

# EGRA SARADA SHASHI BHUSAN COLLEGE

ESTD. : 1968

(Re-accredited by NAAC with – 'B' Grade with a CGPA of 2.32)

Post – Egra:Dist – Purba Medinipur (West Bengal):Pin –  
721429.

President : Tarun Kumar Maity, M.L.A., W.B.

Principal : Dr. Dipak Kumar Tamili.

Web site - [www.egrassbcollege.net](http://www.egrassbcollege.net) : E-mail – [info@egrassbcollege.net](mailto:info@egrassbcollege.net) /

[info@egrassbcollege.org.in](mailto:info@egrassbcollege.org.in)

☎ – 03220-244073 / 245557

Fax – 03220245867.

Memo No.-

Date- 04.07.2022

## DEPARTMENT OF BOTANY NOTICE FOR TEN DAYS CERTIFICATE COURSE on BIO-RESOURCE ACCOUNTING

It is here by notified that the Dept. of Botany of Egra S.S.B. College is going to organize an Inaugural Programme of ten days workshop on “*Bio-Resource Accounting*” on 11.07.2022 to 21.07.2022 at Department of Botany of Egra S.S.B. College at 11.00 am.

All the students of our college are here by informed to register their name at the Department of Botany within 09.07.2022 .

Copy to-  
TCS  
HC  
NB of College  
NB of Science Building  
Student Union (Ad-Hoc)

Principal  
Egra S.S.B College

Principal  
EGRA S.S.B. COLLEGE  
P.O.-Egra, Purba Medinipur

HOD

Department of Botany

(Signature)  
Head of the Department of Botany  
Egra S.S.B. College

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Memo No.-

Date- 04.07.2022

Name of the certificate course: Bio – Resources Accounting

No. of the course: one

Duration of the course: 10 Days

Date of inauguration: 11.07.2022

Date of completion: 21.07.2022

Syllabus of the course:

EGRA SARADA SASHI BHUSAN COLLEGE

CERTIFICATE COURSE ON “Bio – Resources Accounting”

SESSION: 2022

## SYLLABUS

DURATION: 10 Days

Course	Course Name	Teaching Scheme in hours per week	
		Lectures	Practical
Certificate Course	<b>Bio–ResourcesAccounting</b>		
	<b>Unit:1 FUNDAMENTALS OF NATURAL RESOURCES</b>  Concept of resource, classification of natural resources. Factors influencing resource availability, distribution and uses. Interrelationships among different types of natural resources. Concern on Productivity issues. Ecological, social and economic dimension of resource management	3	

	social and economic dimension of resource management		
	<p><b>Unit : 2 ECOLOGY, ECOSYSTEMS TOWARDS SUSTAINABILITY</b></p> <p><b>Introduction:</b> Definitions, history and relevance, levels of ecology, types of ecosystem, abiotic and biotic environments, biotic – abiotic interactions, UNESCO scheme of soil classification.  <b>Population ecology:</b> Population attributes, population changes, survivorship curves, growth models, demographic models, dispersion  <b>Community ecology:</b> Community structure, two-species interactions, food webs, succession  <b>Ecosystems ecology:</b> Climate and weather, energy flows, productivity, nutrient cycling, hydrological cycling, cycling index, biogeochemical cycles (C, N, P, S).  <b>Ecosystem conservation:</b> Ecosystem degradation, ecosystems rehabilitation, watershed management, population abatement in lentic and lotic environments, forest types in India, forest management, wildlife management, protected area categories: national parks, sanctuaries, Community and biosphere reserves.  <b>Global ecology/ Threats to Ecosystems:</b> Greenhouse effect and climate change, ozone depletion, ecosystems responses to long-term climate patterns  <b>Sustainability:</b> Sustainability theory, the underlying ecological imperative, carrying capacity, sustainability and society (social justice, development, economy), Sustainable Forest, Management, Agenda-21 and UNEP programmes</p>	6	

