**ADD ON COURSE DOCUMENTS (SESSION 2022-23)**
**Org By DEPARTMENT OF ECONOMICS**
**KALIPADA GHOSH TARAI MAHAVIDYALAYA**


DEPARTMENT OF ECONOMICS
KALIPADA GHOSH TARAI MAHAVIDYALAYA
ESTD: 1988
PO: BAGDOGRA, DIST: DARJEELING, PIN 734014
E-mail: prinkgtm@gmail.com


Ref. No. KGTM/ ADD ON/ 01/22

Date: 04.08.2022

To
The Principal
Kalipada Ghosh Tarai Mahavidyalaya

**Subject: Prayer for approval of an ADD ON Course**

Respected Madam,

The Department of Economics expresses keen interest in commencing an Add-On course for the academic sessions 2022-23.The topic of the ADD ON Course is 'Understanding New Technology in Agriculture'. Kindly grant permission for the initiation of the proposed course. Your approval is crucial for the implementation of this initiative. Thank you for your consideration.

Warm regards,

Dr. Shyam Charan Barma
Head
Department of Economics
Kalipada Ghosh Tarai Mahavidyalaya

Head
Department of Economics
K.G.T. Mahavidyalaya

PRINCIPAL
Kalipada Ghosh Tarai
Mahavidyalaya

DEPARTMENT OF ECONOMICS
KALIPADA GHOSH TARAI MAHAVIDYALAYA
ESTD: 1988
PO: BAGDOGRA, DIST: DARJEELING, PIN 734014
E-mail: prinkgtm@gmail.com

Ref. No. KGTM/ADD ON/ 02/22 Date: 05.08.2022

To
The IQAC Coordinator
Kalipada Ghosh Tarai Mahavidyalaya

**Subject: Please grant permission to start the ADD ON Course**

Respected Sir,

The Department of Economics expresses keen interest in commencing an Add-On course for the academic sessions 2022-23. The topic of the ADD ON Course is 'Understanding New Technology in Agriculture'. Kindly grant permission for the initiation of the proposed course. Your approval is crucial for the implementation of this initiative. Thank you for your consideration.

Warm regards,

Dr. Shyam Charan Barma
Head
Department of Economics
Kalipada Ghosh Tarai Mahavidyalaya

Chakraborty
PRINCIPAL
Kalipada Ghosh Tarai
Mahavidyalaya
Bagdogra

Department of Economics
K.G.T. Mahavidyalaya

DEPARTMENT OF ECONOMICS
KALIPADA GHOSH TARAI MAHAVIDYALAYA
ESTD: 1988
PO: BAGDOGRA, DIST: DARJEELING, PIN 734014
E-mail: prinkgtm@gmail.com

Ref. No. KGTM/ADD ON/ 03/22 Date: 06.08.2022

To
The Principal
Kalipada Ghosh Tarai Mahavidyalaya

Subject: Prayer for starting ADD ON course

Respected Madam,

The Department of Economics expresses keen interest in commencing an Add-On course for the academic sessions 2022-23. The topic of the ADD ON Course is 'Understanding New Technology in Agriculture'. Kindly grant permission for the initiation of the proposed course. Your approval is crucial for the implementation of this initiative. Thank you for your consideration.

Warm regards,

Dr. Shyam Charan Barma
Head
Department of Economics
Kalipada Ghosh Tarai Mahavidyalaya

PRINCIPAL
Kalipada Ghosh Tarai
Mahavidyalaya
Bagdogra

Department of Economics
K.G.T. Mahavidyalaya

DEPARTMENT OF ECONOMICS
KALIPADA GHOSH TARAI MAHAVIDYALAYA
ESTD. 1988
PO: BAGDOGRA, DIST: DARJEELING, PIN 734014
E-mail: prinkgtm@gmail.com

Ref. No. KGTM/ADD ON/04/22

Date: 06.08.2022

To
The IQAC Coordinator
Kalipada Ghosh Tarai Mahavidyalaya

Subject: Prayer for starting ADD ON course

Respected Sir,

The Department of Economics expresses keen interest in commencing an Add-On course for the academic sessions 2022-23. The topic of the ADD ON Course is **'Understanding New Technology in Agriculture'**. Kindly grant permission for the initiation of the proposed course. Your approval is crucial for the implementation of this initiative. Thank you for your consideration.

