



Mobile : 7001775112

# DHUPGURI GIRLS' COLLEGE

DHUPGURI \* JALPAIGURI \* PIN-735210

E-mail : dhupgurirlscollege1@gmail.com \* Website : www.dhupgurirlscollege.ac.in

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Date.....

## Add-On Course on 'Know your soil and sustainable Agricultural Practices'

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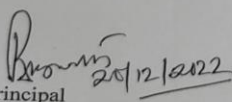
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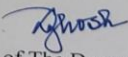
NOTICE  
[DATE: 20/12/2022]



This is to inform all the faculty members of the Geography Department that a departmental meeting will be held on 23/12/2022 at 3.00 pm onward. All the faculty members are requested to attend the said meeting positively. The agendas of the meeting are listed below.

1. Discussion on possibilities and modalities of conducting an add-on course on '**know your soil and sustainable Agricultural Practices**'
2. Discussion on class schedule for add-on course.
3. Miscellaneous.

  
Principal  
Dhupguri Girls' College

  
Head of The Department  
Department of Geography

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Dhupguri Girls' College  
Dhupguri ::

  
Principal  
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Ref. No..... Date...24/12/2022..

**DEPARTMENT OF GEOGRAPHY**  
**DHUPGURI GIRLS' COLLEGE**

**RESOLUTIONS**



After the fruitful discussion in the meeting held on **23/12/2022 at 3.00 P.M** the following resolutions have been taken unanimously.



**RESOLUTIONS:**

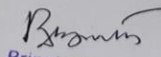
**Agenda1:** It has been resolved that the Department of Geography, Dhupguri Girls' College will organize an add-on Course on '**know your soil and sustainable Agricultural Practices**' for the academic session 2022-2023. This course will be open to all students. All the modalities and possibilities have been fixed.

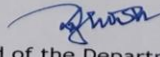
**Agenda2:** It has been decided that class will start from **09.1.2023**. Total duration of this add-on course is **60** hours. A schedule of course has been fixed.

**Agenda2:** All the members decided that Dr. Debarshi Ghosh & Mr. Abdul Momin Hoque will be the course coordinators for this add-on course. It is also resolved there will be no course fee for enrolment in this course. Students with minimum 75% attendance in this course will be issued certificates.

Members Present:

1. Dr. Bijoy Debnath, Principal
2. Dr. Debarshi Ghosh 
3. Mr. Abdul Momin Hoque 

  
Principal  
Dhupguri Girls' College  
Dhupguri ::

  
Head of the Department  
Department of Geography

  
Principal  
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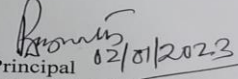
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**NOTICE**  
[02.01.2023]



This is to inform all the students that an add-on course on '**know your soil and sustainable Agricultural Practices**' will be conducted by Department of Geography on and from 09/1/2023 to 27/3/2023. All the interested students are here by informed to register themselves in this course to gather knowledge about soil and agriculture. Last date for registration is 08/01/2023. To know more details, contact with course coordinators and see the brochure attach with it. Total No. of seat intake is 25.

**COURSE COORDINATORS**  
Dr. Debarshi Ghosh (9641680671)  
Mr. Abdul Momin Hoque (9933189567)

  
Principal 02/01/2023  
Dhupguri Girls' College

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Add-On Course on 'Know your soil and sustainable Agricultural Practices'



DEPARTMENT OF GEOGRAPHY

DHUPGURI GIRLS' COLLEGE

College Para, Ward No-1, Dhupguri, Jalpaiguri-735210

**Introduces  
ADD-ON COURSE  
ON  
KNOW YOUR SOIL AND SUSTAINABLE AGRICULTURE PRACTICES  
REGISTRATION FORM**

Please complete this form in BLOCK LETTERS. All fields are mandatory unless stated otherwise.