	<p>towards sustainable development.</p> <p><b>Unit 3: BIODIVERSITY AND BIOSYSTEMATICS</b></p> <p><b>Introduction to biodiversity:</b> Definition, components, scope, and constraints of biodiversity (genetic diversity, species diversity, ecosystem diversity – agro-biodiversity, urban – peri-urban biodiversity), forest biodiversity; biodiversity indices, threats to biodiversity.</p> <p><b>Plant and animal taxonomy and systematics:</b> Brief history and definition, the importance of taxonomy in Natural Resource Management, national and international organizations associated with taxonomic studies.</p> <p><b>Theory and practice of biological classification:</b> Definition and problems of the species concept, intraspecific categories, super species, population structure and taxonomic challenges, 13 phenetic, cladistic and evolutionary concepts involved in nomenclature, taxonomic hierarchy.</p> <p><b>Unit :4 ENVIRONMENT, ENERGY AND TECHNOLOGY</b></p> <p><b>Introduction to energy:</b> Definition and units of energy, power, forms of energy, second law of thermodynamics, solar spectrum, solar radiation, extraterrestrial radiation, effect of atmosphere, estimation of solar radiation on horizontal and tilted surface analysis of Indian solar radiation data and applications</p> <p><b>Environmental impacts:</b> Fossil fuel impacts and patterns of consumption, renewable electricity and key elements, global climate change, CO2 and renewable</p>	<p>6</p> <p>6</p>	
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	<p>energy, social considerations, standalone systems and grid integration</p> <p><b>Rural energy/Biomass to energy:</b> Wood energy/ fuel wood use, Biochemical conversion, sources of energy generation, industrial waste, agro residues, anaerobic digestion and biogas production, thermo-chemical conversions, gasification and types of gassifires, briquetting, ethanol, bio-gas</p> <p><b>Bio-diesel:</b> History, production methods, trans-esterification, fuel quality, standards and properties, raw materials and applications, bio-diesel potential in India, ecological impacts of bio-fuel cultivation.</p> <p><b>Unit 5: NATURAL RESOURCES GOVERNANCE AND POLICY</b></p> <p><b>Introduction:</b> Legal and political environments in resource management. Global and local governance, challenges of good governance. Ostrom design principles and basic frameworks, organizational structure and stakeholders in NRM and livelihood. Natural Resource Governance in rapidly changing world.</p> <p><b>Local utilization and institutions:</b> Joint Forest Management Committees (JFMCs), watershed committees, irrigation committees, Forest Rights Act (FRA) committees, Biodiversity Management Committees (BMCs), etc.</p> <p><b>Unit :6</b></p> <p><b>ENVIRONMENTAL MONITORING ANALYSIS (SOIL, WATER, MINERAL, AIR AND FUEL)</b></p> <p><b>Water Analysis:</b> Dissolved oxygen (DO), biochemical oxygen demand</p>	<p>3</p>	<p>6</p>
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	<p>(BOD), chemical oxygen demand (COD), total dissolved solids (TDS), Ph, turbidity, hardness, heavy metals</p> <p><b>Soil Analyses:</b> Soil Ph, conductivity, moisture content, soil organic carbon content, dead wood and forest litter carbon estimation.</p> <p><b>Fuel technology-</b> proximate analysis of fuel (coal, wood samples), calorific values of solid and liquid fuel.</p> <p><b>Rocks and minerals-</b> identification of various types, forms their characteristics</p> <p><b>Atmosphere Analyses:</b> Sox, Nox, and suspended particulate matters, carbon dioxide content of a gas sample and climate change</p>		
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 Principal  
 EGRA S.S.B. COLLEGE  
 P.O.-Egra, Purba Medinipur

**Class Routine:**

**EGRA SARADA SASHI BHUSAN COLLEGE**  
**DEPARTMENT OF BOTANY**  
**CERTIFICATE COURSE ON "Bio – Resources Accounting"**  
**SESSION: 2022**  
**DATE: 11.07.2022-21.07.2022**

DAY	10.15-11.15	11.15-12.15	12.15-1.15	1.15-2.15	2.15-3.15	3.15-4.15	4.15-5.15
MON	Theory(MK)				Theory(S.R)	Theory(RB)	
TUE	Theory(MK)				Theory(BP)	Theory(MP)	
WED	Theory(MP)				Theory(S.R)	Theory(MK)	
THURS	Theory(RB)				Theory(BP)	Theory(MP)	
FRI	Theory(S.Roy)				Practical(MK)		
SAT	Theory(MP)				Practical(MP)		

MP- Prof.Maniklal Pati ; MK-Prof. Mamtaj Khatun; SR- Prof. Sambhu Rana; RB- Prof. Rachana Bera; BP- Prof Biswajit Pradhan; S.Roy- Prof- Saswati Roy



*[Handwritten Signature]*  
Principal,  
EGRA SARADA SASHI BHUSAN COLLEGE  
Faculty of Medicine

**Course Outcomes:**

- Integrate the essential principles of physical, chemical, biological, and ecological sciences to manage ecosystems and solve environmental problems;
- Know biogeochemical, energy, hydrologic, population, and community patterns and processes in coastal landscapes and ecosystems;
- use contemporary tools and techniques for studying ecosystems;
- Be familiar with a variety of laws and regulations that influence how natural resources are used and protected;
- Understand the impacts of land use and environmental management decisions on ecosystems and society; and
- Meet or exceed the standards applied by professional societies (e.g., Wetland Scientists, Soil Science Society).
- Identify environmental problems, evaluate problem-solving strategies, and develop science-based solutions; and
- Understand the need to integrate relevant social sciences (e.g., environmental planning, policy, law, economics) in environmental problem-solving.











