

(An Autonomous Institution - AFFILIATED TO ANNA UNIVERSITY, CHENNAI)

S.P.G.Chidambara Nadar - C.Nagammal Campus

S.P.G.C. Nagar, K.Vellakulam - 625 701 (Near VIRUDHUNAGAR).

DEPARTMENT OF MECHANICAL ENGINEERING

Value Added Course

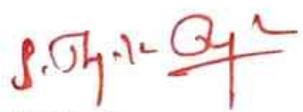
on

Internet of Things

Academic Year : 2025-2026 (EVEN Semester)
Date / Days : 19.01.2026 to 24.01.2026 (6 Days)
Duration : 48 Hours
Organized by : NTTF, Electronics City Campus, Bengalore.


Coordinator

(Dr. Madhan N R, AP/Mech)



HoD/Mech

(Dr. S. Thanga Kasi Rajan, ASP/Mech)


10/2/2026

Value Added Course In-charge

(Dr. S. Athilakshmi, AP/Cse)

Verified.


10/2/2026

Dean Academics

(Dr. R. Suresh Babu, Prof/ECE)



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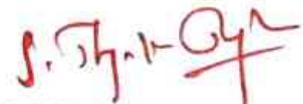
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DEPARTMENT OF MECHANICAL ENGINEERING

Content	Details
Academic Year	2025-2026 (EVEN Semester)
Date	19.01.2026 to 24.01.2026 (6 Days)
Name of the Value-added course	Internet of Things
Duration	48 Hours
No of Credit	2 Credit
Category	Theory (15 Hours) and Lab (33 hours)
Organized by	NTTF, Electronics City Campus, Bengalore.
External Coordinator	Er. G Jayakumar, Manager – Training
Three Member Committee Members	1. Dr. S. Thanga Kasi Rajan, ASP& HoD/Mech 2. Dr. R.Sakthivel Murugan, AP/Mech 3. Dr. N. R. Madhan, AP/Mech
Internal Coordinators	1. Dr. N. R. Madhan, AP/Mech


Coordinator

(Dr. Madhan N R, AP/Mech)


HoD/Mech
(Dr. S. Thanga Kasi Rajan, ASP/Mech)


Dean Academics
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APPROVAL BOOK

Book No. MECH. Date: 22.11.2025

SL. No. 65

VALUE ADDED COURSES on CNC milling & IOT.

Name of the Courses : CNC milling & turning
 Interned on Thing. [IoT]

No. of students : 16 students for CNC
 9 students for IOT

Conducted by : NIIT, Bangalore.

Training charges : Rs 2,000/candidate [100% Advance payment & 10% deduction - not applicable]

Quotation : enclosed.

Approved my please be sanctioned for above mentioned amount & permitted to attend this programme.

Signature of Staff

S. Thy. Oyl
HoD

[Signature]
PRINCIPAL

OFFICE USE

- 1) Account Head
- 2) Budget allotted
- 3) Amount committed / Spent sofar
- 4) Balance available

Value Added Course

[Signature]
O.M.
Dr. N.R. MADHAN

S. Thy. Oyl
Dr. S. Thanvanthi
Secretary



(An Autonomous Institution - AFFILIATED TO ANNA UNIVERSITY, CHENNAI)

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S.P.G.C. Nagar, K.Vellakulam – 625 701 (Near VIRUDHUNAGAR).

Department of Mechanical Engineering

Circular

Dear Students,

This is to inform you that the **Department of Mechanical Engineering** is organizing a **Value Added Course** as per the curriculum requirements. All eligible students are instructed to attend the programme without fail.

Course Details

- **Name of the Course:** CNC Tooling and Design & Internet of Things
- **Duration:** 19.01.2026 to 24.01.2026 (6 Days)
- **Participants:** III Year Mechanical Engineering (2024–2028 Batch)
- **Academic Year:** 2025–2026 (Even Semester)
- **Conducted by:** NTTF (Nettur Technical Training Foundation), Bangalore
- **Venue:** Electronics City Campus, Bangalore

At the **end of the course**, both **Internal Assessment and External Assessment** will be conducted as part of the course evaluation. Students are required to participate in the assessments and complete all the course requirements successfully.

Students are advised to maintain **discipline, punctuality, and regular attendance** throughout the programme.

VAC In-charge (Mech)

(Dr. Madhan N R, AP/Mech)



HoD/Mech

(Dr. S. Thanga Kasi Rajan, ASP/Mech)

Department of Mechanical Engineering

Name of the course: Internet of Things (IoT)

Participants: III year (2024 – 2028 Batch)

Conducted by: NTTF, Bengalore.

Date: 19.01.2026 to 24.01.2026 (6 Days)

Academic Year: 2025 – 2026 EVEN

Venue: Electronics City Campus

SYLLABUS - Internet of Things

Course Objective

To introduce IoT fundamentals, architecture, sensors, communication technologies, and real-time applications with industry relevance.

Day 1 – Introduction to IoT

- Concept and evolution of IoT
- IoT ecosystem and applications
- IoT architecture (layers)

Day 2 – Sensors and Actuators

- Types of sensors (temperature, motion, light, gas)
- Actuators and their role
- Interfacing basics

Day 3 – IoT Hardware Platforms

- Microcontrollers for IoT (Arduino, ESP8266/ESP32)
- Role of IoT gateways
- Power requirements and constraints

Day 4 – Communication Technologies

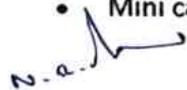
- IoT communication protocols: MQTT, HTTP
- Wireless technologies: Wi-Fi, Bluetooth, Zigbee
- LPWAN overview

Day 5 – Cloud and Data Handling

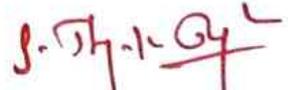
- Cloud computing in IoT
- Data storage and visualization
- Introduction to IoT platforms (ThingSpeak, etc.)

Day 6 – Applications & Security

- IoT applications: smart home, agriculture, healthcare
- Security challenges in IoT
- Mini case studies and demonstrations


Coordinator

(Dr. Madhan N R, AP/Mech)


HoD/Mech

(Dr. S. Thanga Kasi Rajan, ASP/Mech)

Department of Mechanical Engineering

Name of the course: Internet of Things (IoT)

Participants: III year (2024 – 2028 Batch)

Conducted by: NTTF, Bengalore.

Date: 19.01.2026 to 24.01.2026 (6 Days)

Academic Year: 2025 – 2026 EVEN

Venue: Electronics City Campus

Course Outcome**Course Outcomes**

- CO1: Explain IoT concepts and architecture.
- CO2: Identify and interface sensors and actuators.
- CO3: Apply IoT communication and cloud platforms.
- CO4: Analyze real-world IoT applications.
- CO5: Recognize security and privacy challenges in IoT.

PO Relevance

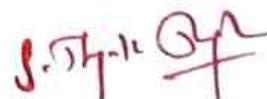
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	3	2	2	-	-	-	-	-	-	-	-	2	2
CO2	2	3	2	-	-	-	-	-	-	-	-	3	2
CO3	2	3	3	-	-	-	-	-	-	-	-	2	3
CO4	3	2	3	-	-	-	-	-	-	-	-	2	3
CO5	2	3	2	-	-	-	-	-	-	-	-	2	3

SDG Mapping

Course Outcome	Mapped SDG	Relevance
CO1	SDG 4	Promotes digital and technical education
CO2	SDG 8	Encourages innovation in smart systems
CO3	SDG 11	Supports smart and sustainable communities
CO4	SDG 2 & 3	Improves agriculture and healthcare
CO5	SDG 16	Promotes secure and ethical technology use


Coordinator

(Dr. Madhan N R, AP/Mech)


HoD/Mech

(Dr. S. Thanga Kasi Rajan, ASP/Mech)

Name of the course: Internet of Things (IoT)

Participants: III year (2024 – 2028 Batch)

Conducted by: NTTF, Bangalore.

Date: 19.01.2026 to 24.01.2026 (6 Days)

Academic Year: 2025 – 2026 EVEN

Venue: Electronics City Campus

Approval of the Board of Study Meeting**Ninth BoS Meeting Minutes**

Date : 07.12.2024

Time : 11.00 am to 01.30 pm

Page No : 14 & 15

Venue : Mechanical CAD Lab

009.04.03 : Value Added Courses offered if any

Specify the Value added courses conducted in the department.

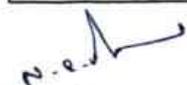
Dr.S.Thangakasirajan HOD/Mech informed to BoS members that the following value added courses are offered for Mechanical Engineering students and the ratification needed

14

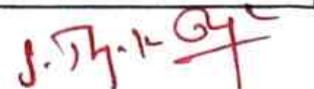
to include the credits earned by students from value added courses as over and above credits.

Sl.No.	Name of the Course	Year	Offered by	Date	No of Students
1	CATIA	III/Mech	INVENTATEC, Chennai	31.07.2023 to 05.08.2023	42
2	CAD using UG - NX	II/Mech	CIPET, Madurai	13.02.2024 to 19.02.2024	31

Proposed List of Value Added Course for upcoming Semester: CAD Tool, CAE Tool, CNC Coding, IoT, GD&T, HVAC, and Piping Engineering.


