



**Mangalmay Institute of Management Technology**  
Greater Noida (U.P.)



**MANGALMAY**  
INSTITUTE OF MANAGEMENT TECHNOLOGY

Greater Noida



**ADD ON**  
**CERTIFICATION PROGRAM**  
on

**IOT and its application in Business Management**

**BBA 1st Year students**

**Date: 9th October, 2023 to 15th November, 2023**  
**Time: 3:00 PM - 5:00 PM | Venue: Computer Lab, B Block**

**Coordinator:**

**Mr. Deepanshu Yada**



**Resource Person**

**Mr. Surya Shekhar Vishal**

**Toll-Free : 1800 103 3797 | [www.mangalmay.net.in](http://www.mangalmay.net.in)**

**Plot No. 8 & 9, Knowledge Park-II, Greater Noida, Delhi-NCR, India**



# Mangalmay Institute of Management Technology Greater Noida (U.P.)



Mangalmay Institute of Management Technology  
Greater Noida (U.P.)

4<sup>th</sup> October, 2023

## NOTICE

MIMT is organizing an Add-on certification course on "IoT and its applications in Business Management". Understanding IoT and its applications in business management equips students with cutting-edge skills to leverage connected technologies for optimizing operations, enhancing decision-making, and driving innovation.

The details of the certification are given below:

Date	:	9 <sup>th</sup> Oct - 15 <sup>th</sup> Nov '23
Time	:	3:00 PM - 5:00 PM
Venue	:	Computer Lab, MIMT
Beneficiaries	:	BBA I Year Students
Coordinator	:	Mr. Deepanshu Yadav
Resource Person	:	Mr. Surya Shekhar Vishal
Registration	:	Interested students can enroll their names to the coordinator latest by 6/10/2023

  
Associate Dean  
MIMT

CC to:

Principal, MIMT

IQAC, MIMT

HODs/Coordinators

Faculty Members

Notice Board

Office File



## **Syllabus**

**(32 Hours)**

### **Module 1: Introduction to IoT and Its Architecture (10 Hours)**

#### Session 1: Introduction to IoT and Its Relevance in Business Management

- Exploring the transformative potential of IoT in optimizing business processes and enhancing decision-making through real-time data insights.
- Understanding the competitive advantages gained from IoT adoption, including cost reduction, efficiency improvement, and innovation acceleration.

#### Session 2: Understanding IoT Architecture and Components

- Delving into the layered architecture of IoT, including perception layer, network layer, and application layer, to comprehend how data flows and is processed.
- Identifying key components such as sensors, actuators, gateways, and cloud infrastructure, and their roles in enabling IoT functionality.

#### Session 3: IoT Protocols and Communication Technologies

- Examining popular IoT protocols like MQTT, CoAP, and HTTP, and their suitability for different use cases based on factors like bandwidth, reliability, and power consumption.
- Comparing wireless communication technologies such as Wi-Fi, Bluetooth, Zigbee, and cellular networks, and selecting the appropriate one based on range, data rate, and power requirements.

#### Session 4: IoT Sensors and Actuators



- Understanding the diverse types of sensors available in IoT, including temperature sensors, motion sensors, proximity sensors, and their applications in various industries.
- Exploring the role of actuators in IoT systems, such as motors, valves, and relays, and how they enable physical control based on data inputs.

#### Session 5: Data Collection, Storage, and Management in IoT

- Analyzing data collection methods such as edge computing, fog computing, and centralized cloud storage, and their impact on latency, scalability, and reliability.
- Implementing data management strategies including data aggregation, filtering, and compression to optimize storage and processing resources in IoT systems.

### **Module 2: IoT Platforms, Security, and Privacy (8 Hours)**

#### Session 6: IoT Platforms and Cloud Services

- Exploring IoT platform features such as device management, data analytics, and security services, and evaluating different platform providers based on scalability and interoperability.
- Understanding the role of cloud services in IoT deployments, including Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS), and their benefits in terms of scalability, reliability, and cost-effectiveness.

#### Session 7: Security and Privacy Considerations in IoT

- Identifying common security threats in IoT ecosystems, such as data breaches, malware attacks, and device tampering, and implementing



measures such as encryption, authentication, and access control to mitigate risks.

- Addressing privacy concerns related to data collection, storage, and sharing in IoT systems, and adhering to regulations such as GDPR and CCPA to protect user data rights.

#### Session 8: IoT Analytics and Data Visualization

- Leveraging data analytics techniques such as machine learning, predictive modeling, and anomaly detection to derive actionable insights from IoT data streams.
- Utilizing data visualization tools and techniques such as dashboards, charts, and heatmaps to communicate key performance indicators and trends in IoT deployments effectively.

#### Session 9: Case Studies of IoT Implementation in Various Industries

- Examining real-world examples of IoT applications in industries such as manufacturing, healthcare, agriculture, and transportation, and analyzing their impact on business operations, customer experiences, and revenue generation.
- Identifying best practices and lessons learned from successful IoT deployments, including stakeholder engagement, technology integration, and scalability planning.

