



Achhruram Memorial College

Jhalda, Purulia, West Bengal



Organised By Bengali Department

Session - 2022-23

Certificate Course

Subject - 'ADIBASI - ANTAZA SHRENIR KOTHAKAR MAHASWATA DEVI'

Course Co-Ordinator - Dr. Arunava Mukherjee

- ❖ Duration of the course - 30 Hours
- ❖ Student participating in the course will be evaluated by keeping the course and marks will be given based on that.
- ❖ The evaluation value will be 50
- ❖ Minimum 60% attendance of every student in the course is compulsory.

❖ Students participating in the course will be evaluated at the end of the course and certificate will be given based on that. The procedure will be explained in detail in class.

❖ **Purpose and Importance of the Course** – Write a biography of Santal community in the world of Mahasweta Devi's novel in Bengali literary genre. emerged as a milestone. Novelist Mahasweta Devi has made the life practices and life thoughts of Santal community so realistic that it is no longer a novel but has become a living document of the Janjati tribe. In the face of this 21st century, when the intense heat of humiliation is spreading on the soil of India, the cheeky promise of economic development, while the blood pressure of administrative bureaucrats is increasing as the administrative bureaucrats hold talks in Sita-controlled hotels to translate them into step-by-step economic programs, while minimum wages are being paid to farm laborers. The ministers of the popular government have no sleep in their eyes to implement it. In such a situation, Mahasweta Devi penned the rightful demands of tribal people. Therefore, the main aim of this course is to convey to the students the spiritual and intellectual development of Mahashweta Devi in today's context, to understand her creation and how relevant her writings are in today's context.

❖ Syllabus -

Unit	Subject	Context	Subject and Purpose of the Unit	Time	Full Marks
Unit - 1	An early introduction to the life and literature of Mahasweta Devi	General introduction about the life of Mahasweta Devi	Through this unit, students will be able to learn about the life of Mahasweta Devi and the history of her becoming a writer, besides getting an idea of the social, religious and economic environment of the people of the tribal antaj class, they will be able to pave the way for the formation of the future society.	10 Hours	15
Unit - 2	In Mahasweta Devi's work, the context of tribal caste	Discussion of Mahasweta Devi's novels and short stories	Students will be informed about the creation of Mahasweta Devi and their human world will become modern.	10 Hours	15
Unit - 3	Thought and meditation of Mahasweta Devi	<ul style="list-style-type: none"> ❖ Mahasweta Devi's story about indigenous women in literature ❖ Introduction of tribal reforms and culture from the words of Mahasweta Devi ❖ Mahasweta Devi's Katha literature on tribal existence crisis and its protest 	Mahashweta Devi will be able to improve their future path by living their lives and ideals. By being enlightened by the light of Mahashweta Devi, they will play a leading role in building a larger society by gaining a protest mentality against the superstitions, communal differences, economic exploitation regime.	10 Hours	20

Subsidiary bibliography

- 1) Mahāśbētā Dēbī Racanā Samagra - 1-20, Dē'ja Pābaliśīm, Kalakātā - 73
- 2) Sumitā Chakrabartī, Chōṭa Galpēra Biṣaṣya Aśaṣya, Pustaka Bipanī, Prathama Prakāśa, Juna - 2004
- 3) Sampā Chaudhurī, Adibāsī Samāje Upanibēśika Prakalpa ō Mahāśbētāra Uttara Aupanibēśika Mānasikatā, Kalakātā - 2007
- 4) Shiprā Dutta, Mahāśbētā Dēbīra Kathā Sāhityē Adibāsī Jībana, Akṣara Pābalikēśana

- 5) Rabīndranātha Bandyōpādhyāya Sampādita, Mahāśbētā Nānā Barṇēra ō Nānā Raṅē, Diyā Pābalikēśanasa, Prathama Prakāśa –2015, Kalakātā – 09

Certificate
course in
Geography



Achhruram Memorial College, Jhalda . Purulia

Duration : 32 hours
Course coordinator :
Dr. Sharmistha Mukherjee
Department of Geography

DISASTER MANAGEMENT AND MITIGATION

Course Objectives

This course provides an introduction Disaster Management and Mitigation Strategies and their Applications for Students to learn and acquire knowledge and skill in this particular field for their self-improvement.

Expected Outcomes

- † Comprehensive And Practical Knowledge
- † Comprehensive and practical knowledge for Mitigation Strategies
- † Skill development
- † Applications of Mitigation Strategies
- † 4. undertake rehabilitation programs in Disaster Management

Who Can Participate

These courses designed to provide comprehensive and practical knowledge, students who are interested are all welcome to join this certificate course to improve their knowledge in this field.

Course Content

Module 1 (6hours): Introduction to Disaster Management : Types of disasters. Disaster management cycle. Hazards and Disasters, Risk and Vulnerability in Disasters, Natural and Man-made disasters, earthquakes, floods drought, landside, land subsidence, cyclones, volcanoes, tsunami, avalanches, global climate extremes. Man-made disasters: Terrorism, gas and radiations leaks, toxic waste disposal

Module 2 (2hours): Risk Assessment: Identification of Hazard. Stages of disaster risk assessment

Module 3 (4hours): Vulnerability and risk analysis: Basic introduction of Vulnerability and. Risk analysis. Earthquakes and its types, magnitude and intensity, seismic zones of India, major fault systems of India plate, flood types and its management, drought types and its management, landside and its managements

Module 4 (4hours): Mitigation Strategies : Types of Mitigation Strategies. Community-based mitigation. Basic principles of disasters management, Disaster Management cycle, Disaster management policy, National and State Bodies for Disaster Management, Early Warning Systems, Building design and construction in highly seismic zones, retrofitting of buildings.

Module 5 (2hours): Disaster Response plan : planning and coordination. Role of GIS. Role of Government, International and NGO Bodies. Role of IT in Disaster Preparedness. Role of Engineers on Disaster Management.

Module 6 (4hours): Disaster Recovery: recovery strategies. 5 stages of disaster recovery

Module 7 (4hours): Disaster Relief and Rehabilitation. Types of rehabilitation. Long-term disaster risk mitigation strategy

Module 8 (6hours): Technologies in Disaster Management. Use of GIS and Remote sensing applications in disaster management. Training and drills for disaster preparedness, Awareness generation program, Usages of GIS and Remote sensing techniques in disaster management, Mini project on disaster risk assessment and preparedness for disasters with reference to disasters in Sikkim and its surrounding areas.