Coordinator

(Dr. Madhan N R, AP/Mech)


HoD/Mech

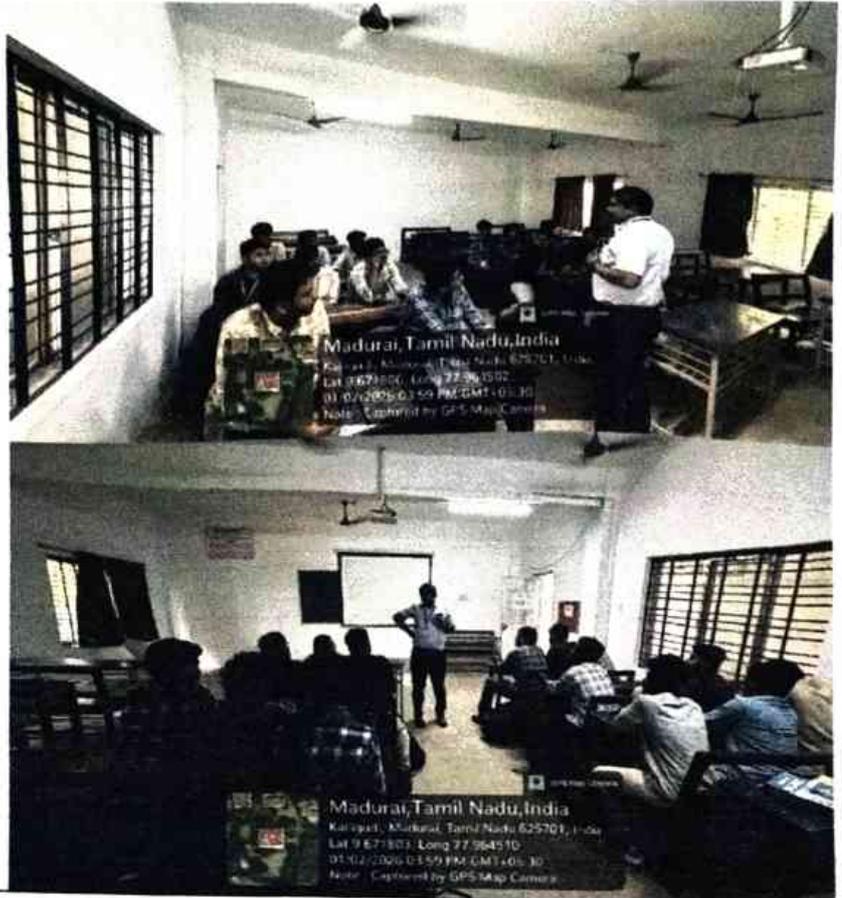
(Dr. S. Thanga Kasi Rajan, ASP/Mech)

DEPARTMENT OF MECHANICAL ENGINEERING

Three-member committee meeting for value added course selection

Agenda		Value Added Course Selection Meeting
Date	:	02.01.2026
Time	:	03.30 PM
Venue	:	E14 Hall, Academic Block 'E", Third Floor
Members Present	:	<p>Three Member Committee Members</p> <ol style="list-style-type: none"> 1. Dr. S. Thanga Kasi Rajan, ASP& HoD/Mech 2. Dr. R. Sakthivel Murugan, AP/Mech 3. Dr. N. R. Madhan, AP/Mech <p>Chairperson</p> <ol style="list-style-type: none"> 1. Dr. N.R. Madhan, AP/Mech <p>Co-ordinators</p> <ol style="list-style-type: none"> 1. Dr. N.R. Madhan, AP/Mech <p>Class representative (2024 – 2028 Batch)</p> <ol style="list-style-type: none"> 1. Mr. Muthu Krishnan V (24UME007), II Year/ Student 2. Mr. Sridharan A (24UME019), II Year/ Student 3. Mr. Harini V S (24UME022), II Year/ Student 4. Mr. Sudharson S (24UME026), II Year/ Student
Minutes of the Meeting	:	<p>It is optional to complete a Value-Added Course for Regulation 2021. In this regard a three-member committee has been formed and a meeting is organized to select the course for registration.</p> <ul style="list-style-type: none"> • Meeting started by 03.30 PM. Dr. S. Thanga Kasi Rajan, Associate Professor & Head of the Department, welcome the gathering. He has advised to maintain SOP for value added course. • Er. N. R. Madhan, Assistant Professor & Value-added course incharge has proposed course offered by <ul style="list-style-type: none"> ○ NTTF, Electronics City, Bengaluru • Based on the suggestion and feedback given by the 2022-2026 Batch students, 3 committee members for Value added course and student representative, “CNC Tooling & Design and Internet of Things” courses are agreed to take in this IV semester for 2024-2028 Batch students. Courses were selected by the students based on their interested. <p>Justification for the Courses selection: The justification for the course selection were as follows</p> <ol style="list-style-type: none"> i. These courses will be useful for their project work ii. It is a 48-hour courses (3 Credits) iii. These courses are useful to meet the Industrial Needs iv. These courses are in emerging areas.

Proof



Three Member Committee Members

Dr. S. Thanga Kasi Rajan, ASP & HoD/Mech
Dr. R. Sakthivel Murugan, AP/Mech
Dr. N.R. Madhan, AP/Mech

Chairperson

Dr. N.R. Madhan, AP/Mech

HoD/Mech

(Dr. S. Thanga Kasi Rajan, ASP & HoD/Mech)

Dean Academics

(Dr. R. Suresh Babu, Prof/ECE)

Name of the course: Internet of Things (IoT)

Participants: III year (2024 – 2028 Batch)

Conducted by: NTTF, Bangalore.

Date: 19.01.2026 to 24.01.2026 (6 Days)

Academic Year: 2025 – 2026 EVEN

Venue: Electronics City Campus

Photo Proof

Day 1



Inauguration Function

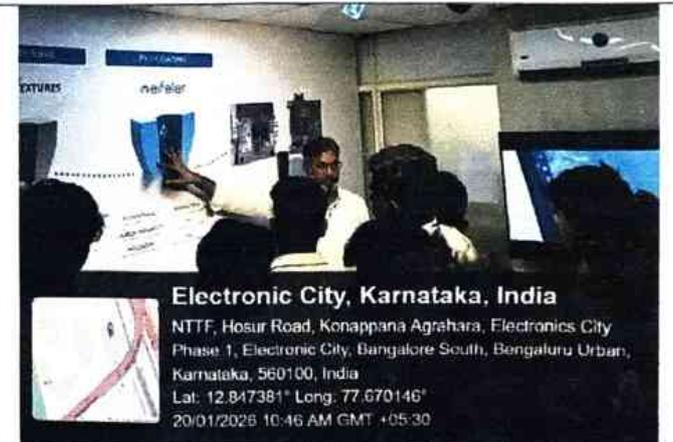


Theory Session

Day 2



Group Activate with IoT Students



Industrial Collaborated Lab - Demo

Day 3



Demo Session



MoU With NTTF

Day 4



Project Preparation

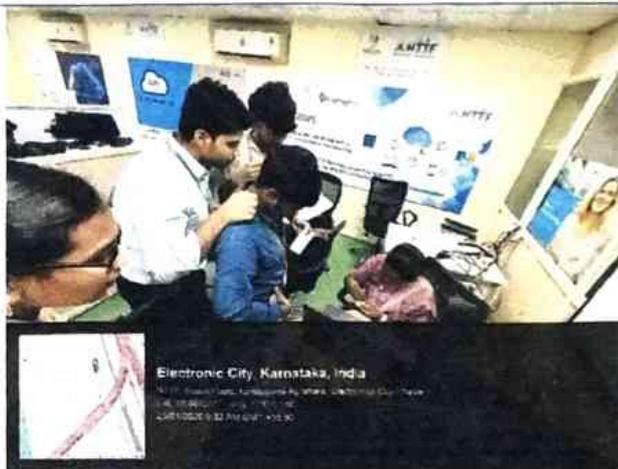


Project Demo

Day 5



Valedictory Function



Electronic City, Karnataka, India

Day 6



External Assessment – Viva Voce



Internal Assessment – MS Forms

Coordinator

(Dr. Madhan N R, AP/Mech)

HoD/Mech

(Dr. S. Thanga Kasi Rajan, ASP/Mech)



Circular | Internal Assessment | 24.01.2026

From Madhan.N.R <madhanmech@kamarajengg.edu.in>

Date Thu 1/22/2026 8:45 PM

To 24UME <24ume@kamarajengg.edu.in>

Cc Sakthivel Murugan.R <sakthivelmuruganmech@kamarajengg.edu.in>; HODMECH <hodmech@kamarajengg.edu.in>

Dear Students,

As part of the **Value-Added Course curriculum**, an **Internal Assessment** is scheduled on **24.01.2026** from **8.30 AM to 09.30 AM**.

All students are **instructed to attend the assessment without fail**. Attendance is mandatory.

Internal Assessment Details for both CNC tooling and design & IoT

Mode of Assessment	Tool	No of Questions	Total Marks
Online	MS Forms (Quiz)	25	100

Overall Mark Calculation

External Assessment (A)	Internal Assessment (B)	Total (A+B)
60 Marks	40 Marks	100 Marks

Students are advised to be **well prepared** and adhere to the assessment schedule strictly.

This is for your information and necessary action.

With Regards,

Madhan N R,

Assistant Professor,

Mechanical Department,

KAMARAJ

College of Engg and Tech,

Virudhunagar.

N.R.
Dr. N. R. MADHAN

S. S. ITHANAR KASI RAJAN

Internal Assessment | Internet of Things (IoT) – MCQs | 24.01.2026

Answer all the questions

* Required

* This form will record your name, please fill your name

Which device is used to sense temperature in IoT applications? * * (1 Point)

- Actuator
- Microcontroller
- Temperature sensor
- Gateway

Cloud computing in IoT is mainly used for * * (1 Point)

- Device manufacturing
- Data storage and processing
- Sensor fabrication
- Power supply

IoT devices mainly use which type of IP addressing? * * (1 Point)

- IPv2
- IPv4 only
- IPv6
- MAC addressing

Which operating system is commonly used in IoT devices? * * (1 Point)

- Linux
- Android
- Windows
- MacOS

What is the main security concern in IoT? * * (1 Point)

- Device color
- Data privacy
- Device weight
- Screen size

What does RFID stand for? * (1 Point)

- Radio Frequency Identification
- Remote File Identification
- Rapid Frequency Interface Device
- Radio File Interface Device

Which network is best suited for low-power IoT devices? * (1 Point)

- LAN
- WAN
- LPWAN
- MAN

Which of the following is a key component of IoT? * (1 Point)

- Sensors
- Actuators
- Connectivity
- All of the above

Which factor is critical for IoT device design? * (1 Point)

- High cost
- Low power consumption
- Large size
- Heavy weight

What is the role of an actuator in IoT? * (1 Point)

- Data sensing
- Data processing
- Perform physical action
- Store data

Which of the following is an IoT application? * (1 Point)

- Smart home
- Smart agriculture
- Smart healthcare
- All of the above

What is the main function of an IoT gateway? * (1 Point)

- Store data permanently
- Provide power to sensors
- Connect IoT devices to cloud
- Display output

Which sensor is used to detect light intensity? • • (1 Point)

- PIR sensor
- LDR
- Ultrasonic sensor
- Gas sensor

Internet of Things (IoT) refers to • • (1 Point)

-
-
-
-

What does M2M stand for in IoT? • • (1 Point)

- Machine to Machine
- Man to Machine
- Mobile to Mobile
- Module to Machine

Which protocol is commonly used in IoT for lightweight communication? • • (1 Point)

