Darrang College (Autonomous), Tezpur-784001

Syllabus for FYUGP

Subject: GEOGRAPHY

Course Type: MAJOR

Approved by:
Board of Studies meeting held on 24-12-2025
&
Academic Council vide Resolution no. 2, dated- 29-12-2025

ANNEXURE I

DRAFT SYLLABUS

B.A. /B.Sc. (Major.) FYUGP, DARRANG COLLEGE (AUTONOMOUS), 2025

SUBJECT: GEOGRAPHY

(1st – 8th Semester)

(**N.B:** *The draft syllabus is prepared based on guidelines of NEP 2020 and Parent University, GU*)

P.G. DEPARTMENT OF GEOGRAPHY

DARRANG COLLEGE, TEZPUR

Website: www.darrangcollege.ac.in

Aims of FYUGP in GEOGRAPHY

Program Outcome:

PSO1: Understand the physical-human relationship.

PSO2: Enhancing skill to analyze spatial and temporal variations using various Quantitative, Cartographic and Geospatial techniques.

PS03: Enhance research & field based problem solving using maps, charts, statistics tables, geospatial technologies.
PS04: Apply indigenous knowledge system in sustainable development of planning.

Teaching learning process: Classroom teaching including digital class, practical, laboratory experiments, field based studies for learning and skill building.

Teaching Learning tools: Blackboard, Whiteboard, Digital smart board, LCD projection, museum as observational studies, field based socio-economic data and weather data analysis for socio-cultural and physical observations will be done using various software like SPSS, R, QGIS, Arc GIS.
Evaluation/ Assessment: 1. **Internal** (Sessional exams, home assignment, class test, group discussion, seminar and attendance.
2. **End semester examination** (conducted centrally).

Course Structure: L-T-P

Credit and marks distribution scheme for Geography Honours course

Semester	Course type	Paper code	Paper name	Credit	Full marks
Semester I (Credit=20)	Major	GGY-MJ-01014	Physical Geography	**4**	60+40=100 (End semester + Internal)
	Minor	GGY-MN-01014	Physical Geography	**4**	60+40=100 (End semester + Internal)
	SEC	GGY-SEC-01013	Field Survey: Techniques and Application	**3**	30+25+20 (End semester+practical+Internal
	AEC			**4**	
	VAC			**2**	
	MDC			**3**	
				20	
Semester II (Credit=20)	Major	GGY-MJ-02014	Human Geography	**4**	60+40=100 (End semester + Internal)
	Minor	GGY-MN-02014	Human Geography	**4**	60+40=100 (End semester + Internal)
	SEC	GGY-SEC-02013	Data Collection, Analysis and Mapping	**3**	30+25+20 (End semester+practical+Internal
	AEC			**4**	
	VAC			**2**	
	MDC			**3**	

				20	
Semester III (Credit=20)	Major	GGY-MJ-03014	Geography as a Spatial Science	**4**	60+40=100 (End semester + Internal)
	Major	GGY-MJ-03024	Geography of North East India with special reference to Assam	**4**	60+40=100 (End semester + Internal)
	Minor	GGY-MN-03014	Geography as a Spatial Science	**4**	60+40=100 (End semester + Internal)
	SEC	GGY-SEC-03013	Geography of Disaster Management	**3**	30+25+20 (End semester+practical+Internal
	MDC			**3**	
	VAC			**2**	
				20	
Semester IV (Credit=20)	Major	GGY-MJ-04014	Geomorphology	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
	Major	GGY-MJ-04024	Climatology, Biogeography & Oceanography	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
	Major	GGY-MJ-04034	Cartographic Techniques	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
	Major	GGY-MJ-04044	Economic and Resource Geography	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
	Minor	GGY-MN-04014	Economic and Resource Geography	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
				20	
Semester V (Credit=20)	Major	GGY-MJ-05014	Social, Cultural & Political Geography	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
	Major	GGY-MJ-05024	Geography of India	**4**	
	Major	GGY-MJ-05034	Quantitative methods in Geography	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
	Major	GGY-MJ-05044 (Internship)	Internship	**4**	
	Minor	GGY-MN-05014	Geography of India	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
				20	

Semester VI (Credit=20)	Major	GGY-MJ-06014	Environmental Geography	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
	Major	GGY-MJ-06024	Population and Settlement Geography	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
	Major	GGY-MJ-06034	Remote sensing & Geoinformatics	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
	Major	GGY-MJ-06044 (Optional)	Geography of Rural and Urban Landscape (Optional)	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
	Major	GGY-MJ-06054 (Optional)	Regional planning & Development (Optional)	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
	Minor	GGY-MN-06014	Population and Settlement Geography	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
				20	
Semester VII (Credit=20)	Major	GGY-MJ-07014	Geographical Thought	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
	Major	GGY-MJ-07024	Hydrology	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
	Major	GGY-MJ-07034	Research Methodology in Geography	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
	Major	GGY-MJ-07044 (Optional)	Field Techniques in Geography	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
	Major	GGY-MJ-07054 (Optional)	Applied Geomorphology	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
	Major	GGY-MJ-07064 (Optional)	Surveying Techniques	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
	Minor	GGY-MN-07014 (Minor)	Geographical Thought	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
				20	
	Major	GGY-MJ-08014	Essentials of Map Making	**4**	45+25+30 (Theory + Practical+ Internal Assessment)

Semester VIII (Credit=20)	Major	GGY-MJ-08024	Health Geography	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
	Major	GGY-MJ-08034 (Optional)	Advanced Statistics in Geography	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
	Major	GGY-MJ-08044 (Optional)	Micro Area Studies and Regional Analysis	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
	Major	GGY-MJ-08054 (Optional)	Project Formulation and Execution: Concepts & Practices	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
	Major	GGY-MJ-08064 (Micro project)	Mini Project/Dissertation	**4**	
	Minor	GGY-MN-08014 (Minor)	Health Geography	**4**	45+25+30 (Theory + Practical+ Internal Assessment)
				20	

NB: *In Semester VI, VII & VIII, Only one optional paper will be taken out of two optional papers*

Course Levels:

a) 100-199**: Foundation & Introductory (Semester I & II)**
b) 200-299**: Intermediate level (Semester III & IV)**
c) 300-399**: Higher level (Semester V & VI)**
d) 400-499**: Advanced course (Semester VII & VIII)**

Detail syllabus of 1st semester (Major)

Title of the course	**Physical Geography**
Course code	**GGY-MJ-01014**
Total Credit (theory)	**04 (3-1-0)**
Contact hours	**60** (1 Credit=15 hours)
Distribution of Marks	(A) **End semester** = **60** (B) **Internal=40** (Sessional, Assignment, Class Test, Seminar, Group Discussion, Attendance)
Course outcomes	1 Understand the evolution, concept, scope, and branches of

	Physical Geography and its interdisciplinary nature. 2. Appreciate the scope and significance of Geomorphology, and comprehend fundamental Concepts such as catastrophism and uniformitarianism. 3. Grasp the meaning, scope, and critical elements of Climatology such as insolation, heat budget, and the relationship between temperature, pressure, and precipitation. 4. Understand the fundaments of Oceanography, including the origins of ocean basins and Currents and the relationship between temperature and salinity. 5. Comprehend the essence, scope, and key concepts of Biogeography such as the biosphere, ecology, ecosystems, and biodiversity.

Unit	**Content**	**Lecture**	**Tutorial**	**Practical**	**Total Hours**
Unit 1: Physical Geography	Meaning, scope, branches of physical geography, physical geography and its interdisciplinary nature.	04	01	NIL	05
Unit 2: Geomorphology	Meaning, scope and nature of geomorphology, internal structure of the earth and its composition. Geomorphic Processes: endogenetic- folds, faults & joints, earthquakes and volcanism; exogenetic-Denudation, weathering, mass wasting, erosion, transportation, deposition. Davisian concept of landform development.	16	02	NIL	18
Unit 3: Climatology	Meaning & scope of Climatology, weather & climate, structure & composition of atmosphere. Insolation: factors affecting insolation, distribution, heat budget. Atmospheric pressure: pressure belts, general circulation of air, winds, cyclones & anti-cyclones. Humidity: types, condensation, forms of precipitation, stability & instability of atmosphere.	16	02	NIL	18
Unit 4: Oceanography and Biogeography	Meaning & scope of oceanography, ocean bottom configuration (Pacific, Atlantic, Indian), ocean currents, temperature & salinity. Meaning & scope of biogeography, fundamental concepts: biosphere, ecology, ecosystems, biodiversity, biogeographic regions. Soil: types & soil forming processes.	08 08	02 01	NIL	10 09
Total unit 04		**52**	**08**	**NIL**	**60**

Reading list:

1. Strahler, A., and Strahler, A. (2007). Physical geography. John Wiley & Sons.

2. Bloom, A. L., and Bloom, A. L. (1998). Geomorphology: a systematic analysis of late Cenozoic landforms (No. 551.41 B5.). Upper Saddle River: Prentice Hall.

3. Waugh, D. (2000). Geography: An integrated approach. Nelson Thornes.

4. Kale, V.S. and Gupta, A. (2001) Introduction to Geomorphology. Orient Longman, NewDelhi.

5. Selby, M.J. (2005) Earth's Changing Surface: An Introduction to Geomorphology. ClarendonPress

6. Thornbury, W. (1968). Principles of Geomorphology.- John Wiley and Sons, 394 p. NewYork.

7. Siddhartha, K. (2018): Oceanography, A brief Introduction, Kitab Mahal

8. Howard, J. Critchfield: General Climatology, 2008, Pearson

9. Lal, D.S.(2022) Climatology, Sarda Pustak Bhaban

10. C.Barry Cox, Peter D. Moore, (2000), Biogeography, John Wiley and Sons Ltd.

Detail syllabus of 2nd semester (Major)

Title of the course	**Human Geography**
Course code	**GGY-MJ-02014**
Total Credit (theory)	**04 (3-1-0)**
Contact hours	**60** (1 Credit=15 hours)
Distribution of Marks	(A) **End semester** = **60** (B) **Internal**=**40** (Sessional, Assignment, Class Test, Seminar, Group Discussion, Attendance)
Course outcomes	1. Understand human geography's scope, its relationship with other sciences and development trend. 2. Explain the concept of man-environment relationship, and interpret different principles and schools of thought. 3. Evaluate and contrast different schools of human geography, focusing on Human Ecology, Landscape and Locational Analysis. 4. Assess the impact of environment on man and his activities on environment in various global contexts, with emphasis on Urbanization, Salinization and Desertification in global contexts. 5. Analyze the concept of ethnicity and race and identify global patterns of racial composition, investigating urban and rural socio-economic practices.

Unit	Content	Lecture	Tuitorial	Practical	Total Hours
Unit 1	Defining the field of human geography and its development: Meaning and changing nature of human geography and its relation with other social sciences.	10	01	NIL	11
Unit 2	Man-environment relationship discourse in human geography: Determinism, Possibilism, Neo-determinism and Cultural determinism.	15	02	NIL	17
Unit 3	Man and environment relationship: Changing man-environment relationship through ages; role of technology in man's adaptation to environment, impact of man on environment: urbanization, salinization and desertification in global contexts	15	02	NIL	17
Unit 4	Man and culture: Concept of ethnicity and race; Characteristics of major racial groups; Global patterns of the racial composition of the population. Rural and urban environments and associated socio-economic practices.	13	02	NIL	15
Total unit 04		**53**	**07**	NIL	**60**

Reading list:

1. Johnston, R. et. Al. (2008). The Dictionary of Human Geography, Blackwell Publication.

2. Jordan-Bychkov et al. (2006) The Human Mosaic: A Thematic Introduction to Cultural Geography. W. H. Freeman and Company, NewYork.

3. Hussain, Majid (2012). Human Geography. Rawat Publications, Jaipur.

4. Gregory, D. 1978. Ideology, Science and Human Geography, London, Hutchinson.

5. James, M.R. and Bacon, R.S. 1990. The Cultural Landscape: An Introduction to Human Geography, Prentice Hall.

6. Leong, G.C. and Morgan, G.C. 1992. Human and Economic Geography, Oxford University Press.

7. Fellmann, J.D., Getis, A. and Getis, J. 1999. Human Geography: Landscapes of Human Activities, WCB McGraw-Hill.
8. Jones, E. 1972. Human Geography, Chatto and Windus, London.
9. Broek, J.O.M. and Webb, J.W., 1969. A Geography of Mankind, Taylor and Francis.

Detail syllabus of III semester (Major)

Title of the Course	**Geography as a Spatial Science**
Course Code	**GGY-MJ-03014**
Total Credit (theory+practical)	**4 (3-1-0)**
Contact hours	**60**

Distribution of Marks	**60+40 (Theory + Internal Assessment)**
Course outcomes	1. Understand and explain the multidisciplinary nature of geography and its evolution 2. Grasp the concept of space, place, region and learn about spatial processes & patterns 3. Analyze different geographical approaches including systematic, regional, ideographic, and nomothetic approaches. 4. Apprehend spatial analysis in Geography through concepts of location and area patterns 5. Recognize various scientific approaches in Geography, including inductive, deductive methods and different modes of explanations

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit I	Defining the field of Geography: Place of geography in relation to natural and social sciences; the changing definitions of geography and its multi-disciplinary nature.	5	1	--	6
Unit II	Geography as a spatial science and spatial concepts in geography: Concept of space, place, territory, and region; Geographic space (Absolute Space and Relative Space); Spatial Processes and Patterns (only basic concept) – Spatial	15	5	-	20

	distribution, Spatial concentration, Spatial organization, Spatial relationship.				
Unit III	Basic Approaches in Geography: Systematic and Regional; Ideographic and Nomothetic; Pure and Applied.	8	2	-	10
Unit IV	Spatial Analysis in Geography: Concept of location; Concept of point, line, and area patterns. Qualitative and Quantitative measures of Point, Line and Polygon.	7	2	-	9
Unit V	Scientific Approaches in Geography: Inductive and Deductive methods; Harvey's modes of explanations in Geography (only basic concept): Cognitive, Morphometric, Cause and effect, Temporal, Functional and System analysis. Theories, laws and Model, Hypothesis in Geographical studies.	10	15	-	15
Total		45	15		60

Reading List

1. Abler, R.., Adams, J. and Gould, P.P., 1971: Spatial Organization: The Geographers' Viewof the World, Prentice-Hall, Englewood Cliff.
2. Ackerman, E.A., et al, 1965: The Science of Geography, Washington D.C., National Academyof Science/ National Research Council Pub. No. 1277.
3. Adhikari, Sudeepta, 2015: Fundamentals of Geographical Thought, Orient Blackswan Pvt.Ltd., New Delhi.
4. Chorley, Richard, J. and Haggett, Peter (eds), 1967: Models in Geography, Methuen, London.
5. Chorley, Richard, J., 1973: Directions in Geography, Methuen, London.
6. Dikshit, R.D., 1994: The Art and Science of Geography, Prentice Hall of India, New Delhi.
7. Haggett, P., 2001: Geography: A Global Synthesis, Pearson Education, Essex, UK.