Achhruram Memorial College

Jhalda, Purulia, West Bengal, India, Pin: 723 202

Certificate course on Digital Library

Course Objectives

The objective of this course is to introduce the students with the basic concept of digital libraries and major digital library initiatives. The students will also be familiar with the components and architecture of digital library along with related legal issues.

Course Outcome:

By doing this course students will be aware of the concept of digital library, their accessibility, availability, interactivity and cost-effectiveness.

**Value Added
Course,
Central Library
Duration: 32 Hours**

Course Content

Module I (8 Hours)

Digital Libraries: Conceptual Framework; Definitions, Models and Theories; History and evolution of Digital Libraries, Major Digital library Initiatives in India and abroad

Module 2 (8 Hours)

Digital Resources: Nature, Characteristics and types; Building Digital Library Resources – Born Digital and Digitized, Digital Conversion: general issues, digitization process, standards, file formats, Unicode

Module 3 (8 Hours)

DL Architecture Overviews, Principles and Types: Distributed, Federated, Service Oriented and Component based Architectures. Digital Library Components: Identifiers – Handles –

Digital Object Identifier (DOI); Digital Library Software: Open Source – GSDL & DSpace

Module 4 (4 Hours)

Information Management and Access: Role of Metadata in Digital Resource Management; Metadata Harvesting

Module 5 (4 Hours)

Preservation and Legal Issues: Legal Issues of DL – Intellectual Property Rights (IPR), Copyright

**Course Coordinator:
Mrs. Riptika Pal, Librarian**

#For any query contact course coordinator

Starts from
02/07/2022

Achhruram Memorial College, Jhalda, Purulia

Certificate Course in Modern Mathematics Prerequisite for Medical Sciences



Course Duration: 32 Hours

Course Coordinator:

Mr. Prasanta Choudhury,
Dept. of Mathematics

Course Objective

To equip students with essential mathematical knowledge and skills necessary for success in medical sciences, focusing on foundational concepts such as algebra, calculus, and statistics, and their practical applications in medical research and clinical practice.

Who can participate?

This course is suitable for Undergraduate students in Mathematics, Physics, Chemistry, or interested students.

Expected Outcome

Upon completion of the course, students will demonstrate proficiency in fundamental mathematical principles relevant to medical sciences, that includes ability to apply algebraic concepts to solve equations and manipulate expressions used in medical calculations. Competence in using calculus techniques to understand and analyze rates of change in biological processes and medical data. Proficiency in statistical methods for data analysis and interpretation, crucial for research in medical sciences. Capacity to critically evaluate and interpret quantitative information in medical literature and clinical settings. Preparedness to utilize mathematical tools to model biological systems and phenomena relevant to medical research and practice. Overall, students will be well-prepared to integrate mathematical reasoning and problem-solving skills into their study and future careers in medical sciences.

Course Venue

Department of Mathematics,
Achhruram College, Jhalda,
Purulia, West Bengal, India

**Certificate
Course**

Course Content Modules

Module 1: Statistical Methods for Medical Research:- Basic statistical concepts, hypothesis testing, regression analysis, and experimental design, tailored for medical research applications like clinical trials and epidemiology.

Module 2: Differential Equations in Physiology:- Differential equations modeling physiological processes such as nerve conduction, muscle contraction, and cardiovascular dynamics, providing mathematical insights into biological systems.

Module 3: Image Processing and Analysis:- Image processing techniques including filtering, segmentation, and feature extraction, with applications in medical imaging modalities like MRI, CT, and microscopy.

For further information please contact the course coordinator.

Starts from
24/09/2022

Achhruram Memorial College, Jhalda, Purulia

Certificate Course in Essential Mathematics for Engineering and Industry



Course Duration: 32 Hours

Course Coordinator:

Mr. Arindam Mukherjee,
Dept. of Mathematics

Course Objective

To equip students with essential mathematical skills and concepts necessary for success in engineering and industrial applications, emphasizing problem-solving, quantitative analysis, and critical thinking in real-world scenarios.

Who can participate?

This course is suitable for Undergraduate students in Mathematics, Physics, Chemistry, or interested students.

Expected Outcome

The course aims to equip students with critical mathematical tools necessary for success in technical fields. By mastering foundational concepts in calculus, linear algebra, and differential equations, students will enhance their problem-solving abilities. This course expects to cultivate analytical skills crucial for engineering applications, fostering confidence in handling complex mathematical models. Ultimately, graduates will be well-prepared to tackle challenges in industry, applying mathematical principles to innovate and solve practical problems effectively.

Course Venue

Department of Mathematics,
Achhruram College, Jhalda,
Purulia, West Bengal, India

Certificate
Course

Course Content Modules

Module 1: Calculus for Engineering Applications: Fundamental concepts of calculus including limits, differentiation, and integration, with a focus on their applications in engineering problems such as motion, optimization, and rate of change.

Module 2: Linear Algebra and its Applications: Introduction to matrices, vectors, and linear transformations, emphasizing their use in solving systems of linear equations, eigenvalue problems, and applications in areas like control theory and signal processing.

Module 3: Differential Equations in Engineering: Ordinary and partial differential equations relevant to engineering, including modeling physical phenomena such as heat transfer, fluid dynamics, and electrical circuits.

For further information please contact the course coordinator.

Achhruram Memorial College

Jhalda, Purulia, West Bengal



Certificate Course on Idea of Secularism and the Importance of National Integration (Academic Session – 2022-2023)

Course Objective:

The objective of this course is to explore the concept of secularism as it relates to national integration and cohesion in diverse societies. It examines the principles, debates, and challenges surrounding secularism, emphasizing its role in fostering unity and social harmony within pluralistic nations. By the end of the course, students should have a nuanced understanding of secularism's significance in promoting national integration and managing cultural diversity.

Who Can Participate:

Undergraduate students from any discipline interested in political science, sociology, ethics, law, history, cultural studies, or religious studies. There are no specific prerequisites, but an interest in issues of diversity, identity, and governance is beneficial.

