COMPETENCY BASED LEARNING DESIGN/COMPETENCY BASED POST-TEACHING REFLECTION

YEAR - 2026 SEMESTER - VI DEPARTMENT -GEOGRAPHY FACULTY-DR. KAUSTUVA BANERJEE

Topic/Unit	Competency-Based Expected Learning Outcome (Knowledge, Skill Value, Attitude)	Assessment	Brief Description of Strategies, Aids (if any), Evaluation process	Hours Allotted	Evaluated Outcome/ Post-Teaching Reflections
CC15 Unit 1	**Knowledge (Cognitive)** The students will be able to: • Explain the **fundamental principles of remote sensing**, including electromagnetic radiation, spectral signatures, and atmospheric interactions. • Differentiate between **passive and active sensors** and their applications. • Describe various **remote sensing platforms** (satellite, airborne, UAV) and sensor types (optical, thermal, radar, LiDAR). • Interpret **spatial, spectral, radiometric, and temporal resolutions**.	**Formative-** Tutorials, Presentations, Group Projects **Summative-** End Semester theory and practical examination	**1. Teaching–Learning Strategies** • **Interactive lectures** to explain fundamental concepts and theories of remote sensing. • **Demonstrations and hands-on practical sessions** for satellite image processing and analysis. • **Case studies and problem-based learning** using real-world applications (agriculture, disaster management, urban studies). • **Group discussions and seminars** to promote	**2hrs/week**	

	• Explain the **remote sensing data acquisition, processing, and interpretation workflow**. • Identify major **applications of remote sensing** in agriculture, environmental monitoring, urban planning, disaster management, and climate studies. **Skills (Psychomotor)** The students will be able to: • Acquire and preprocess remote sensing data (e.g., **geometric and radiometric corrections**). • Use **remote sensing and GIS software** (e.g., QGIS) for image analysis. • Perform **image enhancement, classification, and change detection** techniques. • Analyze satellite imagery to **extract meaningful spatial information**. • Integrate remote sensing data with **GIS layers** for spatial decision-making.		critical thinking and collaborative learning. • **Project-based learning** involving interpretation of remote sensing data for specific applications. • **Self-directed learning** through assignments and exploration of open-source datasets. **Teaching–Learning Aids** • **Multimedia presentations** (PPTs, animations, videos) to visualize remote sensing concepts. • **Satellite imagery and open datasets** (e.g., Landsat, Sentinel, MODIS). • **Remote sensing and GIS software** (QGIS). • **Laboratory manuals and practical worksheets**. • **Online platforms and digital resources** (tutorials, research articles, MOOCs).		

	• Produce **thematic maps and technical reports** based on remote sensing outputs. **Values (Ethical and Professional Domain)** The students will be able to: • Demonstrate awareness of **ethical use of geospatial and satellite data**. • Recognize the importance of **data accuracy, reliability, and integrity**. • Value remote sensing as a tool for **sustainable development and environmental protection**. • Respect **data privacy, security, and national/international geospatial policies**. • Appreciate interdisciplinary collaboration in geospatial sciences. **Attitudes (Affective Domain)** The students will be able to: • Develop a **problem-solving mindset** when analyzing spatial data.		• **Maps, charts, and models** for spatial visualization. **Evaluation Process** • **Written examinations/quizzes** to assess conceptual understanding and theoretical knowledge. • **Practical examinations** to evaluate data processing, analysis, and software skills. • **Assignments and laboratory exercises** for continuous assessment. • **Mini-projects / case study reports** to assess application skills and problem-solving ability. • **Presentations and viva-voce** to evaluate communication skills and conceptual clarity. • **Participation and attitude assessment** based on involvement in discussions, teamwork,		

	• Show **curiosity and interest** in emerging remote sensing technologies. • Exhibit **responsibility and professionalism** in handling geospatial data. • Demonstrate **confidence in applying remote sensing techniques** to real-world problems. • Engage in **lifelong learning** to keep pace with advancements in Earth observation technologies.		and ethical data handling.		

COMPETENCY BASED LEARNING DESIGN/COMPETENCY BASED POST-TEACHING REFLECTION

YEAR - 2026 SEMESTER – VI DEPARTMENT -Geography

Faculty: Dr. AMBIKA ROY BARDHAN

Paper: CC-14-Theory and Practical- India and West Bengal

Topic/Unit	Competency-Based Expected Learning Outcome (Knowledge, Skill Value, Attitude)	Assessment	Brief Description of Strategies, Aids (if any), Evaluation process	Hours Allotted	Evaluated Outcome/ Post-Teaching Reflections
CC-14-Th- India and West Bengal					
Physiographic Divisions of India with reference to Tectonic Provinces	**Students will be able to-** **Knowledge:** Explain major physiographic divisions and tectonic evolution of India. **Skill:** Interpret and analyse physiographic and tectonic maps. **Value:** Develop appreciation of geomorphic and tectonic processes shaping the Indian landmass. **Attitude:** Develop scientific temper and respect for natural earth processes.	**Short answer questions**	• **Group Learning and teaching** • **Technology based Learning**	**3**	
Climate, Soil and Natural Vegetation Regions of India	**Students will be able to-** **Knowledge:** Describe climatic types, soil groups and vegetation regions of India. **Skill:** Analyse interrelationships between climate, soil and vegetation types with the help of maps.	**Quiz with MCQ**	• **Peer Teaching** • **Group Learning and teaching (Flipped Classroom Teaching)**	**4**	