### **Module 3: Business Models and Strategies for IoT Adoption (6 Hours)**

#### Session 10: Business Models and Strategies for IoT Adoption

- Exploring different business models enabled by IoT, including product-centric, service-centric, and platform-centric approaches, and assessing their suitability based on market dynamics and competitive landscape.



- Developing IoT adoption strategies encompassing market analysis, ecosystem partnerships, revenue models, and risk management to maximize return on investment and long-term sustainability.

#### Session 11: IoT Applications in Supply Chain Management

- Optimizing supply chain visibility and transparency through IoT technologies such as RFID, GPS tracking, and blockchain, to improve inventory management, logistics, and demand forecasting.
- Enhancing supply chain resilience and agility by leveraging real-time data analytics and predictive maintenance to mitigate risks such as disruptions, delays, and quality issues.

#### Session 12: IoT Applications in Marketing and Customer Engagement

- Personalizing marketing campaigns and customer experiences through IoT-enabled devices such as wearables, smart appliances, and location-based sensors, to drive customer loyalty and brand advocacy.
- Analyzing customer behavior and preferences using IoT-generated data to segment target audiences, optimize promotional strategies, and measure campaign effectiveness in real-time.

### **Module 4: IoT Applications in Operations and Human Resources Management**

**(6 Hours)**

#### Session 13: IoT Applications in Operations Management

- Streamlining operations efficiency and productivity through IoT-enabled automation, predictive maintenance, and remote monitoring of equipment and assets.
- Implementing real-time performance tracking and optimization strategies using IoT data analytics to identify bottlenecks, minimize downtime, and



optimize resource utilization across manufacturing, facilities, and logistics operations.

#### Session 14: IoT Applications in Human Resources Management

- Enhancing employee productivity and well-being through IoT-enabled workplace solutions such as smart offices, wearable devices, and health monitoring systems.
- Improving talent acquisition and retention strategies by leveraging IoT data analytics to assess employee performance, satisfaction, and engagement levels, and implement targeted interventions and incentives.

#### **Module 5: Regulatory Compliance, Legal Aspects, and Final Project (6 Hours)**

#### Session 15: Regulatory Compliance and Legal Aspects of IoT

- Navigating regulatory frameworks and standards governing IoT deployments, such as data protection regulations, industry certifications, and safety standards, to ensure compliance and mitigate legal risks.
- Addressing liability and accountability issues related to data ownership, privacy breaches, and product safety in IoT ecosystems, through contractual agreements, insurance policies, and risk management practices.

#### Session 16: Final Project Presentations and Wrap-Up Discussions

- Presenting final project findings, insights, and recommendations derived from applying IoT concepts and technologies to real-world scenarios.
- Facilitating group discussions and knowledge sharing on key learnings, challenges, and opportunities in IoT implementation, and reflecting on the future outlook of IoT in business management.

### **Schedule**



Session	Content	Time	Date
S1	<p>Introduction to IoT and its relevance in Business Management</p> <ol style="list-style-type: none"><li>1. Exploring the transformative potential of IoT in optimizing business processes and enhancing decision-making through real-time data insights.</li><li>2. Understanding the competitive advantages gained from IoT adoption, including cost reduction, efficiency improvement, and innovation acceleration</li></ol>	3:00 PM - 5:00 PM	9th October, 2023
S2	<p>Understanding IoT architecture and components</p> <ol style="list-style-type: none"><li>1. Delving into the layered architecture of IoT, including perception layer, network layer, and application layer, to comprehend how data flows and is processed.</li><li>2. Identifying key components such as sensors, actuators, gateways, and cloud infrastructure, and their roles in enabling IoT functionality.</li></ol>	3:00 PM - 5:00 PM	11th October, 2023
S3	<p>IoT protocols and communication technologies</p> <ol style="list-style-type: none"><li>1. Examining popular IoT protocols like MQTT, CoAP, and HTTP, and their suitability for different use cases based on factors like bandwidth, reliability, and power consumption.</li><li>2. Comparing wireless communication technologies such as Wi-Fi, Bluetooth, Zigbee, and cellular networks, and selecting the appropriate one based on range, data rate, and power requirements.</li></ol>	3:00 PM - 5:00 PM	13th October, 2023
S4	<p>IoT sensors and actuators</p> <ol style="list-style-type: none"><li>1. Understanding the diverse types of sensors available in IoT, including temperature sensors, motion sensors, proximity sensors, and their applications in various industries.</li><li>2. Exploring the role of actuators in IoT systems, such as motors, valves, and relays, and how they enable physical control based on data inputs.</li></ol>	3:00 PM - 5:00 PM	16th October, 2023
S5	<p>Data collection, storage, and management in IoT</p> <ol style="list-style-type: none"><li>1. Analyzing data collection methods such as edge computing, fog computing, and centralized cloud storage, and their impact on latency, scalability, and reliability.</li><li>2. Implementing data management strategies including data aggregation, filtering, and compression to optimize storage and processing resources in IoT systems.</li></ol>	3:00 PM - 5:00 PM	18th October, 2023