Warm regards,

Dr. Shyam Charan Barma
Head
Department of Economics
Kalipada Ghosh Tarai Mahavidyalaya

Department of Economics
K.G.T. Mahavidyalaya

DEPARTMENT OF ECONOMICS
KALIPADA GHOSH TARAI MAHAVIDYALAYA
ESTD: 1988
PO: BAGDOGRA, DIST: DARJEELING, PIN 734014
E-mail: prinkgtm@gmail.com

Ref. No. KGTM/ADD ON/05/22 Date: 10.08.2022

# Notice

A Departmental meeting is scheduled for 12.08.2022 to discuss the initiation of an ADD ON course for the academic session 2022-23. The topic of the ADD ON Course is 'Understanding New Technology in Agriculture'. All teachers are urged to attend.

The agenda includes:

i. To discuss ADD ON Course
ii. Planning for ADD ON Course
iii. Discussion of miscellaneous matters.

Your participation is vital to the success of our ADD ON course.

Best regards,

Chakraborty
Principal
Kalipada Ghosh Tarai Mahavidyalaya
PRINCIPAL
Kalipada Ghosh Tarai
Mahavidyalaya
Bagdogra

Head
Department of Economics
Kalipada Ghosh Tarai Mahavidyalaya
Department of Economics
K.G.T. Mahavidyalaya

KALIPADA GHOSH TARAI MAHAVIDYALAYA
PO: BAGDOGRA, DIST: DARJEELING, PIN 734014
E-mail: prinkgtm@gmail.com
(0353) 2004707 (Principal)

Ref. No. : KGTM/ADD ON/5.a/22 Date : 12.08.2022.

Proceedings of the Departmental meeting held on 12/08/2022 at 3:00 P.M in the Teacher's Common Room. Members Present:

1. Dr. Shyam Charan Barma
2. Dr. Suman Sikdar

**Resolution**: It was decided that the Add-On course on " Understanding New Technology in Agriculture" would be conducted in the Department of Economics. The application for the said add-on course would be sent to the Principal and IQAC for approval and necessary action.

Head
Department of Economics,
KGTM

Head
Department of Economics
K.G.T. Mahavidyalaya

DEPARTMENT OF ECONOMICS
KALIPADA GHOSH TARAI MAHAVIDYALAYA
ESTD: 1988
PO: BAGDOGRA, DIST: DARJEELING, PIN 734014
E-mail: prinkgtm@gmail.com

Ref. No. KGTM/ADD ON/06/22 Date: 13.08.2022

## Notice

A Department meeting is scheduled for 16.08.2022, to distribute the syllabus for an ADD ON course among the teachers. All faculty members are required to attend this meeting. Your presence is vital for the smooth distribution and implementation of the syllabus. Please mark your calendars accordingly and ensure your availability on that day. Thank you

i. To discuss the preparation of schedule and syllabus distribution
ii. Discussion of miscellaneous matters.

Principal
Kalipada Ghosh Tarai Mahavidyalaya
PRINCIPAL
Kalipada Ghosh Tarai
Mahavidyalaya
Bagdogra

Head
Department of Economics
Kalipada Ghosh Tarai Mahavidyalaya
Department of Economics
K.G.T. Mahavidyalaya

KALIPADA GHOSH TARAI MAHAVIDYALAYA
PO: BAGDOGRA, DIST: DARJEELING, PIN 734014
E-mail: prinkgtm@gmail.com
(0353) 2004707 (Principal)

Ref. No. : KGTM/ADD ON/5.a/22 Date : 12.08.2022.