	Value: Develop environmental awareness and appreciation of India's natural diversity. **Attitude:** Become sensitivity towards conservation and sustainable resource use.		• **Technology based Learning**		
Green Revolution (Phases I & II) and White Revolution – Impacts	**Students will be able to-** **Knowledge:** Outline phases, features and objectives of Green and White Revolutions. **Skill:** Evaluate socio-economic and environmental impacts using case studies. **Value:** Understand the importance of food security and rural development. **Attitude:** Develop balanced outlook towards development, equity and sustainability.	**Short answer Question**	• **Group Learning and teaching** • **Technology based Learning**	**4**	
Industrial Development in India – Automobile and Information Technology Sectors	**Students will be able to-** **Knowledge:** Understand growth, distribution and characteristics of automobile and IT industries. **Skill:** Interpret industrial location factors and regional patterns. **Value:** Appreciate industrial development and its role in economic growth. **Attitude:** Become aware of employment generation, innovation and responsible industrialisation.	**Presentation**	• **Peer Teaching** • **Group Learning and teaching** • **Technology based Learning**	**4**	

Regionalisation of India – Economic Regions (After P. Sengupta)	**Knowledge:** Explain the basis and criteria of economic regionalisation by P. Sengupta. **Skill:** Classify and map economic regions using economic indicators. **Value:** Become aware of regional disparities and balanced regional development. **Attitude:** Empathise towards backward regions and planning-oriented thinking.	**Long answer questions**	• **Group Learning and teaching** • **Technology based Learning**	**3**	
CC-14-Pr- India and West Bengal					
Monthly temperature and rainfall graphs of five select stations from different physiographic regions of India	**Students will be able to-** **Knowledge:** Understand spatial variation of temperature and rainfall across major physiographic regions of India. **Skill:** Construct and interpret climatic graphs using monthly temperature and rainfall data. **Value:** Appreciate regional climatic diversity of India.	Graph construction	• **Learning by Problem Solving** • **Experiential Learning**	**3**	
Preparation of composite index (Kendall's Method): Comparison of developed and less developed states of India	**Students will be able to-** **Knowledge:** Understand the concept of composite index and Kendall's method for regional comparison. **Skill:** Compute composite index values and classify states into developed and less developed categories. **Value:** Become aware of regional inequalities and development issues in India.	Compute Composite Index using Kendall's Method	• **Learning by Problem Solving** • **Experiential Learning**	**3**	

COMPETENCY BASED LEARNING DESIGN/COMPETENCY BASED POST-TEACHING REFLECTION

YEAR – III SEMESTER – VI HONS DEPARTMENT – GEOGRAPHY FACULTY – DEBASREE SINHA

COURSE: SOIL AND BIOGEOGRAPHY

CODE: GEOG-H-CC13-6-Th

Topic/Unit	Competency-Based Expected Learning Outcome (Knowledge, Skill Value, Attitude)	Assessment	Brief Description of Strategies, Aids (if any), Evaluation process	Hours Allotted	Evaluated Outcome/ Post-Teaching Reflections
UNIT I 1. Definition and significance of soil properties: Texture, structure, and moisture 2. Definition and significance of soil properties:	Students s will be able to: 1. Analyze how physical and chemical properties of soil influence soil characteristics, plant growth, and productivity. 2. Evaluate the significance of pH in determining soil health and crop suitability.	1. Case study 2. Seminar presentation 3. Peer assessment 4. Assignment	1. Group and individual learning. 2. Written assessment to help prepare for End Semester Examinations. 3. Traditional lecture method with presentations.	21	

pH, organic matter, and NPK 3. Origin and profile characteristics of lateritic, podsol, and chernozem soils 4. Principles of soil classification: Genetic and USDA. Concept of land capability and its classification 5. Soil erosion and degradation: Factors, processes and management measures. Humans	3. Interpret how nutrient availability and soil reaction affect sustainable soil management. 4. Identify and compare the profile characteristics of laterite, podzol, and chernozem. 5. Relate soil distribution to climate, vegetation, and topography. 6. Distinguish between genetic and USDA systems of soil classification. 7. Comprehend the concept of land capability and classify land based on its agricultural potential and limitations. 8. Suggest appropriate soil conservation and management measures for sustainable land use.				