S6	<p>IoT platforms and cloud service</p> <ol style="list-style-type: none"><li>1. Exploring IoT platform features such as device management, data analytics, and security services, and evaluating different platform providers based on scalability and interoperability.</li><li>2. Understanding the role of cloud services in IoT deployments, including Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS), and their benefits in terms of scalability, reliability, and cost-effectiveness.</li></ol>	3:00 PM - 5:00 PM	20th October, 2023
S7	<p>Security and privacy considerations in IoT</p> <ol style="list-style-type: none"><li>1. Identifying common security threats in IoT ecosystems, such as data breaches, malware attacks, and device tampering, and implementing measures such as encryption, authentication, and access control to mitigate risks.</li><li>2. Addressing privacy concerns related to data collection, storage, and sharing in IoT systems, and adhering to regulations such as GDPR and CCPA to protect user data rights.</li></ol>	3:00 PM - 5:00 PM	30th October, 2023
S8	<p>IoT analytics and data visualization</p> <ol style="list-style-type: none"><li>1. Leveraging data analytics techniques such as machine learning, predictive modeling, and anomaly detection to derive actionable insights from IoT data streams.</li><li>2. Utilizing data visualization tools and techniques such as dashboards, charts, and heatmaps to communicate key performance indicators and trends in IoT deployments effectively.</li></ol>	3:00 PM - 5:00 PM	1st November, 2023
S9	<p>Case studies of IoT implementation in various industries</p> <ol style="list-style-type: none"><li>1. Examining real-world examples of IoT applications in industries such as manufacturing, healthcare, agriculture, and transportation, and analyzing their impact on business operations, customer experiences, and revenue generation.</li><li>2. Identifying best practices and lessons learned from successful IoT deployments, including stakeholder engagement, technology integration, and scalability planning.</li></ol>	3:00 PM - 5:00 PM	3rd November, 2023
S10	<p>Business models and strategies for IoT adoption</p> <ol style="list-style-type: none"><li>1. Exploring different business models enabled by IoT, including product-centric, service-centric, and platform-centric approaches, and assessing their suitability based on market dynamics and competitive landscape.</li><li>2. Developing IoT adoption strategies encompassing market analysis, ecosystem partnerships, revenue models, and risk management to maximize return on investment and long-term sustainability.</li></ol>	3:00 PM - 5:00 PM	6th November, 2023



S11	<p>IoT applications in supply chain management</p> <ol style="list-style-type: none"><li>1. Optimizing supply chain visibility and transparency through IoT technologies such as RFID, GPS tracking, and blockchain, to improve inventory management, logistics, and demand forecasting.</li><li>2. Enhancing supply chain resilience and agility by leveraging real-time data analytics and predictive maintenance to mitigate risks such as disruptions, delays, and quality issues.</li></ol>	3:00 PM - 5:00 PM	8th November, 2023
S12	<p>IoT applications in marketing and customer engagement</p> <ol style="list-style-type: none"><li>1. Personalizing marketing campaigns and customer experiences through IoT-enabled devices such as wearables, smart appliances, and location-based sensors, to drive customer loyalty and brand advocacy.</li><li>2. Analyzing customer behavior and preferences using IoT-generated data to segment target audiences, optimize promotional strategies, and measure campaign effectiveness in real-time.</li></ol>	3:00 PM - 5:00 PM	9th November, 2023
S13	<p>IoT applications in operations management</p> <ol style="list-style-type: none"><li>1. Streamlining operations efficiency and productivity through IoT-enabled automation, predictive maintenance, and remote monitoring of equipment and assets.</li><li>2. Implementing real-time performance tracking and optimization strategies using IoT data analytics to identify bottlenecks, minimize downtime, and optimize resource utilization across manufacturing, facilities, and logistics operations.</li></ol>	3:00 PM - 5:00 PM	10th November, 2023
S14	<p>IoT applications in human resources management</p> <ol style="list-style-type: none"><li>1. Enhancing employee productivity and well-being through IoT-enabled workplace solutions such as smart offices, wearable devices, and health monitoring systems.</li><li>2. Improving talent acquisition and retention strategies by leveraging IoT data analytics to assess employee performance, satisfaction, and engagement levels, and implement targeted interventions and incentives.</li></ol>	3:00 PM - 5:00 PM	13th November, 2023
S15	<p>Regulatory compliance and legal aspects of IoT</p> <ol style="list-style-type: none"><li>1. Navigating regulatory frameworks and standards governing IoT deployments, such as data protection regulations, industry certifications, and safety standards, to ensure compliance and mitigate legal risks.</li><li>2. Addressing liability and accountability issues related to data ownership, privacy breaches, and product safety in IoT ecosystems, through contractual agreements, insurance policies, and risk management practices.</li></ol>	3:00 PM - 5:00 PM	14th November, 2023



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S16	Final project presentations and wrap-up discussions. 1. Presenting final project findings, insights, and recommendations derived from applying IoT concepts and technologies to real-world scenarios. 2. Facilitating group discussions and knowledge sharing on key learnings, challenges, and opportunities in IoT implementation, and reflecting on the future outlook of IoT in business management.	11:00 AM - 12:00 PM	15th November, 2023
	Assessment	3:00 PM - 4:00 PM	15th November, 2023