Personal Information

1. Full Name: \_\_\_\_\_

2. Mobile Number: \_\_\_\_\_

3. Department: \_\_\_\_\_

4. Semester \_\_\_\_\_

5. Registration Number: \_\_\_\_\_

Declaration

I hereby declare that the information provided above is accurate and complete to the best of my knowledge. I understand that any false information may result in my disqualification from the course enrollment.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

  
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Add-On Course on 'Know your soil and sustainable Agricultural Practices'

BROCHURE



DEPARTMENT OF GEOGRAPHY

DHUPGURI GIRLS' COLLEGE

College Para, Ward No-1, Dhupguri, Jalpaiguri-735210

Introduces


**ADD-ON COURSE**

ON

**KNOW YOUR SOIL AND SUSTAINABLE AGRICULTURE PRACTICES**



COURSE CONTENT DEVELOPED BY  
**DEPARTMENT OF GEOGRAPHY**  
**DHUPGURI GIRLS' COLLEGE**  
DHUPGURI, JALPAIGURI

  
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## Add-On Course on 'Know your soil and sustainable Agricultural Practices'

### Course Content

SL	TOPICS
1.	Course information
2.	Course Outcome
3.	Syllabus
4.	Course Duration (Theory and Practical Class)
5.	Examination Structure
6.	Assessment and Certification
7.	Course Coordinator

  
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## **Add-On Course on 'Know your soil and sustainable Agricultural Practices'**

**KNOW YOUR SOIL AND SUSTAINABLE AGRICULTURE PRACTICE**

**COURSE INFORMATION**

This course primarily deals with soil information and testing, not only that students will know what is sustainable agriculture and how to practice sustainable agriculture. By participating in the aforesaid course, the students will learn the basics of soil science and more importantly get a hands-on training pertaining to certain selected soil quality parameters which are relevant in the context of agriculture and soil nutrient management.

The trainee will practice different soil testing methods to determine various properties viz. soil texture, pH value, moisture content, organic carbon etc. Training will be provided for the estimation of macro and micronutrients and also elements of environmental concern in soil samples. Trainee will also be able to examine the quality of irrigation water, generate soil test report and recommend fertilizer, dosage and their method of application based on soil properties. The trainee learns to use modern technology (GPS/GIS) for collection of data and input recommendations. The trainee will practice organic farming including use of vermicompost, drip irrigation etc. the trainee will also practice on water harvesting techniques and use of modern techniques for soil and moisture conservation and preservation of water.

The trainee will also gather knowledge about sustainable agriculture and minimum uses of non-renewable energy in the field of agriculture. They will know how to protect soil fertility and minimum uses of fertilizer. After completion the course they will be able to detect deficiency of soil's micro and macro nutrients by practicing hands-on training. They will foster their knowledge about to conserve natural resources through appropriate soil and moisture conservation measures. Not only that the trainee will learn how to make agriculture more productive, more profitable and practice of climate resilient agriculture.

**Total Duration Of Course: 60 Hours.**

**Course Fee: Nil**

**No. of Seats: 25**

  
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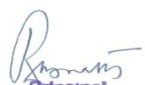
## Add-On Course on 'Know your soil and sustainable Agricultural Practices'

KNOW YOUR SOIL AND SUSTAINABLE AGRICULTURE PRACTICES

COURSE OUTCOMES

Course outcomes are the reflection of course content. The outcomes of this course are as follows-

- This course would help trainee to learn to optimize crop production, to protect the environment from contamination by runoff and leaching of excess fertilizers.
- diagnosis of plant culture problems.
- Improve the nutritional balance of the growing media and to save money and conserve energy by applying only the amount of fertilizer needed.
- Collect sample from agricultural land and test that sample by using soil testing kit.
- To identify macro and micro elements present in the soil.
- Determine soil texture.
- Determine soil pH value.
- Determine N,P, K
- Estimation of organic carbon.
- Estimation of Nitrate Nitrogen and Ammoniacal Nitrogen.
- To know about sustainable agriculture
- Climate resilient agriculture.
- Knowledge about Farming mechanization.
- Perform organic farming, soil, vermicompost.
- Demonstrate GPS/GIS to collect location of sample collection and locate problem area.
- Demonstrate water harvesting techniques.
- Prepare field report.