- HTTP
- FTP
- MQTT
- SMTP

Which IoT protocol works on publish–subscribe model? • • (1 Point)

- HTTP
- MQTT
- FTP
- TCP

Which communication protocol is used for web-based IoT applications? • • (1 Point)

-
-
-
-

Which sensor is used to detect motion? • • (1 Point)

- PIR sensor
- LDR
- Gas sensor
- Temperature sensor

Which domain widely uses IoT for real-time monitoring? * * (1 Point)

- Entertainment
- Agriculture
- Banking
- Publishing

Which microcontroller is widely used in IoT projects? * * (1 Point)

- 8086
- ESP8266
- Pentium
- Core i7

Which communication technology is suitable for short-range IoT applications? * * (1 Point)

- Wi-Fi
- Bluetooth
- Zigbee
- All of the above

Which IoT platform is used for data visualization? * * (1 Point)

- ThingSpeak
- MS Word
- Notepad
- Paint

Which layer of IoT architecture collects data from sensors? * * (1 Point)

- Application layer
- Network layer
- Perception layer
- Business layer

Which of the following is a wired communication protocol? * * (1 Point)

- Zigbee
- Bluetooth
- Ethernet
- Wi-Fi

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*Dr. N. E. ...
Dr. N. E. MAHAW
Kindly Appear these questions
for Internal Assessment.*

*S. S. ...
Dr. S. TANWA KALI RAJAN*

Review: Internal Assessment | Internet of Things (IoT) – MCQs | 24.01.2026

Respondent
MUTHU KRISHNAN V

07:24
Time to complete

24/25
Points

✓ Correct 1/1 Points

Internet of Things (IoT) refers to - *

1 / 1 pt
Auto-graded

Network of computers only

Interconnection of physical devices through the internet ✓

Internet used only for emails

Wireless communication only

✓ Correct 1/1 Points

Which of the following is a key component of IoT? - *

1 / 1 pt
Auto-graded

Sensor

Actuators

Connectivity

All of the above ✓

✓ Correct 1/1 Points

Which protocol is commonly used in IoT for lightweight communication? - *

1 / 1 pt
Auto-graded

HTTP

FTP

MQTT ✓

SMTP

✓ Correct 1/1 Points

Which device is used to sense temperature in IoT applications? - *

1 / 1 pt
Auto-graded

Actuator

Microcontroller

Temperature sensor ✓

Gateway

✓ Correct 1/1 Points

Which layer of IoT architecture collects data from sensors? - *

1 / 1 pt
Auto-graded

Application layer

Network layer

Perception layer ✓

Business layer

✓ Correct 1/1 Points

Which microcontroller is widely used in IoT projects? - *

1 / 1 pt
Auto-graded

6086

ESP8266 ✓

Pentium

Core i7

✓ Correct 1/1 Points 1 / 1 pt
Auto-graded
What is the main function of an IoT gateway? *

- Store data permanently
- Provide power to sensors
- Connect IoT devices to cloud ✓
- Display output

✓ Correct 1/1 Points 1 / 1 pt
Auto-graded
Which communication technology is suitable for short-range IoT applications? *

- Wi-Fi
- Bluetooth
- Zigbee
- All of the above ✓

✓ Correct 1/1 Points 1 / 1 pt
Auto-graded
Cloud computing in IoT is mainly used for *

- Device manufacturing
- Data storage and processing ✓
- Sensor fabrication
- Power supply

✓ Correct 1/1 Points 1 / 1 pt
Auto-graded
Which of the following is an IoT application? *

- Smart home
- Smart agriculture
- Smart healthcare
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✗ Incorrect 0/1 Points 0 / 1 pt
Auto-graded
What does RFID stand for? *

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- Remote File Identification
- Rapid Frequency Interface Device
- Radio File Interface Device

✓ Correct 1/1 Points 1 / 1 pt
Auto-graded
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- PIR sensor ✓
- LDR
- Gas sensor
- Temperature sensor

✓ Correct 1/1 Points 1 / 1 pt
Auto-graded
Which IoT protocol works on publish-subscribe model? *

- HTTP
- MQTT ✓
- FTP
- TCP

- ✓ Correct 1/1 Points 1 / 1 pt
Auto-graded

What is the role of an actuator in IoT? *

 - Data sensing
 - Data processing
 - Perform physical action ✓
 - Store data

- ✓ Correct 1/1 Points 1 / 1 pt
Auto-graded

Which network is best suited for low-power IoT devices? *

 - LAN
 - WAN
 - LPWAN ✓
 - MAN

- ✓ Correct 1/1 Points 1 / 1 pt
Auto-graded

Which of the following is a wired communication protocol? *

 - Zigbee
 - Bluetooth
 - Ethernet ✓
 - Wi-Fi

- ✓ Correct 1/1 Points 1 / 1 pt
Auto-graded

IoT devices mainly use which type of IP addressing? *

 - IPv2
 - IPv4 only
 - IPv6 ✓
 - MAC addressing

- ✓ Correct 1/1 Points 1 / 1 pt
Auto-graded

Which factor is critical for IoT device design? *

 - High cost
 - Low power consumption ✓
 - Large size
 - Heavy weight

- ✓ Correct 1/1 Points 1 / 1 pt
Auto-graded

Which operating system is commonly used in IoT devices? *

 - Windows 11
 - Linux ✓
 - Android
 - macOS

- ✓ Correct 1/1 Points 1 / 1 pt
Auto-graded

What is the main security concern in IoT? *

 - Device color
 - Data privacy ✓
 - Device weight
 - Screen size

✓ Correct 1/1 Points

1 / 1 pt
Auto-graded

Which sensor is used to detect light intensity? *

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- LDR ✓
- Ultrasonic sensor
- Gas sensor

✓ Correct 1/1 Points

1 / 1 pt
Auto-graded

What does M2M stand for in IoT? *

- Machine to Machine ✓
- Man to Machine
- Mobile to Mobile
- Mobile to Machine

✓ Correct 1/1 Points

1 / 1 pt
Auto-graded

Which IoT platform is used for data visualization? *

- ThingSpeak ✓
- MS Word
- Notepad
- Paint

✓ Correct 1/1 Points

1 / 1 pt
Auto-graded

Which communication protocol is used for web-based IoT applications? *

- HTTP ✓
- MQTT
- Zigbee
- I2C

✓ Correct 1/1 Points

1 / 1 pt
Auto-graded

Which domain widely uses IoT for real-time monitoring? *

- Entertainment
- Agriculture ✓
- Banking
- Publishing

N.R.
Dr. N.R. MAOHAN

S. S. Hanu
Dr. S. HANU KASU RAJAN

Review: Internal Assessment | Internet of Things (IoT) – MCQs | 24.01.2026

Respondent

4 UDHAYASANKARAN P

12:55
Time to complete

18/25
Points

✘ Incorrect 0/1 Points

Internet of Things (IoT) refers to - *

0 / 1 pt
Auto-graded

- Network of computers only
- Interconnection of physical devices through the internet ✓
- Interconnection of emails
- Wireless communication only

✔ Correct 1/1 Points

Which of the following is a key component of IoT? *

1 / 1 pt
Auto-graded

- Sensor
- Actuator
- Connectivity
- All of the above ✓

✘ Incorrect 0/1 Points

Which protocol is commonly used in IoT for lightweight communication? *

0 / 1 pt
Auto-graded

- HTTP
- FTP
- MQTT ✓
- SMTP

✔ Correct 1/1 Points

Which device is used to sense temperature in IoT applications? *

1 / 1 pt
Auto-graded

- Actuator
- Microcontroller
- Temperature sensor ✓
- Gateway

✘ Incorrect 0/1 Points

Which layer of IoT architecture collects data from sensors? *

0 / 1 pt
Auto-graded

- Application layer
- Network layer ✓
- Perception layer
- Business layer

✔ Correct 1/1 Points

Which microcontroller is widely used in IoT projects? *

1 / 1 pt
Auto-graded

- 8086
- ESP8266 ✓
- Pentium
- Core i7

✓ Correct 1/1 Points

1 / 1 pt
Auto-graded

What is the main function of an IoT gateway? *

- Store data permanently
- Provide power to sensors
- Connect IoT devices to cloud ✓
- Display output

✓ Correct 1/1 Points

1 / 1 pt
Auto-graded

Which communication technology is suitable for short-range IoT applications? *

- Wi-Fi
- Bluetooth
- Zigbee
- All of the above ✓

X Incorrect 0/1 Points

1 / 1 pt
Auto-graded

Cloud computing in IoT is mainly used for: *

- Device manufacturing
- Data storage and processing ✓
- Sensor fabrication
- Power supply

✓ Correct 1/1 Points

1 / 1 pt
Auto-graded

Which of the following is an IoT application? *

- Smart home
- Smart agriculture
- Smart healthcare
- All of the above ✓

X Incorrect 0/1 Points

1 / 1 pt
Auto-graded

What does RFID stand for? *

- Radio Frequency Identification ✓
- Remote File Identification
- Rapid Frequency Interface Device
- Radio File Interface Device