8. Hartshorne, R.,1939: The Nature of Geography, Association of American Geographers, Lancaster, Penn.
9. Hartshorne, R.,1959: Perspective on the Nature of Geography, Rand Mckully, Chicago.
10. Harvey, D., 1969: Explanation in Geography, St. Martin's Press, New York, 1969.
11. Johnston, R.J. et al.(eds), 1986: The Dictionary of Human Geography, Oxford, Basil Blackwell.

Detail syllabus of III semester

Title of the Course	**Geography of North East India with special reference to Assam**
Course Code	**GGY-MJ-03024**
Total Credit (theory+practical)	**4 (3-1-0)**
Contact hours	**60**
Distribution of Marks	**60 +40 (Theory +Internal Assessment)**
Course outcomes	1. Understand and evaluate the significance of North East India's geographical location. 2. Analyze and interpret the physical features of North East India, including climate, vegetation, rivers, soil types and distribution. 3. Investigate and evaluate North east India's population trends, linguistic and religious composition, and spatial variations. 4. Evaluate and predict trends in North East India's agricultural, industrial sectors & power-mineral with a focus on resource distribution and production. 5. Understand location and physical features of Assam and analyse relation of physical conditions with population, agriculture and industry

Unit	Content	Lecture	Tutorial (T)	Practical	Total

		(L)		(P)	Hours
Unit I	N.E. India: Location & its geopolitical significance	1	-	--	1
Unit II	Physical Setting: Physiography, climate, soil, vegetation, rivers & water bodies	4	1	-	5
Unit III	Population: Trend of growth of population, spatial variation in growth & distribution, age-sex composition at state levels, ethnic composition, linguistic & religious composition, literacy	7	2	-	9
Unit IV	Agriculture: Factors affecting agriculture, regional distribution & production of rice, tea, oilseeds, puls Industry: Distribution of petroleum industries, fertilizers & agro-based industries	8	3	-	11
Unit V	Power & Mineral resources: hydropower, oil, coal, limestone, transport & communication system & trade	10	4	-	14
Unit VI	Assam: Location, physiography, climate, soil, vegetation, agriculture, Industrial development and backwardness, Industries: tea, oil, cement, petrochemical, fertilizers. Population growth & distribution, density. Population composition: Age-sex, literacy, occupation, languages, religion, power & mineral resources.	15	5	-	20
Total-		45	15		60

Reading List

1. Bhagabati, A.K., Bora, A. K. and Kar, B.K.: Geography of Assam, Rajesh Publications, New Delhi.
2. Taher, M and Ahmed, P.: Geography of North East India, Mani Manik Prakash, Guwahati. Das,M..M.:PeasantAgricultureinAssam,Inter–IndiaPublications,NewDelhi.
3. Gopal Krishnan, R : Geography of North East India
4. Bhattacharya, P.2006 : Trend in Tourism Potentiality, Bani Mandir,Guwahati 6. Bhagabati,

A.K.(ed):Biodiversity of Assam, Eastern Book House, Guwahati 7. Bhattacharyya, N.N. : North East India, Rajesh Publication, New Delhi
5. Srivastava, S.C. : Demographic Profile of N.E. India, Mittal Publications.
6. Basic Statistics of NE Inda, NEC, Shillong (various issues- accessible in PDF format) 10. India tourist statistics, Ministry of Tourism, Govt. of India (various issues - accessible in PDF format)

Detail syllabus of IV semester

Title of the Course	**Geomorphology**
Course Code	**GGY-MJ-04014**
Total Credit (theory+practical)	**4 (2-1-1)**
Contact hours	**75**
Distribution of Marks	**45+25+30 (Theory + Practical+ Internal Assessment)**
Course outcomes	1. Understand the history, development and recent trends in Geomorphology. 2. Identify the major branches of Geomorphology and understand their significance. 3. Gain knowledge about the structure and composition of the Earth, including its crust and interior, and rocks and minerals. 4. Evaluate fundamental theories and concepts of Geomorphology. 5. Assess geomorphic processes and resultant landforms; understand endogenetic and exogenetic processes, ideas of Penck and L C King, fluvial, glacial and aeolian processes and resultant Landforms.

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
I	History and Development of Geomorphic Ideas, Recent Trends in Geomorphology,	2	-	-	2

	Post-modern Geomorphology.				
II	Branches of Geomorphology and their Significance: Theoretical and Applied Geomorphology, Major branches- Structural, Fluvial, Glacial, karst, Arid, Environmental and Paleogeomorphology.	3	1	-	4
III	Geomorphic Process and their resultant landforms: weathering, Mass Wasting, Erosion, Transportation and Deposition.	5	3	-	8
IV	Fundamental concept and Theories of Geomorphology: System concept, Steady State, Dynamic Equilibrium, Mountain Building Theories of Kober and Holmes, Continental Drift, Plate Tectonic an Isotasy and Eustasy.	10	5	-	15
V	Theories on evolution of Landforms: Ideas of Penck and L C King, Fluvial, Glacial and Aeolian Processes and Resultant Landforms, Slope Forming Processes. Modern and Pure geomorphology: Form, Process, material and methods of analysis.	10	6	-	16
Total		30	15	-	45

Practical

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1	**1.** Interpretation of Topographical Map: Map reading, Number system of Indian Topographic map and interpretation of physical and cultural features. (3 Assignments)	-	-	3	6
	2. Profile Drawing (Serial, Superimposed, Composite and Projected), Drawing Cross profile and long profile of river. (3	-	-	1	2
		-	-	3	6

	Assignments) **3.** Expression of slope in gradient and percentage form from contour differences identified on topographical map. Preparation of Slope map (Wentworth's and Smith's Relative Relief Method). (3 Assignments) **4.** Delineation of Drainage Basin, Ordering and Numbering by Horton's and Strahler's methods. (2 Assignments) **5.** Interpretation of Geological Maps and construction of cross section (2 Geological Maps) showing sedimentary bed and Line of Unconformity. (3 Assignments)	- -	- -	4 4	8 8
Total		-	-	15	30

Reading List

1. Bloom, Arther L. (1978): Geomorphology- A Systematic Analysis of Late Cenozoic Land-forms, Prentice Hall, Englewood Cliffs, N.J.
2. Charlton, R. (2008) : Fundamentals of Fluvial Geomorphology, Routledge, USA and Canada.
3. Chorley, Richard J (1972): Spatial Analysis in Geomorphology, Harper and Row Publishers,New York, London.
4. Chorley, Richard J (ed) (1969): Water, Earth and Man, Methuen & Co.London. 5. Cooke, R.U and Warren, A. (1973): Geomorphology in Deserts, Bats ford, London
5. Crickmay, C.H. (1974): Works of River, The McMillan Press Ltd, London.
6. Davidson-Arnott , R., Bauer, B. and Houser, C. (2019): Introduction to Coastal Processesand Geomorphology, Cambridge University Press.
7. Derbishire, E. (ed) (1976): Geomorphology and Climate, Wiley, London 9. Dury, G.H. (1959): The Face of the Earth, Penguin Books.
8. Embelton, C. and Thorns, J. (1979): Processes in Geomorphology, Arnold Heinemann.
9. Gabler, R.E., Pettersen, J.F. and Trapasso, L.M. (2007): Essentials of Physical Geography,Thomson Brooks, USA.

10. Gregory, K.J. (1985): The Nature of Physical Geography, Edward Arnold, London.

11. Gutierrez, M. (2018): Geomorphology, CRC Press.

Detail syllabus of IV semester

Title of the Course	**Climatology, Biogeography and Oceanography**
Course Code	**GGY-MJ-04024**
Total Credit (theory+ practical)	**4 (2-1-1)**
Contact hours	**75**
Distribution of Marks	**45+25+30 (Theory + Practical+ Internal Assessment)**
Course outcomes	1. Comprehend the structure and variations in the atmospheric composition, characteristics, climatic classifications and weather forecasting techniques 2. Understand and apply knowledge of Approaches to study biogeography, bio-energy cycles, and the significance of conservation of forest and wildlife, soil formation processes and soil types in India 3. Recognize the significance of physical and biological factors in biogeography, including concepts of biodiversity, ecology, and ecosystems. 4. Analyze the submarine topography of Ocean and oceanic currents. 5. Apply practical knowledge of Climatology, biogeography and Oceanography with the help of graphs, maps and diagrams.

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit I Climatology	Atmospheric pressure, Pressure belts General Circulation, Jet Streams Atmospheric Moisture – Evaporation, Humidity,	15	7	-	22

	Condensation, Fog, Precipitation, Climatic classification of Koppen's and Trewartha's; Monsoon - Mechanism of development, distribution of monsoons, Trajectories and Irregularities, Effects of El-Nino, Walker oscillation Cyclones and anticyclones; Tropical Cyclones, anticyclones and Extra-Tropical Cyclones. Air masses and Fronts: Characteristics, types, Origin and modification of air masses. Techniques of weather forecasting: conventional and modern. Global warming and climate change.				
Unit II Biogeography	Role of physical and biological factors and distribution of plants and animals, Biosphere and Biodiversity hotspots of the world. Bio-energy cycles and food-chain Concept of Bio-diversity; Conservation of forest and wildlife Ecology and Ecosystem, Structure and functioning of the ecosystem, ecological succession. Soil: soil types, soil formation process and factors, soil composition and horizon, soil erosion, soil degradation and soil	10	6	-	16

	conservation measures. Biogeographic regions of the world, Nature and distribution of biodiversity in NE India				
Unit III Oceanography	Relationship between Temperature and salinity of the ocean, ocean currents and atmospheric circulation, EL NINO, LA NINA, Walker oscillation and marine deposits.	5	2	-	7
Total		30	15	-	45

Practical

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1	1. Interpretation of Indian Weather map for Monsoon and non–monsoon seasons/months based on various weather symbols depicted on maps. (2Assignments)	-	-	1 3	2 6
	2. Preparation of weather reports of Indian subcontinent by analyzing the weather satellite images of at least three consecutive days (e.g. INSAT 3D, NOAA satellite). (3 Assignments)			4 3	8 6
	3. Preparation of rainfall-temperature graphs; hythergraph, climograph and ergograph taking data from India / N.E. India / Assam (3			1	2

	Assignments) 4. Calculation of average annual rainfall dispersion graph, preparation of rainfall distribution and variability maps (using isopleths). (2 Assignments) 5. Mapping of protected areas (National park, biosphere reserve and wildlife sanctuary) of Assam / N.E. India / India. (3 Assignments) 6. Mapping of phytogeographic and zoogeographic regions of the world. (2 Assignments) 7. Mapping of Biodiversity hotspots of the world. (1 Assignment) 8. Mapping of Soil types of Assam / N.E. India and Soil horizons. (2 Assignments)			1 1 1	2 2 2
Total		-	-	15	30

Reading List

1. Barry R. G. and Carleton A. M., 2001: Synoptic and Dynamic Climatology, Routledge, UK.
2. Barry R. G. and Corley R. J., 1998: Atmosphere, Weather and Climate, Routledge, New York.
3. Critchfield H. J., 1987: General Climatology, Prentice-Hall of India,New Delhi
4. Lutgens F. K., Tarbuck E. J. and Tasa D., 2009: The Atmosphere: An Introduction to Meteorology, Prentice-Hall, Englewood Cliffs, New Jersey.
5. Oliver J. E. and Hidore J. J., 2002: Climatology: An Atmospheric Science, Pearson Education, NewDelhi.
6. TrewarthaG.T.andHorneL.H.,1980:An Introduction to Climate,McGraw-Hill.

7. Gupta L S(2000): Jalvayu Vigyan, Hindi Madhyam Karyanvay Nidishalya, Delhi VishwaVidhyalaya,Delhi
8. Lal, D S (2006): Jalvayu Vigyan, Prayag Pustak Bhavan, Allahabad
9. Vatal, M (1986): Bhautik Bhugol, Central Book Depot, Allahabad
10. Singh, S (2009): JalvayuVigyan, PrayagPustakBhawan,Allahabad
11. Raj, Manideep Soil and Biogeography, Kalyani Publishers.,
12. Cox, C.B., Moore, P.D. and Ladle, R., 2016. Biogeography: an ecological and evolutionary approach. John Wiley &Sons.

Detail syllabus of IV semester

Title of the Course	**Cartographic Techniques**
Course Code	**GGY-MJ-04034**

Total Credit (theory+practical)	**4 (2-1-1)**
Contact hours	**75**
Distribution of Marks	**45+25+30 (Theory + Practical+ Internal Assessment)**
Course outcomes	1. Understand and trace the evolution of Cartography, focusing on its significance in geography. 2. Devise point, line, and area data representations in different map types while discerning map characteristics and scale. 2. Formulate zenithal, conical, and cylindrical projections effectively, dictating their choice, use, and limitations. 3. Distinguish between different types of thematic maps, and apply the concepts of Isopleth and Choropleth mapping. 4. Comprehend the shape, size of earth and the coordinate systems.

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit I	Fundamentals of cartography: The nature and scope of cartography Development of cartography Traditional vs digital cartography	5	2	-	7
Unit II	Shape and size of the earth: Coordinate system (latitude/Longitude), Scale: Types and spatial resolution.	5	3	-	8
Unit III	Map: Types, concept of base map, map design and layout.	5	2	-	7
Unit IV	Map Projections: Concept of map projection, classification of map projection; principles of constructing zenithal, conical and cylindrical projections, Choice of map projection. with reference to an aerial extent, uses and limitations	10	6	-	16
Unit V	Thematic mapping: concept and	5	2	-	7

	types; isopleth and choropleth mapping.				
Total		30	15		45

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1	1. Construction of graphical scale (linear, diagonal and comparative); conversion of map scale (6 Assignments) 2. Construction of graticules of Zenithal Polar Gnomonic and Stereographic, Simple Conical with one standard parallel, Bonne's conical, and Gall's Stereographic Cylindrical projection along with their properties, uses and limitations. (5 Assignments) 3. Preparation of thematic maps (choropleth, isopleths, band graph, pie diagram) for representing various physical and human geographic data. (4 Assignments)	-	-	3 7 5	6 14 10
Total		-	-	15	30

Reading List

1. Anson, R. and Ormelling, F. J., 1994: International Cartographic Association: Basic Cartographic Vol., Pergaman Press.
2. Gupta, K.K. and Tyagi, V.C.,1992: Working with Map, Survey of India, DST, New Delhi.
3. Misra, R.P. and Ramesh, A.,1989: Fundamentals of Cartography, Concept, New Delhi.
4. MonkhouseF.J.andWilkinsonH.R.,1973:MapsandDiagrams,Methuen,London.
5. Rhind D. W. and Taylor D. R. F., (eds.), 1989: Cartography: Past, Present and Future, Elsevier, International Cartographic Association.
6. Robinson, A.H., 2009: Elements of Cartography,John Wiley and Sons, NewYork.
7. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers.
8. Sarkar, A. (2015): Practical Geography: A Systematic Approach. Orient Black Swan Private Ltd., New Delhi.
9. Singh, L.R., 2013: Fundamentals of Practical Geography, Sharda Pustak Bhawan, Allahabad.
10. Talukder, S., 2008: Introduction to Map Projections, EBH Publishers (India),Guwahati.