  
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ADDON COURSE  
ON  
**'KNOW YOUR SOIL AND SUSTAINABLE AGRICULTURAL PRACTICES'**


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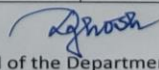
### Class Schedule

SL	Date	Time	Topic	Resource person
1	9.1.23	3-5PM	Definition of Soil, Soil Components: Air, Water, inorganic and organic solids,	2 A.M.H
2	13.1.23		Formation of Soil, Types of Soils & Basic Concepts	2 A.M.H
3	16.1.23		<b>A) Physical Properties :-</b> Soil Separates, Texture, Aggregation and Structure, Temperature, Colour, Properties of Soil Mixture, Pore Space, Bulk Density, Particle Density, Aeration and Drainage, Compaction, Surface area, Soil water relationships.	2 A.M.H
4	20.1.23		<b>Chemical Properties:-</b> Morphology of Colloids, Chemistry of Clays, Ionic Exchange, Acidity, Alkalinity, pH, Salinity, Reactions in Liming and Acidification. <b>Biological Properties :-</b> Soil Organic Matter, C: N Relationships, N-Transformation, Soil Organisms, Sulfur Transformation.	2 A.M.H
5	22.1.23		<b>PRACTICAL:</b> Sample Collection and Processing Purpose of Soil testing and analysis, selection of field, Method of Soil Sample collection Methods of soil sample processing, precautions during soil collection & processing, Preservation labelling and Storage of soil samples.	4 A.M.H D.G (field)
6	24.1.23		Fertility status of soils, soil deficiency with respect to macro and micro nutrient components	2 D.G
7	28.1.23		Brief study of micronutrient & macronutrient sources & Importance, remedial measures to overcome deficiency.	2 D.G



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Dhupguri Girls' College

  
Course Coordinator

  
Head of the Department  
Department of Geography

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
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ADDON COURSE  
ON  
'KNOW YOUR SOIL AND SUSTAINABLE AGRICULTURAL PRACTICES'

**Class Schedule**


8	30.1.23		Farming, organic farming, concept and development of organic farming, Principles of organic farming	2	A.M.H
9			Types of organic farming, Benefits of organic farming, Need for organic farming Conventional farming v/s organic farming , Requirements for organic farming, Farm components for an organic farming	2	A.M.H
10	29.1.23		<b>PRACTICAL:</b> Visit to Farmers Fields for Collection of Soil Samples, identification of nutrient deficiency Symptoms in Crop. Determine soil texture by Feel Method	4	A.M.H D.G (field)
11	6.2.23		Processing of Soil Sampling for analysis Determination of PH of soil sample using soil kit.	4	A.M.H D.G (laboratory)
12	9.2.23		Determination of Organic Carbon	3	D.G(laboratory)
13	12.2.23		Determination of available Nitrogen from Soil Sample.	3	A.M.H(laboratory)
14	1.3.23		Determination of available Potassium from soil sample.	2	D.G(laboratory)
15	4.3.23		Determination of available phosphorus from soil sample.	3	A.M.H(laboratory)

  
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 -Course Coordinator

  
 Head of the Department  
 Department of Geography

  
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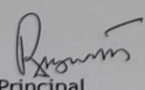
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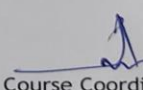
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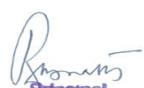
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### Class Schedule