	<b>Report</b>
Name of Activity	IoT and its applications in Business Management
Date	9th October -15th November 2023
Venue	B-Block Computer Lab, MIMT
Organised by	Management Department
Participation by	BBA 1st Year students
No. of Participants	37
Resource Person	Mr. Surya Shekhar Vishal (Faculty,MIMT)
Activity Convener	Mr. Deepanshu Yadav
Objective	<p>The primary objective of the IoT certification program is to equip participants with an in-depth understanding of Internet of Things (IoT) concepts and their practical applications within the context of business management. Through a structured curriculum spanning various aspects of IoT technology, strategy, and implementation, the program aims to empower participants with the knowledge, skills, and strategic insights necessary to leverage IoT effectively to drive innovation, efficiency, and competitiveness in their organizations. Overall, the objective of the certification program is to empower participants to become IoT champions within their organizations, driving digital transformation, innovation, and business growth through strategic and effective use of IoT technologies and practices.</p>
Content	<p>Day 1: Introduction to IoT and Its Relevance in Business Management On the first day, participants were introduced to the transformative potential of IoT in optimizing business processes. The session highlighted how IoT enhances decision-making through real-time data insights. The discussion emphasized the competitive advantages gained from IoT adoption, such as cost reduction, efficiency improvement, and innovation acceleration. Real-world examples demonstrated how businesses leverage IoT to stay ahead in their respective markets. Attendees gained a comprehensive understanding of IoT's significance in the modern business landscape, setting the foundation for the subsequent sessions.</p> <p>Day 2: Understanding IoT Architecture and Components During the second session, participants delved into the layered architecture of IoT. They explored the perception, network, and application layers, gaining insights into how data flows and is processed within IoT systems. Key components such as sensors, actuators, gateways, and cloud infrastructure were identified and their roles explained. This session provided a clear picture of</p>



the essential building blocks of IoT, helping attendees understand the complex yet fascinating architecture that powers IoT solutions.

**Day 3: IoT Protocols and Communication Technologies** The third day focused on IoT protocols and communication technologies. Participants examined popular IoT protocols like MQTT, CoAP, and HTTP, learning about their suitability for different use cases based on factors like bandwidth, reliability, and power consumption. The session also compared wireless communication technologies such as Wi-Fi, Bluetooth, Zigbee, and cellular networks, providing insights into selecting the appropriate technology based on range, data rate, and power requirements. This knowledge equipped attendees with the ability to choose the right protocols and technologies for various IoT applications.

**Day 4: IoT Sensors and Actuators** On the fourth day, participants explored the diverse types of sensors available in IoT, including temperature sensors, motion sensors, and proximity sensors. The session covered their applications in various industries, demonstrating the versatility of IoT sensors. Additionally, the role of actuators in IoT systems was discussed, highlighting how devices such as motors, valves, and relays enable physical control based on data inputs. This session provided a thorough understanding of the sensory and actuation aspects of IoT.

**Day 5: Data Collection, Storage, and Management in IoT** The fifth session analyzed data collection methods such as edge computing, fog computing, and centralized cloud storage. Participants learned about the impact of these methods on latency, scalability, and reliability. The session also covered data management strategies including data aggregation, filtering, and compression to optimize storage and processing resources in IoT systems. By the end of the session, attendees were equipped with strategies to handle vast amounts of data efficiently, ensuring smooth IoT operations.

**Day 6: IoT Platforms and Cloud Services** On the sixth day, participants explored IoT platform features such as device management, data analytics, and security services. They evaluated different platform providers based on scalability and interoperability. The session also covered the role of cloud services in IoT deployments, including Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS). The benefits of these services in terms of scalability, reliability, and cost-effectiveness were discussed, providing a comprehensive understanding of IoT platform and cloud service options.

**Day 7: Security and Privacy Considerations in IoT** The seventh session focused on security and privacy considerations in IoT ecosystems. Participants identified common security threats such as data breaches, malware attacks, and device tampering. They learned about implementing measures such as encryption, authentication, and access control to mitigate risks. Privacy concerns related to data collection, storage, and sharing in IoT systems were addressed, along with adherence to regulations such as GDPR and CCPA. This session equipped attendees with essential knowledge to protect IoT systems and user data.



**Day 8: IoT Analytics and Data Visualization** On the eighth day, participants leveraged data analytics techniques such as machine learning, predictive modeling, and anomaly detection to derive actionable insights from IoT data streams. They also utilized data visualization tools and techniques such as dashboards, charts, and heatmaps to communicate key performance indicators and trends in IoT deployments effectively. This session provided attendees with the skills to analyze and visualize IoT data, enabling better decision-making and performance tracking.

**Day 9: Case Studies of IoT Implementation in Various Industries** During the ninth session, participants examined real-world examples of IoT applications in industries such as manufacturing, healthcare, agriculture, and transportation. They analyzed the impact of IoT on business operations, customer experiences, and revenue generation. Best practices and lessons learned from successful IoT deployments were identified, including stakeholder engagement, technology integration, and scalability planning. This session offered valuable insights into practical IoT applications and strategies for successful implementation.