Course Duration:

30 hours

Course Coordinators:

1. Mr. Prasit Ranjan Ghosh
2. Mr. Puspend Mukherjee

Modules

1. Introduction to Secularism and National Integration

Definitions and historical evolution of secularism
Importance of national integration in pluralistic societies

2. Principles of Secularism

Secularism vs. religious neutrality: theoretical perspectives
Constitutional provisions and secularism in diverse nations

3. Secularism and Religious Freedom

Freedom of religion vs. state regulation of religious practices
Case studies on secularism and religious minorities

4. Secularism and National Identity

Role of secularism in shaping national identity
Comparative analysis of secularism in different cultural contexts

5. Assessment and Evaluation

Assignments, presentations, and a final project exploring a specific aspect of secularism and national integration

Expected Outcome:

By the end of the course, students are expected to:

1. understand the theoretical underpinnings and practical implications of secularism in fostering national integration.
2. critically analyze debates and challenges related to secularism in diverse societies.
3. appreciate the role of secular governance in managing religious diversity and promoting social cohesion.
4. demonstrate the ability to apply secular principles to contemporary issues of governance, rights, and identity.
5. engage in informed discussions on the ethical, legal, and political dimensions of secularism and national integration.



Achhruram Memorial College

Jhalda, Purulia, West Bengal



Thin Film Physics and Devices

Course objective: This course is designed to provide a comprehensive understanding of the principles and applications of thin film physics.

Expected outcomes: This add-on course will help students to develop their theoretical knowledge and skills on thin films.

Who can participate: Any student with basic knowledge in physics and chemistry.

Duration: 34 hours

Course Coordinator: Dr. Tarun Kumar Barik
Department of Physics

* For more information, please contact the course coordinator.

Course Content

Module 1: Introduction of thin films, history and significance of thin films, and basic principles of thin film physics (6 hours)

Module 2: Basic discussion about thin film deposition techniques, physical vapor deposition (PVD), chemical vapor deposition (CVD), spin coating, and drop-casting method (8 hours)

Module 3: Various materials for thin films such as metals, semiconductors, insulators, and nanomaterials. (6 hours)

Module 4: Characterization of thin films of various materials, structural characterization: XRD, SEM, TEM, and optical and electrical properties. (8 hours)

Module 5: Applications of Thin Films Electronics and Optoelectronics devices such as transistors, solar cells, and LED. (6 hours)

Achhruram Memorial College

Jhalda, Purulia, West Bengal



Certificate Course on Systematic Voters Education in India

Department of Political Science

(Academic Session – 2022-2023)

➤ **Course Objective:**

The objective of this course is to educate undergraduate students about the electoral process in India, focusing on voter rights, responsibilities, and the importance of participation in democratic elections. By the end of the course, students should have a comprehensive understanding of how elections are conducted in India, their role as informed voters, and the significance of their participation in shaping the nation's governance.

➤ **Who Can Participate:**

Undergraduate students from any discipline who have an interest in understanding democratic processes, civic engagement, and the functioning of elections in India. There are no specific prerequisites other than a keen interest in civic affairs.

➤ **Course Duration:**

30 hours

➤ **Course Coordinator:**

Anup Kumar Arya

Modules

1. Introduction to Indian Electoral System (7 hours)

- Overview of the electoral system in India
- Constitutional provisions related to elections

2. Electoral Laws and Regulations (10 hours)

- Understanding the Representation of People Act and other relevant laws
- Roles and responsibilities of Election Commission of India

3. Voter Registration and Electoral Rolls (6 hours)

- Importance of voter registration
- Procedures for voter registration and checking electoral rolls

4. Voting Process (7 hours)

- Steps involved in voting (polling stations, EVMs, postal ballots)
- Voter identification and authentication

➤ Expected Outcome:

By the end of the course, students are expected to:

- Understand the legal framework and institutional arrangements governing elections in India.
- Be aware of their rights and responsibilities as voters.
- Evaluate the impact of electoral processes on governance and policy outcomes.
- Demonstrate critical thinking and analytical skills through discussions and assignments related to electoral issues.
- Engage actively in civic activities and promote electoral participation among peers and communities.



Achhruram Memorial College

Jhalda, Purulia, West Bengal-723202



Zoo Management

Course Objectives: This course provides an introduction to the principles and practices of modern zoo management. Students will explore the roles of zoos in conservation, education, research, and recreation. Additionally, the course will cover animal welfare, exhibit design, zoo operations, and future trends in zoo management.

Expected Outcomes:

Identify the various roles of zoos in the 21st century (conservation, education, research, recreation).

Analyze the ethical considerations of animal welfare in zoos.

Describe different types of zoo exhibits and their design considerations.

Discuss the importance of zoo operations, including visitor management, financial management, and staffing.

Who can participate?

This course is typically designed for people who want to pursue a career in the zoo industry.

Students seeking a career in zoos, working professionals in zoos. People with a passion for animals and an interest in conservation may look to zoo management course

Course Content

Module 1: Introduction to Zoo Management (6 Hours)

History and evolution of zoos

The changing role of zoos in the 21st century

Ethics and animal welfare in zoos

Module 2: Animal Care and Management (6 Hours)

Animal husbandry practices in zoos

Importance of enrichment programs for animal well-being

Nutrition and veterinary care requirements of zoo animals

Module 3: Exhibit Design and Management (6 Hours)

Principles of creating effective zoo exhibits

Different types of zoo exhibits (immersive, naturalistic, etc.)

Importance of enrichment within exhibits

Module 4: Zoo Operations (6 Hours)

Visitor management and engagement strategies

Financial management in zoos (fundraising, budgeting)

Staffing and volunteer programs in zoos

Module 5: Future Trends in Zoo Management (6 Hours)

Sustainability practices in zoos

Community engagement and education programs

The role of technology in modern zoo management

Duration- 30 Hours

Course Coordinator: Mr. Khokan Naskar

Department of Zoology

*for more information please contact the course coordinator

Starts from
18/08/2022

Achhruram Memorial College, Jhalda, Purulia

Certificate Course on : Role of Water Harvesting Practices in the Barren lands of North-Eastern India: After Independence



Course Duration: 32 Hours

Course Coordinator:

Mr. Jayanta Pandey
Dept. of History

Course Objective: The primary objectives of implementing water harvesting practices in North-eastern India after Independence include:

Mitigating water scarcity by capturing and conserving rainwater for agricultural and domestic use.
Improving soil moisture retention and fertility to enhance agricultural productivity in barren and hilly terrains.
Promoting sustainable development
Empowering local communities through water management initiatives.

