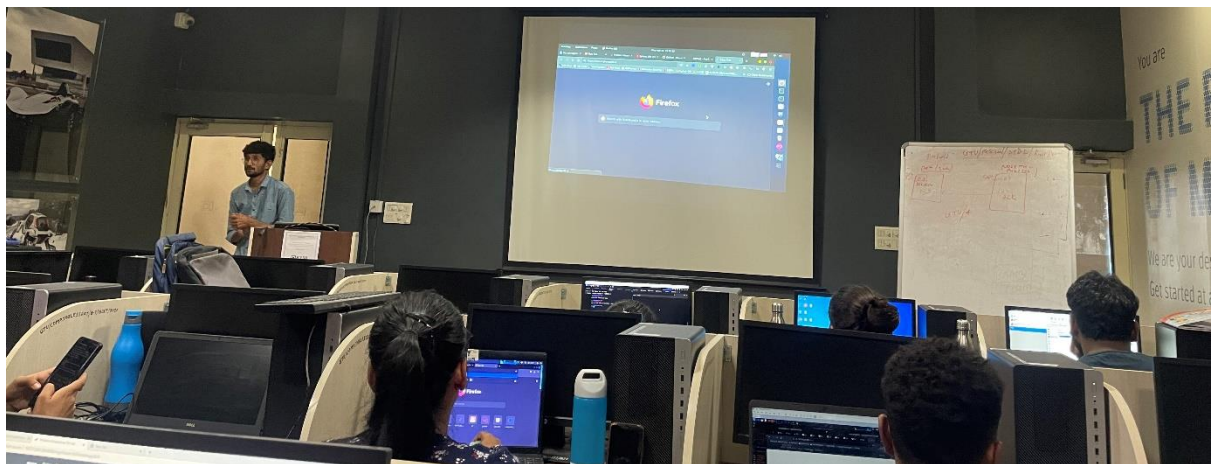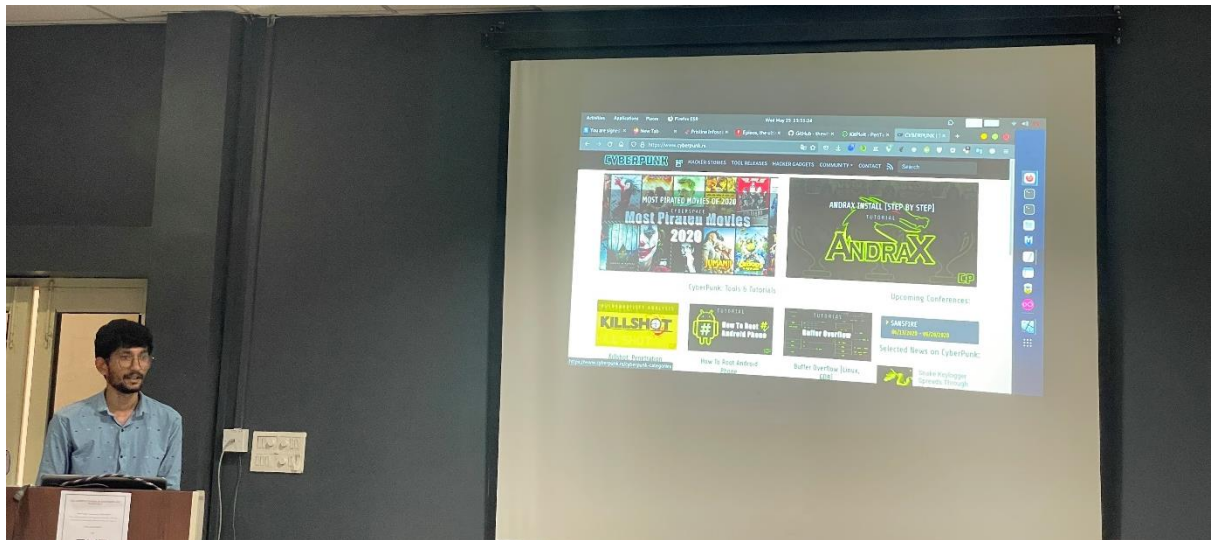
On the 4th day of the event 26/04/2022 students learned about the MQ Telemetry Transport from the expert Dr. Ashishkumar Parejiya, Data Scientist & Sr. Manager- IT PWPL – Piramal Group of Industries. Where he taught SQL and MongoDB No SQL Database, IOT alert send on telegram application, Telegram chatbot and extract IoT, and many more. After the discussion, he shows a demo of MQ Telemetry Transport. Afterward, he gave some tasks to the students, created a telegram bot using 'bot father on telegram', and sent a message on telegram using that bot with the help of MQTT library python. And IoT and Data science is a highly correlated branches, which cannot survive without each other. Most of the data is generated by IoT sensors & Devices (More than 50% of data in the world).

On the 5th day Mr. Aman Barot, Senior Consultant "Hands-on Burp Suite" take a morning session where he taught about the Vulnerability Assessment and Penetration Testing (VAPT). Which are two types of vulnerability testing. The tests have different strengths and are often combined to achieve a more complete vulnerability analysis. He told us that for that testing we can do it on MySQL, SQL

server, No SQL: Mongo DB servers. He also mentions which types of things we need to take care MOSI security problems with IoT devices, incorrect address content, outdated software, And application vulnerabilities, while we are doing this testing. He let us know that we need to use JSON and XML for communication between different languages.


In the afternoon session on 27/04/2022, we had a valedictory program, were Prof. (Dr.) S. D. Panchal, Director GTU-GSET remains Present. Where he interacts with the participants and discusses their true feedback. He also thank participants to attend this program and also told them that cyber security is the most necessary thing in the future.