**Day 10: Business Models and Strategies for IoT Adoption** On the tenth day, participants explored different business models enabled by IoT, including product-centric, service-centric, and platform-centric approaches. They assessed the suitability of these models based on market dynamics and the competitive landscape. The session also covered developing IoT adoption strategies encompassing market analysis, ecosystem partnerships, revenue models, and risk management. Attendees gained a thorough understanding of how to create and implement effective IoT business strategies for maximum return on investment and long-term sustainability.

**Day 11: IoT Applications in Supply Chain Management** The eleventh session focused on optimizing supply chain visibility and transparency through IoT technologies such as RFID, GPS tracking, and blockchain. Participants learned how these technologies improve inventory management, logistics, and demand forecasting. The session also covered enhancing supply chain resilience and agility by leveraging real-time data analytics and predictive maintenance to mitigate risks such as disruptions, delays, and quality issues. This session provided practical insights into applying IoT to enhance supply chain operations.

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**Day 12: IoT Applications in Marketing and Customer Engagement** On the twelfth day, participants explored personalizing marketing campaigns and customer experiences through IoT-enabled devices such as wearables, smart appliances, and location-based sensors. They learned how IoT can drive customer loyalty and brand advocacy. The session also covered analyzing customer behavior and preferences using IoT-generated data to segment target audiences, optimize promotional strategies, and measure campaign effectiveness in real-time. This session equipped attendees with strategies to leverage IoT for effective marketing and customer engagement.



	<p>Day 13: IoT Applications in Operations Management The thirteenth session focused on streamlining operations efficiency and productivity through IoT-enabled automation, predictive maintenance, and remote monitoring of equipment and assets. Participants learned about implementing real-time performance tracking and optimization strategies using IoT data analytics to identify bottlenecks, minimize downtime, and optimize resource utilization across manufacturing, facilities, and logistics operations. This session provided practical insights into applying IoT to improve operational efficiency.</p> <p>Day 14: IoT Applications in Human Resources Management On the fourteenth day, participants explored enhancing employee productivity and well-being through IoT-enabled workplace solutions such as smart offices, wearable devices, and health monitoring systems. They learned about improving talent acquisition and retention strategies by leveraging IoT data analytics to assess employee performance, satisfaction, and engagement levels, and implement targeted interventions and incentives. This session offered valuable insights into applying IoT to human resources management.</p> <p>Day 15: Regulatory Compliance and Legal Aspects of IoT The fifteenth session focused on navigating regulatory frameworks and standards governing IoT deployments, such as data protection regulations, industry certifications, and safety standards. Participants learned about ensuring compliance and mitigating legal risks. The session also addressed liability and accountability issues related to data ownership, privacy breaches, and product safety in IoT ecosystems, through contractual agreements, insurance policies, and risk management practices. This session equipped attendees with knowledge to handle regulatory and legal aspects of IoT.</p> <p>Day 16: Final Project Presentations and Wrap-Up Discussions On the final day, participants presented their final project findings, insights, and recommendations derived from applying IoT concepts and technologies to real-world scenarios. The session facilitated group discussions and knowledge sharing on key learnings, challenges, and opportunities in IoT implementation. Participants reflected on the future outlook of IoT in business management, concluding the course with a comprehensive understanding of IoT applications and strategies.</p>
Assessment	At the end of the IoT and its applications in the Business Management Program there was a MCQ assessment assigned to assess the understanding level of the students.
Outcome of Activity	<p>Upon completion of the 16-day IoT and its applications in Business Management add-on program, participants will be able to:</p> <p>Demonstrate a deep understanding of IoT architecture, components, protocols, and communication technologies.</p> <p>Apply IoT principles to analyze business challenges and opportunities, and design innovative solutions for process optimization, cost reduction, and revenue generation.</p>



	<p>Evaluate IoT platforms, cloud services, and security measures to develop robust IoT strategies aligned with organizational goals and regulatory requirements.</p> <p>Implement IoT solutions across various business functions such as supply chain management, marketing, operations, and human resources, to drive efficiency, productivity, and customer engagement.</p> <p>Navigate legal and regulatory frameworks governing IoT deployments, and incorporate compliance measures into business plans to mitigate legal risks and protect user privacy.</p> <p>Present and defend IoT project proposals, leveraging data analytics and case studies to communicate the potential impact and ROI of IoT investments to key stakeholders.</p> <p>Collaborate with cross-functional teams to execute IoT projects effectively, leveraging best practices and lessons learned from real-world case studies and industry insights.</p> <p>Overall, the objective is to empower participants with the knowledge, skills, and confidence to lead successful IoT initiatives in their organizations, driving innovation, growth, and competitive advantage in the digital age.</p>
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### List of Beneficiaries