Detail syllabus of IV semester

Title of the Course	**Economic and Resource Geography**
Course Code	**GGY-MJ-04044**
Total Credit (theory+practical)	**4 (2-1-1)**
Contact hours	**75**
Distribution of Marks	**45+25+30 (Theory + Practical+ Internal Assessment)**

Course outcomes	1. Understand the scope and approaches of economic geography and resource. 2. Recognize and classify various economic activities and analyze the role of production systems. 3. Examine and compare the agricultural sector and models of agricultural location worldwide. 4. Appraise industrial location factors using Weber's theory and understand the distribution and production of various industries globally 5. Evaluate the role of different modes of transport, in resource mobilization and economic development

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit I	Meaning, scope and approaches of economic geography and concept of resources: meaning and types	3	-	-	3
Unit II	Economic activity: meaning and classification; Production system; Role of land, labour and capital	4	2	-	6
Unit III	Agriculture sector: factors influencing agriculture; types of agriculture; Von Thunen's model of agricultural location, Factors influencing cultivation of wheat, rice, coffee and tea, and their distribution and production in different parts of the world.	6	3	-	9
Unit IV	Manufacturing sector: Factors influencing industrial location; Weber's theory of industrial location; Classification of industry; Factors, distribution and production of iron and steel, cotton textile and IT Industries of the world .Special economic zones and technology parks	7	4	-	11
Unit V	Transport system: Modes of transport, factors influencing transport development and role of trans- port in resource mobilization and economic	5	3	-	8

	development.				
Unit VI	Trade: Factors influencing trade in different countries of the world; Trade relations of India with USA, Russia and Japan.	5	3	-	8
Total		30	15	-	45

Practical

Unit	Content	Lecture (L)	Tutorial (T)	Practi
Unit 1	1. Trend of rice, wheat and iron & steel production in the world/USA/India using moving average and least squares methods. (4assignments) 2. Trend of production of wheat, rice, maize and barley in the world/USA using Band-graph.(2assignments) 3. Trend of balance of trade relations (export and import value) of India with USA, China and Japan in respect of major commodities using Bar-graph. (2 assignments) 4. Regional variation in fertilizer consumption and agricultural productivity in rice, wheat and barley in selected countries of the world using Bar-graph. (1assignment) 5. Inter-state/Inter-nation volume of movement of selected commodities and Inter-city movement of traffic/bus in N.E. India through flow cartogram.(2 assignments)	-	-	
Total		-	-	1

Reading List

1. Hartshorn, T.A. and Alexander J. W., 2004: Economic Geography, Prentice-Hall Inc., NewDelhi
2. Coe N. M., Kelly P. F. and Yeung H. W., 2007: Economic

Geography: A ContemporaryIntroduction, Wiley-Blackwell.
3. Hodder B.W. and Lee Roger,1974:Economic Geography, Taylor and Francis. 4. Combes P., Mayer T. and Thisse J. F., 2008: Economic Geography: The
4. Integration ofRegions and Nations, Princeton University Press. 5. Wheeler J. O., 1998: Economic Geography, Wiley..
5. Bagchi-Sen S. and Smith H. L., 2006: Economic Geography: Past, Present and Future, Taylorand Francis.
6. Willington D. E., 2008: Economic Geography, Husband Press.
7. Clark, Gordon L.; Feldman, M.P. and Gertler, M.S., eds. 2000: The Oxford 9. Saxena, H.M., 2013: Economic Geography, Rawat Publications, Jaipur.

Detail syllabus of V semester

Title of the Course	**Social, Cultural and Political Geography**
Course Code	**GGY-MJ-05014**
Total Credit (theory+practical)	**4 (2-1-1)**
Contact hours	**75**
Distribution of Marks	**45+25+30 (Theory + Practical+ Internal Assessment)**
Course outcomes	1. Identify, understand, the concepts in Social Geography and its significance to human development. 2. Comprehend and analyze various types of cultures, the role of cultural diffusion, and the attributes of cultural landscapes. 3. Evaluate social well-being levels and compose ternary diagrams to represent social composition. 4. Generate, analyze, and interpret maps denoting major conflict zones and interstate boundary disputes. Understand the nature and scope of Political Geography, conceptualize geopolitics and comprehend geographic conflicts in various regions.

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit I: Social	Meaning, nature and	11	6	-	17

Geography	scope of social geography; its approaches; and contemporary trend of its development. Concept and types of social space and social groups. Social Well-being: Concept and Component: Housing, Health and Education; Concept of Human development and its measurements. Social diversity: Caste, Religion, Race, language and their spatial distribution Social Geographies of inclusion and exclusion: Caste, class, gender and ethnicity.				
Unit II: Cultural Geography	Meaning and scope of Cultural Geography and contemporary trend of its development. Concepts in cultural geography: Cultural diffusion, Cultural lag, cultural landscape, and cultural region. Cultural ecology and folk geography; folk culture and rituals with special reference to Assam. Race and Racism, basis of racial classification, spatial diffusion, distribution of races.	7	3		10
Unit III: Political Geography	Nature, scope and recent trends; Approaches to its study. Concept of state, nation, and nation-state; Attributes of State, frontiers and boundaries, buffer zones. Concept of Geopolitics, Heartland and Rimland; Mackinder's Heartland Theory.	12	6		18

	Geography and conflict: India-Pakistan; India-China, Resource Conflict Historical development of Indian political Geography; Act East policy with special reference to Indo Pacific region.				
Total		30	15	-	45

Practical

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1	1. Level of Social well-being with the help of composite Z-score in India /North-East India. (1 Exercise) 2. Construction of Ternary Diagram representing the social composition of the population in India/North East India. (1 Exercise) 3. Sex disparity in literacy in India/North-East India using Sopher's Disparity Index. (1 Exercise) 4. Construction of a map of India highlighting the major conflict zones (2 Exercises), the states of North-East India during Pre and Post-Independence periods (up to the present). (3 Exercises) along the border with China	-	-	1 1 1 4 1 7	2 2 2 8 2 14

	and Interstate boundary disputes in NE India. 5. Sketch of traditional house types of some selected tribes of North-East Indian states. 6. Preparation of a short video documentary on a folk ritual of a selected community of Assam.				
Total		-	-	15	30

Reading List

Social Geography

1. Ahmad, A., 1999: Social Geography, Rawat Publications, Jaipur and New Delhi.

2. Ahmad, A., (ed), 1993: Social Structure and Regional development: A Social Geography Perspective, Rawat Publications, Jaipur.

3. Carter, John and Trevor, Jones. 1989: Social Geography: An Introduction to Contemporary Issues, Edward Arnold, London.

4. Eyles, J.: 'Social Geography', in Johnston, R.J., et al, The Dictionary of Human Geography.

5. Jones, E. and Eyles, J., 1977: An Introduction to Social Geography, Oxford University Press,Oxford and New York.

6. Jones, E,(ed), 1975: Readings in Social Geography, Oxford University Press, Oxford.

7. Sharma, H.N., 2000: 'Social Geography' in Singh, J. (ed.) Progress in Indian Geography(1996-2000), INSA, New Delhi.

8. Smith, D.M., 1977: Human Geography: A Welfare Approach, Edward Arnold, London.

9. Sopher, D.E. (ed), 1980: An Exploration of India: Geographical Perspectives on Society andCulture, Longman, London.

10. Srinivas, M.N., 1986: India: Social Structure, Hindustan Publishing Corporation, Delhi.

11. Taher, M., 1994: An Introduction to Social Geography: Concept and Theories, NEIGS,Guwahati.

Cultural Geography

1. Crans, Mike, 1998: Cultural Geography, Routledge, London.

2. Dancan, J. and Ley, D. (eds), 1992: Place/Culture/Representation, Routledge, London.

3. Gritzer, Charion, F., 1984:'The Scope of Cultural Geography', Journal of Geography, Volume65, pp.4-11.

4. Jackson, Richard.H.and Hudman, Lloyel. E., 1990: Cultural Geography, West PublishingCompany,New York.

5. Johnston, R.J., Gregory, Derek and Smith, David M. (eds), 1994: The Dictionary of HumanGeography, Blackwell, Oxford.

6. Jordan, T.G. and Rowntree, L.: The Human Mosaic: A Thematic Interpretation in CulturalGeography.

7. Noble, A.G. and Dutt, A.K. (eds), 1982: India: Cultural Pattern and Processes, West ViewPress /Boulder, Colorado.

Political Geography

1. Agnew, John A., Mamadouh, V.; Secor,A. and Sharp, J. 2015. The Wiley Blackwell Com- panion to Political Geography. Wiley-Blackwell.

2. Smith, Sara. 2020.Political Geography: A Critical Introduction, Wiley-Blackwell.

3. Dikshit, R.D. 2020. Political Geography: Politics of Place and Spatiality of Politics. Macmil-lan India.

4. Dwivedi, R L Misra,H N. 2019. Fundamentals of Political Geography. Surjeet Publications.

Detail syllabus of V semester

Title of the Course	**Geography of India**
Course Code	**GGY-MJ-05024**
Total Credit (theory+practical)	**4 (2-1-1)**
Contact hours	**75**
Distribution of Marks	**45+25+30 (Theory + Practical + Internal Assessment)**
Course outcomes	1. Understand and evaluate the significance of India's geographical location and administrative divisions. 2. Analyze and interpret the physical features of India, including climate, vegetation, soil types and distribution. 3. Investigate and evaluate India's population trends, linguistic and religious composition, and spatial variations. 4. Evaluate and predict trends in India's agricultural and industrial sectors with a focus on resource distribution and production. 5. Evaluate India's socio-economic development trends, health status, education status, and trade relations.

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit I	India’s location, areal extent and their significance; geopolitical and strategic importance, administrative divisions.	3	1	-	4
Unit II	Physical setting: Physiographic divisions and their characteristics; River and water bodies, Climate and its seasonal and regional characteristics; soil types and their distribution;	5	3	-	8

	vegetation and its distribution)				
Unit III	Population: Trend of growth, spatial variation in growth and distribution; Age and sex composition; Linguistic and religious composition. Urbanization in India.	6	3	-	9
Unit IV	Trend of Socio-economic development: literacy and education; health status and health care facilities; transport and communication systems; trade relations (export and import; development policies)	4	2	-	6
Unit V	Agricultural and Industrial sector: Regional distribution and production patterns of rice, wheat, and millet. Distribution and production patterns of iron and steel, cotton textiles and fertilizers; overall Industrial development scenario in the country: distribution and production scenerio of coal, petroleum, gas, hydro-power, potentiality of solar, wind, and nuclear power generation. Agriculture Regions, Industrial Regions of India.	12	6	-	18
Total		30	15	-	45

Practical

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1	1. Trend of population growth and growth rates in India since 1901 using Census data (Source: censusindia.gov.in). (2 assignments) 2. Choropleth mapping to	-	-	1 1	2 2

	show spatial variation in decennial population growth rate and literacy rate in India. (2 assignments) 3. Spatial variation in the patterns of the religious composition of the population in India and Social composition of the population (SC, ST, and General) using pie-graph. (2 assignments) 4. Trend of food grains production (Rice, Wheat, Maize, Barley, Jowar, and Bajra) in India since 1950-51 using band-graph. (1 assignment) 5. Mapping of the population distribution of India and analysis of its relationship with relief (1 assignment) 6. Flow pattern of selected commodities in India using standard carto-statistical techniques. (1 assignment) 7. Age- Sex Pyramids. (2 assignments)			2 1 1 2 2	4 2 2 4 4
Unit 2: Field Report	Preparation of field report based on a field study of observational knowledge about the geographical perspective of any part of the country or from the parts of NE India under the guidance of teacher(s).			5	10
Total		-	-	15	30

Reading List

1. Deshpande C. D., 1992: India: A Regional Interpretation, ICSSR, New Delhi.
2. Johnson,B.L.C.,ed.2001.GeographicalDictionaryofIndia.VisionBooks,NewDelhi.

3. Mandal R. B. (ed.), 1990: Patterns of Regional Geography – An International Vol. 3 – Indian perspective.

4. Sdyasuk Galina and P Sengupta (1967): Economic Regionalisation of India, Census of India

5. Sharma, T. C. 2003: India - Economic and Commercial Geography. Vikas Publ., New Delhi.

6. Singh R. L., 1971: India: A Regional Geography, National Geographical Society of India.

7. Singh, Jagdish 2003: India - A Comprehensive & Systematic Geography, Gyanodaya Prakashan,Gorakhpur.

8. Spate O. H. K. and Learmonth A. T. A., 1967: India and Pakistan: A General and Regional Geography, Methuen.

9. Tirtha, Ranjit 2002: Geography of India, Rawat Publs., Jaipur & New Delhi.

10. Pathak, C. R. 2003: Spatial Structure and Processes of Development in India. RegionalScience Assoc.,Kolkata.

11. Tiwari, R.C. (2007) Geography of India. Prayag Pustak Bhawan,Allahabad. 12. Sharma, T.C. (2013) Economic Geography of India. Rawat Publication, Jaipur

Detail syllabus of V semester

Title of the Course	**Quantitative methods in Geography**
Course Code	**GGY-MJ-05034**
Total Credit (theory+practical)	**4 (2-1-1)**
Contact hours	**75**
Distribution of Marks	**45+25+30 (Theory + Practical+ Internal Assessment)**
Course outcomes	1. Understand quantification and its role in geographical studies along with merits and limitations of quantitative methods 2. Understand the nature of various data, sources and data collection 3. Apply measures of central tendency and dispersion in analyzing geographical data 4. Comprehend the need for sampling and its types in the context of geography 5. Perform Time Series Analysis and Correlation and Regression Analysis for geographical data.

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit I	Introduction: Quantification and its significance in geographical study Advantages and limitations of quantitative methods in geography.	3	1	-	4
Unit II	Geographical Data: Nature, types and sources Scale of measurement (nominal, ordinal, interval and ratio).	3	1	-	4
Unit III	Measures of central tendency (mean, median and mode) and dispersion (range, quartile deviation,	9	6	-	15

	mean deviation, standard deviation and coefficient of variation) and their applications in geographical data analysis.				
Unit IV	Sampling techniques: meaning of sampling and its need Types of sampling (simple random and stratified random and their importance in geographical studies).	3	1	-	4
Unit V	Time series analysis and its applications in geographical studies Basic techniques of time series data analysis (semi-average, moving average and least squares).	3	1	-	4
Unit VI	Correlation and Regression Analysis: Meaning of correlation; Bi-variate coefficient of correlation (Spearman's rank correlation and Pearson's product-moment correlation); linear regression and non-linear regression analysis; and their applications in geographical data ana1ysis.	9	5	-	14
Total		30	15	-	45

Practical

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours

Unit 1	1. Tabulation/Grouping of geographical data for making frequency distribution table; Preparation of Histogram, Frequency Polygon and Frequency Curve. (1+1assignments)	-	-	2	4
	2. Computation of mean, median and mode for ungrouped and grouped data relating to geo- graphical phenomena; Determination of median and mode using graphical methods; Determination of the 1ocation of spatia1 mean centre of sett1ements (using centrographic measure). (2+1+1 assignments)			4	8
	3. Computation of the values of standard deviation and coefficient of variation of ungroupedand grouped data relating to some geographical phenomena (rainfall, landholding, income, production, etc) for comparison of distribution patterns. (1+1assignments)			2	4
	4. Analysis of time series data of some geographical phenomena (rainfall, production, export value, import value, etc) using moving average and least squares methods. (2 assignments)			3	6
	5. Computation of coefficient of correlation between two logically associated geographical phenomena using			4	8

	Spearman's rank correlation and Pearson's product-moment correlation formulae; Preparation of scatter diagram and fitting the line of linear regression of Y on X for any set of bi-variate data relating to meaningful geographical phenomena.				
Total		-	-	15	30

Reading List

1. Hammond P. and McCullagh P. S., 1978: Quantitative Techniques in Geography: An Intro- duction, Oxford University Press.
2. Sarkar, A. (2013) Quantitative Geography. techniques and presentations. Orient Black SwanPrivate Ltd., New Delhi.
3. Yeates M., 1974: An Introduction to Quantitative Analysis in Human Geography, McGrawHill, New York. 26
4. Mathews, J.A., 1987: Quantitative and Statistical Approaches to Geography: A PracticalManual Pergamon,Oxford.
5. Mahmood, A., 1999: Statistical Methods in Geographical Studies, Rajesh Publications,New Delhi.
6. Elhance, D.N., 1972: Fundamentals of statistics, KitabMaha1,A11ahabad
7. Monkhouse, F.J. Wilkinson, H.R., 1989: Maps Diagrams, B.I. Publications, New Delhi
8. Gregory, S., 1963: Statistical Methods and Geographers, Longman, London.