as active agents of soil transformation					

COURSE: SOIL AND BIOGEOGRAPHY

CODE: GEOG-H-CC13-6-P

Topic/Unit	Competency-Based Expected Learning Outcome (Knowledge, Skill Value, Attitude)	Assessment	Brief Description of Strategies, Aids (if any), Evaluation process	Hours Allotted	Evaluated Outcome/ Post-Teaching Reflections
1. Determination of soil pH, organic matter, and NPK using field kit 2. Determination of soil type by ternary diagram textural plotting	Students s will be able to: 1. Test soil samples for determination of key chemical properties and nutrients. 2. Identify soil texture and relate it with soil suitability for agriculture.	1. Laboratory testing	Laboratory demonstration of soil testing.	15	

COMPETENCY BASED LEARNING DESIGN/COMPETENCY BASED POST-TEACHING REFLECTION

TEACHER – DR. SUSHMA SAHAI YEAR - 2026 SEMESTER - SIX DEPARTMENT - GEOGRAPHY

PAPER – CC13-6-TH- SOIL AND BIOGEOGRAPHY

UNIT II: BIOGEOGRAPHY

Topic/Unit	Competency-Based Expected Learning Outcome (Knowledge, Skill Value, Attitude)	Assessment	Brief Description of Strategies, Aids (if any), Evaluation process	Hours Allotted	Evaluated Outcome/ Post-Teaching Reflections
6.Concepts of biosphere, ecosystem, biome, ecotone, community and ecology	**Knowledge:** Define and explain core ecological concepts; distinguish among biosphere, ecosystem, biome, community, ecotone and ecology with suitable examples. **Skill:** Prepare labelled diagrams and concept maps and use them to interpret ecological phenomena at regional and global scales. **Value/Attitude:** Foster ecological sensitivity and an understanding of the interdependence between biotic and abiotic components	Classroom interaction and concept-mapping exercise	Interactive lecture using PPTs, schematic diagrams, short video clips; think–pair–share for concept differentiation;	5	
7. Concepts of trophic structure, food chain and food web. Energy flow in ecosystems	**Knowledge:** Explain trophic levels, ecological pyramids, and principles of energy flow (10% law).	Problem-solving questions, class discussion	PPT diagrams, case-based examples (grassland, pond); peer explanation	5	

	Skill: Draw and interpret food chains, food webs, and energy flow diagrams. **Value/Attitude**: Cultivate environmental sensitivity, ethical awareness, and an informed respect for the interdependence and sustainability of natural systems.				
8. Classification of world biomes (after Whittaker). Geographical extent and characteristics of tropical rain forest, savanna, hot desert, taiga, and coral reef biomes.	**Knowledge:** Describe Whittaker's biome classification and characteristics of major world biomes. **Skill:** Analyze climatic graphs, interpret biome maps, and compare biomes in terms of vegetation and climate. **Value/Attitude:** Foster appreciation for global biodiversity and conservation-oriented thinking	Paper presentations	Integration of world maps, climate graphs, and PPT visuals, followed by group-wise comparative study of biomes.	7	
9.Bio- geochemical cycles with special reference to carbon dioxide and nitrogen	**Knowledge:** Explain stages, reservoirs, and processes of carbon and nitrogen cycles. **Skill:** Draw flow diagrams and relate cycles to climate change, soil fertility, and human intervention. **Value/Attitude:** Develop responsibility towards sustainable resource use and environmental protection.	Tutorials based on previous years university examinations	Formative and summative assessment through diagram-based questions and short-answer tests	3	
10.Deforestation: Causes,	**Knowledge:** Identify causes and ecological, social, and economic impacts of deforestation.	Case-study analysis, group discussion	Fish- bowl Technique to facilitate interactive learning and critical analysis	4	

consequences and management	**Skill:** Analyze case studies and propose management and conservation strategies. **Value/Attitude:** Cultivate conservation ethics, civic responsibility, and sustainable development outlook.				
PAPER – CC13-6-LAB- SOIL AND BIOGEOGRAPHY					
3.Plant species diversity determination by matrix method	**Knowledge:** Understand concepts of species diversity, richness, and evenness. **Skill:** Collect data, prepare matrices, compute diversity indices, and interpret results. **Value/Attitude**: Encourage scientific accuracy, teamwork, and respect for biodiversity.	Continuous assessment through practical record maintenance and evaluation, mock viva voce and tutorials	Field/secondary data, worksheets, guided calculations; group work with supervision	8	
4.Time series analysis of biogeography data	**Knowledge:** Explain temporal variation in biogeographical and ecological data. **Skill:** Plot graphs, analyze trends, and draw logical inferences from datasets. **Value/Attitude:** Develop analytical thinking, objectivity, and data interpretation ethics.	Evaluation based on maintained practical records and tutorials	Use of sample datasets; step-by-step plotting; individual practice and feedback	7	