Department of History
Achhruram College, Jhalda,
Purulia, West Bengal, India

Who can participate?

This course is suitable for Undergraduate students of arts and Humanities and science also.

Physical Structures, Reasons & Impact

Physical Structure: Water harvesting practices in North-eastern India typically involve the construction of Check Dams and Contour Bunds, Percolation Ponds and Tanks, Traditional Methods.

Reasons: Several reasons underline the adoption of water harvesting practices in North-eastern India such as Water Scarcity, Agricultural Dependency, Ecological Sensitivity and Community Resilience.

Impact on Society: The implementation of water harvesting practices has had profound impacts on Improved Livelihoods, Empowerment and Health and Well-being.

Certificate
Course

Course outcomes

Here are the some outcomes for studying the topic :

1. Understanding of Regional Context,
 2. Knowledge of Water Harvesting Techniques:
 3. Impact Assessment, 4. Analysis of Policy and Implementation, 5. Evaluation of Community Participation, 6. Critical Thinking and Problem Solving, 7. Interdisciplinary Approach, 8. Ethical and Cultural Perspectives. 9. Communication and Advocacy Skills, 10. Application to Global Issues
- These outcomes aim to prepare students with the knowledge, skills, and perspectives needed to address complex challenges related to water scarcity and sustainable development in North-eastern India and beyond.

For further information, please contact the course coordinator.



Achhruram Memorial College

Jhalda, Purulia, West Bengal

Metal Complex as a Sensing Appliance

Certificate
Course

Course Description:

The Metal Complex as a Sensing Appliance add-on course is designed for students who have a keen interest in the field of chemistry and its practical applications. This course aims to provide a comprehensive understanding of metal complexes and their role as sensing appliances in various scientific and industrial field.

Course Objective:

1. Introduce the principles and mechanisms of metal complex synthesis.
2. Explore the applications of metal complexes in sensing various analytes.
3. Familiarize students with the methods and techniques employed in metal complex analysis.
4. Enhance problem-solving skills through hands-on experiments and case studies.
5. Deepen students' knowledge of current advancements in metal complex-based sensing technologies.

Expected Outcome:

6. Cutting-Edge Curriculum: Stay up-to-date with the latest advancements in metal complex-based sensing technologies.
2. Practical Training: Develop hands-on skills through laboratory experiments and case studies.
3. Industry-Relevant Knowledge: Gain expertise in an emerging field with widespread applications in scientific and industrial sectors.
4. Experienced Faculty: Learn from highly qualified and experienced instructors who are experts in the field of metal complex chemistry.
5. Collaborative Learning Environment: Engage in interactive discussions and knowledge sharing with fellow participants.

Who can participate?

Individuals eager to achieve proficiency in the fundamental principles of Metal Complexes, materials science, and interdisciplinary research

** for more information, please contact the course coordinator.*

Course Content

Module-I: Introduction to Metal Complexes:

- Ligands and coordination compounds
- Transition metal complexes and their properties

Module-II: Metal Complexes as Sensors:

- Overview of sensing technologies
- Metal complexes as colorimetric sensors
- Metal complexes as fluorescent probes
- Metal complexes as electrochemical sensors

Module-III: Analytical Techniques in Metal Complex Analysis:

- Spectroscopy (UV-Visible, IR, NMR)
- Chromatography (HPLC, GC)
- Mass spectrometry

Module-IV: Applications and Case Studies:

- Environmental monitoring
- Food and beverage quality control
- Biomedical diagnostics Short-circuiting

Duration: 34 hours

Course Coordinator: Bidyapati Kumar
Department of Chemistry

Starts from
May 15th to 04th Jun,
2023

Achhruram Memorial College, Jhalda, Purulia

Certificate Course in Mushroom Cultivation



Course Duration: 30 Hours

Course Coordinator:

Dr. Sandeep Chakraborty,
Department of Botany

Course Objective

The course aims to educate participants about the principles and practices of mushroom cultivation, covering key aspects such as substrate preparation, spawn inoculation, growth conditions, and harvesting techniques. Participants will learn about different types of mushrooms suitable for cultivation, their nutritional benefits, and commercial viability.

Who should participate?

This course is suitable for Undergraduate students in Botany, Zoology or any interested students who wants to learn and in future to start entrepreneurship related programs for cultivating mushrooms.

Expected Outcome

By the end of the course, participants will be able to confidently cultivate mushrooms using appropriate methods and techniques. They will understand the lifecycle of mushrooms, recognize optimal growing conditions, and troubleshoot common issues that may arise during cultivation. Participants will develop proficiency in selecting and preparing substrates, inoculating spawn, managing growth parameters such as humidity and temperature, and recognizing signs of readiness for harvest.

Course Venue

Department of Botany,
Achhruram College, Jhalda,
Purulia, West Bengal, India



Course Modules Outline:

Module 1: Introduction to Mushroom Cultivation

Module 2: Basics of Mushroom Biology

Module 3: Substrate Preparation

Module 4: Spawn Production and Inoculation

Module 5: Mushroom Cultivation Techniques

Module 6: Harvesting and Post-Harvest Handling

Module 7: Economics and Marketing of Mushrooms



For further information please contact the course coordinator.

TWO WEEKS - CERTIFICATE COURSE IN **BIOINFORMATICS**



Course Period
Jan 21st to Feb 26th, 2023

Number of Lectures
30 Hours



This two-weeks certificate course is a platform for highly motivated students to understand basic bioinformatics through practical “hands-on” training. Participants will learn under the close guidance of departmental faculty as well as resource person.

Course Objectives

To introduce students to the principles and applications of bioinformatics, equipping them with essential skills in analyzing biological data using computational tools.

Expected Outcomes

Upon completion of the course, students will be proficient in utilizing bioinformatics software, interpreting genomic data, and applying computational methods to solve biological problems effectively.

Course Content Outline

- Module 1: Introduction to genes and proteins
- Module 2: Introduction to Internet use and search engines
- Module 3: Genomic sequence information sources
- Module 4: Introduction to data generating methods
- Module 5: Sequence and Phylogeny Analysis

Course Coordinator
Dr. Sandeep Chakraborty
Department of Botany

Who should participate?