Detail syllabus of V semester

Title of the Course	**Internship**

Course Code	**GGY-MJ-05044**
Total Credit (theory+practical)	**4**
Contact hours	**60**
Distribution of Marks	

Internship at a Glance:

- Credits: 4
- No of Hours: 120 (these may be offline or online)
- Internship to be undertaken after the 4th Semester examination, i.e. the Summer break and continued at convenience during the next semester.
- Marks to be reflected in the Grade Sheet of the 5th Semester (even if the internship requirements stretch onto the 6th semester. However, the student's marksheet will only be downloadable after the grades are entered)
- Two categories of Internship: (i). Skill internship (ii). Research Internship
- nternship can be intra-institutional
- A formal letter should be sent from the HoD /Principal of a College to the IPO as part of the initiation process.

On completion of internship 4 documents will need to be available.

1. Certificate of successful completion of Internship (see below for format)
2. Activity logbook (detailed day to day account of activities that should also contain period spent,
   work done, skill learnt or in process) (see Format below)
3. Evaluation report (The relevant sections are to be filled in and signed by the Internship Supervisor at the IPO and the Mentor at the Department or College) (see Format below)
4. A Report by the Intern (see Format below)

Internship Completion Certificate (from Internship Providing Organisation (IPO)

This is to certify that .... [Student Name] ..... has successfully completed her / his internship at .... [Host Institute/Organisation] ..... under the supervision of [.....] from [.....] to [.....] and

completed 120 working hours.

Skill Based Internship

During this period s/he was attached to ..... [Branch/Division/Lab] ..... and worked on [name of

work]. She/He demonstrated [mention may be made of qualities like punctuality, regularity, commitment, teamwork, discipline, dedication and interest, and the skill learnt].

Research Internship

During this period she/he worked on ..... [aspect of lab work or research project] and undertook to

do [specify activity like literature review, experiment design, data analysis, etc]. She/He demonstrated [qualities like punctuality, application, analytical capability, research aptitude, discipline and the specific set of research skills learnt].

Her /his performance was [any one of the following: Outstanding / Excellent / Very Good / Good / Average / Satisfactory / Poor].

Signature of Supervisor at IPO
Designation

Division/ Branch / Department

Host Institution/Organisation Name and Seal:

ACTIVITY LOGBOOK (to be maintained daily for the entire period of Internship)

IPO Name:
Department/Division :

Name of the Student: Samarth
Enrolment No.:
Academic Year:
Semester:

Date	Reporting Time	Departure Time	Total Hous Engaged	Nature of Work	Theory	Hands on Activity	Field work	Student's Signature

Signature of Student Signature of IPO Supervisor

Evaluation Report (Format)

Student Name:

Samarth Enrolment No:

Program and Semester:

Internship Type (Skill/Research):

Internship Providing Organisation:

Internship Supervisor:

Internship Period (give dates):

Evaluation Criteria:

The following to be assessed by the IPO Supervisor

1. Punctuality /Regularity: 4 marks
2. Conduct: 6 marks
3. Technical / Research Skills acquired: 15 marks
4. Analytical and Problem-solving skills: 15 marks
5. Communication skills: 5 marks
6. Capacity for teamwork: 5 marks

Signature of the IPO Supervisor:

The following to be assessed by the Mentor:

1. Activity Logbook: 10 marks
2. Report: 15 marks
3. Seminar Presentation on the work done: 15 marks
4. Overall Performance: 10

marks Total Score (out of 100):

Signature of the Departmental Mentor:

Report of the Student (Format)

1. For the Cover Page:
   - Student Name:
   - Samarth Enrolment No:
   - Program and Semester:
   - Department and Name of Mentor:
   - Internship Type (Skill/Research):
   - Internship Providing Organisation / Lab / Department:
   - Internship Supervisor (Name and Designation):
   - Internship Period (give dates):
2. Acknowledgement
3. Table of Contents
4. List of Tables / Figures / Illustrations etc.
5. Introduction (A summary of the entire internship and containing details of the IPO
6. The nature of the work assigned
7. Details of the Internship and work done by the intern
8. Skills learned
9. Conclusion (this may contain an assessment by the intern of the outcome of the internship and the possible value of this work for the future).
10. References (manuals consulted and any other material used)

Signature of the Student

Detail syllabus of VI semester

Title of the Course	**Environmental Geography**
Course Code	GGY-MJ-06014
Total Credit (theory+practical)	**4 (2-1-1)**
Contact hours	**75**
Distribution of Marks	**45+25+30 (Theory + Practical+ Internal Assessment)**
Course outcomes	1. Understand the nature, scope, and significance of environmental geography, with emphasis on man-environment relationships and adaptation in different biomes. 2. Identify major environmental problems, comprehend their consequences, and understand the concepts of hazard, disaster, risk and vulnerability. 3. Evaluate the relationship between environment and development while understanding processes of sustainable development. 4. Comprehend and explain the concept, types and functioning of ecosystems; analyze energy flow and bio-geochemical cycles in ecosystems. 5. Evaluate critical themes in Environmental Geography, analyze biodiversity, conservation, water resource management and corporate ecological responsibility 6. Understand the environmental programmes and policies at global, national and local levels.

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit I	Introduction to Environmental Geography: Environmental Geography: Nature, Scope and Significance Man-Environment	5	2	-	7

	Relationships, Historical progression, Adaptation in different Biomes, Resource use and abuse, concept of resource curse.				
Unit II	Major Environmental Problems: Pollution, Deforestation, Desertification, Global Warming, and Bio-Depletion; Hazard, Disaster, Risk and Vulnerability Types of hazard/disaster (Natural and Man- made).	5	2	-	7
Unit III	Ecology and Ecosystem: Concept and types, biodiversity Energy flow in eco-system; bio-geochemical cycles.	6	3	-	9
Unit IV	Environmental issues **:** Environmental issues in tropical, temperate, polar eco-system The population consumption technology and sustainable development, global environmental issues Impact on land, water, soil, air, bio-diversity loss and human health.	6	3	-	9
Unit V	Environmental Programmes and Policies: Appraisal and conservation of environment and natural resources. Sustainable resource	8	5	-	13

	development, Environmental programmes and policies- global, national and local levels. Management of environment and : principles of conservation, restoration and sustainable alternatives, importance of Environmental Impact Assessment (EIA)				
Total		30	15	-	45

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1	1. Exploring satellite imageries and topographic sheets to observe bank line change of Brahmaputra River from any selected stretch in three different time periods and preparation of map therefrom. (1 exercise) (Satellite images can be downloaded from https://earthexplorer.usgs.gov/	-	-	3	6
	2. Survey of India topographic sheets can be downloaded freely from https://soinakshe.uk.gov.in /mtr/			3	6
	3. Mapping of major wetlands in a district and computation of shape and size (area) based distribution. (1 exercise)			3	6
	4. Preparation of a map of a nearby wetland and identify the changes in dimension, water				

	level and encroachment it faced during the last one decade. Present your data in tabular form along with the map (field-based). (1 exercise) 5. Preparation of a long-term precipitation time series curve for any selected station of N.E. India using moving average method by downloading the annual rainfall data for any district/station of Assam for at least 30 years (1 exercise)			3	6
Total		-	-	15	30

Reading List

1. Chandna R. C., 2002: Environmental Geography, Kalyani, Ludhiana.
2. Cunninghum W. P. and Cunninghum M. A., 2004: Principals of Environmental Science: Inquiry and Applications, Tata Macgraw Hill, New Delhi.
3. Goudie A., 2001: The Nature of the Environment, Blackwell, Oxford.
4. Singh, R.B. (Eds.) (2009) Biogeography and Biodiversity. Rawat Publication, Jaipur
5. Miller G. T., 2004: Environmental Science: Working with the Earth, Thomson Brooks Cole, Singapore.
6. MoEF, 2006: National Environmental Policy-2006, Ministry of Environment and Forests, Government of India.
7. Singh, R.B. and Hietala, R. (Eds.) (2014) Livelihood security in Northwestern Himalaya: Case studies from changing socio-economic environments in Himachal Pradesh, India. Advances in Geographical and Environmental Studies, Springer
8. Odum, E. P. et al, 2005: Fundamentals of Ecology, Ceneage Learning India. 9. Singh S., 1997: Environmental Geography, Prayag Pustak Bhawan. Allahabad.
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Detail syllabus of VI semester

Title of the Course	**Population and Settlement Geography**
Course Code	GGY-MJ-06024
Total Credit (theory+practical)	**4 (2-1-1)**
Contact hours	**75**
Distribution of Marks	**45+25+30 (Theory + Practical+ Internal Assessment)**
Course outcomes	1. Understand and explain the field of population geography, its correlation with demography, and the components of population growth 2. Recognize global patterns of population distribution, density, and the factors influencing them 3. Analyze various theories of population growth, and assess their relevance in current global contexts 4. Interpret and explain the field of settlement geography, understand settlement hierarchy and apply it to rural and urban settlements 5. Demonstrate practical knowledge of

	population trends and spatial patterns through graphical representation and map reading skills.

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1: Population Geography	Defining the field of population geography and Population data: Meaning, emergence as a systematic branch of geography and significance; its relation with demography; Sources of population data and perspectives on Census of India publications Distribution and density of population: Factors influencing population distribution and density; global pattern of population distribution. Population Growth: Trend of global population growth; components of population growth– fertility, mortality and migration; push and pull factors of migration; spatial variations in population growth in the world. Theories of population growth: Malthusian Theory and Demographic Transition Theory. Population: Resource relationship. Population composition and associated characteristic patterns in global contexts: age-sex composition; rural-urban Composition; population ageing. Urbanization: Process of urbanization.	3 3 8 3 1 4	11	-	33

Unit 2: Settlement Geography	Defining the field of settlement of geography: Meaning and scope. Rural and urban settlements: Factors influencing distribution pattern of settlements; Types of rural settlements; Morphology and Characteristics of rural and urban settlements. Concept of settlement hierarchy and urban fringe; Christaller's Central Place Theory. Rank size rate	1 3 4	4	-	12
Total		30	15	-	45

Practical

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1	Trend of population growth in Assam/N.E. India through line graph; Calculation and graphical representation of trend of decadal growth rates of population in Assam/N.E. India/India. (2 Exercises)			3	6
	Choropleth map to show spatial pattern of decadal variation in population growth in Assam/N.E. India/India. (1 Exercise)			1	2
	Choropleth map showing spatial pattern of population density in			1	2
				1	2

	Assam/India. (1 Exercise) Map showing spatial variation in social/religious/rural-urban composition of population in Assam/N.E. India using pie-graph. (1 Exercise) Choropleth map showing spatial pattern of level of urbanization in Assam/N.E. India. (1 Exercise) Flow cartogram showing direction and volume of migration into Assam/N.E. India from different parts of India. (1 Exercise) Map showing distribution of towns and their varied population size with spheres in Assam/N.E.India. (1 Exercise) Nearest Neighbor analysis.			1 2 2 4 2 4	2 4 4 8
Total		-	-	15	30

Reading List

1. Barrett H. R., 1995: Population Geography, Oliver and Boyd.
2. Bhende A. and Kanitkar T., 2000: Principles of Population Studies, Himalaya Publishing House.
3. Chandna R. C. and Sidhu M. S., 1980: An Introduction to Population Geography, Kalyani Publishers.
4. Chandna R. C., 2014, Geography of Population: Concepts, Determinants and Patterns, Kalyani Publishers.
5. Clarke J. I., 1965: Population Geography, Pergamon Press, Oxford.
6. Jones, H. R., 2000: Population Geography, 3rd ed. Paul Chapman, London.
7. Lutz W., Warren C. S. and Scherbov S., 2004: The End of the World Population Growth inthe 21st Century, Earthscan.
8. Newbold, K. B., 2009: Population Geography: Tools and Issues, Rowman

and LittlefieldPublishers.
9. Pacione, M., 1986: Population Geography: Progress and Prospect, Taylor and Francis.
10. Wilson, M. G. A., 1968: Population Geography, Nelson.
11. Panda, B. P. (1988): Janasankya Bhugol, M P Hindi Granth Academy,Bhopal.
12. Maurya, S. D. (2009) Jansankya Bhugol, ShardaPustakBhawan, Allahabad.
13. Chandna, R. C. (2006), Jansankhya Bhugol, Kalyani Publishers, Delhi.
14. Roy, D. (2015), Population Geography, Books and Allied (P) Ltd., Kolkata.
15. Ahmad, A., Noin, D. and Sharma, H.N. (eds), 1997, Demographic Transition: The ThirdWorld Scenario, Rawat Publications, Jaipur and New Delhi, 1997.
16. Money, D.C., 1972: Patterns of Settlement, Evan Brothers, London.
17. Peters, G.L. and Larkin, R.P., 1979: Population Geography: Problems, Concepts and- Prospects, Kendall/ Hunt Iowa.
18. Singh, R.L. and Singh, K.N., (eds), 1975: Readings in Rural Settlement Geography, BHU,Varanasi.
19. Singh, R.Y., 1994: Geography of Settlements, Rawat Publications, Jaipur and New Delhi.
20. Maurya, S. D., 2014: Settlement Geography, Sharda Pustak Bhawan, Allahabad.

Detail syllabus of VI semester

Title of the Course	**Remote Sensing and Geoinformatics**
Course Code	GGY-MJ-06034
Total Credit (theory+practical)	**4 (2-1-1)**
Contact hours	**75**
Distribution of Marks	**45+25+30 (Theory + Practical+ Internal Assessment)**
Course outcomes	1. Interpret and analyze remote sensing data for different applications such as land, vegetation, and water 2. Apply the basics of GIS, its components, data types and structures in geographical Studies 3. Perform spatial analyses using GIS, including layer extraction, buffer, and proximity analysis 4. To understand the fundamentals of remote sensing theory and its historical developments 5. Demonstrate practical skills in aerial photo interpretation, digital classification, and GIS layer creation & analysis.