14	1.3.23		Determination of available Potassium from soil sample.	2	D.G(laboratory)
15	4.3.23		Determination of available phosphorus from soil sample.	3	A.M.H(laboratory)
16	13.3.23		Determine Phosphorus in soils by Olsen's method	2	A.M.H(laboratory)
17	16.3.23		Determine sulphur in soils.	2	D.G(laboratory)
18	17.3.23		Determine lime requirement of acidic soil. Determine soil moisture content by Rapid soil moisture meter	3	A.M.H(laboratory)
19	18.3.23		As per soil texture recommend quantum of dose and distribution of fertilizer	2	D.G(laboratory)
20	19.3.23		Demonstrate use of vermin compost and residual waste in crops. Demonstrate use of organic fertilizer.	4	A.M.H D.G (field)
21	21.3.23		Demonstrate water harvesting techniques.	2	D.G
22	23.3.23		Demonstrate water harvesting techniques.	2	D.G
23	26.3.23		Demonstrate GPS / GIS equipment and set up for operation.	2	A.M.H(field)
24	27.3.23		Collect location information by GPS receivers for mapping.	2	A.M.H(field)

  
 Principal  
 Principal  
 Dhupguri Girls' College  
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 Course Coordinator(s)

  
 Principal  
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KNOW YOUR SOIL AND SUSTAINABLE AGRICULTURE

SYLLABUS

Syllabus for- Know Your Soil and Sustainable Agriculture Practices		
UNIT	CONTENT	DURATION (HOURS)
	<b>PART-A(THEORY)</b>	
I	<b>Introduction:</b> Definition of Soil, Soil Components: Air, Water, inorganic and organic solids, Formation of Soil, Types of Soils & Basic Concepts.	4
II	<b>Properties of Soil:</b> Introduction to properties of Soil: <b>A) Physical Properties</b> :- Soil Separates, Texture, Aggregation and Structure, Temperature, Colour, Properties of Soil Mixture, Pore Space, Bulk Density, Particle Density, Aeration and Drainage, Compaction, Surface area, Soil water relationships. <b>B) Chemical Properties</b> :- Morphology of Colloids, Chemistry of Clays, Ionic Exchange, Acidity, Alkalinity, pH, Salinity, Reactions in Liming and Acidification. <b>C) Biological Properties</b> :- Soil Organic Matter, C: N Relationships, N-Transformation, Soil Organisms, Sulfur Transformation.	4
III	<b>Fertility Status of Soils</b> Fertility status of soils, soil deficiency with respect to macro and micro nutrient components, brief study of micronutrient & macronutrient sources & Importance, remedial measures to overcome deficiency.	4
IV	<b>Concept of organic farming</b> Introduction: Farming, organic farming, concept and development of organic farming, Principles of organic farming, Types of organic farming, Benefits of organic farming, Need for organic farming Conventional farming v/s organic farming , Requirements for organic farming, Farm components for an organic farming	4



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PART-B(PRACTICAL)		
I	Sample Collection and Processing Purpose of Soil testing and analysis, selection of field, Method of Soil Sample collection Methods of soil sample processing, precautions during soil collection & processing, Preservation labelling and Storage of soil samples.	4
II	Visit to Farmers Fields for Collection of Soil Samples, identification of nutrient deficiency Symptoms in Crop. Determine soil texture by Feel Method	4
III	Processing of Soil Sampling for analysis Determination of PH of soil sample using soil kit.	4
IV	Determination of Organic Carbon	3
V	Determination of available Nitrogen from Soil Sample.	3
VI	Determination of available phosphorus from soil sample.	3
VII	Determination of available Potassium from soil sample.	2
VIII	Determine Phosphorus in soils by Olsen's method	2
IX	Determine sulphur in soils.	2
X	Determine lime requirement of acidic soil. Determine soil moisture content by Rapid soil moisture meter	3
XI	As per soil texture recommend quantum of dose and distribution of fertilizer	2
XII	Demonstrate use of vermin compost and residual waste in crops. Demonstrate use of organic fertilizer.	4
XII	Demonstrate water harvesting techniques.	4
XII	Demonstrate GPS / GIS equipment and set up for operation. Collect location information by GPS receivers for mapping.	4

  
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## Add-On Course on 'Know your soil and sustainable Agricultural Practices'

### COURSE STRUCTURE AND EXAMINATION SCHEME

Course Name	Theory Class(Hours)	Practical Class (Hours)	Internal Assessment	Examination		Total Marks
				Theory	Practical	
KNOW YOUR SOIL AND SUSTAINABLE AGRICULTURE PRACTICES	16	44	10	20	20	50

### Grading system:

Following Percentage based grading system will be applicable to the course.