Proceedings of the Departmental meeting held on 12/08/2022 at 3:00 P.M in the Teacher's Common Room. Members Present:

1. Dr. Shyam Charan Barma
2. Dr. Suman Sikdar

**Resolution**: It was decided that the Add-On course on " Understanding New Technology in Agriculture" would be conducted in the Department of Economics. The application for the said add-on course would be sent to the Principal and IQAC for approval and necessary action.

Head
Department of Economics,
KGTM

Head
Department of Economics
K.G.T. Mahavidyalaya

DEPARTMENT OF ECONOMICS
KALIPADA GHOSH TARAI MAHAVIDYALAYA
ESTD: 1988
PO: BAGDOGRA, DIST: DARJEELING, PIN 734014
E-mail: prinkgtm@gmail.com

Ref. No: KGTM/ADD ON/07/22 Date: 16.08.2022

**ADD ON COURSE**
Class Routine for ADD ON Course
**Organized by**
**Department of Economics**
**Kalipada Ghosh Tarai Mahavidyalaya**

**Topic: 'Understanding New Technology in Agriculture'**

| Date | Sub-Title | Name of Resource Persons | Time |
|---|---|---|---|
| 11.09.2022 | Introduction to Agricultural Technology | Dr. Shyam Charan Barma | 4.00 PM to 7.00 PM |
| 12.09.2022 | Evolution of Agricultural Machinery | Dr.. Suman Sikdar | 4.00 PM to 7.00 PM |
| 15.09.2022 | Precision Farming Techniques | Dr. Shyam Charan Barma | 4.00 PM to 7.00 PM |
| 16.09.2022 | IoT and Sensor Technology in Agriculture | Dr. Shyam Charan Barma | 4.00 PM to 7.00 PM |
| 17.09.2022 | Genetic Engineering and Crop Improvement | Dr. Himika Mukhopadhyay | 4.00 PM to 7.00 PM |
| 18.09.2022 | Drones and Remote Sensing in Agriculture | Dr.. Suman Sikdar | 4.00 PM to 7.00 PM |
| 24.09.2022 | Sustainable Farming Practices | Dr. Shyam Charan Barma | 4.00 PM to 7.00 PM |
| 25.09.2022 | Data Analytics for Crop Management | Dr. Shyam Charan Barma | 4.00 PM to 7.00 PM |
| 27.09.2022 | Vertical Farming and Urban Agriculture | Dr.. John Breakmas Tirkey | 4.00 PM to 7.00 PM |
| 29.09.2022 | Future Trends in Agricultural Technology | Dr. Shyam Charan Barma | 4.00 PM to 7.00 PM |

Chakraborty
Principal
Kalipada Ghosh Tarai Mahavidyalaya

Head
Department of Economics
Kalipada Ghosh Tarai Mahavidyalaya

**DEPARTMENT OF ECONOMICS**
**KALIPADA GHOSH TARAI MAHAVIDYALAYA**
ESTD: 1988
**PO: BAGDOGRA, DIST: DARJEELING, PIN 734014**
**E-mail: prinkgtm@gmail.com**

Ref. No. KGTM/ADD ON/07/22

Date: 16.08.2022

**To**
**Dr. Himika Mukhopadhyay**
**Asst. Professor of Geography**
**Department of Geography**
**KGTM**

Subject: Prayer for deliver a special lecture on ADD ON Course titled "Understanding New Technology in Agriculture'

Dear Madam,

With due respect, I am pleased to inform you that the Department of Economics will be conducting an Add-On course for the academic sessions 2022-23. We cordially invite you to deliver a lecture on the Add ON course titled 'Understanding New Technology in Agriculture'. Your active participation would be highly appreciated. Thank you for considering our invitation.