✓ Correct 1/1 Points

1 / 1 pt
Auto-graded

Which sensor is used to detect motion? *

- PIR sensor ✓
- LDR
- Gas sensor
- Temperature sensor

✓ Correct 1/1 Points

1 / 1 pt
Auto-graded

Which IoT protocol works on publish-subscribe model? *

- HTTP
- MQTT ✓
- FTP
- TCP

X Incorrect 0/1 Points 0 / 1 pt
Auto-graded

What is the role of an actuator in IoT? *

- Data sensing
- Data processing
- Perform physical action ✓
- Store data

✓ Correct 1/1 Points 1 / 1 pt
Auto-graded

Which network is best suited for low-power IoT devices? *

- LAN
- WAN
- LPWAN ✓
- MAN

✓ Correct 1/1 Points 1 / 1 pt
Auto-graded

Which of the following is a wired communication protocol? *

- Zigbee
- Bluetooth
- Ethernet ✓
- Wi-Fi

✓ Correct 1/1 Points 1 / 1 pt
Auto-graded

IoT devices mainly use which type of IP addressing? *

- IPv2
- IPv4 only
- IPv6 ✓
- MAC addressing

✓ Correct 1/1 Points 1 / 1 pt
Auto-graded

Which factor is critical for IoT device design? *

- High cost
- Low power consumption ✓
- Large size
- Heavy weight

✓ Correct 1/1 Points 1 / 1 pt
Auto-graded

Which operating system is commonly used in IoT devices? *

- Windows 11
- Linux ✓
- Android only
- macOS

✓ Correct 1/1 Points 1 / 1 pt
Auto-graded

What is the main security concern in IoT? *

- Device color
- Data privacy ✓
- Device weight
- Screen size

✓ Correct 1/1 Points

1 / 1 pt
Auto-graded

Which sensor is used to detect light intensity? *

- PIR sensor
- LDR ✓
- Ultrasonic sensor
- Gas sensor

✓ Correct 1/1 Points

1 / 1 pt
Auto-graded

What does M2M stand for in IoT? *

- Machine to Machine ✓
- Man to Machine
- Mobile to Mobile
- Mobile to Machine

✓ Correct 1/1 Points

1 / 1 pt
Auto-graded

Which IoT platform is used for data visualization? *

- ThingSpeak ✓
- MS Word
- Inkscape
- Paint

✓ Correct 1/1 Points

1 / 1 pt
Auto-graded

Which communication protocol is used for web-based IoT applications? *

- HTTP ✓
- MQTT
- Zigbee
- PLC

✗ Incorrect 0/1 Points

0 / 1 pt
Auto-graded

Which domain widely uses IoT for real-time monitoring? *

- Entertainment
- Agriculture ✓
- Banking
- Publishing

n.e.k
Dr. N. R. MAHARAJ

S. S. H. K. Gyl
Dr. S. THARAN KAI RAJAN

Review: Internal Assessment | Internet of Things (IoT) – MCQs | 24.01.2026

Respondent
SUGUMAR G

12:44
Time to complete

12/25
Points

✓ Correct 1/1 Points

Internet of Things (IoT) refers to - *

1 / 1 pt
Auto-graded

- Network of computers only
- Interconnection of physical devices through the internet ✓
- Internet used only for emails
- Wireless communication only

✗ Incorrect 0/1 Points

Which of the following is a key component of IoT? - *

0 / 1 pt
Auto-graded

- Sensors
- Actuators
- Connectivity ✓
- All of the above ✓

✗ Incorrect 0/1 Points

Which protocol is commonly used in IoT for lightweight communication? - *

0 / 1 pt
Auto-graded

- HTTP
- FTP
- MQTT ✓
- SMTP

✓ Correct 1/1 Points

Which device is used to sense temperature in IoT applications? - *

1 / 1 pt
Auto-graded

- Actuator
- Microcontroller
- Temperature sensor ✓
- Gateway

✗ Incorrect 0/1 Points

Which layer of IoT architecture collects data from sensors? - *

0 / 1 pt
Auto-graded

- Application layer
- Network layer ✓
- Perception layer ✓
- Business layer

✓ Correct 1/1 Points

Which microcontroller is widely used in IoT projects? - *

1 / 1 pt
Auto-graded

- 8051
- ESP8266 ✓
- Pentium
- Core i3

✓ Correct: 1/1 Points

1 / 1 pt
Auto-graded

What is the main function of an IoT gateway? *

- Store data permanently
- Provide power to sensors
- Connect IoT devices to cloud ✓
- Display output

✓ Correct: 1/1 Points

1 / 1 pt
Auto-graded

Which communication technology is suitable for short-range IoT applications? *

- Wi-Fi
- Bluetooth
- Zigbee
- All of the above ✓

✓ Correct: 1/1 Points

1 / 1 pt
Auto-graded

Cloud computing in IoT is mainly used for *

- Device manufacturing
- Data storage and processing ✓
- Sensor fabrication
- Power supply

✓ Correct: 1/1 Points

1 / 1 pt
Auto-graded

Which of the following is an IoT application? *

- Smart home
- Smart agriculture
- Smart healthcare
- All of the above ✓

✗ Incorrect: 0/1 Points

0 / 1 pt
Auto-graded

What does RFID stand for? *

- Radio Frequency Identification ✓
- Remote File Identification
- Rapid Frequency Interface Device
- Radio File Interface Device

✓ Correct: 1/1 Points

1 / 1 pt
Auto-graded

Which sensor is used to detect motion? *

- PIR sensor ✓
- LDR
- Gas sensor
- Temperature sensor

✗ Incorrect: 0/1 Points

0 / 1 pt
Auto-graded

Which IoT protocol works on publish-subscribe model? *

- HTTP
- MQTT ✓
- FTP
- TCP

- X Incorrect** 0/1 Points 0 / 1 pt
Auto-graded
- What is the role of an actuator in IoT? *
- Data sensing
 - Data processing
 - Perform physical action ✓
 - Store data
- X Incorrect** 0/1 Points 0 / 1 pt
Auto-graded
- Which network is best suited for low-power IoT devices? *
- LAN
 - WAN
 - LPWAN ✓
 - MAN
- X Incorrect** 0/1 Points 0 / 1 pt
Auto-graded
- Which of the following is a wired communication protocol? *
- Zigbee
 - Bluetooth
 - Ethernet ✓
 - Wi-Fi
- ✓ Correct** 1/1 Points 1 / 1 pt
Auto-graded
- IoT devices mainly use which type of IP addressing? *
- IPv2
 - IPv4 only
 - IPv6 ✓
 - MAC addressing
- X Incorrect** 0/1 Points 0 / 1 pt
Auto-graded
- Which factor is critical for IoT device design? *
- High cost
 - Low power consumption ✓
 - Large size
 - Heavy weight
- X Incorrect** 0/1 Points 0 / 1 pt
Auto-graded
- Which operating system is commonly used in IoT devices? *
- Windows 11
 - Linux ✓
 - Android
 - macOS
- ✓ Correct** 1/1 Points 1 / 1 pt
Auto-graded
- What is the main security concern in IoT? *
- Device color
 - Data privacy ✓
 - Device weight
 - Screen size

X Incorrect 0/1 Points

0 / 1 pt
Auto-graded

Which sensor is used to detect light intensity? *

- PIR sensor
- LDR ✓
- Ultrasonic sensor
- Gas sensor

X Incorrect 0/1 Points

0 / 1 pt
Auto-graded

What does M2M stand for in IoT? *

- Machine to Machine ✓
- Man to Machine
- Mobile to Mobile
- Module to Machine

✓ Correct 1/1 Points

1 / 1 pt
Auto-graded

Which IoT platform is used for data visualization? *

- ThingSpeak ✓
- MS Word
- Notepad
- Paint

✓ Correct 1/1 Points

1 / 1 pt
Auto-graded

Which communication protocol is used for web-based IoT applications? *

- HTTP ✓
- MQTT
- Zigbee
- I2C

X Incorrect 0/1 Points

0 / 1 pt
Auto-graded

Which domain widely uses IoT for real-time monitoring? *

- Entertainment
- Agriculture ✓
- Banking
- Publishing

N.R.
Dr. N. R. MAHARAJAN

S. Th. K. Q. L.
Dr. S. THANNA KASIRAJAN

Responses Overview

Author

Responses

9



Average Score

17.6



Average Time

11:21



1. Internet of Things (IoT) refers to - (1 point)

67% of respondents answered this question correctly

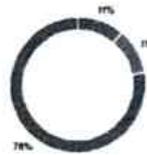
- Network/ computationally 1
- Processes using physical devices without humans 0 ✓
- Processes which are mobile 0
- Wireless communication 2



2. Which of the following is a key component of IoT? (1 point)

78% of respondents answered this question correctly

- Sensors 1
- Actuators 0
- Connectivity 1
- All of the above 7 ✓



3. Which protocol is commonly used in IoT for lightweight communication? (1 point)

22% of respondents answered this question correctly

- HTTP 5
- FTP 0
- MQTT 2 ✓
- SMTP 2



4. Which device is used to sense temperature in IoT applications? (1 point)

100% of respondents answered this question correctly

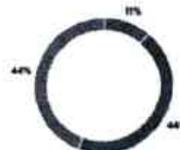
- Actuator 0
- Microcontroller 0
- Temperature sensor 9 ✓
- Gateway 0



5. Which layer of IoT architecture collects data from sensors? (1 point)

67% of respondents answered this question correctly

- Application layer 1
- Network layer 4
- Perception layer 4 ✓
- Business layer 0



6. Which microcontroller is widely used in IoT projects? - (1 point)

100% of respondents answered this question correctly.

- AVR 0
- ESP8266 5 ✓
- Proton 0
- C++ 0



7. What is the main function of an IoT gateway? - (1 point)

79% of respondents answered this question correctly.

- Store data permanently 1
- Provide power to sensors 1
- Connect IoT devices to cloud 7 ✓
- Display output 0



8. Which communication technology is suitable for short-range IoT applications? - (1 point)

88% of respondents answered this question correctly.

- Wi-Fi 0
- Bluetooth 1
- Zigbee 0
- All of the above 8 ✓



9. Cloud computing in IoT is mainly used for - (1 point)

89% of respondents answered this question correctly.

- Device manufacturing 1
- Data storage and processing 8 ✓
- Sensor fabrication 0
- Power supply 0



10. Which of the following is an IoT application? - (1 point)

100% of respondents answered this question correctly.

- Smart home 0
- Smart agriculture 0
- Smart healthcare 0
- All of the above 9 ✓



11. What does RFID stand for? - (1 point)

87% of respondents answered this question correctly.

- Radio Frequency Identification 3 ✓
- Remote ID Identification 0
- Rapid Frequency Interface Device 4
- Radio File Interface Device 0



12. Which sensor is used to detect motion? (1 point)

100% of respondents answered this question correctly.

- IR sensor 0
- LDR 0
- Gas sensor 0
- Temperature sensor 0



13. Which IoT protocol works on publish-subscribe model? (1 point)

100% of respondents answered this question correctly.

- MQTT 2
- REST 4
- FTP 1
- TCP 2



14. What is the role of an actuator in IoT? (1 point)

73% of respondents answered this question correctly.

- Data sensing 0
- Data processing 5
- Perform physical action 8
- Store data 1



15. Which network is best suited for low-power IoT devices? (1 point)

100% of respondents answered this question correctly.

- LAN 1
- Wi-Fi 0
- LPWAN 4
- MAN 0



16. Which of the following is a wired communication protocol? (1 point)

100% of respondents answered this question correctly.

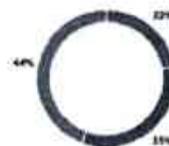
- Zigbee 2
- Bluetooth 0
- Ethernet 3
- Wi-Fi 1



17. IoT devices mainly use which type of IP addressing? (1 point)

84% of respondents answered this question correctly.