Marks in Percentage	Grade
90-100	O
80-<90	A+
70-<80	A
65-<70	B+
55-<65	B
45-<55	C
40-<45	P
<40	FAIL

  
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## Add-On Course on 'Know your soil and sustainable Agricultural Practices'

### ASSESSMENT & CERTIFICATION

In this course two types of assessment will be evaluated.

**(a) Internal Assessment:** In this evaluation system the trainee will be tested through out the course. The trainee has to submit assignment given to them and they have to present power point presentation (PPT) and face Viva-voce. Total 20% weightage is framed for this assessment.


**(b) Summative Assessment:** The final exam will be done as summative assessment. Total 80% weightage is framed for Summative Assessment. 50% marks to be allotted for practical examination. Assessments will be done as following-

- Attendance
- Assignment
- Project work
- Written examination
- Field visit
- Practical
- Practical examination.

Certificate for this course will be given only after completed this course with scoring pass marks. No certificate will be provided fail candidates. 75% attendance is mandatory for appearing summative examination.

### COURSE COORDINATORS

- Dr. Debarshi Ghosh  
Assistant professor, Dept. Of Geography.
- Abdul Momin Hoque  
Assistant professor, Dept. Of Geography

  
Principal  
Dhupguri Girls' College  
Dhupguri & Jalpaiguri



Mobile : 7001775112

# DHUPGURI GIRLS' COLLEGE

DHUPGURI \* JALPAIGURI \* PIN-735210

E-mail : dhupgurigirlscollege1@gmail.com \* Website : www.dhupgurigirlscollege.ac.in

Ref. No.....

Date.....

## Add-On Course on 'Know your soil and sustainable Agricultural Practices'

### TRAINNE LIST

SL	Trainee Name	Department	Semester	University Registration No
1	RIYA AGARWAL	GEOGRAPHY	IV	1092105010122
2	SHRUTI ROY	GEOGRAPHY	IV	1092105010108
3	SHEWLY PARVIN	GEOGRAPHY	IV	1092105010109
4	MANIRANI DAS	GEOGRAPHY	IV	1092105010103
5	BEAUTY BARMAN	GEOGRAPHY	IV	1092105010119
7	PAPIYA GHOSH	GEOGRAPHY	IV	1092105010111
8	MUNMUN SARKAR	GEOGRAPHY	IV	1092105010113
9	RISHITA GOSWAMI	GEOGRAPHY	IV	1092105010106
10	SAMPA BARMAN	GEOGRAPHY	VI	1092005010109
11	JESMIN ARA PARVIN	GEOGRAPHY	VI	1092005010103
12	ARPITA ROY	GEOGRAPHY	VI	1092005010107
13	RASHMI ROY	GEOGRAPHY	VI	1092005010114
14	KAJAL MAJUMDAR	GEOGRAPHY	VI	1092005010103
15	SOVARANI ROY	GEOGRAPHY	VI	1092005010111
16	PRITI SARKAR	GEOGRAPHY	VI	1092005010115
17	BHUMIKA ROY	GEOGRAPHY	VI	1092005010116
18	SHARMISTHA MODAK	GEOGRAPHY	VI	1092005010117
19	PRIYA BANIK	HISTORY	IV	1092105010051
20	DIPTI BHOWMIK	HISTORY	IV	1092105010050
21	SWAPNA ROY	HISTORY	IV	1092105010053
22	MOUSAMI RAY	HISTORY	IV	1092105010062
23	SOMA ROY	HISTORY	IV	1092105010072
24	KEYA SARKAR	HISTORY	IV	1092105010073
25	SUJATA MANDAL	HISTORY	IV	1092105010058

  
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Ref. No..... Date 13/03/2023

**NOTICE**



This is to inform all the trainee of add-on course on "KNOW YOUR SOIL AND SUSTAINABLE AGRICULTURE PRACTICES" that they have to prepare a project report on SOIL TEST (pH, N, P, K) and submit it on 21.03.2023 for Internal Assessment.