Only bonafide and regular students of the college, who is enrolled for a Graduation courses in any discipline and who are interested in integrating computational techniques with biological research can participate. This course will also be helpful for the individuals who further carry out research in pharmaceuticals and biotechnological fields.

For registration contact course coordinator



ACHHRURAM MEMORIAL COLLEGE , JHALDA , PURULIA

Cartography and Geovisualization Certificate Program

Program Overview

This certificate program is designed to provide students with advanced knowledge and skills in cartographic design and Geovisualization. It covers the principles and techniques necessary to create effective maps and visualizations of spatial data.

Duration : 32 hours

Course coordinator :

Dr. Sharmistha Mukherjee
Department of Geography

Course Objectives

- Ψ To understand the principles and theories of cartography and Geovisualization.
- Ψ To develop skills in the use of cartographic and Geovisualization software.
- Ψ To learn how to design and critique spatial visualizations.
- Ψ To apply cartographic techniques in various professional contexts, including urban planning, environmental management, and GIS analysis..

Expected Outcomes

- ‡ Proficiency in cartographic design and the use of Geovisualization tools.
- ‡ Ability to create high-quality, informative maps and spatial visualizations.
- ‡ Enhanced understanding of spatial data representation and interpretation.
- ‡ Preparedness for careers in GIS, urban planning, environmental management, and related fields.

Course Content

Module 1(4hours): Introduction to Cartography : History and development of cartography. Principles of map design. Types of maps and their uses. Assignments: Reading assignments, map critique exercises.

Module 2(4hours): Principles of Geovisualization:: Fundamentals of Geovisualization. Visualization techniques for spatial data. User-centered design principles. Assignments: Visualization exercises, user feedback projects.

Module 3(4hours): Cartographic Design: Elements of map design: color, symbols, typography. Data classification and symbolization. Designing for print and digital media. Assignments: Map design projects, peer reviews.

Module 4(6hours): Interactive and Web-based Mapping: Introduction to web mapping technologies. Creating interactive maps. Principles of web usability for mapping applications.

Assignments: Developing web maps, usability testing.

Module 5(6hours): Spatial Data Visualization: Techniques for visualizing spatial data. Geospatial data formats and standards. Data storytelling with maps. Assignments: Data visualization projects, case studies.

Module 6(4hours): Advanced Topics in Cartography: 3D mapping and visualization. Thematic and statistical mapping. Ethics in cartography and Geovisualization. Assignments: Research projects, ethical analysis.

Module 7(4hours): Capstone Project: Independent or group project integrating all course content. Real-world application of cartographic and Geovisualization skills. Assignments: Capstone project proposal, project execution, presentation.



Value added course in Geography

Achhruram Memorial College, Jhalda . Purulia

Introduction to Geospatial Technologies

Duration : 32 hours

Course coordinator : Dr. Soumitra Sen
Department of Geography

Who Can Participate

These courses designed to provide comprehensive and practical knowledge, students who are interested are all welcome to join this certificate course to improve their knowledge in this field.

Expected Outcomes

- † Comprehensive And Practical Knowledge
- † Skill Development
- † Practicing Mapping And Visualization Tools
- † Hands-on Exercises With GIS And Remote Sensing Software

Course Objectives

This course provides an introduction to geospatial technologies, Geographic Information Systems (GIS), Remote Sensing (RS), and others Geospatial Technologies for Students to learn and acquire knowledge and skill in this particular field for their self-improvement.

Course Content

Module 1(4hours): Introduction to Geospatial Technologies : Definition of Geospatial Technologies, Components of Geospatial Technologies. Concept of Aerial Photographs, Key elements, Photo scale, Height of flight, End lap and Side lap, Identification of Physico-cultural features from Aerial Photographs.

Module 2(4hours): Geographic Information Systems (GIS) : Basic concepts of GIS. applications of GIS. Digital data format and metadata; Image referencing schemes and data acquisition

Module 3(4hours): Remote Sensing (RS) : Principles of remote sensing. definition, development, EMR & EMS, Spectral reflectance curves; Platforms, Orbits; Sensors, Types of Satellite Remote Sensing. IRS and Landsat missions.

Module 4(4hours): Global Positioning Systems (GPS), Basic concepts of GPS . Applications of GPS. Principles of Image Rectification & Enhancement; Image Registration; Subset Image. Preparation of Colour Composites (TCC, FCC & SFCC) & Indices (NDVI, NDWI, NDBI) from. IRS LISS-3, Landsat TM and OLI data

Module 5(4hours): Data Collection and Analysis : Data sources and types . Techniques of data analysis. Principles of visual & digital image interpretation. Preparation of inventories of land use land cover (LULC) features from satellite images

Module 6(4hours): Visualization Techniques : concepts of Mapping and visualization . Creating thematic maps. Principles of GNSS positioning with special reference to GPS, Collection and retrieval of GNSS data. definitions, components, development and applications. (14 lectures)

Module 7(4hours): Global navigation satellite system . Principles of GNSS . Applications in geography. Data Structures: Spatial & non-spatial; Spatial Data Models: Raster and Vector data models; Spatial data relationship – Topology. GIS Database Creation, DBMS and its use in GIS. (22 Lectures)

Module 8(4hours): Internet mapping technologies . Basic concepts . Web mapping application. GIS-based Modelling and Spatial Overlay: Point, line & areal data; Application in Physical Geography and Human Geography, Web-GIS.



Achhruram Memorial College

Jhalda, Purulia, West Bengal

**Certificate
Course**

Hindi Language

Course Objective: This Program is basically meant for Non-Hindi speakers who do not know how to read, write and correctly speak the Hindi language. It introduces script writing, pronunciation skills, communication and comprehension of Hindi prose and poetry.

Expected Outcome: Upon completion of this certificate course, student develops competence in the areas and also the ability to extract socio-cultural information from the texts.

Who can participate?

Non-Hindi speaking Individuals having 10+2 or, Equivalent degree.