- IPv4 2
- IPv6 only 3
- IPv4 4
- MAC addressing 0



18. Which factor is critical for IoT device design? - (1 point)

100% of respondents answered this question correctly.

- High cost 0
- Low power consumption 100
- Long run 0
- Heavy weight 0



19. Which operating system is commonly used in IoT devices? - (1 point)

100% of respondents answered this question correctly.

- Windows 0
- Linux 100
- Android 0
- macOS 0



20. What is the main security concern in IoT? - (1 point)

100% of respondents answered this question correctly.

- Device vulnerability 100
- Data privacy 0
- Device weight 0
- Service cost 0



21. Which sensor is used to detect light intensity? - (1 point)

100% of respondents answered this question correctly.

- LDR sensor 100
- IIR 0
- Ultrasonic sensor 0
- Temperature 0



22. What does M2M stand for in IoT? - (1 point)

100% of respondents answered this question correctly.

- Machine to Machine 100
- Man to Machine 0
- Machine to Man 0
- Machine to Machine 0



23. Which IoT platform is used for data visualization? - (1 point)

100% of respondents answered this question correctly.

- ThingSpeak 100
- AWS IoT 0
- Microsoft 0
- Azure 0



24. Which communication protocol is used for web-based IoT applications? - (1 point)

100% of respondents answered this question correctly.

- HTTP 100
- MQTT 0
- ZigBee 0
- LoRa 0



N. Q. MROHAN

S. J. K. GYL
D. S. TRANKAKANIPATAN

Department of Mechanical Engineering

Name of the course: Internet of Things (IoT)

Participants: III year (2024 – 2028 Batch)

Conducted by: NTTF, Bengalore.

Date: 19.01.2026 to 24.01.2026 (6 Days)

Academic Year: 2025 – 2026 EVEN

Venue: Electronics City Campus

Internal Assessment Mark

Date of the Exam: 24.02.2026

Sl. No.	ROLL NO	REG NO	NAME	Internal Mark out of 25 marks	Internal Mark out of 100 marks
1	24UME001	920424114018	UDHAYASANKARAN P	18	72
2	24UME003	920424114012	NARESH KANNA T	20	80
3	24UME007	920424114011	MUTHU KRISHNAN V	24	96
4	24UME008	920424114009	MARISELVAM M	19	76
5	24UME010	920424114008	LAKSHMI NARAYANAN K	15	60
6	24UME011	920424114013	SABARIVAASAN S	20	80
7	24UME013	920424114016	SUGUMAR G	12	48
8	24UME022	920424114004	HARINI V S	14	56
9	24UME025	920424224301	AJAY CHANDRAN S	16	64

Coordinators

(Dr. Madhan N R, AP/Mech)

HoD/Mech

(Dr. S. Thanga Kasi Rajan, ASP/Mech)



Circular | External Assessment | 23.01.2026

From Madhan.N.R <madhanmech@kamarajengg.edu.in>

Date Thu 1/22/2026 8:40 PM

To 24UME <24ume@kamarajengg.edu.in>

Cc Jayakumar G <jayakumarg@nttf.co.in>; Sakthivel Murugan.R <sakthivelmuruganmech@kamarajengg.edu.in>; HODMECH <hodmech@kamarajengg.edu.in>

Dear Students,

As part of the **Value Added Course curriculum**, an **External Assessment** is scheduled on **23.01.2026** from **9.00 AM to 6.00 PM**.

All students are **instructed to attend the assessment without fail**. Attendance is mandatory.

External Assessment Details

Course Name	Assessment Rubrics (Mark/s)						Total Mark
CNC Tooling and Design	Viva (10)	Work Schedule (10)	Dimensioning	CNC Programme (50)	Finishing (10)	Quality Check (10)	100
IoT	Problem Identification & Objective (10)	Prototype Design & Implementation (25)	Software & Communication (20)	Innovation & Practical Relevance (15)	Presentation & Demo Video (15)	Documentation and viva (15)	

Students are advised to be **well prepared** and adhere to the assessment schedule strictly.

This is for your information and necessary action.

With Regards,

Madhan N R,

Assistant Professor,

Mechanical Department,

KAMARAJ

College of Engg and Tech,

Virudhunagar.

N.R.
Dr. N.R. Madhan

S. Thiruvalluvar
Dr. S. Thiruvalluvar

TECHNICAL TRAINING REPORT

SKILL DEVELOPMENT COURSE : Internet Of Things(IOT)

INSTITUTION : NTTF(Nettur Technical Training Foundation)

PROJECT NAME : App Creation Using MIT

PREPARED BY : V.S.Harini,

MIT APP INVENTOR

Mobile applications play an important role in today's digital world. App development helps solve real-life problems and improves user experience through technology. This project focuses on creating a simple mobile application using MIT App Inventor, a visual programming tool developed by the Massachusetts Institute of Technology. App Inventor allows beginners to create Android applications without complex coding by using drag-and-drop components and block-based programming.

1.Objective of the Project:

The main objectives of this project are:

- I. To understand the basics of mobile application development
- II. To design a user-friendly Android application
- III. To learn visual programming using MIT App Inventor
- IV. To create a functional app with multiple screens

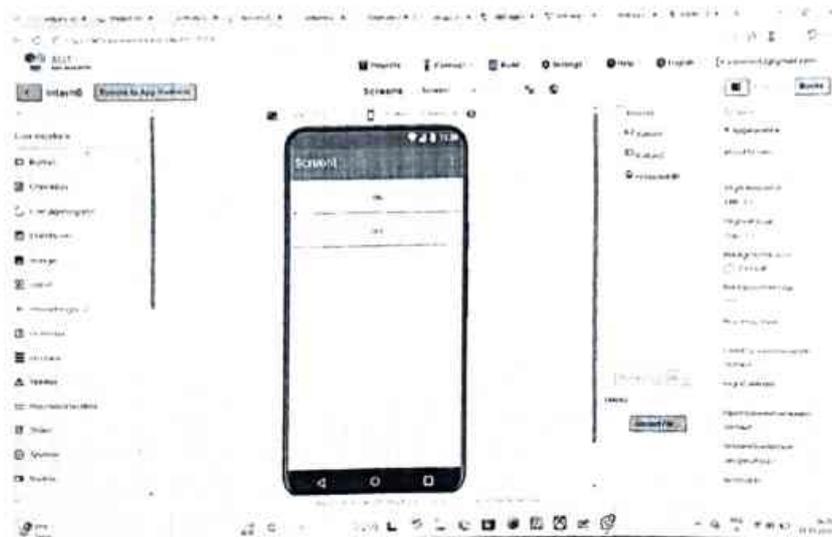
2. Tools and Technology Used:

- I. MIT App Inventor (Web-based platform)
- II. Web Browser (Google Chrome / Firefox)
- III. Android Smartphone or Emulator
- IV. Internet Connection

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81

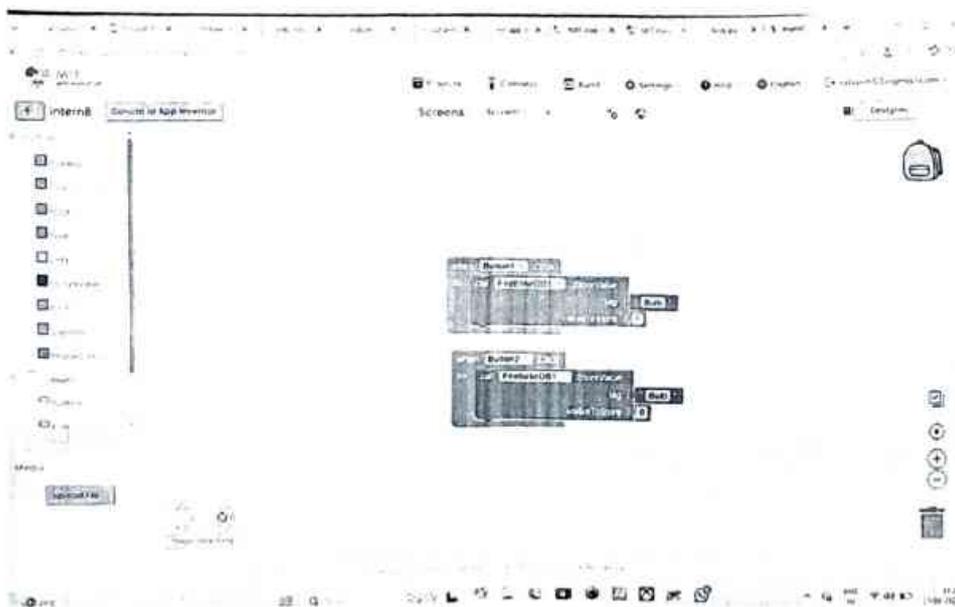


5. Working of the Application:

The app works using event-driven programming.

When a user clicks a button, predefined blocks execute actions such as:

- I. Opening a new screen
- II. Displaying messages
- III. Navigating back to the home screen
- IV. The logic is created using block components like Button.Click, Open Another Screen, and Close Screen.





FIREBASE

Mobile application development plays a vital role in modern digital systems, especially in Internet of Things (IoT)-based applications. MIT App Inventor is a user-friendly, block-based development platform that allows developers to create Android applications without deep programming knowledge. Firebase is a powerful backend service provided by Google that enables real-time data storage, authentication, and cloud services.

This project focuses on creating a mobile application using MIT App Inventor integrated with Firebase, enabling real-time data storage and retrieval.

1.OVERVIEW OF MIT APP INVERTOR:

MIT App Inventor is a web-based development tool developed by the Massachusetts Institute of Technology (MIT). It allows users to design mobile applications using:

- I. Drag-and-drop UI components
- II. Block-based programming
- III. Live testing using MIT AI Companion
- IV. MIT App Inventor is widely used in educational institutions for learning app development, IoT integration, and rapid prototyping.

Real-time data updates

Cloud-based storage

Secure access rules

Easy integration with MIT App Inventor

4. INTEGRATION OF FIREBASE WITH MIT APP INVENTOR:

MIT App Inventor provides a built-in Firebase Database component, making integration simple.