Project Topic: 1. Write the process for determination of soil Acidity and Alkalinity.  
2. write procedure estimation of Available Phosphate in soil.

**COURSE COORDINATORS**  
Dr. Debarshi Ghosh (9641680671)  
Mr. Abdul Momin Hoque (9933189567)

  
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Dhupguri Girls' College

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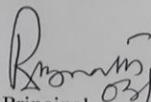
Date.....

**NOTICE**  
**[03.04.2023]**


This is to inform to all the trainees of add-on course "KNOW YOUR SOIL AND SUSTAINABLE AGRICULTURE PRACTICES" that course end exam will commence as per the schedule below.

DATE	TIME
08.04.2023	3.00 PM TO 5.00 PM

**COURSE COORDINATORS**  
Dr. Debarshi Ghosh (9641680671)  
Mr. Abdul Momin Hoque (9933189567)

  
Principal 03/04/2023  
Dhupguri Girls' College

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Date.....

## Add-On Course on 'Know your soil and sustainable Agricultural Practices

### DEPARTMENT OF GEOGRAPHY

ADDON COURSE

ON

'KNOW YOUR SOIL AND SUSTAINABLE AGRICULTURAL PRACTICES'

### Course End Examination

**Full marks-20**

**Time:1 hour**

#### SECTION-I

1. Define any five terms from the following terms:

1X5=5

- a) Pedology
- b) Laterization
- c) Solum
- d) Hygroscopic water
- e) Ecotone
- f) Ten percent law
- g) Trophic level
- h) Autoecology & synecology

#### SECTION-II

2. Answer any three questions from the following:

3X5=15

- a) Differentiate between Eluviation and Illuviation.
- b) Differentiate between Pedocal and Pedalfar soil.
- c) What is ecosystem? Write the components of ecosystem.
- d) Differentiate between soil structure and soil texture.
- e) Write about importance of nutrients presents in soil.



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Ref. No.....

Date.....

## Add-On Course on 'Know your soil and sustainable Agricultural Practices

### MARKS OBTAINED BY THE TRAINEE

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Ref. No..... Date.....

**Add-On Course on 'Know your soil and sustainable Agricultural Practices'**

**MARKS OBTAINED BY THE TRAINEE**

SL	Trainee Name	University Registration No	MARKS				Grade
			I.A	Theory	Practical	Total	
1	RIYA AGARWAL	1092105010122	10	18	18	46	O
2	SHRUTI ROY	1092105010108	10	10	16	36	A
3	SHEWLY PARVIN	1092105010109	10	10	17	37	A
4	MANIRANI DAS	1092105010103	9	13	18	40	A+
5	BEAUTY BARMAN	1092105010119	10	14	15	39	A
7	PAPIYA GHOSH	1092105010111	10	15	15	40	A
8	MUNMUN SARKAR	1092105010113	9	17	15	41	A+
9	RISHITA GOSWAMI	1092105010106	9	15	17	41	A+
10	SAMPA BARMAN	1092005010109	9	12	14	35	A
11	JESMIN ARA PARVIN	1092005010103	10	13	18	41	A+
12	ARPITA ROY	1092005010107	9	18	16	43	A+
13	RASHMI ROY	1092005010114	10	11	18	39	A
14	SOVARANI ROY	1092005010111	10	15	15	40	A+
15	PRITI SARKAR	1092005010115	9	16	13	38	A
16	BHUMIKA ROY	1092005010116	10	15	18	43	A+
17	SAMARPITA DAS	11092005010119	9	15	15	39	A
18	SHARMISTHA MODAK	1092005010117	10	14	16	40	A+
19	PRIYA BANIK	1092105010051	10	14	18	42	A+
20	DIPTI BHOWMIK	1092105010050	9	15	17	41	A+
21	SWAPNA ROY	1092105010053	9	13	14	36	A
22	MOUSAMI RAY	1092105010062	10	15	17	42	A+
23	SOMA ROY	1092105010072	9	14	15	38	A
24	KEYA SARKAR	1092105010073	8	15	14	37	A
25	SUJATA MANDAL	1092105010058	9	14	14	37	A