Best regards,

Principal
Kalipada Ghosh Tarai Mahavidyalaya

PRINCIPAL
Kalipada Ghosh Tarai
Mahavidyalaya
Bagdogra

Head
Department of Economics
Kalipada Ghosh Tarai Mahavidyalaya

Head
Department of Economics
K.G.T. Mahavidyalaya

**DEPARTMENT OF ECONOMICS**
**KALIPADA GHOSH TARAI MAHAVIDYALAYA**
ESTD: 1988
**PO: BAGDOGRA, DIST: DARJEELING, PIN 734014**
**E-mail: prinkgtm@gmail.com**

Ref. No: KGTM/ADD ON/08/22

Date: 16.08.2022

**To**
**Dr. John B. Tirkey**
**Asso. Professor of Sociology**
**Department of Sociology**
**KGTM**

Subject: Prayer for deliver a special lecture on ADD ON Course titled 'Understanding New Technology in Agriculture'

Dear Sir,

With due respect, I am pleased to inform you that the Department of Economics will be conducting an Add-On course for the academic sessions 2022-23. We cordially invite you to deliver a lecture on the Add ON course titled 'Understanding New Technology in Agriculture'. Your active participation would be highly appreciated. Thank you for considering our invitation.

Best regards,

Principal
Kalipada Ghosh Tarai Mahavidyalaya

PRINCIPAL
Kalipada Ghosh Tarai
Mahavidyalaya
Bagdogra

Head
Department of Economics
Kalipada Ghosh Tarai Mahavidyalaya

Head
Department of Economics
K.G.T. Mahavidyalaya

ADD ON Course in Economics 2022-23
Org by
Department of Economics
Kalipada Ghosh Tarai Mahavidyalaya

Topic: Understanding New Technology in Agriculture

Sub-Topics:

1. Introduction to Agricultural Technology
2. Evolution of Agricultural Machinery
3. Precision Farming Techniques
4. IoT and Sensor Technology in Agriculture
5. Genetic Engineering and Crop Improvement
6. Drones and Remote Sensing in Agriculture
7. Sustainable Farming Practices
8. Data Analytics for Crop Management
9. Vertical Farming and Urban Agriculture
10. Future Trends in Agricultural Technology"

**Overview of Understanding New Technology in Agriculture:**

Explanation: IoT explain connecting physical devices to the internet to collect and exchange data. In agriculture, IoT enables farmers to monitor and manage various aspects of their operations remotely.

Role of Sensors in Agricultural Monitoring:Sensors play a crucial role in agricultural monitoring by collecting data on soil moisture, temperature, humidity, and other environmental factors. This data gives farmers make informed decisions about irrigation, fertilization, and crop protection.

Wireless Sensor Networks for Crop Management: Wireless sensor networks involve of interconnected sensors deployed across fields. These networks facilitate real-time monitoring of crop conditions and enable efficient management practices such as variable rate irrigation and precision agriculture.

Soil Moisture Sensors and Irrigation Control:Soil moisture sensors evaluate the moisture content in the soil, allowing farmers to optimize irrigation schedules and prevent overwatering or under watering. This technology helps conserve water resources and improve crop yield and quality.

Weather Monitoring and Climate Prediction with IoT:IoT-empowered weather monitoring systems collect data on temperature, humidity, wind speed, and precipitation. By analyzing this

PRINCIPAL
Kalipada Ghosh Tarai
Mahavidyalaya
Bagdogra

Head
Department of Economics
K.G.T. Mahavidyalaya

data, farmers can make predictions about weather patterns and adjust their farming practices accordingly to mitigate risks and optimize crop production.

Smart Agriculture: Automated Farming Systems:Smart agriculture engaged the use of automation and intelligent technology to streamline farming operations. Automated farming systems utilize IoT devices, drones, and robotics to perform tasks such as planting, harvesting, and crop spraying, leading to increased efficiency and productivity.

Crop Health Monitoring using Sensor Technology:Sensor technology facilities continuous monitoring of crop health parameters such as leaf color, biomass, and disease symptoms. By detecting early signs of stress or disease, farmers can take timely actions to prevent yield losses and optimize crop health.