At last, certificate distribution was done to the participants, and Prof. Margam suthar gave thank you speech to the participants and higher authorities.
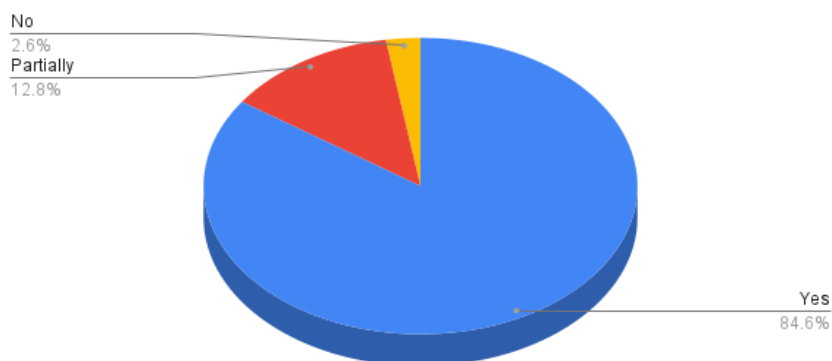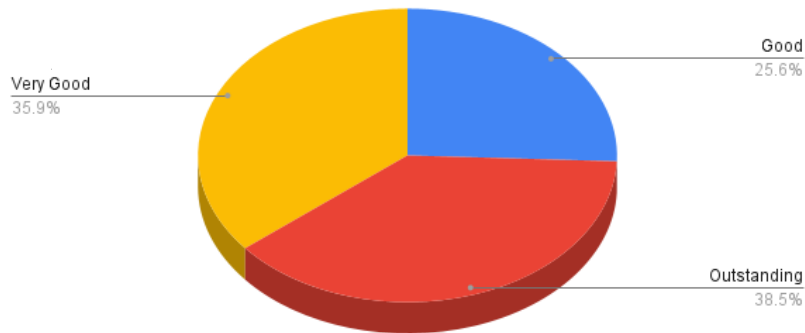

Feedback of the Participants

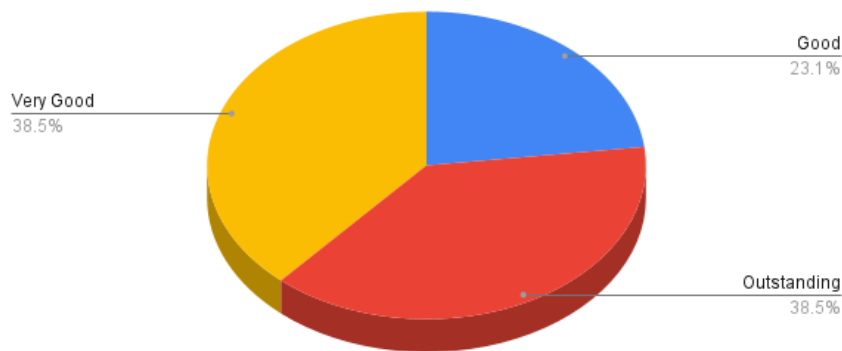Q-1. Count of Content covered throughout the STTP

Good 15.4%

Very Good 41.0%

Outstanding 43.6%
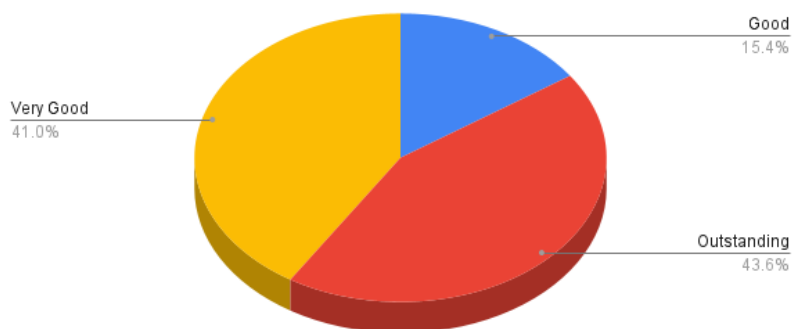
Q-2. Count of Is your expectation met from this STTP as desired?

No 2.6%

Partially 12.8%

Yes 84.6%

Q-3. Count of Overall Feedback for the STTP

Good
25.6%

Very Good
35.9%

Outstanding
38.5%

Q-4. Count of Overall quality of content delivered

Good
23.1%

Very Good
38.5%

Outstanding
38.5%

Q-5. Count of Query addressed by the resource person

Satisfactory
2.6%

Good
12.8%

Very Good
48.7%

Outstanding
35.9%
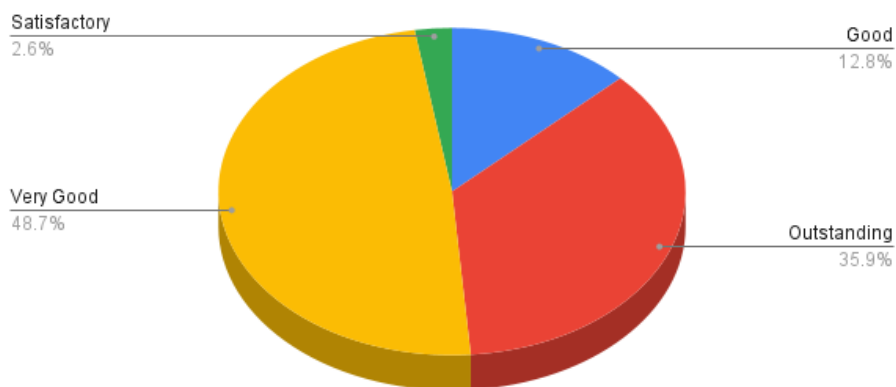
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Report Creator   Coordinator   Director, GTU-GSET