Principal  
Dhupguri Girls' College  
Dhupguri, Jalpaiguri

Course Coordinator

Head Of the Department

Principal  
Dhupguri Girls' College  
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## Add-On Course on 'Know your soil and sustainable Agricultural Practices'

### Notice for Certificate Distribution


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## DHUPGURI GIRLS' COLLEGE

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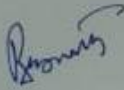
E-mail : dhupgurigirlscollege1@gmail.com \* Website : www.dhupgurigirlscollege.ac.in

Ref. No. .... Date 25/04/2023



**NOTICE**

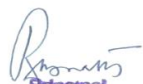
This is to inform all trainees who have successfully completed the add-on course "KNOW YOUR SOIL AND SUSTAINABLE AGRICULTURAL PRACTICES" to collect their certificates from the office.



Principal  
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Dhupguri Girls' College  
Dhupguri, Jalpaiguri

**COURSE COORDINATORS**  
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Mr. Abdul Momin Hoque (9933189567)

  
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## Add-On Course on 'Know your soil and sustainable Agricultural Practices

### SAMPLE COPY OF PROJECT REPORT

Excess helps to counteract the bad effect of excessive nitrogen  
Signs of deficiency

- Stunted growth particularly in legumes and small grains.
- Green plants 6 to 18 inches high, may become reddish purple in colour. However reddening of the crop plant after tasseling usually is not due to phosphorus deficiency.

ESTIMATION OF AVAILABLE PHOSPHATE IN SOIL

The test for available phosphate which has been given below was first developed by Olsen. In this method the amount of available phosphate present in a soil is estimated from the intensity of the blue colour in the final solution. The available phosphate in a soil is meant that amount of phosphate which is present in the soil more or less in the soluble form and can be taken up by the plant roots easily. The procedure given below for estimation of available phosphate level of your soil.

ESTIMATION OF AVAILABLE PHOSPHATE (OLSEN'S METHOD)

Procedure

1. Take a clean test tube.
2. Pour solution from container no. 4 in the test tube up to low mark.
3. Add a pinch of Danco from container no. 5 to the above test tube.
4. Add to above, 5 gms, of soil with the scoop provided.
5. Close the tube with a clean rubber stopper, shake the contents thoroughly for 3 minutes and filter the solution. (How to filter a solution has been explained in the next page.)
6. Take the filtered solution up to 2ml. mark in another test tube.
7. Pour 2ml. of solution from container no. 6 in the above test tube containing filtered solution.
8. Wash the side of the test tube with a little distilled water from the wash bottle keep it, this will be required after step no. 11.
9. Take 66 ml. of distilled water in a 100 ml. beaker. (For P/10 kit take 10 ml. of distilled water instead of 66 ml.)

POTASSIUM(K)

Function

- A general tonic for all types of plants, particularly beneficial for root crops, different types of grass and for leguminous crops.
- Hardens the straw of cereal crops, as well as that of grass turfs and thereby reduces 'lodging'.
- Facilitates either the production or translocation of sugar and starches from the leaf.
- Gives stamina and steady growth and thereby helps to withstand adverse conditions and plant diseases.