Precision Livestock Farming with IoT Devices:IoT devices are used in precision livestock farming to monitor animal behavior, health, and productivity. Sensors attached to animals collect data on feeding habits, movement patterns, and health indicators, allowing farmers to optimize feed management, breeding programs, and disease control.

IoT Applications for Pest and Disease Management: IoT applications in pest and disease management include the use of sensors, drones, and data analytics to monitor pest populations, detect outbreaks, and implement targeted interventions such as precision spraying and biological control methods.

Data Integration and Decision Support Systems in Agriculture:Data integration involves combining data from various sources such as sensors, satellite imagery, and weather forecasts to generate actionable insights for decision-making. Decision support systems utilize advanced algorithms and machine learning techniques to assist farmers in optimizing crop management practices and resource allocation."

## Outcomes of Understanding New Technology in Agriculture

Overview of IoT (Internet of Things) in Agriculture:Increased efficiency in farm operations, improved decision-making, and enhanced productivity through the integration of IoT devices and technologies.

Role of Sensors in Agricultural Monitoring:Real-time monitoring of environmental conditions, soil health, and crop status, leading to optimized resource management and higher crop yields.

Wireless Sensor Networks for Crop Management:Enhanced precision agriculture practices, reduced resource wastage, and improved crop health through the deployment of interconnected sensor networks.

Soil Moisture Sensors and Irrigation Control:Efficient water usage, minimized water runoff, and improved crop water uptake, resulting in better crop yields and reduced water-related expenses.

Weather Monitoring and Climate Prediction with IoT:Timely weather forecasts, proactive risk management, and optimized farming practices to mitigate the impact of adverse weather conditions and maximize productivity.

Smart Agriculture: Automated Farming Systems: Increased operational efficiency, labor savings, and higher productivity through the adoption of automated technologies for farm tasks such as planting, harvesting, and monitoring.

Crop Health Monitoring using Sensor Technology:Early detection and prevention of crop diseases, optimized use of fertilizers and pesticides, and improved crop quality and yield.

Precision Livestock Farming with IoT Devices:Enhanced animal welfare, improved productivity, and reduced resource wastage through the monitoring of livestock health, behavior, and environmental conditions.