Course Module

Module	Title of the Module	Hours
HINL1	Hindi Scripts & Pronunciation	08 Hours
HINL2	Introduction to Hindi Words	08 Hours
HINL3	Introduction to Hindi Sentences	08 Hours
HINL4	Communicative & Comprehensive Skills	08 Hours

Duration: 32 Hours

Course Coordinator: Prof. G.S.Rana
Department of Hindi

** for more information, please contact the course coordinator.*



Achhruram Memorial College

Jhalda, Purulia, West Bengal, India, Pin: 723 202

INFORMATION INDEXING AND SEARCHING

Course Objective:

The objective of this course is to familiarize students with basic Search tools, techniques and to familiarize them different Indexing Languages and Indexing techniques. They will also get thorough knowledge on trends in Online Searching such as Cluster Based Web search; Federated Search; searching through Meta search engine.

Course Outcome:

Students will learn to remember and understand the basic concepts related to Search tools and techniques through this course.

Certificate Course,
Central Library
Duration: 32 Hours

Course Coordinator:
Mrs. Riptika Pal,
Librarian

Course Content

Module I (4 Hours)

Search Strategy: Concept, need, development of a search strategy; Process for Searching: Preparing to search, Feedback and Refining; Basic Search Techniques: Word and Phrase, Boolean, Truncation, Proximity, Field, Metadata, Limit Search Techniques

Module 2 (8 Hours)

Online Searching and Retrieval: Definition, Historical development, basic features; Searching vs. browsing; Online Search tools: Search Engines- Primary Search Engines, Meta search Engines, focused crawler based search engines and Directories; Subject Gateways; Google Search tools and techniques

Module 3 (8 Hours)

Indexing Language: Types and Characteristics; Vocabulary Control: Definition and Purpose. Tools of Vocabulary Control; Thesaurus: Structure and Function; Design/Construction of Thesaurus (Printed material)

Module 4 (8 Hours)

Techniques: Post Coordinate Indexing, Uniterm, KWIC, KWOC, Keyword Indexing, Citation Indexing; Automatic Indexing: Concept and Process; Manual vs Automatic Indexing

Module 5 (4 Hours)

Current trends in online searching: Federated search: Concept, Need, Functions, Advantages, Disadvantages; Federated Search providers- Free and Commercial; Federated Search Engine vs Meta search engine



Achhruram Memorial College

Jhalda, Purulia, West Bengal, India, Pin: 723 202

Preservation and Conservation of Library Materials

Course Objectives

The objective of this course is to make the students familiar with the concept of preservation of different types of library materials. The students will also learn about digital preservation and various digital preservation initiatives.

Expected Outcome

Students will learn to prevent deterioration from factors like temperature, humidity, light and pollution. Students can also remember and understand the basic concepts related to preservation and conservation of library materials.

Certificate Course

Central Library

Duration: 30 hours

Course Coordinator:

Mrs. Riptika Pal, Librarian

**For any information contact coordinator*

Course Content

Module I (10 Hours)

Library Materials: Need for Preservation, Evolution of Library Materials, Palm Leaves, Manuscripts, Books, Periodicals, Newspapers etc. Non-Book Materials, Micro Documents

Module II (8 Hours)

Enemies of Library Materials: Physical Agents, Chemical Agents, Biological Agents, Digital Preservation

Module IV (6 Hours)

Control of Deterioration: Environment Control, Control of Micro-biological Agents, Rehabilitation of Documents, Repair and Restoration, Conservation of Non-book Materials

Module V (6 Hours)

Binding: Different types of Binding for Library Materials, Binding Materials and their varieties, Binding Process, Standards for Binding

Starts from
21/01/2023

Achhruram Memorial College, Jhalda, Purulia

Certificate Course in Vedic Mathematics in Human Development



Course Duration: 32 Hours

Course Coordinator:

Dr. Shibajee Singha Deo,
Dept. of Mathematics

Course Objective

To introduce participants to the principles and techniques of Vedic Mathematics and their applications in personal and professional development. To explore how Vedic Mathematics can enhance mental agility, problem-solving skills, and cognitive abilities. To understand the philosophical and cultural significance of Vedic Mathematics in the context of human development and holistic education.

Who can participate?

This course is suitable for Undergraduate students interested in exploring alternative mathematical approaches.

Expected Outcome

Participants will gain proficiency in basic Vedic Mathematics sutras for mental calculations, including addition, subtraction, multiplication, division, and square roots. Improved cognitive abilities, including enhanced concentration, logical reasoning, and memory retention. Application of Vedic Mathematics techniques in everyday life situations, academic pursuits, and professional endeavors.

Course Venue

Department of Mathematics,
Achhruram College, Jhalda,
Purulia, West Bengal, India

Certificate
Course

Course Content Modules

Module 1: Foundations of Vedic Mathematics:

Explore historical context and basic principles of Vedic Mathematics. Learn fundamental sutras for mental arithmetic and problem-solving.

Module 2: Advanced Techniques:

Master advanced sutras for multiplication, division, and square roots. Discover cognitive benefits including improved concentration and logical reasoning.

Module 3: Integration into Personal and Professional Growth:

Apply Vedic Mathematics for stress management and mental wellness. Explore educational and professional applications in fields like finance and engineering.

For further information please contact the course coordinator.

Achhruram Memorial College

Jhalda, Purulia, West Bengal



Certificate Course on Vedic-Upanishadic Influence on Indian Ethics (Academic Session – 2022-2023)

➤ Course Objective:

The objective of this course is to introduce undergraduate students to the foundational texts of ancient Indian philosophy, particularly the Vedas and Upanishads, and their profound influence on ethical thought and values in Indian culture. By the end of the course, students should have a deepened understanding of the ethical principles derived from these texts and their relevance in contemporary contexts.

➤ Who Can Participate:

Undergraduate students from any discipline who have an interest in philosophy, ethics, cultural studies, or Indian history. There are no specific prerequisites other than a curiosity about ancient Indian thought and its impact on ethical frameworks.