Signs of deficiency

- Poor root formation which may lead to easy 'lodging' or fall of the plant.
- Browning on the outer edges of corn leaves, beginning first at the lower level of the plant. This is sometimes referred to as 'potassium firing'. It may occur in the early stages of growth.
- Dwarfed growth of the plant.
- Sometimes deficiency may cause a series of yellow to white dots around the tip and sides of the leaf.

ESTIMATION OF AVAILABLE POTASSIUM

Procedure

1. Take a clean test tube.
2. Pour in it solution from container no. 3 up to semi. mark.
3. Add 5 gms of soil with the scoop provided to the above solution
4. Shake the solution for one minute after closing the tube with a rubber stopper and then filter. Keep the filtrate for use at step 8.
5. Take another clean test tube.
6. Pour solution from container no. 11 up to 2ml. mark.



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## Add-On Course on 'Know your soil and sustainable Agricultural Practices' SAMPLE CERTIFICATE

### *Certificate of Participation*

ADD ON COURSE (60 Hours)

**KNOW YOUR SOIL AND SUSTAINABLE AGRICULTURAL PRACTICES'**

*Organized by*  
**Dept. of Geography**  
**Dhupguri Girls' College**

This is to certify that Miss/Smt. Riya Agarwal Of Department of Geography

has successfully participated in the Add on course on ' Know Your Soil and Sustainable Agricultural Practices' held from 9<sup>th</sup> January to 27<sup>th</sup> March,2023 at Dhupguri Girls' College. The students has scored 92% with grade O.

Dr. Bijoy Debnath  
Principal

Course Coordinator

Debarshi Ghosh  
HoD Dept. of Geography

### *Certificate of Participation*

ADD ON COURSE (60 Hours)

**KNOW YOUR SOIL AND SUSTAINABLE AGRICULTURAL PRACTICES'**

*Organized by*  
**Dept. of Geography**  
**Dhupguri Girls' College**

This is to certify that Miss/Smt. Sampa Barman Of Department of Geography

has successfully participated in the Add on course on ' Know Your Soil and Sustainable Agricultural Practices' held from 9<sup>th</sup> January to 27<sup>th</sup> March,2023 at Dhupguri Girls' College. The students has scored 70% with grade A.

Dr. Bijoy Debnath  
Principal

Course Coordinator

Debarshi Ghosh  
HoD Dept. of Geography

Principal  
Dhupguri Girls' College  
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## Add-On Course on 'Know your soil and sustainable Agricultural Practices' SAMPLE CERIFICATE

### *Certificate of Participation*

ADD ON COURSE (60 Hours)

**KNOW YOUR SOIL AND SUSTAINABLE AGRICULTURAL PRACTICES'**

Organized by  
Dept. of Geography  
Dhupguri Girls' College

This is to certify that Miss/Smt. Reshmi Roy Of Department of Geography

has successfully participated in the Add on course on ' Know Your Soil and Sustainable Agricultural Practices' held from 9<sup>th</sup> January to 27<sup>th</sup> March,2023 at Dhupguri Girls' College. The students has scored 78% with grade A.

Dr. Bijoy Debnath  
Principal

Course Coordinator

Debarshi Ghosh  
HoD Dept. of Geography

### *Certificate of Participation*

ADD ON COURSE (60 Hours)

**KNOW YOUR SOIL AND SUSTAINABLE AGRICULTURAL PRACTICES'**

Organized by  
Dept. of Geography  
Dhupguri Girls' College

This is to certify that Miss/Smt. Riya Agarwal Of Department of Geography

has successfully participated in the Add on course on ' Know Your Soil and Sustainable Agricultural Practices' held from 9<sup>th</sup> January to 27<sup>th</sup> March,2023 at Dhupguri Girls' College. The students has scored 92% with grade O|

Dr. Bijoy Debnath  
Principal

Course Coordinator

Debarshi Ghosh  
HoD Dept. of Geography

Principal  
Dhupguri Girls' College  
Dhupguri & Jalpaiguri