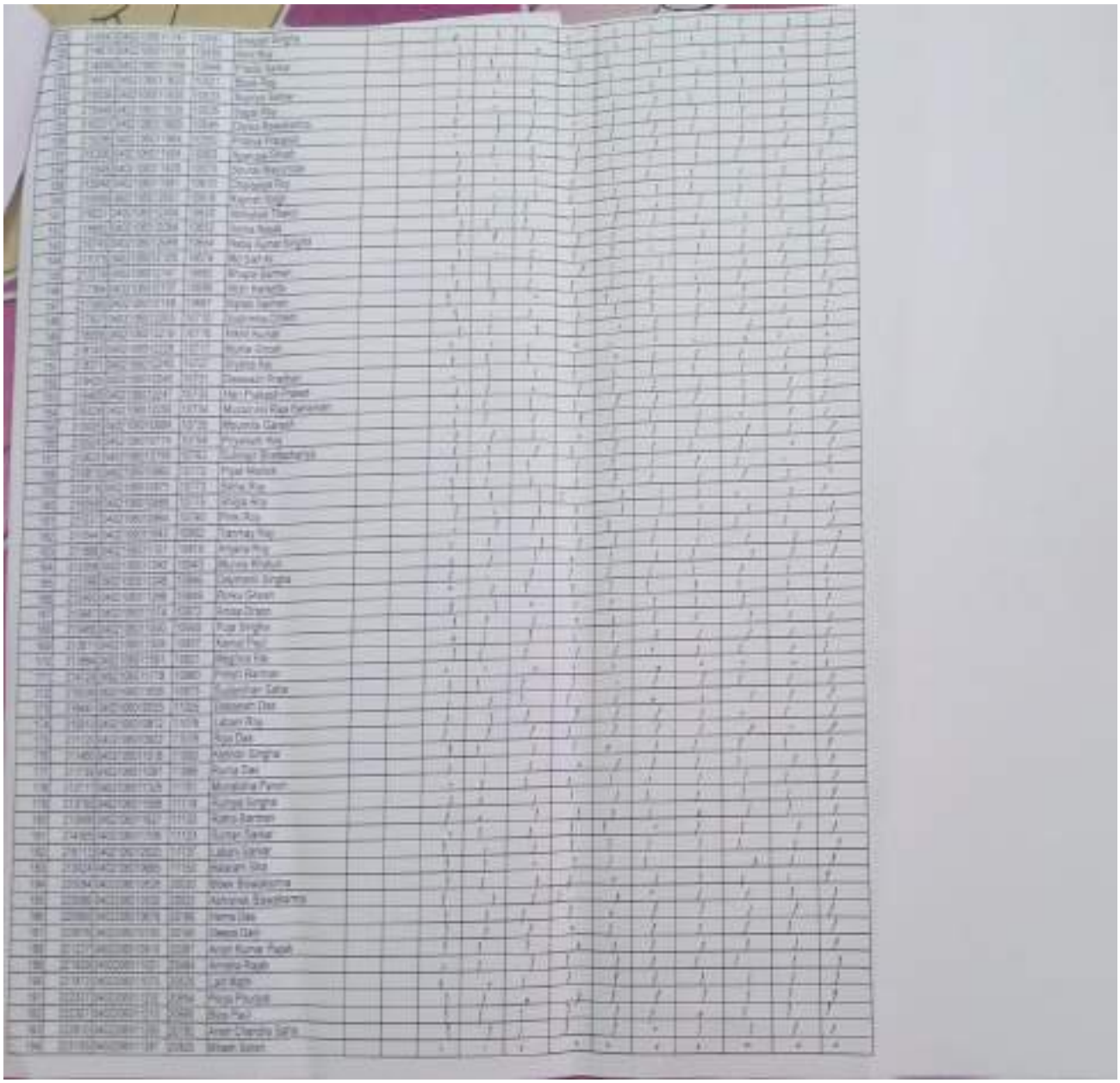
IoT Applications for Pest and Disease Management:Early detection and targeted control of pests and diseases, reduced reliance on chemical pesticides, and minimized crop losses.