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit I: Introduction to Remote Sensing	Remote Sensing: Definition and History of Development. Principles of Remote Sensing System: Energy sources, EMR and its interaction with Atmosphere and Earth Features; Platform, Sensor and Resolutions; Aerial and Satellite Remote Sensing; Fundamentals of Photogrammetry. Remote Sensing data products, sources and characteristics; Elements of Image	2 6 5	8	-	23

	Interpretation (Visual & Digital); Digital Image Processing: Image Enhancement and Classification (Supervised and Un-supervised). Application of Remote Sensing: Land, Vegetation and Water (3 classes)	2			
Unit II: Introduction to GIS	. Geographical Information System (GIS): Definition, Development, Components, and Functions; Open source GIS. GIS Data Types & Structures: Spatial and Non-Spatial Data; Raster and Vector Data Structure, Database Management System (DBMS). Data Layer Extraction and Spatial Analysis: Buffer, proximity and viewshed analysis; overlay analysis Application of GIS in geographical studies (site/habitat suitability analysis, flood damage estimation, Landuse land cover	3 7 2	6		18
Unit III:	Types, components and	3	1		4

Introduction to GPS	basic principles and functions. Application of GPS in surveying and mapping.				
Total		30	15	-	45

Practical

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1	1. Aerial photo interpretation and visual interpretation of satellite imagery and preparation of thematic maps. 2 assignments 2. Analysis of aerial photographs and satellite images: Determination of photo scale and object height from aerial photos (using a mirror stereoscope); Digital classification of satellite images: supervised and unsupervised. 3 assignments 3. Geo-referencing and Data layer creation: geometric correction, digitization of different layers using point, line and polygon, attribute data input and their thematic representation, Buffer analysis, Overlay analysis. (3	-	-	3 4 6 2	6 8 12 4

	Assignments) 4. Surveying and mapping of an area/plot of land with physical / cultural features using GPS, GPS acquired data and field records.				
Total		-	-	15	30

Reading List

1. Campbell J. B., 2007: Introduction to Remote Sensing, Guildford Press.
2. Jensen J. R., 2004: Introductory Digital Image Processing: A Remote Sensing Perspective, Prentice Hall.
3. Joseph, G. 2005: Fundamentals of Remote Sensing, United Press India.
4. Lillesand T. M., Kiefer R. W. and Chipman J. W., 2004: Remote Sensing and Image Interpretation, Wiley. (Wiley Student Edition).
5. Nag P. and Kudra, M., 1998: Digital Remote Sensing, Concept, New Delhi.
6. Rees W. G., 2001: Physical Principles of Remote Sensing, Cambridge University Press.
7. Singh R. B. and Murai S., 1998: Space-informatics for Sustainable Development, Oxford and IBH Pub.
8. Wolf P. R. and Dewitt B. A., 2000: Elements of Photogrammetry: With Applications in GIS,McGraw-Hill.
9. Sarkar, A. (2015): Practical Geography: A Systematic Approach. Orient Black Swan Private Ltd., New Delhi.
10. Chauniyal, D.D. (2010): Sudur Samvedanevam Bhogolik Suchana Pranali, Sharda Pustak Bhawan,Allahabad.
11. Burrough, P.A. and Mc Donnel, R.A.,1998: Principles of Geographical Information Systems,Oxford University Press.

Detail syllabus of VI semester

Title of the Course	**Geography of Rural and Urban Landscape (optional)**
Course Code	GGY-MJ-06044
Total Credit (theory+practical)	**4 (2-1-1)**
Contact hours	**75**
Distribution of Marks	**45+25+30 (Theory + Practical+ Internal Assessment)**
Course outcomes	1. Understand the nature and importance of rural landscapes and their historical development 2. Analyze the environmental context of rural landscapes and understand its challenges 3. Identify principles of sustainable development applicable to rural settings and assess their success 3. Assess the socio-economic dynamics of rural areas, including demographic changes, livelihood diversification, and community response. 4. Examine rural development strategies and future perspectives, highlighting rural development plans, GIS applications, and potential trends. 5. Comprehend the nature, scope, and trends of urban geography; understand classification of towns, and their origin and growth 6. Understand patterns of urbanization in various countries, components of urban growth, and decipher urban morphology through theories 7. Grasp distinct concepts in urban areas like city-region, urban agglomeration, rural-urban continuum, and decipher modern urban development's - smart cities 8. Identify and analyze prevalent urban issues and problems -housing, slums, traffic congestion, pollution, and urban waste disposal 9. Evaluate trends and patterns of urbanization in India; familiarize with urban development policies and programs, and understand emerging urban issues in specific regions

Unit	Content	Lecture	Tutorial (T)	Practical	Total

		(L)		(P)	Hours
Unit I: Introduction to Rural Landscapes	Understanding Rural Landscapes: Meaning and nature of rural landscapes, its role in the field of geography. Historical development: Evolution of landscape studies in Geography. Demographic characteristics and population dynamics in rural areas, Socio-economic aspects: rural landscapes and livelihoods relationship, agricultural and physiological density, traditional knowledge and skills of rural landscape, rural resource utilization and management	10	5	-	15
Unit II: Sustainable Development in Rural Areas and Rural Development Planning and Future Perspectives	Sustainable agricultural practices in rural landscape (organic farming, pisciculture, agroforestry, ethnoforestry, etc) Rural infrastructural development (transport and communication, housing, civic amenities, water resources)	6	4	-	10

	Government rural development plans and programmes and its impact on rural landscapes and livelihoods. rural migration, urbanization pressures on rural areas, ruralisation				
Unit III: Introduction to Urban Geography	Urban Geography: Nature and scope; trends in urban geography; Origin and growth of towns in global and national contexts; Types and characteristics of towns; Functional classification of towns. Concept of city-region, urban agglomeration, urban sprawl, umland and periphery, rural-urban dichotomy and continuum, urban fringe, satellite town, smart cities	4	2	-	6
Unit IV: Urbanization and Theories in Urban Geography	Concept of Urbanization, Trend and regional patterns of Urbanization Components of Urbanization and urban population growth Organization of urban space: Urban Morphology and land use structure Theories of the internal structure of Towns: the Sector Theory of Hoyt, and the Multiple Nuclei Theory of Harris and Ullman	7	3	-	10
Unit V: Urban Issues and	Urban issues and problems: Housing, slums, civic amenities	3	1	-	4

Problems	(transportation and drinking water), traffic congestion, pollution (air, land, water, noise), urban waste disposal and crime. emerging urban issues in Delhi NCR, Mumbai and Guwahati.				
Total		30	15	-	45

Practical

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1	1. Mapping of physical and cultural landscapes in the rural areas of Assam and Northeast Assam, India using appropriate cartographic techniques (2exercises).	-	-	2	4
	2. Show the rural-urban migration trend in Assam or Northeast India using appropriate statistical method (2exercises).			2	4
	3. Mapping and analyzing of agricultural and physiological density at district level of Assam/ Northeast (2exercises).			2	4
	4. Mapping land use patterns in the Agro-Climatic Context of Assam using suitable methods (1 exercise).			3	6
	5. Plotting of million cities of India by using proportionate sphere method. (1 Exercise)			1	2
	6. Determination of spatial mean centres of urban settlements using weighted (Population as weight) centrographic measure in			2	4

	Assam and NE India.(2 Exercises) 7. Calculation of distribution pattern of urban settlements in a District/State of N.E. India using Nearest Neighbour Analysis. (1 Exercise) 8. Determination of rank-size relationship of urban centres in Assam/N.E. India/India. (1 Exercise)			1	2
Total		-	-	15	30

Reading List

1. Cloke, P. (2013). Rural landscapes. The Wiley-Blackwell companion to cultural geography, 225-237.
2. Claval, P. (2005). Reading the rural landscapes. Landscape and urban planning, 70(1-2), 9-19.
3. Gallent, N., Juntti, M., Kidd, S., & Shaw, D. (2008). Introduction to rural planning: economies, communities and landscapes. Routledge.
4. Hebinck, P., & Van Averbeke, W. (2007). 14 Livelihoods And Landscapes: People, Resources And Land Use. In Livelihoods and Landscapes (pp. 335-360). Brill.
5. Sick, D. (Ed.). (2014). Rural livelihoods, regional economies, and processes of change. New York: Routledge.
6. Sourav Saha, Nityananda Deka and Abani Kumar Bhagabati (2020): Participatory Water Resource Management in the Bhutan Himalayan Foothill Environment of Baksa District, Assam, International Journal of Rural Management, Sage publication, Pp.1-19,
7. Maharjan, K. L., & Joshi, N. P. (2013). Climate change, agriculture and rural livelihoods in developing countries. Japan: Springer.
8. Scoones, I. (2015). Sustainable livelihoods and rural development (p. xv). Rugby: Practical Action Publishing.
9. Sourav Saha, N.Deka and A.K. Bhagabati (2020): Landscape characteristics and their changes in a Brahmaputra floodplain village, Assam, Geographical Review of India, The Geographical Society of India, Kolkata, vol.82,pp113-128
10. Tambe, S. (2022). Sustainable livelihoods approach. In Teaching and learning rural livelihoods: A guide for educators, students, and practitioners (pp. 45-56). Cham: Springer International Publishing.
11. Ellis, F., & Freeman, H. A. (2004). Rural livelihoods and poverty reduction policies.

Routledge.
12. Ellis, F. (2000). Rural livelihoods and diversity in developing countries. Oxford university press.
13. Deka, N., Bhagabati, A.K. and Ando, K. (2010): Rural Land Use in the Brahmaputra Floodplain
14. Environment, Assam: The Case of Muktapur Village, ContemporaryIndia, Vol.1, NIHU Programme Contemporary India Area Studies (INDAS), Japan, Pp. 177-193. ISSN. 2185-9833.
15. Saha, S. and Deka, N. (2018): Evolution of Landscape in a Floodplain Village of the Brahmaputra Valley, Assam, Indian Journal of Landscape Systems and Ecological Studies, Kolkata, Vol.41, No.1, pp.120-132.
16. Borsotto, P, Henke, R. Macri, M.C. and Salvioni, C. (2008): Participation in Rural Landscape Conservation Schemes in Italy, Landscape Research, 33:3, pp. 347-363.
17. Kizo, T., Primdahl, L. Kristensen and Busk, A.G. (2010): Introduction: Landscape Change and Rural Development, Landscape Research, vol.35, no.6, pp. 571-576.
18. Wu. J. (2013): Landscape Sustainability Science: Ecosystem Service and Human Well-being in Changing landscapes, Landscape Ecology, Vol.28, issue 6, pp.999-1023.
19. Yangang, F. And Jisheng, L. (2008): Cultural Landscape Evolution of Traditional Agricultural Villages in North China: Case of Qianzhai Village in Shandong Province, Chinese Geographical Science, Vol.18, Issue 4, pp.308-315.

Detail syllabus of VI semester

Title of the Course	**Regional planning and Development (optional)**

Course Code	GGY-MJ-06054
Total Credit (theory+practical)	**4 (2-1-1)**
Contact hours	**75**
Distribution of Marks	**45+25+30 (Theory + Practical+ Internal Assessment)**
Course outcomes	1. This paper shall enable the students to understand the basic concepts and types of regional planning. 2. This course shall enable the students to analyze various characteristics and parameters used for delineating the planning regions. 3. Students shall be well-versed with models of regional planning and appreciate the relevance of the case studies of regional planning.

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1	Concept of region, regionalism and regional planning Types of Regional Planning, objectives and principles of regional planning	6	3	-	9
Unit 2	Characteristics and Delineation of Planning Region Methods of regionalism & techniques of regional planning	6	3	-	9
Unit 3	Regionalization of India for Planning (Agro Ecological Zones).	6	3	-	9
Unit 4	Models for Regional Planning: Growth Pole Theory; Core Periphery Model and Growth Foci Concept in Indian Context, Myrdal's theory	8	4	-	12
Unit 5	Backward Regions and Regional Plans- Special Area Development	4	2	-	6

	Plans in India; DVC- The Success Story and the Failures; NITI Aayog.				
Total		30	15	-	45

Practical

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1	1. Regionalization using methods of Ranking (using mean and standard deviation) and factor analysis. (2exercises)	-	-	4	8
	2. Application of aggregate connectivity for regional development using alpha, beta, gamma, cyclomatic number and detour index, symbol index. (4exercises)			3	6
	3. Application of shape and tortuosity indices for developing planning strategy.			1	2
	4. Delimiting influence areas of nodal centers using Breaking point method and gravity potential method and spatial interaction method.			4	8
	5. Mapping of regional inequalities: income and social well-being by applying suitable techniques including Z scores.			3	6
Total		-	-	15	30

References:

Essential:

1. Blij H. J. De. (1971). *Geography: Regions and Concepts*. USA: John Wiley and Sons.

2. Claval P.l. (1998). *An Introduction to Regional Geography*. Oxford and Massachusetts.

Blackwell Publishers,

3. Friedmann J. and Alonso W. (1975). *Regional Policy - Readings in Theory and Applications*. Massachusetts, USA: MIT Press.

4. Gore C. G. (1984). *Regions in Question: Space, Development Theory and Regional Policy*. London, UK: Methuen.

5. Gore C. G., Köhler G., Reich U-P. and Ziesemer T. (1996). *Questioning Development;*

Essays on the Theory, Policies and Practice of Development Intervention. Marburg, Germany: Metropolis- Verlag.

Suggestive:

1. Haynes J. (2008). *Development Studies*. USA: Polity Short Introduction Series.

2. Johnson E. A. J. (1970) *The Organization of Space in Developing Countries*. Massachusetts, USA: MIT Press.

3. Peet R. (1999). *Theories of Development*. New York, USA: The Guilford Press.

4. UNDP. (2001-04). *Human Development Report*. New York, USA: Oxford University Press.

5. World Bank. (2001-05). *World Development Report.* New York, USA: Oxford University Press.

Detail syllabus of VII semester

Title of the Course	**Geographical Thought**
Course Code	GGY-MJ-07014
Total Credit (theory+practical)	**4 (2-1-1)**
Contact hours	**75**
Distribution of Marks	**45+25+30 (Theory + Practical+ Internal Assessment)**
Course outcomes	1. Comprehend the historical evolution of geographical thought and identify key contributing figures and cultures. 2. Discuss the socio-political contexts affecting geographical theories and understand the effect of technology on geographical research. 3. Understand the application of an interdisciplinary approach to geography and the changing nuances of space and place.

	4. Evaluate the shifts in geographical approaches and impact of methodologies on research. 5. Analyze the implications of climate change and future urban geography in geographical thought.