S. No	Roll Number	Student Name	Registered
1	230992010231	ALIYA SHEIKH	Registered
2	230992010240	ANIKET	Registered
3	230992010246	ANKITA KUMARY SINGH	Registered
4	230992010266	ARYAN	Registered
5	230992010285	BIPUL KUMAR PANDEY	Registered
6	230992010301	DIVYANSH SHEORAN	Registered
7	230992010322	HARSH BHADANA	Registered
8	230992010328	HARSH KASANA	Registered
9	230992010327	HARSHIT KUMAR	Registered
10	230992010346	JISHAN	Registered
11	230992010364	KUMAIL ZAIDI	Registered
12	230992010370	LACKY	Registered
13	230992010395	MOHD AYAN	Registered
14	230992010412	NARESH MEENA	Registered
15	230992010417	NIKHIL	Registered





16	230992010422	NIKITA RANAKOTI	<b>Registered</b>
17	230992010430	NITIN	<b>Registered</b>
18	230992010446	PIYUSH KUMAR	<b>Registered</b>
19	230992010451	PRASHANT RAJ	<b>Registered</b>
20	230992010457	PRINCE KUMAR ROUSHA	<b>Registered</b>
21	230992010481	RAVI SHARMA	<b>Registered</b>
22	230992010499	ROUNAK	<b>Registered</b>
23	230992010502	RUCHIR RISHI	<b>Registered</b>
24	230992010512	SAHID PERWEJ	<b>Registered</b>
25	230992010531	SATYAM KUMAR	<b>Registered</b>
26	230992010541	SHIVAM BHATI	<b>Registered</b>
27	230992010542	SHIVAM KUMAR	<b>Registered</b>
28	230992010554	SIDDHI KUMAR	<b>Registered</b>
29	230992010567	SUMIT AGRAHARI	<b>Registered</b>
30	230992010575	SWATI RAWAT	<b>Registered</b>
31	230992010580	TUSHAR NAGAR	<b>Registered</b>
32	230992010585	UTKARSH RANA	<b>Registered</b>
33	230992010592	VARUN KUMAR	<b>Registered</b>
34	230992010595	VIKAS	<b>Registered</b>
35	230992010598	VIKRAM KUMAR	<b>Registered</b>
36	230992010600	VISHAL GUPTA	<b>Registered</b>
37	230992010605	VIVEK	<b>Registered</b>

Status of Students for Add on certificate of IoT and its applications in Business Management:-

<b>S. No</b>	<b>Roll Number</b>	<b>Student Name</b>	<b>Registered</b>	<b>Status</b>
1	230992010231	ALIYA SHEIKH	Registered	Completed
2	230992010240	ANIKET	Registered	Completed
3	230992010246	ANKITA KUMARY SINGH	Registered	Completed
4	230992010266	ARYAN	Registered	Completed
5	230992010285	BIPUL KUMAR PANDEY	Registered	Completed
6	230992010301	DIVYANSH SHEORAN	Registered	Completed
7	230992010322	HARSH BHADANA	Registered	Completed



8	230992010328	HARSH KASANA	Registered	Completed
9	230992010327	HARSHIT KUMAR	Registered	Completed
10	230992010346	JISHAN	Registered	Completed
11	230992010364	KUMAIL ZAIDI	Registered	Completed
12	230992010370	LACKY	Registered	Completed
13	230992010395	MOHD AYAN	Registered	Completed
14	230992010412	NARESH MEENA	Registered	Completed
15	230992010417	NIKHIL	Registered	Completed
16	230992010422	NIKITA RANAKOTI	Registered	Completed
17	230992010430	NITIN	Registered	Completed
18	230992010446	PIYUSH KUMAR	Registered	Completed
19	230992010451	PRASHANT RAJ	Registered	Completed
20	230992010457	PRINCE KUMAR ROUSHA	Registered	Completed
21	230992010481	RAVI SHARMA	Registered	Completed
22	230992010499	ROUNAK	Registered	Completed
23	230992010502	RUCHIR RISHI	Registered	Completed
24	230992010512	SAHID PERWEJ	Registered	Completed
25	230992010531	SATYAM KUMAR	Registered	Completed
26	230992010541	SHIVAM BHATI	Registered	Completed
27	230992010542	SHIVAM KUMAR	Registered	Completed
28	230992010554	SIDDHI KUMAR	Registered	Completed
29	230992010567	SUMIT AGRAHARI	Registered	Completed
30	230992010575	SWATI RAWAT	Registered	Completed
31	230992010580	TUSHAR NAGAR	Registered	Completed
32	230992010585	UTKARSH RANA	Registered	Completed
33	230992010592	VARUN KUMAR	Registered	Completed
34	230992010595	VIKAS	Registered	Completed
35	230992010598	VIKRAM KUMAR	Registered	Completed
36	230992010600	VISHAL GUPTA	Registered	Completed
37	230992010605	VIVEK	Registered	Completed