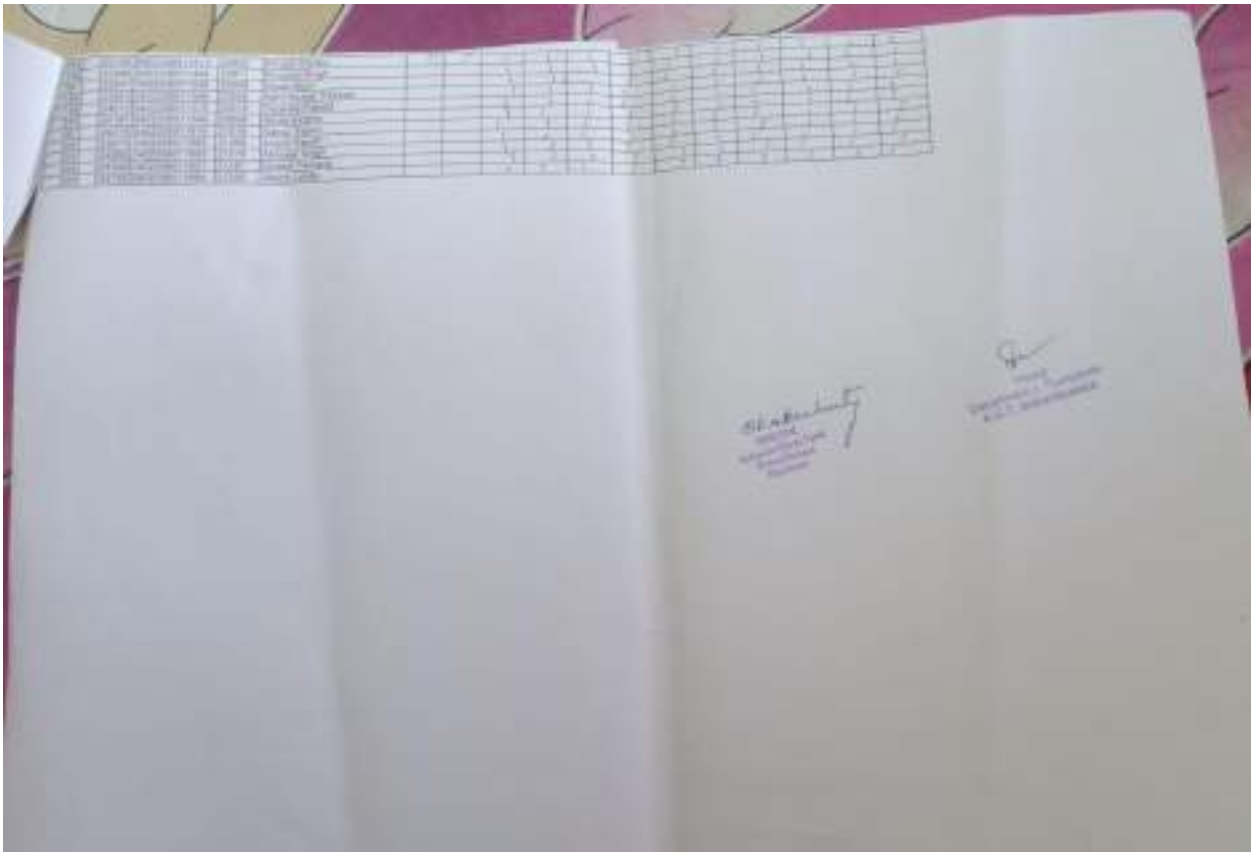
Data Integration and Decision Support Systems in Agriculture:Informed decision-making, optimized resource allocation, and improved farm management practices through the integration and analysis of diverse data sources."

## Overall Report of this Programme

Overview of IoT in Agriculture:IoT enables connectivity and data exchange among agricultural devices, improving efficiency and decision-making.
Role of Sensors in Agricultural Monitoring:Sensors collect data on soil, weather, and crop conditions, aiding farmers in making informed decisions for better crop management.
Wireless Sensor Networks for Crop Management:Interconnected sensors enable real-time monitoring of crops, leading to precise resource allocation and optimized farming practices.
Soil Moisture Sensors and Irrigation Control:Soil moisture sensors help farmers adjust irrigation schedules, leading to efficient water usage and improved crop yields.
Weather Monitoring and Climate Prediction with IoT:IoT devices provide accurate weather forecasts, allowing farmers to plan and adapt farming activities accordingly, minimizing weather-related risks.
Smart Agriculture: Automated Farming Systems:Automated systems increase productivity and reduce labor costs by autonomously performing tasks like planting, harvesting, and monitoring.
Crop Health Monitoring using Sensor Technology:Sensor technology detects crop diseases and stress early, enabling timely interventions to prevent yield losses and maintain crop health.
Precision Livestock Farming with IoT Devices:IoT devices monitor livestock health and behavior, optimizing management practices for improved productivity and animal welfare.
IoT Applications for Pest and Disease Management:IoT aids in pest and disease management by monitoring pest populations and implementing targeted control measures, reducing reliance on chemical pesticides.
Data Integration and Decision Support Systems in Agriculture:Integration of diverse data sources facilitates data-driven decision-making, optimizing resource allocation and improving overall farm management.
Overall, IoT and sensor technologies play a pivotal role in revolutionizing agriculture, enhancing productivity, sustainability, and profitability for farmers."