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1: Geographical Thought	Classical Philosophies: Ancient, Medieval. Age of Exploration and Discoveries and European renaissance on the emergence of modern Geography. Modern Period: Contribution of German (A. Von Humboldt, K Ritter, Ratzel), French: (Vidal De La Blache), British and American Geographers. Debates: Environmental Determinism, Possibilism, Systematic and Regional, Ideographic and Nomothetic. Paradigm Concept and paradigm shift in Geography	10	5	-	15
Unit 2: Evolution of Geographic Thought	Environmental Determinism, Possibilism, Human Ecology, Chorology, Landscape & Locational Analysis, Areal differentiation. Quantitative revolution, spatial analysis, Humanistic approach, behaviouralism, marxism	5	3	-	8
Unit 3: Post Modern Geography	Socio- Spatial Dialectic in Geography, Post modernism Gender Geography Medical Geography	3	1	-	4
Unit4: Methodological Development	Qualitative and Quantitative methods in Geography Deductive and Inductive approach. Scientific law, theories, model, hypothesis, possibility.	12	6	-	18

	Mathematical modelling: Gravity model, spatial interaction model, spatial; diffusion. Geographic Information system (GIS) and spatial data analysis. Remote sensing and GPS data Collection.				
Total		30	15	-	45

Practical

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1	1. Mapping of routes of exploration and discoveries (Marco Polo, Christopher Columbus, Vasco-da Gama, and James Cook) (1 Exercise)	-	-	2	4
	2. Intensity of spatial interaction of Guwahati city with neighboring urban centers. (1 Exercise)			3	6
	3. Mapping of population potential surfaces in Assam using the Gravity Model. (1 Exercise)			2	4
	4. Demarcation of urban influence zone by using Reilly's breaking point formula. (1 Exercise)			1	2
	5. Population Density gradient analysis of Guwahati or any other city. (1 Exercise)			2	4
	6. Trend of development of paradigms in geography (from Environmental Determinism to Post Modernism) through time-scale graph indicating advocates, tentative time of emergence and overriding theme. (1 Exercise)			1	2

	7. Preparation of a world map highlighting the major developments of geography (Greek, Arab, France, Germany, Russia, UK and USA) indicating the contribution, name of the contributor and year of contribution. (1 Exercise) 8. Greek and Arabian contributions to the development of Geography in different ages (Name of contributor and name of contribution at different points of time) through time-scale graph. (1 Exercise)			2	4
Total		-	-	15	30

Reading List

1. Arentsen M., Stam R. and Thuijis R., 2000: Post-modern Approaches to Space, ebook.
2. Bhat, L.S. (2009) Geography in India (Selected Themes). Pearson
2. Bonnett A., 2008: What is Geography? Sage.
3. Dikshit R. D., 1997: Geographical Thought: A Contextual History of Ideas, Prentice–Hall India.
4. Hartshone R., 1959: Perspectives of Nature of Geography, Rand MacNally and Co.
5. Holt-Jensen A., 2011: Geography: History and Its Concepts: A Students Guide, SAGE.
6. Hussain, M., 1989: Evolution of Geographic Thought, Rawat Publications, Jaipur.
7. Johnston R. J., (Ed.): Dictionary of Human Geography, Routledge.
8. Johnston R. J., 1997: Geography and Geographers, Anglo-American Human Geography since 1945, Arnold, London.
9. Kapur A., 2001: Indian Geography Voice of Concern, Concept Publications.
10. Martin Geoffrey J., 2005: All Possible Worlds: A History of Geographical Ideas, Oxford.
11. Soja, Edward 1989. Post-modern Geographies, Verso, London. Reprinted 1997: Rawat Publ., Jaipur and New Delhi

Detail syllabus of VII semester

Title of the Course	**Hydrology**
Course Code	GGY-MJ-07024
Total Credit (theory+practical)	**4 (2-1-1)**
Contact hours	**75**
Distribution of Marks	**45+25+30 (Theory + Practical+ Internal Assessment)**
Course outcomes	1.Understand the essential principles and scopes of hydrology, and the components and pathways of the hydrological cycle. 2. Proficient in hydrological data collection and recording techniques, and be able to implement these methods in models for resource management. 3. Develop insight into the processes of basin runoff, river flow, flood occurrences, their causes, effects, and manage associated issues. 4. Understand the characteristics of the water table, aquifers, groundwater flow, and exploration techniques, and evaluate contamination measures. 5. Analyze water resource management, sustainability issues, implications of climate change on hydrological systems, and evaluate relevant case studies.

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit I: Introduction to Hydrology	Meaning and Scope of hydrology; Importance of hydrological studies in geography. Hydrological cycle:	5	2	-	7

	Components and water flow pathways- precipitation, infiltration, evaporation, transpiration, surface runoff, storage, through flow, ground water flow; Water distribution on the earth and the water budget.				
Unit II: Hydrological Measurement and Data Analysis	Hydrological Data collection and recording techniques: Rainfall Measurement, Stream flow measurements from stream gauging stations; Evapotranspiration measurement methods, Groundwater level measurement methods.	7	4	-	11
Unit III: Surface Water Hydrology	Concept of basin runoff; Factors affecting basin runoff; Sources of river flow, Types of flow, Factors causing river flow variation; Concepts of water discharge, Effects of water discharge on channel morphology, measurement of discharge & velocity, Hydrograph and its components, unit hydrograph. Flood hydrology: Definition and causes of flood; Flood occurrence pattern- seasonality and frequency; flood frequency analysis, flood hydrograph. Anthropogenic activities and River Health issues and concerns	6	3	-	9
Unit IV: Groundwater Hydrology	Concept of water table and the aquifer: Aquifers classification (confined, unconfined and leaky), fluctuation of	7	4	-	11

	groundwater table, groundwater movement and recharge Sustainable groundwater use.				
Unit V: Hydrological Issues and Water shed Management	Watershed management and planning and sustainability; Impact of climate change on hydrological systems. Case studies on water management policies and their effectiveness.	5	2	-	7
Total		30	15	-	45

Practical

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1	1. To estimate runoff from daily water discharge data and to compare the seasonal variation patterns of basin runoff taking i. Two major tributaries of Brahmaputra River, one north bank and one south bank tributary and also taking ii. Two months -one winter and one summer months (December and July) (2 Exercises)	-	-	3 2	6 4
	2. To prepare discharge hydrographs of Brahmaputra and any one of its major tributaries atleast for three years taking a gap of five years and to analyse the trend of discharge pattern in the rivers. (2 Exercises)			2	4
	3. To prepare a stage-discharge hydrograph of Brahmaputra at any two			3	6

	gauge sites for a particular year and to compare the patterns in discharge and stage variations in the river. (2 Exercises) 4. To construct stage-discharge rating curves66 separately for all months of the year, for monsoon months (may to October) and for non-monsoon months (November to April taking monthly average data of a period of 5/10 years for Brahmaputra or one of its major tributaries and to analyse the seasonal relationship pattern between stage and discharge. (2 Exercises) 5. To prepare a rainfall variability map of Assam/Brahmaputra Valley based on relevant necessary data and to analyse the rainfall variability pattern. (1 Exercise) 6. Collection and mapping of monthly /seasonal fluctuation data of ground water level of selected wells (at least 10) in a locality (village/ward). (1 Exercise) 7. To construct storm hydrograph for monsoon period.			1 2 2	2 4 4
Total		-	-	15	30

Reading List:

1. Madan Mohan and Mimi Das Saikia, 2009, Hydrology , PHI Learning Pvt. Ltd Subramanya, K. (2013). Engineering hydrology, 4e. Tata McGraw-Hill Education. Chorley, R. J. (Ed.). (2019). Introduction to fluvial processes. Routledge. Brutsaert, W. (2005). Hydrology: an introduction. Cambridge University Press.

2. Maidment, D. R. (1993). Handbook of hydrology (Vol. 9780070, p. 397323). New York:
McGraw-Hill. Te Chow, V. (2010). Applied hydrology. Tata McGraw-Hill Education.

3. Davie, T. (2008). Fundamentals of hydrology. Routledge.

4. Sharp, J. J., & Sawden, P. G. (2013). BASIC hydrology. Elsevier. Dingman, S. L. (2015). Physical hydrology. Waveland press. Lane, B. (2002). Statistical Methods in Hydrology.

5. "Principles of Hydrology" by R. Ward and M. Robinson.

6. "Applied Hydrology" by V.T. Chow, D.R. Maidment, and L.W. Mays. Access to hydrological databases and software for practical exercises.

Detail syllabus of VII semester

Title of the Course	**Research Methodology in Geography**

Course Code	GGY-MJ-07034
Total Credit (theory+practical)	**4 (2-1-1)**
Contact hours	**75**
Distribution of Marks	**45+25+30 (Theory + Practical+ Internal Assessment)**
Course outcomes	1. Understand the role and significance of geographic research, be able to evolve research problem and review literature. 2. Design an effective geographic research proposal, understand sources and types of geographical data, and learn primary data processing techniques. 3. Analyze quantitative and qualitative geographical data using software and understand the significance of geospatial data analysis and GIS. 4. Ability to write a research paper and present geographic research effectively while understanding ethical considerations in research. 5. Update on recent advances in geographic research, innovative data collection methods and understanding the role of big data, integrating IKS in geographic research.

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1: Introduction to Research in Geography	Geographic research: Definition and characteristics; Domain of geographic research and its relation with other allied fields; significance of geographic research. Types of geographic research: Basic & Applied, Qualitative & Quantitative, Longitudinal, Cross-	5	3	-	8

	sectional and Comparative Evolving a research problem; Identifying research gaps; Formulating objectives and research questions Review of Literature and its need; Sources of geographical literature (Journals, books and online sources)				
Unit 2: Research Design and Methodology	Designing a geographic research proposal (Statement of the problem, Review of research works, Objectives, Research questions, Hypotheses, Database and methodology, Significance, Organization of the work and References). Types of research designs (experimental, quasi-experimental, non-experimental) Nature of geographical data (Physical geographic and human geographic data; Spatial and non- spatial data); Sources of geographical data: Primary (Pilot survey, Field survey, Household survey, interview, field observation, focus group discussion), Secondary (Census, NFHS, NSS, Remote Sensing, Maps and various govt. agencies), and Tertiary (Research articles, books, reports, etc).	7	4	-	11

	Sampling Techniques: Probability and non-probability sampling; Sample size determination Primary data processing techniques: Manual and Computer-based using software like MS Excel, SPSS, R, etc.				
Unit 3: Data Analysis in Geography	Quantitative Data Analysis: meaning and significance Statistical methods in geography (Application of the measures of central tendency, dispersion, correlation, regression, etc; Time series analysis; Spatial statistics). Use of software for data analysis (MS Excel, SPSS) Qualitative Data Analysis: Meaning and significance Techniques of analyzing qualitative data (Content analysis, thematic analysis, perception analysis, etc) Significance of geospatial data analysis and GIS in geographical research	7	4		11
Unit 4: Writing and Presenting Geographic Research	Research Paper Writing: Structure of a research paper (Abstract including key words, Introduction, Objectives and research questions, Database and methodology, Analysis and discussion, Findings and conclusion, References), a case study of local area. Academic writing styles and referencing system Presentation Skills: Preparing slides and posters for geographic presentations; Oral presentation	6	2		8

	techniques Ethical Considerations in Research; Ethical issues specific to geographic research obtaining ethical clearances and handling sensitive data Structure of a Research Report: Preliminaries, Text, Tables, Figures and Appendices; Citations, References and Bibliography; Research/Project Report Writing; Executive Summary.				
Unit 5: Conducting Advanced Geographic Research	Recent Advances in Geographic Research New methodologies in spatial analysis Innovations in data collection , Spatial modelling and Predictive analysis in geography The role of big data in geographic research Funding Opportunities in Geographic Research and Preparing Grant Proposal	3	1		4
Unit 6: Indigenous Knowledge System and Geographic Research	Human-environment relationship emphasizing ecological balance and sustainability Sustainable development practices: climate change, disaster management and cultural landscape Indigenous methods of resource management: traditional water harvesting, community forestry and agricultural zoning	2	1		3
Total		30	15		45

Practical

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1: Practical Works (16 marks) Two questions of 8 marks)	1. Preparation of household survey schedule/ questionnaire for socio-economic study/demographic study/social change study/health status study	-	-	3	6
	2. Preparation of survey schedule/questionnaire for rural market study.			2	4
	3. Preparation of survey schedule/questionnaire for perception-based urban environment study.			2	4
	4. Preparation of sketch-map of rural/urban landscape.			1	2
	5. Construction of cross-section profile of landuse and landcover scenario in selected urban/rural localities.			4	8
	6. Application of statistical techniques for sample data analysis (both for small and large samples) for hypothesis testing.			1	2
	7. Traditional methods of water harvesting, community forestry				
Unit 2: Practical		-	-	15	30

Note-book and Viva-voce (5+4 marks)					

Reading List

1. Creswell, J. W., & Creswell, J. D. (2017). Research design: Qualitative, quantitative, and mixed methods approach. Sage publications.
2. Engel, R. J., & Schutt, R. K. (2016). The practice of research in social work. Sage Publications."Qualitative Inquiry and Research Design: Choosing Among Five Approaches" by John W. Creswell
3. Steinberg, S. L., & Steinberg, S. J. (2015). GIS research methods: incorporating spatial perspectives.
4. Gomez, B., & Jones III, J. P. (Eds.). (2010). Research methods in geography: A critical introduction (Vol. 6). John Wiley & Sons.
5. Nayak, A., & Jeffrey, A. (2013). Geographical thought: An introduction to ideas in human geography. Routledge."Statistical Methods for Geography: A Student's Guide" by Peter A. Rogerson

Detail syllabus of VII semester

Title of the Course	**Field Techniques in Geography (Optional)**

Course Code	GGY-MJ-07044
Total Credit (theory+practical)	**4 (2-1-1)**
Contact hours	**75**
Distribution of Marks	**45+25+30 (Theory + Practical+ Internal Assessment)**
Course outcomes	1. Interpret field data critically, analyze data with adequate techniques & tools, and have proficiency in preparing detailed field reports. 2. Able to carry out geographic measurements and analyses, using GIS/GPS for land, water, soil, and biogeographical studies. 3. Apply field techniques in advanced scenarios including urban planning and environmental management, showcasing application through presenting mini-research projects. 4. Understand importance, prepare and plan for geographic fieldwork, observe and sketch accurately (Unit 1). 5. Implement qualitative and quantitative methods for data collection and use technology tools in managing data

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1: Geography and Field Studies	Geography as a field science, need of field studies in geography, principles of field work	2	1	-	3
Unit 2: Data Collection Techniques	Quantitative methods: surveys, sampling strategies Qualitative methods: interviews, focus groups,	13	7	-	20

	participatory observations Use of technology in fieldwork: (i) use of analogues tools and techniques like, Prismatic compass/Theodolight/ Dumpy's level (ii) Introduction and use of basic digital tools and techniques like, GPS/ GIS/ RS for collecting, organizing and mapping of physical and human geographic data				
Unit 3: Geographic Measurement and Analysis	Land use assessment, soil analysis and basics of the tools used in this field. Water quality measurements and hydrological assessments. Transect and quadrat survey, identification of species and assessment of biodiversity Application possibilities of GIS/ GPS and RS in land use assessment Water and water quality, soil as well as bio-geographical study	5	2	-	7
Unit 4: Data Interpretation and Reporting	Data analysis techniques: statistical analysis, thematic analysis Using software tools for data visualization (e.g., GIS, SPSS) Critical interpretation of field data	5	2	-	7

	Preparing field reports and presentations				
Unit 5: Advanced Field Applications and Case Studies	Case studies on urban planning, rural development, and environmental management Advanced GIS applications in field settings, Field project: design and execute a mini-research project Presentation of field projects and peer review	5	3	-	8
Total		30	15	-	45

Practical

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1	1. Field observation in the local area and preparation of a brief report on physical and human aspects, supported by field sketches, photographic as well as textual documentation	-	-	2 5	4 10
	2. Close traverse survey with Prismatic Compass and theodolight for preparing a plane with scale and necessary error correction			5 1	10 2
	3. Profile leveling and countering in the premise of the academic institution using Dumpy's level and preparation of a			2	4

	large scale map 4. Collection of point, line and area data with GPS and prepare a map from the data generated in digital mapping environment 5. Use of remote sensing data (aerial photo/ satellite image) to prepare thematic map using GIS platform or analogous method of interpretation				
Total		-	-	15	30

Reading List

1. Creswell J., 1994: Research Design: Qualitative and Quantitative Approaches Sage Publications.
2. Dikshit, R. D. 2003: The Art and Science of Geography: Integrated Readings. Prentice Hall of India, New Delhi.
3. Evans, M., 1988: Participant Observation: The Researcher as Research Tool in Qualitative Methods in Human Geography, eds. J. Eyles and D. Smith, Polity.
4. Mukherjee, N., 1993: Participatory Rural Appraisal: Methodology and Application. Concept Pub. Co., New Delhi.
5. Mukherjee, N., 2002: Participatory Learning and Action: with 100 Field Methods. Concept Pub Co., New Delhi.
6. Robinson, A., 1998: "Thinking Straight and Writing That Way", in Writing Empirical Research Reports: A Basic Guide for Students of the Social and Behavioural Sciences, eds. by F. Pryczak and R. Bruce Pryczak, Publishing: Los Angeles.
7. Special Issue on “Doing Fieldwork” The Geographical Review 91:1-2 (2001).
8. Stoddard R. H., 1982: Field Techniques and Research Methods in Geography, Kendall/Hunt.
9. Wolcott, H. 1995. The Art of Fieldwork.Alta Mira Press, Walnut Creek, CA.
10. Monkhouse, F.J. and Wilkinson, H.R., 1989: Maps and Diagrams, B.I. Publications Ltd., Mumbai.
11. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers.
12. Singh, L.R., 2013: Fundamentals of Practical Geography, ShardaPustakBhawan, Allahabad.
13. Sarkar, A., 2015: Practical Geography: A Systematic Approach. Orient Black Swan Private Ltd., New Delhi.
14. Misra, R. P. and Ramesh, A., 1989: Fundamentals of Cartography, Concept Publishing Company, New Delhi.