➤ Course Duration:

30 hours (typically spread over one semester)

➤ Course Coordinators:

Mr. Tanay Nandi

Mr. Yudhisthir Mahato

Modules

1. Introduction to Vedic Literature

Overview of the Vedas: Rigveda, Samaveda, Yajurveda, Atharvaveda
Historical and cultural context of Vedic society

2. Upanishads: Philosophical Foundations

Nature and significance of Upanishads
Major Upanishads and their philosophical themes

3. Concepts of Dharma and Karma

Understanding Dharma as moral duty and ethical conduct
Karma theory and its implications in Indian ethical thought

4. Ethical Teachings in Vedic Texts

Exploration of ethical principles in Rigveda and Atharvaveda
Moral values and virtues according to Vedic literature

5. Upanishadic Ethics: Atman and Brahman

Concept of Atman (self) and Brahman (universal consciousness)
Ethical implications of realizing the self and its connection to the cosmos

6. Application of Vedic-Upanishadic Ethics Today

Relevance of ancient Indian ethics in contemporary moral dilemmas
Case studies and discussions on applying Vedic-Upanishadic principles in modern contexts

7. Assessment and Evaluation

Quizzes, essays, and a final project analyzing a specific ethical concept from Vedic-Upanishadic texts

➤ Expected Outcome:

By the end of the course, students are expected to:

1. have a comprehensive understanding of the ethical teachings embedded in Vedic and Upanishadic literature.
2. analyze and critically evaluate the relevance of these teachings in contemporary ethical debates.
3. develop a nuanced perspective on Indian ethical values and their evolution over time.
4. demonstrate the ability to apply Vedic-Upanishadic principles to ethical decision-making processes.
5. engage in informed discussions about the cultural and philosophical heritage of India and its impact on global ethical discourse.



Achhruram Memorial College

Jhalda, Purulia, West Bengal

Certificate
Course

Yoga and Wellness

Course Module

Course Objective: The main aim of yoga is to integrate the body, mind, and thoughts so as to work for good ends. To provide practical knowledge of suryanamaskar. To acquire the practical knowledge of asanas, pranayama, kriya, meditation and other yogic practice.

Expected Outcome: learning the general guidelines of yoga practices and about international yoga day. Understanding the technique of suryanamaskar. Attaining knowledge of the relaxative culture and meditative asana. Gaining knowledge of pranayama technique. Understood the concept of kriyas practically.

- *Asanas of all supine position
- *Asanas of all supine position
- *Asanas of all supine position
- *Asanas of all supine position
- *Different technique of pranayamas
- *Different technique of kriyas

Duration: 32 Hours

Course Coordinator: Mr. Sajal Maji
Department of Physical Education

** for more information, please contact the course coordinator.*



Achhruram Memorial College

Jhalda, Purulia, West Bengal

Certificate
Course

Robot Motion Planning

Course objective: The objective of this course is to equip students with the knowledge and skills necessary to design, analyze, and implement motion planning algorithms for autonomous robots.

Expected outcomes: By the end of the course, students will be able to Understand the Basics of Motion Planning, develop and analyze motion planning algorithms, and implement motion planning in real-world scenarios.

Who can participate: To participate effectively in the course, participants should have basic programming skills and basic knowledge of Robotics.

Duration: 34 hours

Course Coordinator: Mr. Arindam Biswas
Department of Physics

* For more information, please contact the course coordinator.

Course Content

Module 1: Introduction to Robotic Motion, Definition, and Importance, Applications in robotics (4 hours)

Module 2: Types of Motion Planning Problems, Concepts of Configuration Space, and Path Planning in Configuration Space (6 hours)

Module 3: Graph-Based Methods: Roadmaps, Probabilistic Roadmaps (PRMs) and Rapidly-Exploring Random Trees (RRTs) (6 hours)

Module 4: Optimization-Based Methods: Potential Fields, Sampling-Based Optimization (RRT* and PRM*), Gradient-Based Methods (6 hours)

Module 5: Kinodynamic Planning: Introduction to Kinodynamics, Planning Algorithms for Kinodynamics (6 hours)

Module 6: Multi-Robot Planning: Collision Avoidance in Multi-Robot Systems, Applications of Multi-Robot Planning (6 hours)

Achhruram Memorial College

Jhalda, Purulia, West Bengal



Certificate Course on Media and Politics in the Globalizing World

Department of Political Science

(Academic Session – 2022-2023)

❖ **Course Objective:**

The objective of this course is to examine the intricate relationship between media and politics within the context of globalization. It explores how globalizing forces shape media landscapes, influence political communication, and impact democratic processes worldwide. By the end of the course, students should develop a critical understanding of the role of media in shaping political discourse and policy-making in the globalized era.

❖ **Who Can Participate:**

Undergraduate students from any discipline interested in media studies, political science, international relations, communication studies, sociology, or globalization. There are no specific prerequisites, but an interest in current affairs, media influence, and global issues is recommended.

❖ **Course Duration:**

30 hours

❖ **Course Coordinators:**

- 1) Mr. Umasankar Mandal
- 2) Mr. Krishnapada Mahato

Modules

1. ****Introduction to Media and Politics in a Globalizing World****

- Definitions and concepts: globalization, media, and politics
- Historical evolution of media's role in global politics

2. ****Global Media Landscapes****

- Global media flows and transnational media conglomerates
- Impact of digital technologies on media dissemination and consumption patterns

3. ****Media, Democracy, and Governance****

- Role of media in democratic processes and political participation
- Media freedom, censorship, and the challenges to democratic norms

4. ****Political Communication in Global Contexts****

- Framing, agenda-setting, and the role of media in shaping public opinion
- Influence of social media and digital platforms on political communication

5. ****Globalization and Political Campaigning****

- Comparative analysis of political campaigns across different countries
- Case studies on the use of media in electoral politics and advocacy

6. ****Media Ethics and Responsibility****

- Ethical dilemmas in global media coverage
- Role of media watchdogs and accountability mechanisms

❖ **Expected Outcome:**

By the end of the course, students are expected to:

- Demonstrate a critical understanding of the interplay between media and politics in a globalized context.
- Analyze and evaluate the impact of globalizing forces on media landscapes and political communication strategies.
- Develop insights into the ethical, social, and political implications of media influence on public opinion and governance.
- Apply theoretical concepts to real-world scenarios and case studies related to global media and politics.
- Foster media literacy skills and engage in informed discussions on contemporary issues shaping global politics.



ACCHRURAM MEMORIAL COLLEGE
Jhalda, Purulia, West Bengal
Wildlife Conservation and Management

**Certificate
Course**

Duration: 30 hours

Course Objective: This course is designed to provide an in-depth understanding of wildlife conservation, the principles of ecosystem management, and their importance for maintaining biodiversity.