COMPETENCY BASED LEARNING DESIGN/COMPETENCY BASED POST-TEACHING REFLECTION

YEAR - 2026 SEMESTER – VI -DEPARTMENT -GEOGRAPHY
FACULTY Mrs SABIHA SETHWALA
GEOG- H-CC-14 (TH) INDIA and WEST BENGAL

Topic/Unit	Competency-Based Expected Learning Outcome (Knowledge, Skill Value, Attitude)	Assessment	Brief Description of Strategies, Aids (if any), Evaluation process	Hours Allotted	Evaluated Outcome/ Post-Teaching Reflections
UNIT II- WEST BENGAL 6.Physiographic divisions	Knowledge Able to understand the landforms on different scales Skill Able to integrate knowledge with the tectonic setting Value appreciating the diversity in topography and develop sustainable strategies for landuse Attitude develop a scientific temper to link , associate and analyse	Class tests MCQ / Objective worksheets Home assignments Exams	Lecture method Discussion method Use of PPTs Use of ICT group PPT presentations	3	
7.Drainage system	Knowledge Able to understand the use and importance of the water resources of the state and	Class tests MCQ / Objective worksheets Home assignments	Lecture method Discussion method Use of PPTs Use of ICT	3	

	realize the importance of its conservation Skill equips students with ecological and community focussed skills on the use of water resources Value appreciating the different uses of water and develop sustainable strategies for conservation Attitude develop a scientific approach to the use of water resources	Exams	group PPT presentations		
8. Pattern of industrialisation	Knowledge Able to understand the different factors influencing present trends in idustrialisation Skill Able to integrate knowledge with critical thinking skills to address the regional issues Value able to prepare roadmaps for economic growth Attitude develop a scientific approach and a community based approach for policies	Class tests MCQ / Objective worksheets Home assignments Exams	Lecture method Discussion method Use of PPTs Use of ICT group PPT presentations	3	

9.Population Growth	Knowledge Able to understand the trends in growth Skill Able to integrate knowledge with critical thinking skills to address the population issues Value helps in strategic planning and resource management Attitude develops a behavioural approach to develop policies	Class tests MCQ / Objective worksheets Home assignments Exams	Lecture method Discussion method Use of PPTs Use of ICT group PPT presentations	3	

COMPETENCY BASED LEARNING DESIGN/COMPETENCY BASED POST-TEACHING REFLECTION

YEAR - 2026 SEMESTER – VI DEPARTMENT -Geography FACULTY-DR SUMAN CHATTERJEE

Topic/Unit	Competency-Based Expected Learning Outcome (Knowledge, Skill Value, Attitude)	Assessment	Brief Description of Strategies, Aids (if any), Evaluation process	Hours Allotted Each Class = 45 minutes	Evaluated Outcome/ Post-Teaching Reflections
1. Image georeferencing and enhancement; preparation of spectral reflectance libraries (IRS L3 / Landsat OLI)	**Knowledge:** Image geometry, GCPs, reflectance and spectral signatures. **Skill:** Georeference images, enhance imagery, extract spectral signatures and build LULC spectral libraries. **Value & Attitude:** Care for metadata and reproducibility.	**Formative:** in-class exercises, GCP checking, quizzes. **Summative:** practical file submission with spectral library and brief report.	**Strategies:** Demo + guided hands-on practice. **Aids:** QGIS/SAGA GIS/ Google Earth, sample satellite data, metadata files. **Evaluation:** Accuracy of outputs, documentation quality.	(8 classes)	
2. Supervised image classification, class editing, and post-classification analysis	**Knowledge:** Supervised classification concepts and accuracy assessment. **Skill:** Create training samples, run classifiers, edit classes, assess accuracy. **Value & Attitude:** Analytical and unbiased classification approach.	**Formative:** training-sample exercises, classifier comparison tasks. **Summative:** classified map with accuracy assessment and short interpretation.	**Strategies:** Concept recap + stepwise practicals. **Aids:** GIS/RS software, reference data. **Evaluation:** Classification accuracy, map quality, explanation.	(8 classes)	
3. Waypoint collection from GNSS receivers,	**Knowledge:** GNSS data formats and positioning basics. **Skill:** Collect waypoints, import/export to GIS, plot	**Formative:** supervised collection tasks,	**Strategies:** Demo + hands-on GNSS and GIS workflow. **Aids:** GNSS receiver/mobile app,	(6 classes)	

exporting to GIS database and plotting	and interpret data. **Value & Attitude:** Accurate and ethical data collection.	oral questions. **Summative:** GIS layer submission with plotted map and brief note.	QGIS. **Evaluation:** Data completeness, CRS handling, map output.		