Detail syllabus of VII semester

Title of the Course	**Applied Geomorphology (Optional)**
Course Code	GGY-MJ-07054
Total Credit (theory+practical)	**4 (2-1-1)**
Contact hours	**75**
Distribution of Marks	**45+25+30 (Theory + Practical+ Internal Assessment)**
Course outcomes	1. Ability to interpret landforms for practical purpose 2. Understanding of geomorphic hazards 3. Competence in geomorphic mapping 4. Enhance ability to apply process based knowledge

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1	Pure and Applied Geomorphology: Applied Geomorphology, paleogeomorphology, Hydro Geomorphology, Environmental Geomorphology, Quantitative Geomorphology, Application of Geo- Spatial technology in Geomorphology, Qualitative Geomorphology	8	4	-	12
Unit 2	System concept in Geomorphology: closed and Open system, Steady state and Dynamic equilibrium, Quasiequilibrium, Geomorphic Threshold, Methods of analysis in Applied Geomorphology	8	4	-	12

	Morphogenetic Regions				
Unit 3	Drainage Basin: Drainage Basin Morphometry. Water Storage and Flow: Storage, Surface and sub surface run off and Ground water transport by stream. Stream flow and channel slope. Erosion, Transportation and Feedback relationship.	8	4	-	12
Unit 4	Slopes: Weathering, Slope Process, Slope forms and slope analysis, Dynamic equilibrium. Environmental Hazards and management: Types, Soil erosion, River Flood, Slope Instability, Earthquakes, Relationship Between basic concept of hazard, Vulnerability, Risk Analysis and risk reduction. Control of soil erosion by water, control of river flood and mitigation, managing landslides.	6	3	-	9
Total		30	15	-	45

Practical

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1:	1. Extraction of drainage from DEM; drainage basin morphology, drainage ordering, calculation of bifurcation ratio, length ratio, basin circulatory ratio, Analysis of laws of stream number, stream length and drainage basin area. 2. Preparation of slope map; Smith relative relief (2 assignments) and Wenthworth's method. (2 assignments) 3. Area Height relationship; Hypsometric Integral (2 assignment) 4. Preparation of Hydrograph (monsoon and Non-Monsoon Period), Unit Hydrography (2 assignments) 5. Rating Curve; stage discharge and sediment discharge. (2 assignments) 6. Flood Frequency Analysis. (2 Assignments) 7. Field study on Flood Plain morphology and flood plain zoning.	-	-	5 2 2 2 2 2	10 4 4 4 4 4

Total		-	-	15	30

Reading Lists

1. Geomorphology: Pure and Applied by M G Hart, pub: Allen and Unwind (publishers) Ltd, UK
2. Geomorphological Techniques edited by Andrew Goudie et al , Routledge London and New York
3. Fundamentals of Fluvial Geomorphology by Ro Charlton, Routledge
4. The Basics of Geomorphology by K J Gregory and John Lewin, Sage
5. Fluvial Forms and Processes by David Knighton, Pub:Arnold- Heinemann
6. Principles of Geomorphology by W D Thornbury, Wiley Eastern Limited
7. Fluvial Processes in Geomorphology by Luna B Leopold, M Gordon Wolman and John P Miller Pub: S Chand and Company

Detail syllabus of VII semester

Title of the Course	**Surveying Techniques (Optional)**

Course Code	GGY-MJ-07064
Total Credit (theory+practical)	**4 (2-1-1)**
Contact hours	**75**
Distribution of Marks	**45+25+30 (Theory + Practical+ Internal Assessment)**
Course outcomes	1. Understand the meaning, types, and significance of field surveying 2. Learn the principles of plane, geodetic surveying and triangulation 3. Master the principles and techniques of several surveying tools 4. Gain proficiency in methods of radiation, intersection, traversing, contouring and leveling in surveying 5. Understand the basics of GPS, its principles and applications

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit I	Field surveying : Its meaning, types and significance in geography	4	1	-	5
Unit II	Principles of surveying: plane and geodetic surveying; Principles of triangulation	5	2		7
Unit III	Principles and Techniques of surveying: Principles and Techniques of surveying by Plane Table, Prismatic Compass, Theodolite, DumpyLevel and Total Station	10	5		15
Unit IV	Methods of Surveying: Methods of radiation, intersection, traversing, contouring and leveling in surveying	6	4		10
Unit V	GPS: Basic concept, principles and utilities	5	3		8

Total		30	15		45

Practical

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1	1. Preparation of a plan or a map of an area within the college campus or any suitable area using Plane Table (applying both radiation and intersection methods) (2 Assignments)	-	-	3 3	6 6
	2. Open and Closed Traverse Surveying with Prismatic Compass: Preparation of plan along with adjustment of closing errors. (2 Assignments)			3	6
	3. Closed Traverse Surveying with Theodolite: Plotting of data for preparation of a plan through computation of Reduced Bearing, Consecutive Co-ordinates and Independent Co-ordinates; Measurement of height of object/objects using Theodolite (2 Assignments)			3 3	6 6
	4. Profile leveling and contouring in a selected area by Dumpy Level (2 Assignments)				

	5. Preparing a map of a short trail along with prominent features by using hand-held GPS and associated software/freeware. (2 Assignments)				
Total		-	-	15	30

Reading List

1. Campbell, J., 1984: Introductory Cartography, Prentice Hall Inc., Englewood Cliff.
2. Misra, R.P. and Ramesh, A., 1995: Fundamentals of Cartography, Concept Publishing Company, New Delhi.
3. Robinson, A.H., et al: Elements of Cartography, John Wiley Sons, New York. Raisz, E.: Principles of Cartography, McGraw Hills, London.
4. Kenetkar, T.P. and Kulkarni, S.U.: Surveying and Levelling, Vol. I II, Vidyarthi Gritha Prakashan, Pune.
5. Das, A.K. 2021: Pocket Size Handbook on Handling of GPS for Field Studies, GTAD and Aranyak, Guwahati (In PDF format).

Detail syllabus of VIII semester

Title of the Course	**Essentials of Map Making**
Course Code	GGY-MJ-08014

Total Credit (theory+practical)	**4 (2-1-1)**
Contact hours	**75**
Distribution of Marks	**45+25+30 (Theory + Practical+ Internal Assessment)**
Course outcomes	1. Understanding the importance of various techniques of preparation of maps. 2. General understanding of the preparation of different types of plans and maps. 3. An acquaintance of different cartographic techniques for the representation of various facets of the earth's surface. 4. Understanding the different topographic features and their representation

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1:	Introduction: Definition and importance of map	1	-	-	01
Unit 2:	Elements of a Map: Elements of a map: title, scale, legend, orientation, direction, projection, source and conventional symbols and colours. Map elements with respect to the location of physical and cultural features on the earth's surface, and their principles and techniques of representation (Point, line and polygon).	5	3	-	08
Unit 3:	Types of Map: Based on scale (Small, Medium and Large scale maps). Based on information content (General purpose, thematic and special purpose maps).	5	3	-	08

	Characteristics of topographical maps; Interpretation of topographical map and data generation.				
Unit 4:	Concept of the Base Map: Types of the thematic map; map reading; map design, layout and typography	3	2	-	05
Unit 5:	Thematic Mapping and Techniques : Principles and techniques of representation of physical and human geographic data Concept of thematic mapping; Types of thematic mapping: Choropleth, Isopleth, Chorochromatic: Flow maps, Cartograms, Proportion and Symbol Maps, diagrammatic representation (pie, bar, line).	6	3	-	09
Unit 6:	Topographical map: Interpretation of topographic symbols. contours and relief representation. drainage, settlement, agriculture, vegetation, transport features	10	4	-	14
Total		30	15	-	45

Practical

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
	Preparation of an administrative/physical	-	-	5	10

Unit 1	map of India containing necessary map elements using appropriate typography. (1 assignment) Preparation of thematic maps for representing human geographic data using choropleth, isopleth, dot, sphere and proportionate circle techniques. (5 assignments) Interpretation of topographical maps of India for preparation of qualitative thematic maps (landuse/land cover map); construction of Transect chart showing the relationship between selected physical and cultural elements along a cross-section from the topographical map. (2 assignments)			5 5	10 10
Total		-	-	15	30

Suggested Readings

1. Anson R. and Ormelling F.J., 1994: International Cartographic Association: Basic Cartographic Vol., Pergamon Press.
2. Gupta K.K. and Tyagi, V.C.,1992: Working with Map, Survey of India, DST, New Delhi.
3. Misra R.P.and Ramesh, A., 1989: Fundamentals of Cartography, Concept, New Delhi.
4. Monkhouse F.J. and Wilkinson H.R., 1973: Maps and Diagrams, Methuen, London.
5. Rhind D. W. and Taylor D. R. F., (eds.),1989: Cartography: Past, Present and Future, Elsevier, International Cartographic Association.
6. Robinson A.H., 2009: Elements of Cartography, John Wiley and Sons, New York.
7. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers.
8. Sarkar, A. (2015) Practical Geography: A Systematic Approach. Orient Black

Swan Private Ltd., New Delhi
9. Singh, L.R., 2013: Fundamentals of Practical Geography, Sharda Pustak Bhawan, Allahabad.
10. Talukder,S.,2008:Introduction to Map Projections, EBH Publishers(India), Guwahati.

Detail syllabus of VIII semester

Title of the Course	**Health Geography**
Course Code	GGY-MJ-08024
Total Credit (theory+practical)	**4 (2-1-1)**
Contact hours	**75**
Distribution of Marks	**45+25+30 (Theory + Practical+ Internal Assessment)**
Course outcomes	1. Understand the scope, significance, and approaches of health geography

	2. Analyze the impact of environmental influences on health using case studies 3. Understand the classification of diseases, their modes of transmission, and distribution 4. Evaluate health policies, and their spatial implications, and address future challenges 5. Interpret patterns of disease spread using geographic methods and GIS applications in disease surveillance.

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1:	Introduction to Health Geography: Overview: Definitions, scope, and importance of health geography. Key Concepts: Health, wellness, illness, disease; geographic distribution. Approaches of study: ecological, social and spatial. Historical Development: Evolution of health geography as a discipline. Dualism between medical geography and geography of health.	6	3	-	9
Unit 2:	Environmental Health : Concepts of health, diseases & well being Environmental Influences: Impact of physical and built environments on health, environmental pollution & health hazards. Case Studies: Analysis of environmental health issues like air quality and water sanitation. Tools and Techniques: Introduction to methodologies for assessing environmental	6	3	-	9

	health risks.				
Unit 3:	Diseases and its Transmission: Classification of diseases: genetic, zoonotic, communicable, non-communicable, occupational, deficiency diseases and malnutrition. Endemic epidemic & pandemic patterns. Modes of transmission of major diseases (Malaria, Japanese encephalitis, tuberculosis, hepatitis, AIDS and COVID-19) and their broad global distribution.	6	3	-	9
Unit 4:	Disease Ecology and its mapping: Disease Distribution: Patterns and processes influencing disease spread. Factors influencing disease transmission (pathological, physical, environmental, social, cultural and economic) Epidemiological Applications: Using geographic methods to track and control outbreaks. Advanced GIS Applications: Utilizing GIS in disease surveillance and epidemiological research.	6	3	-	9
Unit 5:	Health Care system & Accessibility: Health Systems: Meaning and components; Universal government-funded health system; Role of WHO and UNICEF in global health care; SDG3 for good health and Well-being. Policy Analysis: Spatial analysis	6	3	-	9

	of health policies and their implications. family welfare, immunization, National Health Mission and its programmes, urban-rural contrast in health infrastructure. Future Challenges: Discussion on emerging health issues like during COVID-19 and the role of health geography in addressing them.				
Total		30	15	-	45

Practical

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1	1. Mapping of health status indicators (hospital beds, primary health centres, doctors, paramedics, etc.) in Assam/N.E. India using Z-score method. (1 Exercise)	-	-	2	4
	2. Trend of infant mortality and maternal mortality rates in India in relation to selected developed and developing counties using line graph. (3 Exercises)			3	6
	3. Choropleth mapping of infant mortality in India at state level. (1 Exercise)			2	4
	4. Correlation analysis between any physical determinants (monthly rainfall/monthly average temperature) and epidemiological incidence of a disease (monthly malaria cases) in any district of Assam. (1 Exercise)			3	6
				1	2
				1	2

	5. Map showing spatial variation of disease incidence rate in India/N.E. India at state level. (1 Exercise) 6. Mapping of seasonal variation in the occurrence of Covid-19 cases in Assam at district level using pie graph. (1 Exercise) 7. Preparation of questionnaire for healthcare and health status survey. (1 Exercise) 8. Computation of distribution pattern of hospitals, health centres, etc. using nearest neighbour analysis. (1 Exercise)			1 2	2 4
Total		-	-	15	30

Reading List:

1. AkhtarRais (Ed.), 1990 : Environment and Health Themes in Medical Geography, AshishPublishing House, New Delhi.

2. Anthamatten P, (2011), Introduction to the Geography of Health, Rawat Publications, Jaipur

3. Avon Joan L. and Jonathan A Patzed.2001 : Ecosystem Changes and Public Health,Baltimin, John Hopling Unit Press(ed).

4. Banerji, D. (1986) :Social Sciences and Health Services in India, LokPrakashan,New Delhi.

5. Bradley,D.,1977: Water, Wastes and Health in Hot Climates, John Wiley Chichesten.

6. Brown, T., McLafferty, S., Moon, G. (2010): A Companion to Health and Medical Geography, Wiley Blackwell, UK

7. Christaler George and HristopolesDionissios, 1998: Spatio Temporal Environment HealthModelling , Boston Kluwer Academic Press.