Expected Outcome: Upon completion of this certificate course, students are expected to have achieved standardized proficiency in wildlife conservation techniques, preparing them for advanced studies and real-world applications in the field of environmental science.

Who can participate?

Individuals eager to achieve proficiency in the principles of wildlife conservation

Course Content

Module I: Introduction to Wildlife Conservation

Overview of wildlife conservation, its significance, and current challenges (3 hours)

Module II: Biodiversity and Ecosystem Services

Importance of biodiversity, ecosystem functions, and services (4 hours)

Module III: Conservation Strategies and Policies

Protected areas, wildlife laws, and international treaties (4 hours)

Module IV: Wildlife Habitat Management

Principles of habitat conservation, restoration, and management (4 hours)

Module V: Threats to Wildlife

Habitat destruction, climate change, poaching, and invasive species (3 hours)

Module VI: Wildlife Research and Monitoring Techniques

Field techniques, data collection, and analysis methods (4 hours)

Module VII: Community Involvement and Sustainable Practices

Role of local communities, sustainable development, and ecotourism (4 hours)

Module VIII: Case Studies and Practical Applications

Review of successful conservation programs and hands-on fieldwork (4 hours)

Course Coordinator: Madhumita Mahato
Department of Zoology

For more information, please contact the course coordinator.

Starts from
09/02/2023

Achhruram Memorial College, Jhalda, Purulia

Certificate Course in : Environmental Movements in Post Colonial India



Course Duration: 32 Hours

Course Coordinator:

Dr. Samar Kanti Chakrabartty
Dept. of History

Course Objective

To promote sustainable development practices.

To empower local communities in decision-making processes regarding natural resource management and policies.

To raise awareness among the public and policymakers.

Course Venue

Department of History
Achhruram College, Jhalda,
Purulia, West Bengal, India

Who can participate?

This course is suitable for Undergraduate students of arts and Humanities and science also.

Importance and impact

Ecological Degradation: Rapid industrialization, deforestation, and pollution led to widespread environmental degradation, threatening ecosystems and livelihoods.

Social Justice Concerns:

Global Influences: I

Cultural and Spiritual Values:

Health Impacts:

Impact:

Impact of the Topic: The environmental movements in post-colonial India have had profound impacts on Policy Reforms:

Community Empowerment:

Awareness and Education:

Conservation Efforts:

Global Leadership:

Certificate
Course

Course outcomes

The course outcomes are :

1. Comprehensive Understanding, 2. Analysis of Environmental Issues, 3. Evaluation of Activist Strategies, 4. Impact Assessment, 5. Interdisciplinary Connections, 6. Global Contextualization, 7. Ethical and Cultural Dimensions, 8. Critical Thinking and Problem Solving, 9. Leadership and Advocacy Skills, 10. Communication and Collaboration:

These outcomes aim to equip students with a deep understanding of the historical, socioeconomic, political, and cultural dimensions of environmental movements in post-colonial India.:

For further information, please contact the course coordinator.



Achhruram Memorial College

Jhalda, Purulia, West Bengal

Certificate
Course

Nanoscience /Nanotechnology and their advance applications in different field.

Course Objective: This course is designed for preliminary idea about nanoscience and nanotechnology, and their various application in our daily life.

Expected Outcome: Upon completion of this certificate course, students are expected to know the basic idea of nanoscience and nanotechnology and their advance applications in different field.

Who can participate?

Science Student (UG/PG) such as Chemistry, Physics, Biology as a major subject who wanted to know about nanoscience and nanotechnology .

Duration: 34 hours

Course Coordinator: Dr. Arun Kumar Sinha

Department of Chemistry

** for more information, please contact the course coordinator.*

Course Content

Module I: Basic idea about nanoscience and nanotechnology (3 hours)

Module II: Definition of nanomaterial, Type of nanomaterial, Chemical and physical method of synthesis, Physical characterization of nanomaterial. (5 hours)

Module III: UV-Visible study of nanomaterial, Band Gap calculation, PL-study of nanomaterial and their interpretation. (5 hours)

Module IV: Powder XRD and XPS analysis of nanomaterial, FESEM and EDS study of Nanomaterial (4 hours)

Module V: TEM, HRTEM and SEAD pattern of synthesized nanomaterial and their interpretation (4 hours)

Module VI: Application: Catalyst, Electro catalyst, Solar cell, Battery etc. (5 hours)

Module VII: Hands-on experiments for preparation of Oxide nanomaterial. (6 hours)

Module VIII: Future scope of nanoscience and nanotechnology in India and abroad as a academic career. (2 Hours)

Application and Limitations of Polymers



Course Objective:

- Understand the fundamental principles of polymers.
- Explore various applications of polymers in different industries.
- Analyze the limitations and challenges associated with polymer materials.
- Gain practical insights through case studies and hands-on activities.

Expected Outcome:

This structured approach ensures that UG and PG students gain a comprehensive understanding of both the practical applications and inherent limitations of polymers. It equips them with the knowledge and critical thinking skills necessary to contribute effectively to industries where polymer materials play a crucial role.

Who can participate?

Science Student (UG/PG) (Chemistry, Physics, Biology as a major subject) are welcome to join this certificate course.

Duration: 30 hours

Course Coordinator: Dr. Madhab Dule

Department of Chemistry

**Achhruram Memorial College,
Jhalda, Purulia, West Bengal**

Course Content

Module 1: Introduction to Polymers (4 Hrs.)

- Basic concepts and definitions
- Classification of polymers
- Polymer structure and properties

Module 2: Applications of Polymers (8 Hrs.)

- Polymer materials in everyday life
- Polymers in industries (e.g., automotive, packaging, biomedical)
- Advanced applications (e.g., nanocomposites, smart polymers)

Module 3: Limitations and Challenges (6 Hrs.)

- Mechanical limitations (e.g., strength, durability)
- Environmental considerations (e.g., recycling, degradation)
- Economic and processing challenges

Module 4: Case Studies and Practical Insights (8 Hrs.)

- Case studies of successful polymer applications
- Lab sessions (optional, depending on resources)
- Guest lectures from industry experts

Module 5: Future Trends and Innovations (4 Hrs.)

- Emerging trends in polymer research
- Innovative applications (e.g., biodegradable polymers, 3D printing)
- Ethical considerations and future directions