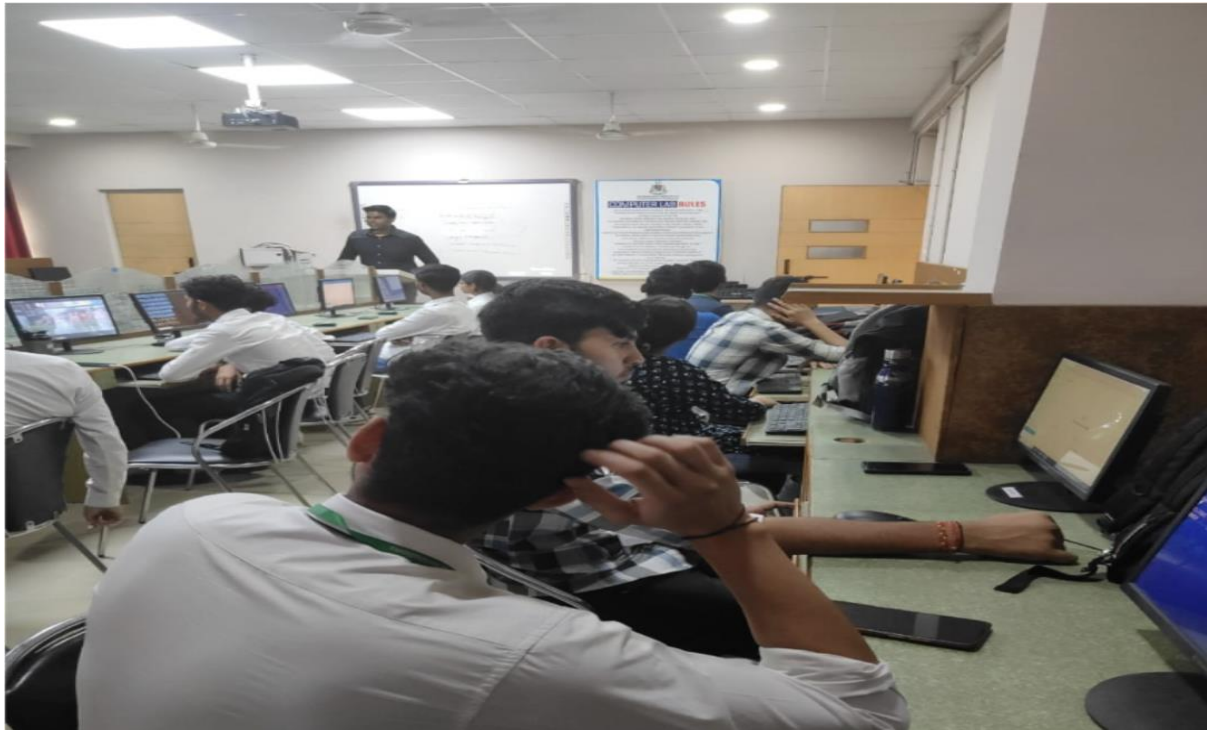
## **PROFILE OF THE RESOURCE PERSON**



### **Mr. Surya Shekhar Vishal (B.Tech + MBA)**

Assistant Professor at Mangalmay Institute of Management and Technology, is a dynamic educator and an emerging thought leader in the fields of Marketing, Human Resource Management, Information Technology, and International Business. His passion for empowering the next generation of business leaders is evident in his engaging teaching methods and insightful analysis, earning him respect in both academia and the professional world. With a strong dedication to teaching and scholarly pursuits, Mr. Surya Shekhar brings a fresh perspective and practical wisdom to his work, effectively bridging the gap between theory and practice for students and professionals.

### **Photograph Glimpses**



**Mr. Surya Shekhar Vishal delving into the layered architecture of IoT**



**Final project presentations and discussion for clarifying students queries**

**Sample Certificate**



# **CERTIFICATE**

It is to certify that **Mr./Ms. ALIYA SHEIKH** of **BBA 1st year** has successfully completed **32 hours** certification course on **"IOT and its application in Business Management"** from **09/10/2023** to **15/11/2023** organized by Mangalmay Institute of Management & Technology, Greater Noida.

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**Sample Assessment**



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Course: BBA

ADD-ON COURSE QUIZ

Time: 1 hour

Course Name: IOT and its application in Business Management

Name - Aliya Sheikh Roll no - 280992010231 Invigilator Sign - [Signature]  
Batch - 2023-26 Date - 15-11-2023 Semester - 1<sup>st</sup>

General Instructions: All questions are compulsory. Each question will carry '1' mark and there is no 'Negative Marking'

1) What does IoT stand for?

- A. Internet of Technology
- B. Internet of Things
- C. Integration of Technology
- D. Information of Things

2) Which of the following is a key component of IoT?

- A. Smart sensors
- B. Manual data entry
- C. Traditional computing
- D. Paper records

3) How does IoT improve inventory management?

- A. By reducing the need for storage
- B. By manually tracking inventory levels
- C. By providing real-time inventory tracking
- D. By limiting data collection

4) What is a common application of IoT in retail?

- A. Cloud computing
- B. Smart shelves
- C. Manual checkouts
- D. Traditional advertising

5) Which of the following best describes 'smart buildings' in the context of IoT?

- A. Buildings with traditional security systems
- B. Buildings equipped with IoT devices for automation and energy efficiency
- C. Buildings designed for manual management
- D. Buildings with no technological integration



6) How can IoT enhance customer experience in business?