8. Cliff, A.D. and Peter,H., 1988 : Atlas of Disease Distributions, Blackwell Publishers, Oxford.

9. Curtis, S.(2004):Health and Inequality: Geographical Perspectives, Sage Publications,London

10. Gatrell, A.,andLoytonen, 1998 : GIS and Health, Taylor and Francis Ltd, London.

11. Hardham T. and TannavM.,(eds): Urban Health in Developing Countries; Progress, Projects, Earthgoan, London.

12. Mishra, R.P.(1970): Medical Geography of India, National Book Trust ofIndia.

13. Mishra, R.P.(2002)), Geography of health : a treatise on geography of life and death in India, Concept Publishing Co., New Delhi

14. Murray C. and A. Lopez, 1996 : The Global Burden of Disease, Harvard University Press.

15. Moeller Dade wed., 1993: Environmental Health, Cambridge, Harward Univ. Press.

16. National Health Missionhttps://nhm.gov.in/

17. National Health Portal India https://www.nhp.gov.in/healthprogramme/nationalhealthprogrammes

18. Phillips, D. and Verhasselt, Y., 1994: Health and Development, Routledge, London.

19. Shaw, M., Dorling, D. and Mitchell, R, (2002) Health, Place and Society, Pearson, London

20. Tromp, S., 1980: Biometeorology: The Impact of Weather and Climate on Humans and their Environment, Heydon and Son.

Detail syllabus of VIII semester

Title of the Course	**Advanced Statistics in Geography (Optional)**
Course Code	GGY-MJ-08034
Total Credit (theory+practical)	**4 (2-1-1)**
Contact hours	**75**
Distribution of Marks	**45+25+30 (Theory + Practical+ Internal Assessment)**
Course outcomes	1. Understand spatial data analysis skills 2. Improve understanding of spatial pattern and processes. 3. Strengthen Research methodology and competence 4. Develop skill in statistical software

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit I	Sampling: Definition, Types and sampling distribution Hypothesis testing: Formation of Hypothesis, testing of Hypothesis: Z-Test, F-Test, Chi-Sq Test, Level of significance,	8	3	-	11

	Confidence limit. Probability and its application in Geography. Probability distribution: Normal, Binomial, Poisson.				
Unit II	Concept of simple and multiple correlation, simple and multiple regression analysis and its application in Geography. Time series analysis; Fitting Exponential Graph, Power curve, Logistic curve and their application in Geography	6	4	-	10
Unit III	Matrices: Addition, Subtraction, Multiplication. Inverse of Matrix, adjacent of Matrix, Determinants, estimation of two variables (x, y) and three variables (x,y,z). Multivariate analysis	10	7	-	17
Unit IV	Conceptual basis of quantitative techniques in spatial distribution, pattern Principal components analysis.	6	1	-	7
Total		30	15	-	45

Practical

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1	1. Hypothesis testing; Z test, F test and Chi sq test. (2 assignment) 2. Probability distribution; Binomial, Poison, Normal (2 Assignment) 3. Multiple correlation	-	-	4 2 3 2	8 4 6 4

	and regression. (2 Assignment) 4. Exponential curve and Non-Linear method. (2 Assignment) 5. Application of matrix algebra in multivariate analysis. (3 assignment) Methods of regionalization using principal component analysis. (2 assignment).			4	8
Total		-	-	15	30

Reading List

9. Hammond P. and McCullagh P. S., 1978: Quantitative Techniques in Geography: An Intro- duction, Oxford University Press.
10. Sarkar, A. (2013) Quantitative Geography. techniques and presentations. Orient Black SwanPrivate Ltd., New Delhi.
11. Yeates M., 1974: An Introduction to Quantitative Analysis in Human Geography, McGrawHill, New York. 26
12. Mathews, J.A., 1987: Quantitative and Statistical Approaches to Geography: A PracticalManual Pergamon,Oxford.
13. Mahmood, A., 1999: Statistical Methods in Geographical Studies, Rajesh Publications,New Delhi.
14. Elhance, D.N., 1972: Fundamentals of statistics, KitabMaha1,A11ahabad
15. Monkhouse, F.J. Wilkinson, H.R., 1989: Maps Diagrams, B.I. Publications, New Delhi
16. Gregory, S., 1963: Statistical Methods and Geographers, Longman, London.

Detail syllabus of VIII semester

Title of the Course	**Micro Area Studies and Regional Analysis (Optional)**
Course Code	GGY-MJ-08044
Total Credit (theory+practical)	**4 (2-1-1)**
Contact hours	**75**
Distribution of Marks	**45+25+30 (Theory + Practical+ Internal Assessment)**
Course outcomes	1. Understand and distinguish the nuanced concepts, different theories and methodologies utilized in Micro Area Studies. 2. Comprehend and execute diverse research methods and techniques in area studies, ensuring ethical conduct. 3. Apply learned concepts and methods to perform detailed analyses of chosen micro areas, highlighting problems and potential solutions. 4. Understand the interdependence between regional dynamics and global issues, incorporating case studies for comprehensibility. 5. Demonstrate independent research skills by conducting a detailed study on a selected micro area, analyzing data, presenting findings, and refining analytical skills.

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1:	Introduction to Micro Area Studies : Definition, nature and scope of micro area studies Importance of studying micro areas, difference between micro area study and macro area study	6	3	-	9

	Historical Development: Conceptual and methodological development of the micro area studies in India and abroad Key concepts: Basic theories and methods adopted in micro area studies. Micro landscapes: Physical and cultural components, human response to micro landscapes Impact of social and physical processes on micro landscapes.				
Unit 2:	Research Methodologies in Area Studies : Participatory Appraisal methods and techniques Interdisciplinary approaches in micro area studies Qualitative and quantitative research methods Selection of micro areas for case study, and primary field survey methodology Data collection techniques specific to regional analysis Ethics and considerations in conducting micro area/ regional studies.	6	3	-	9
Unit 3:	Micro Area Studies - Focused Analyses : Deep dive into problems and potential of specific regions (e.g., a village, municipality area/ ward, urban fringe, micro ecological setting, habitat etc). Physical, Ecological, Cultural and Political character analysis of chosen micro areas. Comparative studies on different micro areas, micro area planning and development.	6	3	-	9

Unit 4:	Regional Dynamics and Global Impact : How regional characteristics influence national and international issues. Case studies on regional conflict, economic development, and cultural exchange. Role of geographical boundaries and political entities in shaping regional dynamics. Regional development plans and policies	6	3	-	9
Unit 5: Independent Project work	Students select a micro area for detailed study (local area) Application of research methodologies to gather and analyze data. Presentation of findings in written formats. Peer review and critique sessions to refine analytical skills.	6	3	-	9
Total		30	15	-	45

Practical

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1:	Micro-spatial risk assessment using GIS-based multi-criteria decision analysis (MCDA) and analytical hierarchy process (AHP) (2exercises).	-	-	3	6
	Mapping of physical and cultural features of micro areas in different physical settings in Assam/N.E. India using toposheets and satellite imageries. (2exercises).			3	6
	Participatory mapping of land use and land cover of micro areas, such as village, urban wards etc (2			3	6

	exercises). Identification and mapping of micro landscapes, resource base, problems and potentials of micro areas through field survey (2exercise). Dag survey and mapping techniques using cadastral map (2exercise). Toposequence through transact walk in an urban or a rural area (2exercise). Questionnaire design for micro area study (1 exercise).			2 1	4 2
Total		-	-	15	30

Reading List

1. Hall, Robert, B. (1947): Area Studies with Special Reference to their Implications for Research in Social Sciences, Social Science Research Council, New York.
2. David Ludden (1998): Area studies in the age of globalization, University of Pennsylvania.
3. Mukherjee, N. (1993). Participatory rural appraisal: methodology and applications. Concept Publishing Company.
4. Cahnman, Warner J. (1948): Outline of a Theory of Area Research" Annals of the Association of American Geographers, vol.38.No 4, pp.233-243.
5. Labh, Kapileswar (1986): Area Studies in India: Retrospect and Prospect, Unpublished Seminar Paper, Centre for Himalayan Studies, North Bengal University.
6. Mukherjee, N. (1995). Participatory rural appraisal and questionnaire survey (comparative field experience and methodological innovations).
7. Ullman Edward L. (1953): Human Geography and Area Research, Annals of the Association of Area Research Vol.43, No I.
8. Chambers, R. (1981). Rapid rural appraisal: rationale and repertoire. Public administration and development, 1(2), 95-106.
9. Chambers, R. (1981). Rapid rural appraisal: rationale and repertoire. Public administration and development, 1(2), 95-106.
10. McCracken, J. A., Pretty, J. N., & Conway, G. R. (1988). An introduction to rapid rural appraisal for agricultural development. An introduction to rapid rural appraisal for agricultural development.

11. Krosnick, J. A. (2018). Questionnaire design. The Palgrave handbook of survey research, 439-455.
12. Lietz, P. (2010). Research into questionnaire design: A summary of the literature. International journal of market research, 52(2), 249-272.
13. Codó, E. (2008). Interviews and questionnaires. The Blackwell guide to research methods in bilingualism and multilingualism, 158-176.
14. Hennink, M. M. (2013). Focus group discussions. Oxford University Press.
15. Lawrence Neuman, W. (2014). Social research methods: Qualitative and quantitative approaches.
16. Acharya Amitav (2006): International Relations and Area Studies: Towards a New Synthesis, Institute of Defence and Strategic Studies, Nanyong Technological University, Singapore.
17. Appadurai Arjun (1996): Modernity at Large:56Cultural Dimensions of Globalisation , Minneapolis, University of Minnesota Press.
18. Bates, Robert H (1997): Area Studies and the Discipline: A Useful Controversy, Political Science and Politics 30 (2).
19. Droselle,-Jean B. (1952): Area Studies: problems of method, International Social Science Bulletin, Vol. IV, No.IV.
20. Grieb, Kenneth J (1974): Area Studies and the Traditional Disciplines,The History Teacher, Vol. 7, No.2.
21. Morgenthau, Hans (1952): Area Studies and the Study of International Relations, International Social Science Bulletin, Vol. IV, No.IV.
22. Murdoch, George P. (1950): The conceptual basis of Area Research, World Politics, Vol. 2, No IV.
23. Julian H. (1950): Area Research Theory and Practice, Social Science Research Council, New York.
24. Whitaker, Urban (1959): An Application of Area Studies to the Teaching of General Education Courses in International Relations, Vol.5, No.4.

Detail syllabus of VIII semester

Title of the Course	**Project Formulation and Execution: Concepts & Practices (Optional)**
Course Code	GGY-MJ-08054
Total Credit (theory+practical)	**4 (2-1-1)**
Contact hours	**75**
Distribution of Marks	**45+25+30 (Theory + Practical+ Internal Assessment)**
Course outcomes	1. To enable students to conceptualize, plan, and formulate research or development-based projects. 2. To impart knowledge on project cycle management, logical framework analysis, budgeting, and execution strategies. 3. To develop field and institutional skills necessary for implementing community-based or research-based projects. 4. To familiarize students with reporting, monitoring, and evaluation (M&E) tools. 5. To ensure students are prepared to submit a project proposal and conduct a basic field investigation or case study

Unit	Content	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours
Unit 1:	Introduction to Project Formulation: Definition, nature, and significance of projects Characteristics & types of project Project life cycle: Conceptualization to closure Techniques of project identification Participatory planning and stakeholder involvement	1	-	-	01
Unit 2:	Project Planning Tools and Techniques : Logical Framework Approach (LFA) and Goal-Oriented Project Planning (GOPP)	5	3	-	08

	Objectives, outputs, activities: framing SMART indicators Work Breakdown Structure (WBS) Gantt Chart and CPM/PERT basics Stakeholder and SWOT analysis				
Unit 3:	Budgeting and Resource Mobilization : Estimating project costs: capital vs. operational Budget preparation and justification Resource mapping: human, financial, material Proposal writing for funding: components and formats Introduction to government schemes, CSR, and donor funding	5	3	-	08
Unit 4:	Project Execution, Monitoring and Evaluation : Project implementation strategies and scheduling Fieldwork planning: logistics, permissions, ethics Monitoring indicators and data collection for M&E Evaluation types: formative vs. summative Tools: Logical Framework Matrix, Theory of Change (ToC)	3	2	-	05
Unit 5:	Documentation and Final	6	3	-	09

	Reporting : Project documentation techniques: field notes, journals, photos, GIS/maps Data analysis, interpretation, and visualization (basic) Report writing: structure, style, referencing Presentation of findings: oral and visual formats Ethical considerations in reporting				
Unit 6:	Assessment and Evaluation : Case studies from-urban development project, environment conservation initiatives. Project Proposal (20%) Field Component/Execution Report (30%) Presentation and Viva Voce (20%) End Semester Written Exam (30%)	10	4	-	14
Total		30	15		45

Assessment and Evaluation of Project Report

Field-Based Learning Component:
Each student is required to: -

1. Identify a local issue or theme based on Honours subject.
2. Formulate a project proposal in consultation with faculty.
3. Conduct at least 5–7 days of fieldwork, surveys, or institutional visits.
4. Submit a final project report for evaluation.

Reading List:

Essential Readings:

1. Chandra, P. (2019). Projects: Planning, Analysis, Selection, Financing, Implementation, and Review. Tata McGraw Hill.
2. UNDP. (2009). Handbook on Planning, Monitoring and Evaluating for Development Results. United Nations Development Programme.
3. Gopalakrishnan, P. & Ramamoorthy, V. E. (2008). Project Management. Macmillan India.
4. Government of India (NITI Aayog). Project Appraisal Guidelines.
5. World Bank (2007). The Logframe Handbook.

Supplementary Readings:

1. OECD (2010). Evaluation Methods for Development Projects.
2. Kumar, R. (2022). Research Methodology: A Step-by-Step Guide for Beginners. Sage.
3. Kothari, C. R. (2019). Research Methodology: Methods and Techniques. New Age International.
4. Chambers, R. (1997). Whose Reality Counts? Putting the First Last. Intermediate Technology Publications.

Detail syllabus of VIII semester

Title of the Course	**Mini Project / Dissertation**
Course Code	GGY-MJ-08064
Total Credit (theory+practical)	**4**
Contact hours	**60**
Distribution of Marks	**Total marks: 100**
Course outcomes	Students will write a dissertation on suitable topic applying all required methodology and dissertation writing procedure.

1. Each student will have to prepare a dissertation under the guidance of respective teacher following appropriate methodology, data base and literature review.
2. The dissertation duly signed by the guide concerned has to be submitted to the department at least one week before the schedule date of examination.
3. The marks distribution of dissertation in the final semester examination is as follows:
   Total marks: 100
   Evaluation of Content: 25 (average between external and internal examiners)
   Viva voce: 15 (exclusively by the external examiner)