Attendance Sheet for ADDON Course (2022-23), Department of Economics, Kalyanda Girish Tarai Mahavidyalaya





Multiple Choice Type Questions
ADD ON Course
Org by
Department of Economics
Title 'Understanding New Technology in Agriculture'

Time: 1Hr Full Marks: 20

**Answer in all questions**

1. **"Which of the following is an example of a precision farming technique?**

a) Hand sowing

b) Broadcasting seeds

c) Variable rate fertilization

d) Random irrigation

**2. What is the primary purpose of IoT and sensor technology in agriculture?**

a) Enhancing crop taste

b) Monitoring environmental conditions

c) Increasing water consumption

d) Decreasing crop yield

**3. How does genetic engineering contribute to crop improvement?**

a) By reducing crop diversity

b) By increasing susceptibility to pests

c) By enhancing crop resilience

d) By promoting soil erosion

**4. What role do drones play in agriculture?**

a) Entertainment

b) Crop spraying

Head
Department of Economics
K.G.T. Mahavidyalaya

c) Weather forecasting

d) Soil sampling

**5. Which of the following is a sustainable farming practice?**

a) Excessive pesticide use

b) Monoculture farming

c) Crop rotation

d) Soil degradation

**6. How can data analytics be used for crop management?**

a) To increase food waste

b) To enhance pesticide resistance

c) To optimize irrigation schedules

d) To promote air pollution

**7. What is a characteristic of vertical farming?**

a) Large land requirement

b) Low crop yield

c) Soil-based cultivation

d) Stacking of crops in layers

**8. What are future trends in agricultural technology likely to focus on?**

a) Increasing manual labor

b) Reducing technological advancements

c) Enhancing sustainability

d) Ignoring data analytics

**9. How does evolution of agricultural machinery impact farming practices?**

a) Decreases efficiency

b) Increases reliance on manual labor

c) Improves productivity

d) Reduces crop yield

**10. What is a key advantage of using remote sensing in agriculture?**

a) Decreasing crop health monitoring

b) Enhancing water pollution

c) Monitoring large areas quickly

d) Ignoring climate patterns

**11. Which technology allows for real-time monitoring of soil moisture levels?**

a) GPS tracking

b) Soil sensors

c) Wind turbines

d) Augmented reality

**12. How does sustainable farming contribute to environmental conservation?**

a) By depleting natural resources

b) By promoting soil erosion

c) By reducing carbon footprint

d) By increasing chemical runoff

**13. What is a primary goal of precision farming techniques?**

a) Uniform application of inputs

b) Excessive use of fertilizers

c) Random distribution of seeds

d) Manual harvesting

**14. Which technology is used for automated weed control in agriculture?**

a) GPS tracking

b) Robotics

c) Satellite imagery

d) Virtual reality

**15. How does vertical farming contribute to food security in urban areas?**

a) By increasing transportation costs

b) By reducing food accessibility

c) By utilizing limited space efficiently

d) By promoting soil degradation

**16. What is a benefit of using IoT in livestock management?**

a) Decreasing animal health monitoring

b) Enhancing water pollution

c) Improving production efficiency

d) Ignoring animal welfare

**17. How does genetic engineering help in pest management?**

a) By increasing susceptibility to pests

b) By decreasing crop yield

c) By enhancing pest resistance

d) By promoting soil erosion

**18. What is a characteristic of sustainable farming practices?**

a) Excessive use of chemical fertilizers

b) Monoculture farming

c) Crop rotation

d) Soil degradation

**19. What role does data analytics play in optimizing irrigation schedules?**

a) Increasing water consumption

b) Reducing crop yield

c) Enhancing water efficiency

d) Ignoring crop health

**20. Which technology aids in early detection of plant diseases?**

a) Weather forecasting

b) Soil sensors

c) Genetic engineering

d) Pest Control