- A. By reducing product variety
- ✓ B. By providing personalized services through data analysis
- C. By increasing operational costs
- D. By limiting customer interactions

7) What role does IoT play in supply chain management?

- A. It reduces the visibility of goods in transit
- ✓ B. It provides real-time tracking and monitoring of shipments
- C. It increases manual paperwork
- D. It limits data sharing between partners

8) Which of the following is an example of an IoT device?

- A. Desktop computer
- B. Smartphone
- ✓ C. Smart thermostat
- D. Traditional landline phone

9) How can IoT contribute to predictive maintenance in manufacturing?

- A. By increasing machine downtime
- ✓ B. By collecting data to predict and prevent equipment failures
- C. By eliminating the need for maintenance
- D. By reducing data collection

10) What is the primary benefit of using IoT in logistics?

- A. Increased paperwork
- ✓ B. Improved tracking and efficiency
- C. Higher operational costs
- D. Manual inventory checks

11) Which technology is often integrated with IoT for enhanced data analysis?

- A. Virtual reality
- B. Blockchain
- ✓ C. Artificial intelligence
- D. Cloud computing

12) In the context of IoT, what does 'interoperability' mean?

- ✓ A. Devices from different manufacturers cannot work together
- B. The ability of IoT devices to communicate and work together



- C. The need for manual data integration
- D. Limited data exchange between devices

13) Which of the following is a security concern associated with IoT?

- A. Reduced connectivity
- B. Data breaches and unauthorized access
- C. Increased manual labor
- D. Limited data collection

14) What is an IoT platform?

- A. A traditional computing system
- B. A software suite that enables the management and operation of IoT devices
- C. A physical location for IoT devices
- D. A manual data entry system

15) How does IoT help in energy management for businesses?

- A. By increasing energy consumption
- B. By providing real-time data to optimize energy usage
- C. By eliminating the need for energy monitoring
- D. By relying solely on manual readings

16) What is a smart grid in the context of IoT?

- A. A traditional power grid with no technological enhancements
- B. An electricity network that uses IoT to improve efficiency and reliability
- C. A manual system for energy distribution
- D. A conventional grid with no data analysis

17) Which of the following is an example of IoT in healthcare?

- A. Manual patient records
- B. Wearable health monitors
- C. Traditional diagnosis methods
- D. Paper-based prescriptions

18) How can IoT improve workplace safety?

- A. By reducing the need for safety protocols
- B. By providing real-time monitoring and alerts for hazardous conditions
- C. By increasing manual inspections
- D. By limiting data collection on safety





19) What does 'edge computing' mean in the context of IoT?

- A. Centralized data processing
- ✓  B. Processing data closer to where it is generated to reduce latency
- C. Storing data in a central server
- D. Manual data processing

20) Which industry can benefit from IoT through enhanced asset tracking?

- A. Retail
- B. Manufacturing
- C. Healthcare
- ✓  D. All of the above

21) What is the role of IoT in smart cities?

- A. Increasing urban congestion
- ✓  B. Improving urban infrastructure and services through data collection and analysis
- C. Reducing technological integration
- D. Limiting data usage in public services

22) Which of the following is a challenge in implementing IoT solutions?

- A. Lack of data generation
- ✓  B. Data privacy and security concerns
- C. Reduced connectivity
- D. Limited device availability

23) How does IoT facilitate remote monitoring?

- A. By requiring physical presence for data collection
- ✓  B. By enabling real-time data access and control from distant locations
- C. By eliminating data collection
- D. By reducing connectivity options

24) What is the significance of data analytics in IoT?

- A. It reduces the need for data collection
- ✓  B. It helps in making informed decisions based on collected data
- C. It limits the use of IoT devices
- D. It increases data storage costs

25) Which IoT application helps in automating building management systems?

- ✓  A. Smart thermostats
- B. Manual lighting controls



- C. Traditional HVAC systems
- D. Paper-based security logs

26) How can IoT support personalized marketing?

- A. By ignoring customer preferences
- ✓ • B. By analyzing customer data to tailor marketing efforts
- C. By reducing customer engagement
- D. By increasing marketing costs

27) What is a common feature of IoT-enabled smart homes?

- A. Manual lighting systems
- ✓ • B. Connected appliances and devices that can be controlled remotely
- C. Traditional security measures
- D. Limited technological integration

28) How can businesses ensure the security of their IoT devices?

- A. By avoiding updates
- ✓ • B. By implementing strong encryption and regular software updates
- C. By ignoring security protocols
- D. By limiting device usage

29) What is the role of IoT in environmental monitoring?

- A. Increasing environmental degradation
- ✓ • B. Providing real-time data on environmental conditions
- C. Limiting data collection on environmental factors
- D. Reducing the accuracy of environmental data

30) How does IoT contribute to automation in manufacturing?

- A. By increasing the need for manual labor
- ✓ • B. By enabling real-time monitoring and control of manufacturing processes
- C. By reducing production efficiency
- D. By limiting data-driven decisions