Steps for Integration

Create a Firebase project in the Firebase Console

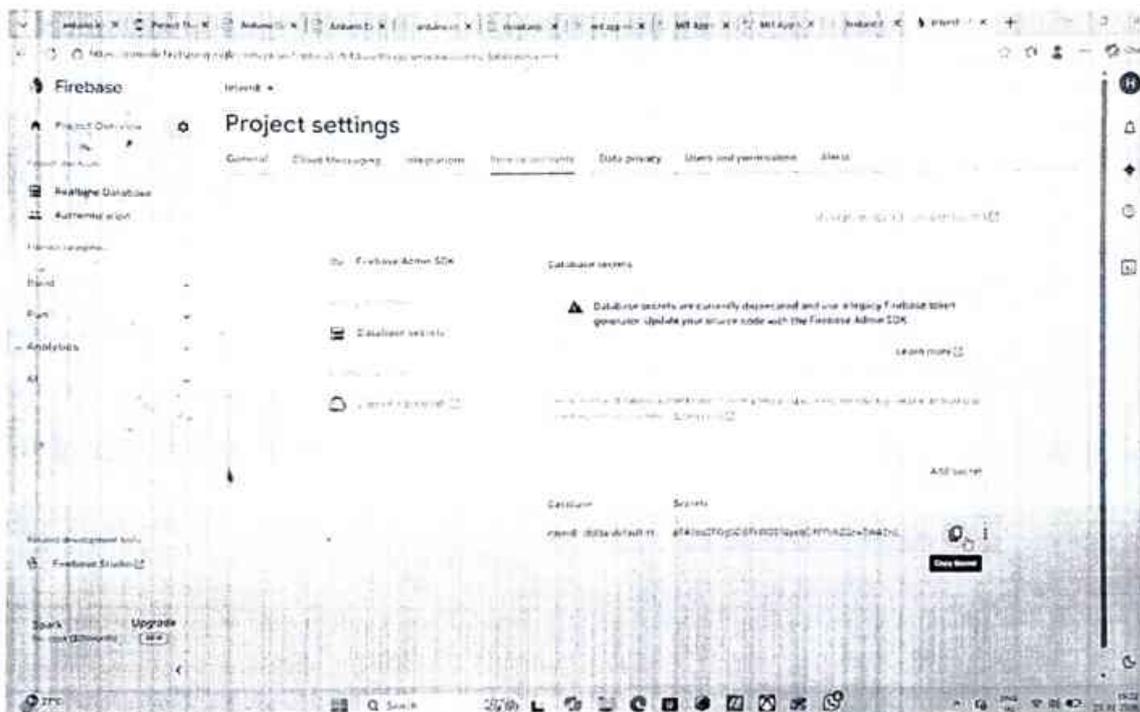
Enable Realtime Database

Set database rules for read/write access

Copy the Firebase database URL

Paste the URL into the Firebase component in MIT App Inventor

Use Firebase blocks to store and retrieve data



5.WORKING PRINCIPLE:

When the user enters data into the app and clicks the submit button:

The data is sent to Firebase

Firebase stores the data in the cloud

Any change in the database updates instantly in the app

Multiple users can access the same data in real time

TECHNICAL TRAINING REPORT

SKILL DEVELOPMENT COURSE: Internet of Things (IOT)

INSTITUTION : NTTF (Nettur Technical Training Foundation)

PROJECT NAME : Google Assistant Based IOT Systems

PREPARED BY : V.Muthu Krishnan (24UME007)



1. INTRODUCTION:

The rapid development of Internet of Things (IoT) technology has enabled seamless interaction between humans and machines. IoT integrates sensors, embedded systems, communication networks, and cloud platforms to create intelligent systems capable of automation and remote control. One of the most significant advancements in this field is voice-controlled automation using virtual assistants.

This project titled "Google Assistant Based IoT System" focuses on controlling electrical devices using voice commands through Google Assistant. The system allows users to operate devices remotely using a smartphone and internet connectivity, making it efficient, user-friendly, and suitable for smart home and automation applications.

2. OBJECTIVES OF THE PROJECTS:

- To design and implement a Google Assistant based IoT system
- To control electrical appliances using voice commands
- To understand IoT architecture and cloud communication
- To gain hands-on experience with embedded systems
- To implement wireless control using the internet
- To improve automation and user convenience

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4. SYSTEM OVERVIEW:

The Google Assistant based IoT system works by converting voice commands into control signals using cloud services. The command given through Google Assistant is processed and sent to a microcontroller via the internet, which then controls the connected devices.

Major Components of the System:

- a. Google Assistant
- b. Cloud platform (IFTTT / Firebase / Blynk)
- c. Microcontroller (ESP8266 / ESP32)
- d. Relay module
- e. Electrical appliances
- f. Internet connection

5. BLOCK DIAGRAM DISCRPTION:

The system consists of the following stages:

- a. User gives a voice command using Google Assistant
- b. Google Assistant processes the voice input
- c. The command is sent to a cloud service
- d. Cloud service communicates with the IoT device
- e. Microcontroller receives the command
- f. Relay module switches the appliances ON/OFF
- g. This process enables real-time control of devices from anywhere using voice commands.

6. HARDWARE COMPONENT USED:

- a. Microcontroller (ESP8266 / ESP32)

The ESP module is used as the main controller. It has built-in Wi-Fi capability, making it ideal for IoT applications.

- b. Relay Module

Relays are used to control high-voltage electrical appliances using low-voltage signals from the microcontroller.

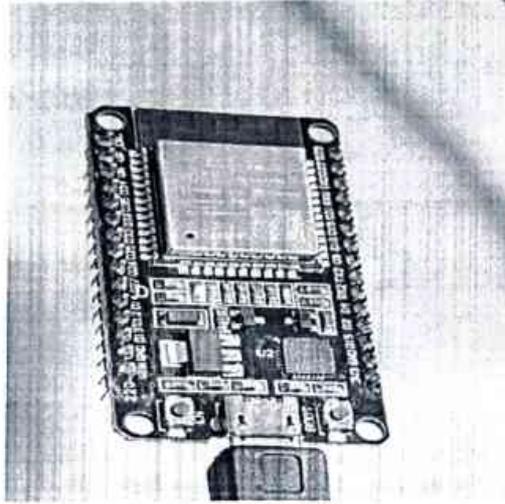
- c. Power Supply

A regulated power supply is used to provide required voltage to the microcontroller and relay module.

- d. Electrical Loads

Devices such as bulbs, fans, or other appliances are connected to the relay module.

7. SOFTWARE COMPONENTS USED:



a. Google Assistant

Google Assistant is used to accept voice commands from the user.

b. Cloud Platform

Cloud services such as IFTTT or Firebase are used to connect Google Assistant with the IoT device.

c. Arduino IDE

Arduino IDE is used to write, compile, and upload programs to the microcontroller.

8. WORKING PRINCIPLE:

When the user gives a voice command such as "Turn on the light," Google Assistant processes the command and triggers a predefined action in the cloud platform. The cloud platform sends a signal through the internet to the ESP module. The microcontroller receives the signal and activates the corresponding relay, which switches the electrical appliance ON or OFF.

The entire system works in real time and can be controlled from any location with internet access.

9. CIRCUIT DIAGRAM DISCRIPTION:



Make ~~Meet~~ your Google Assistant



The ESP module is connected to the relay module through GPIO pins. Each relay controls one electrical device. The microcontroller is powered using a regulated power supply. Proper isolation is maintained between low-voltage and high-voltage sections to ensure safety.

10. IMPLEMENTATION STEPS:

- a. Setting up Google Assistant commands
- b. Configuring cloud platform triggers
- c. Programming the ESP module using Arduino IDE
- d. Connecting relay module to microcontroller
- e. Testing Wi-Fi connectivity
- f. Integrating hardware with cloud services
- g. Testing voice-controlled operation

11.CODE:

```
#include "thingProperties.h"
void setup() {
  Serial.begin(9600);
  pinMode(2,OUTPUT);
  pinMode(4,OUTPUT);
  delay(1500);
  initProperties();
  ArduinoCloud.begin(ArduinoIoTPreferredConnection);
  setDebugMessageLevel(2);
  ArduinoCloud.printDebugInfo();
}

void loop() {
```

```

    ArduinoCloud.update();
}
void onLightChange() {
    digitalWrite(2,light);
}
void onAcChange() {
    digitalWrite(4,ac);
}

```

"Thingsproperties.h" code:

```

#include <ArduinoIoTCloud.h>
#include <Arduino_ConnectionHandler.h>
const char DEVICE_LOGIN_NAME[] = "cbe2253c-9595-43e4-9d87-08b48f4f5272";
const char SSID[] = "iPhone Guru"; // Network SSID (name)
const char PASS[] = "Guru1234"; // Network password (use for WPA, or use as key
for WEP)
const char DEVICE_KEY[] = "DY9WvY2?qFEmpv!ZqbXqza8k"; // Secret device password
void onAcChange();
void onLightChange();

CloudLight ac;
CloudLight light;

void initProperties(){
    ArduinoCloud.setBoardId(DEVICE_LOGIN_NAME);
    ArduinoCloud.setSecretDeviceKey(DEVICE_KEY);
    ArduinoCloud.addProperty(ac, READWRITE, ON_CHANGE, onAcChange);
    ArduinoCloud.addProperty(light, READWRITE, ON_CHANGE, onLightChange);
}

WiFiConnectionHandler ArduinoIoTPreferredConnection(SSID, PASS);

```

12. APPLICATIONS OF PROJECT:

- a. Smart home automation
- b. Voice-controlled lighting systems
- c. Remote appliance control
- d. Assistive technology
- e. Energy management systems

13. ADVANTAGES OF SYSTEM:

- a. Hands-free operation
- b. User-friendly interface

- c. Remote access from anywhere
- d. Low cost and scalable
- e. Efficient and reliable



14. LIMITATIONS:

- a. Requires continuous internet connectivity
- b. Voice recognition accuracy depends on network quality
- c. Security concerns in cloud-based systems

15. FUTURE ENHANCEMENT:

- a. Integration with sensors (temperature, motion, gas)
- b. Adding mobile application support
- c. Enhancing security using authentication
- d. Expanding control to multiple rooms and devices

- e. AI-based automation

16. RESULTS AND OBSERVATIONS:

The Google Assistant based IoT system was successfully implemented and tested. Electrical appliances responded accurately to voice commands. The system demonstrated reliable communication between Google Assistant, cloud services, and the IoT device.

17. CONCLUSION:

The project "Google Assistant Based IoT System" successfully demonstrates the practical implementation of IoT and voice-controlled automation. It provides a simple, efficient, and modern solution for controlling devices using voice commands. This project enhanced understanding of IoT architecture, embedded systems, and cloud integration.

18. ACKNOWLEDGEMENT:

I sincerely thank my project guide, institution, and all the faculty members for their guidance and support throughout the completion of this project.

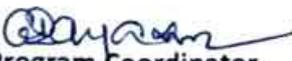
19. REFERENCES:

- a. Internet of Things concepts and applications
- b. Arduino and ESP-32 documentation
- c. Google Assistant developer resources
- d. Cloud platform documentation

Title of the Program : Internet of Things (IoT)
 Name of the College : Kamaraj College of Engineering & Technology, Virudhunagar
 Year & Department : II Year and Mechanical Engineering
 Venue : NTTf, Electronics City, Bangalore
 Date : 19.01.2026 to 24.01.2026

Assessment Report

Sl. No.	ROLL NO	REG NO	NAME	Attendance (%)	Problem Identification & Objective (10)	Prototype Design & Implementation (25)	Software & Communication (20)	Innovation & Practical Relevance (15)	Presentation & Demo Video (15)	Documentation and viva (15)	Total Marks (100)
1	24UME001	920424114018	UDHAYASANKARAN P	100	9	14	13	12	10	13	71
2	24UME003	920424114012	NARESH KANNA T	100	9	15	15	10	11	12	72
3	24UME007	920424114011	MUTHU KRISHNAN V	100	9	15	13	12	11	10	70
4	24UME008	920424114009	MARISELVAM M	100	8	13	10	13	14	13	71
5	24UME010	920424114008	LAKSHMI NARAYANAN K	100	8	20	15	12	11	15	81
6	24UME011	920424114013	SABARIVAASAN S	100	8	15	18	8	12	10	71
7	24UME013	920424114016	SUGUMAR G	100	8	15	18	10	10	12	73
8	24UME022	920424114004	HARINI V S	100	9	20	15	12	10	15	81
9	24UME025	920424224301	AJAY CHANDRAN S	100	9	15	15	10	12	12	73


 Program Coordinator




 Unit Head

Department of Mechanical Engineering

Name of the course: Internet of Things (IoT)

Date: 19.01.2026 to 24.01.2026 (6 Days)

Participants: III year (2024 - 2028 Batch)

Academic Year: 2025 - 2026 EVEN

Conducted by: NTTF, Bangalore.

Venue: Electronics City Campus

Internal Assessment Mark

Date of the Exam: 24.02.2026

Sl. No.	ROLL NO	REG NO	NAME	Internal Mark		External Mark		Overall Marks
				Out of 100	Out of 40	Out of 100	Out of 60	Out of 100
1	24UME001	920424114018	UDHAYASANKARAN P	72	29	71	43	72
2	24UME003	920424114012	NARESH KANNA T	80	32	72	43	75
3	24UME007	920424114011	MUTHU KRISHNAN V	96	38	70	42	80
4	24UME008	920424114009	MARISELVAM M	76	30	71	43	73
5	24UME010	920424114008	LAKSHMI NARAYANAN K	60	24	81	49	73
6	24UME011	920424114013	SABARIVAASAN S	80	32	71	43	75
7	24UME013	920424114016	SUGUMAR G	48	19	73	44	63
8	24UME022	920424114004	HARINI V S	56	22	81	49	71
9	24UME025	920424224301	AJAY CHANDRAN S	64	26	73	44	70

Coordinators

(Dr. Madhan N R, AP/Mech)

HoD/Mech

(Dr. S. Thanga Kasi Rajan, ASP/Mech)

Dean Academics

(Dr. R. Suresh Babu, Prof/ECE)

Feedback Form | Internet of Things | II Year | Value Added Course

Title of the Program: Value added course for "Internet of Things"
Participants: B - year students
Date: 19.01.2025 to 24.01.2025
Conducted by: NTTT, Electronics City Campus, Bangalore.

Coordinator:
Dr. Madhan N R, AP/Mech.

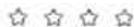
Instructions: Please indicate your level of agreement the statements listed below.

- 4 Star - Strong Agree
- 3 Star - Agree
- 2 Star - Neutral
- 1 Star - Dis-Agree

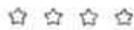
* Required

* This form will record your name, please fill your name

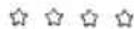
1. The objectives of the training were clearly defined by the Co-ordinator *



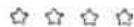
2. Participation and interaction were encouraged. *



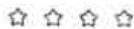
3. The topics covered were relevant to me. *



4. The content was organized and easy to follow. *



5. This training experience will be useful me. *



6. The trainer was knowledgeable about the training topics. *



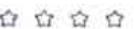
7. The trainer was well prepared. *



8. The training objectives were met. *



9. The time allotted for the training was sufficient *



10. The HOP Lab were adequate and comfortable. *



Your view about this programme

11. What did you like most about this training? *

12. What aspects of the training could be improved? *

13. How do you hope to change your practice as a result of this training? *

14. Please share over all comments about this programme. *

15. Do you suggest this programme to your juniors *

- No
- Yes

This content is neither created nor endorsed by Microsoft. The data you submit will be sent to the form owner.

Microsoft Forms

N.R.M.
D. N. R. MAHAR

*Kindly Approve these questions
for feedback.*

approved

S. Jyoti Gyl
D. S. JYOTI KASIKRISHNAN

Review: Feedback Form | Internet of Things | II Year | Value Added Course

Respondent

8 AJAY CHANDRAN.S

03:40

Time to complete

- 1. The objectives of the training were clearly defined by the Co-ordinator * Score / 0 pts

★ ★ ★ ★
- 2. Participation and interaction were encouraged. * Score / 0 pts

★ ★ ★ ★
- 3. The topics covered were relevant to me. * Score / 0 pts

★ ★ ★ ★
- 4. The content was organized and easy to follow. * Score / 0 pts

★ ★ ★ ★
- 5. This training experience will be useful me. * Score / 0 pts

★ ★ ★ ★
- 6. The trainer was knowledgeable about the training topics. * Score / 0 pts

★ ★ ★ ★
- 7. The trainer was well prepared. * Score / 0 pts

★ ★ ★ ★
- 8. The training objectives were met. * Score / 0 pts

★ ★ ★ ★
- 9. The time allotted for the training was sufficient * Score / 0 pts

★ ★ ★ ☆
- 10. The HOP Lab were adequate and comfortable. * Score / 0 pts

★ ★ ★ ★

Your view about this programme

11. What did you like most about this training? *

Score / 0 pts

Friendly staff's

12. What aspects of the training could be improved? *

Score / 0 pts

More time

13. How do you hope to change your practice as a result of this training? *

Score / 0 pts

More practice

14. Please share over all comments about this programme. *

Score / 0 pts

Learning place

15. Do you suggest this programme to your juniors? *

Score / 0 pts

Yes

No

D. N. R. MADHAN

D. S. FATHMA KASLI RASWAN

Review: Feedback Form | Internet of Things | II Year | Value Added Course

Respondent

4 SUGUMAR.G

03:38

Time to complete

1. The objectives of the training were clearly defined by the Co-ordinator *

Score / 0 pts



2. Participation and interaction were encouraged. *

Score / 0 pts



3. The topics covered were relevant to me. *

Score / 0 pts



4. The content was organized and easy to follow. *

Score / 0 pts



5. This training experience will be useful me. *

Score / 0 pts



6. The trainer was knowledgeable about the training topics. *

Score / 0 pts



7. The trainer was well prepared. *

Score / 0 pts



8. The training objectives were met. *

Score / 0 pts



9. The time allotted for the training was sufficient *

Score / 0 pts



10. The HOP Lab were adequate and comfortable. *

Score / 0 pts



Your view about this programme

11. What did you like most about this training? *

Score / 0 pts

Interaction with students

12. What aspects of the training could be improved? *

Score / 0 pts

Handworking

13. How do you hope to change your practice as a result of this training? *

Score / 0 pts

I have learnt about basic things

14. Please share over all comments about this programme. *

Score / 0 pts

Thanks for the opportunity it will really helps to me to improve the IoT knowledge I definitely suggest this programme to my juniors

15. Do you suggest this programme to your juniors *

Score / 0 pts

Yes

No

Dv. N. R. MASHAR

S. SHIK GYL
Dv. S. THANAN KASIRAJAN

Review Feedback Form | Internet of Things | II Year | Value Added Course

Respondent

6 UDHAYASANKARAN P

00:57

Time to complete

1. The objectives of the training were clearly defined by the Co-ordinator *

Score / 0 pts



2. Participation and interaction were encouraged. *

Score / 0 pts



3. The topics covered were relevant to me. *

Score / 0 pts



4. The content was organized and easy to follow. *

Score / 0 pts



5. This training experience will be useful me. *

Score / 0 pts



6. The trainer was knowledgeable about the training topics. *

Score / 0 pts



7. The trainer was well prepared. *

Score / 0 pts



8. The training objectives were met. *

Score / 0 pts



9. The time allotted for the training was sufficient *

Score / 0 pts



10. The HOP Lab were adequate and comfortable. *

Score / 0 pts



Your view about this programme

11. What did you like most about this training? *

Score / 0 pts

learning

12. What aspects of the training could be improved? *

Score / 0 pts

nothing

13. How do you hope to change your practice as a result of this training? *

Score / 0 pts

well

14. Please share over all comments about this programme. *

Score / 0 pts

good

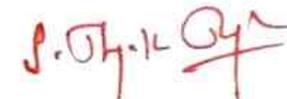
15. Do you suggest this programme to your juniors? *

Score / 0 pts

Yes

No


Dr. N. R. MADHAVAN


Dr. S. THANAS KAIRASAN

Responses Overview Active

Responses	Average Score	Average Time
9	0	03:38

1. The objectives of the training were clearly defined by the Co-ordinator (0 point)



2. Participation and interaction were encouraged. (0 point)



3. The topics covered were relevant to me. (0 point)



4. The content was organized and easy to follow. (0 point)



5. This training experience will be useful me. (0 point)



6. The trainer was knowledgeable about the training topics. (0 point)



7. The trainer was well prepared. (0 point)



8. The training objectives were met. (0 point)



9. The time allotted for the training was sufficient (0 point)



10. The HOP Lab were adequate and comfortable. (0 point)



11. What did you like most about this training? (0 point)

9 Responses

Latest Responses

"there teaching skill"

"The interaction with the staff was comfortable and they are friendly."

"The training was well structured and practical"

...

12. What aspects of the training could be improved? (0 point)

9 Responses

Latest Responses
"skills about iot"
"The content we have learned is very small and slightly difficult to understand."
"Improved by adding more hands"
...

13. How do you hope to change your practice as a result of this training? (0 point)

9 Responses

Latest Responses
"good"
"We should it by ourselves."
"I planned to apply concept and technical"
...

14. Please share over all comments about this programme. (0 point)

9 Responses

Latest Responses
"excellent"
"Good"
"The program was very beneficial and informative to me"
...

15. Do you suggest this programme to your juniors (0 point)

Yes 8
No 1



N.R. Shrivastava
Dr. N.R. SHIVASTAVA

All the students are giving positive feedback about the NTTF Bangalore.

S. Jyoti Reddy
Dr. S. JYOTI REDDY KASHI RAO

Department of Mechanical Engineering

Name of the course: Internet of Things (IoT)

Date: 19.01.2026 to 24.01.2026 (6 Days)

Participants: III year (2024 – 2028 Batch)

Academic Year: 2025 – 2026 EVEN

Conducted by: NTTF, Bangalore.

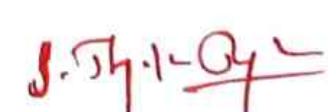
Venue: Electronics City Campus

Attendance

Sl. No.	ROLL NO	REG NO	NAME	19.01	20.01	21.01	22.01	23.01	24.01
1	24UME001	920424114018	UDHAYASANKARAN P	P	P	P	P	P	P
2	24UME003	920424114012	NARESH KANNA T	P	P	P	P	P	P
3	24UME007	920424114011	MUTHU KRISHNAN V	P	P	P	P	P	P
4	24UME008	920424114009	MARISELVAM M	P	P	P	P	P	P
5	24UME010	920424114008	LAKSHMI NARAYANAN K	P	P	P	P	P	P
6	24UME011	920424114013	SABARIVAASAN S	P	P	P	P	P	P
7	24UME013	920424114016	SUGUMAR G	P	P	P	P	P	P
8	24UME022	920424114004	HARINI V S	P	P	P	P	P	P
9	24UME025	920424224301	AJAY CHANDRAN S	P	P	P	P	P	P


Coordinator

(Dr. Madhan N R, AP/Mech)


HoD/Mech

(Dr. S. Thanga Kasi Rajan, ASP/Mech)

Department of Mechanical Engineering

Name of the course: Internet of Things (IoT)
Participants: III year (2024 – 2028 Batch)
Conducted by: NTTF, Bangalore.

Date: 19.01.2026 to 24.01.2026 (6 Days)
Academic Year: 2025 – 2026 EVEN
Venue: Electronics City Campus

Summary Report

A six-day Value Added Course on "Internet of Things (IoT)" was conducted from 19.01.2026 to 24.01.2026 for III year students (2024–2028 Batch) during the Academic Year 2025–2026 (Even Semester). The programme was organized in association with NTTF, Bangalore, and hosted at the Electronics City Campus. A total of 9 students participated in the course.

The objective of the IoT course was to provide students with a comprehensive understanding of IoT concepts, architectures, hardware components, and real-time applications, aligning with current industry trends and digital transformation requirements.

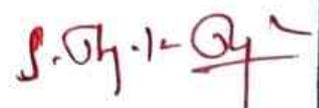
The course covered fundamental topics such as IoT architecture, sensors and actuators, embedded systems, communication protocols, and cloud integration. Students were introduced to commonly used microcontrollers and development platforms, along with basics of data acquisition and device connectivity. Special emphasis was given to practical implementation of IoT systems rather than only theoretical concepts.

Hands-on sessions enabled students to design and develop simple IoT-based applications, including sensor interfacing, data monitoring, and real-time system control. The training also highlighted the role of IoT in domains such as smart cities, industrial automation, healthcare, agriculture, and home automation. Students were encouraged to think innovatively and apply IoT concepts to solve real-world problems.

At the end of the course, students gained practical exposure to IoT system development, improved their understanding of emerging technologies, and developed problem-solving and analytical skills. The programme successfully enhanced students' technical competence and prepared them for future opportunities in Industry 4.0, automation, and smart technology-driven sectors.


Coordinator

(Dr. Madhan N R, AP/Mech)


HoD/Mech

(Dr. S. Thanga Kasi Rajan, ASP/Mech)



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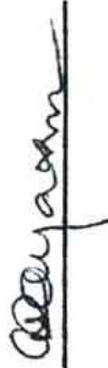
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No. NEC/CNC/020/26

24 01 2026

PARTICIPATION CERTIFICATE

This is to certify that **Udhayasankaran P** - Reg.No 920424114018 student of Mechanical Engineering, Kamaraj College of Engineering & Technology, Virudhunagar, has successfully completed 48 hours of "Technical Enrichment – Internet of Things" from 19th- 24th Jan 2026 at Netteur Technical Training Foundation, Electronics City, Bangalore.



G JAYAKUMAR
Program Coordinator
Edutech NTTF, Bangalore





SOMANATHAN K
General Manager & Unit Head
Edutech NTTF – Electronics City



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No. NEC/CNC/021/26

24 01 2026

PARTICIPATION CERTIFICATE

This is to certify that **Naresh Kanna T** - Reg.No 920424114012 student of
Mechanical Engineering, Kamaraj College of Engineering & Technology,

Virudhunagar, has successfully completed 48 hours of

“Technical Enrichment – Internet of Things” from 19th - 24th Jan 2026
at Nettur Technical Training Foundation, Electronics City, Bangalore.

G JAYAKUMAR
Program Coordinator
Edutech NTTF, Bangalore



SOMANATHAN K
General Manager & Unit Head
Edutech NTTF – Electronics City



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No. NEC/CNC/0222/26

24 01 2026

PARTICIPATION CERTIFICATE

This is to certify that **Muthu Krishnan V** - Reg.No 920424114011 student of **Mechanical Engineering, Kamaraj College of Engineering & Technology, Virudhunagar**, has successfully completed 48 hours of **“Technical Enrichment – Internet of Things”** from 19th - 24th Jan 2026 at **Nettur Technical Training Foundation, Electronics City, Bangalore.**

G JAYAKUMAR
Program Coordinator
Edutech NTTF, Bangalore



SOMANATHAN K
General Manager & Unit Head
Edutech NTTF – Electronics City



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No. NEC/CNC/023/26

24 01 2026

PARTICIPATION CERTIFICATE

This is to certify that **Mari Selvam M** - Reg.No 920424114009 student of
Mechanical Engineering, Kamaraj College of Engineering & Technology,
Virudhunagar, has successfully completed 48 hours of
“*Technical Enrichment – Internet of Things*” from 19th - 24th Jan 2026
at Nettur Technical Training Foundation, Electronics City, Bangalore.

G JAYAKUMAR
Program Coordinator
Edutech NTTF, Bangalore



SOMANATHAN K
General Manager & Unit Head
Edutech NTTF – Electronics City



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No. NEC/CNC/024/26

24 01 2026

PARTICIPATION CERTIFICATE

This is to certify that **Lakshmi Narayanan K** - Reg.No 920424114008 student of Mechanical Engineering, Kamaraj College of Engineering & Technology, Virudhunagar, has successfully completed 48 hours of "Technical Enrichment – Internet of Things" from 19th- 24th Jan 2026 at Nettur Technical Training Foundation, Electronics City, Bangalore.

A handwritten signature in black ink, appearing to read 'G Jayakumar', is written over a horizontal line.

G JAYAKUMAR
Program Coordinator
Edutech NTTF, Bangalore



A handwritten signature in black ink, appearing to read 'Somanathan K', is written over a horizontal line.

SOMANATHAN K
General Manager & Unit Head
Edutech NTTF – Electronics City



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No. NEC/CNC/025/26

24 01 2026

PARTICIPATION CERTIFICATE

This is to certify that **Sabarivaasan S** - Reg.No 920424114013 student of
Mechanical Engineering, Kamaraj College of Engineering & Technology,
Virudhunagar, has successfully completed 48 hours of

“Technical Enrichment – Internet of Things” from 19th- 24th Jan 2026
at Nettur Technical Training Foundation, Electronics City, Bangalore.

G JAYAKUMAR
Program Coordinator
Edutech NTTF, Bangalore



SOMANATHAN K
General Manager & Unit Head
Edutech NTTF – Electronics City



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No. NEC/CNC/026/26

24 01 2026

PARTICIPATION CERTIFICATE

This is to certify that **Sugumar G** - Reg.No 920424114016 student of
Mechanical Engineering, Kamaraj College of Engineering & Technology,
Virudhunagar, has successfully completed 48 hours of

“Technical Enrichment – Internet of Things” from 19th- 24th Jan 2026
at Nettur Technical Training Foundation, Electronics City, Bangalore.

G JAYAKUMAR
Program Coordinator
Edutech NTTF, Bangalore



SOMANATHAN K
General Manager & Unit Head
Edutech NTTF – Electronics City



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No. NEC/CNC/027/26

24 01 2026

PARTICIPATION CERTIFICATE

This is to certify that **Harini V S** - Reg.No 920424114004 student of
Mechanical Engineering, Kamaraj College of Engineering & Technology,
Virudhunagar, has successfully completed 48 hours of
“**Technical Enrichment – Internet of Things**” from 19th- 24th Jan 2026
at **Nettur Technical Training Foundation, Electronics City, Bangalore.**

G JAYAKUMAR
Program Coordinator
Edutech NTTF, Bangalore



SOMANATHAN K
General Manager & Unit Head
Edutech NTTF – Electronics City



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No. NEC/CNC/028/26

24 01 2026

PARTICIPATION CERTIFICATE

This is to certify that **Ajay Chandran S** - Reg.No 920424114301 student of **Mechanical Engineering**, Kamaraj College of Engineering & Technology, Virudhunagar, has successfully completed 48 hours of **Technical Enrichment – Internet of Things** from 19th- 24th Jan 2026 at **Nettur Technical Training Foundation**, Electronics City, Bangalore.

A handwritten signature in black ink, appearing to read 'G Jayakumar', is written over a horizontal line.

G JAYAKUMAR
Program Coordinator
Edutech NTTF, Bangalore



A handwritten signature in black ink, appearing to read 'Somanathan K', is written over a horizontal line.

SOMANATHAN K
General Manager & Unit Head
Edutech NTTF – Electronics City