



जननायक चन्द्रशेखर विश्वविद्यालय, बलिया

JANANAYAK CHANDRASHEKHAR UNIVERSITY, BALLIA

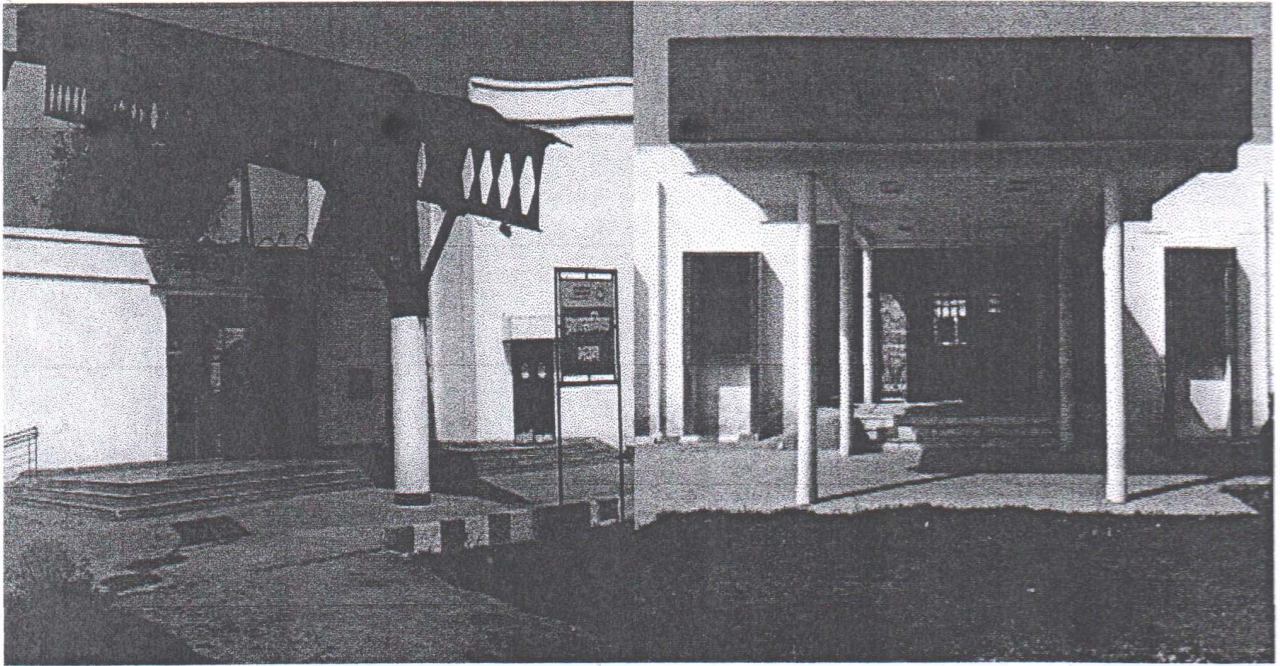
(A State University established under the Uttar Pradesh University Act 1973)



Curriculum in Accordance to National Education Policy - 2020

Programme Name : B.A./B.Sc.

Subject : GEOGRAPHY



Department of Geography

Jananayak Chandrashekhar University, Ballia

Shaheed Smarak, Near Surha Taal, Basantpur, Ballia, - 277301, Uttar Pradesh, India



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Structure for Four Years Undergraduate Programme in accordance with National Education Policy - 2020 and Common Minimum Syllabus

GEOGRAPHY

Semester-wise Title of the Paper

Year	Sem.	Course Code	Paper	Theory/ Practical	Credit	Total Credit	Marks	
1 st	I	A110101T	Physical Geography	Theory	4	6	25	50
	I	A100102P	Elements of Map and Surveying	Practical	2		25	
	II	A110201T	Human Geography	Theory	4	6	25	50
	II	A110202P	Thematic Mapping and Surveying	Practical	2		25	
2 nd	III	A110301T	Environment, Disaster Management and Climate Change	Theory	4	6	25	50
	III	A110302P	Statistical Techniques and Surveying	Practical	2		25	
	IV	A110401T	Economic Geography	Theory	4	6	25	50
	IV	A110402P	Weather Maps, Geological Maps, Surveying	Practical	2		25	
3 rd	V	A110501T	Regional Geography	Theory	4	10	25	50
	V	A110502T	Basics of Remote Sensing and GIS	Theory	4		25	50
	V	A110503P	Tour and Tour Report	Practical	2		50	
	VI	A110601T	Geography of India	Theory	4	10	25	50
	VI	A110602T	Evolution of Geographical Thoughts	Theory	4		25	50
	VI	A110603P	Remote Sensing and GIS	Practical	2		50	
4 th	VII	A110701T	Geomorphology	Theory	4	20	25	50
	VII	A110702T	Advanced Geography of India	Theory	4		25	50
	VII	A110703T	Environmental Geography	Theory	4		25	50
	VII	A110704T	Cartography	Theory	4		25	50
	VII	A110705P	Practical - (Field Cum-Lab Work)	Practical	4		100	
	VIII	A110801T	Climatology	Theory	4	20	25	50
	VIII	A110802T	Basics of Remote Sensing	Theory	4		25	50
	VIII	A110803T	Economic Geography	Theory	4		25	50
	VIII	A110804T	Cartography	Theory	4		25	50
	VIII	A110805P	Practical (Field Cum-Lab Work)	Practical	4		100	

Note :

- The Student shall prepare a Minor Research Project (MRP) in the 5th and 6th Semester (3rd Year) of Graduation. The MRP shall be submitted and evaluated in the 6th Semester.
- The Student Shall prepare a Research Project in the 7th and 8th Semesters (4th Year) of Graduation. The RP shall be submitted and evaluated in the 8th Semester.



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Programme : B.A./B.Sc.

Subject : Geography

Syllabus

Semester	1 st
Course Code	A110101T
Course Title	Physical Geography
Credit	4
Course Objective	
a) This Course provides the basic ideas and concepts of Physical & Human aspect of Geography. b) This course intends to orient the learner with the Approaches to the broader discipline of Geography. c) It will help in developing analytical and critical thinking based on the themes and issues of Geography. d) It eventually prepares the students to understand the development of the subject and delve around issues suited to the needs of the contemporary world. e) It will help in exhaustive understanding of the basic concepts of Geography and an awareness of the emerging areas of the field.	
Learning Outcomes :	
a) Acquisition of in-depth understanding of the applied aspects of Geography as well as interdisciplinary subjects in everyday life. b) Improvement of critical thinking and skills facilitating. c) The application of knowledge gained in the field of Geography in the classroom to the practical solving of societal problems d) The programme orients students with traditional geographical knowledge along with advanced contemporary skills like remote sensing and GIS.	

BA/B.Sc. 1st Year Sem. 1

Course I

(Theory)

Programmes/Class	Year : First	Semester : First
Subject : Geography - 100 (25 + 50 + 25)		
Course Code : A110101T	Course Title : Physical Geography	
Course outcomes : Students will be able to understand <ul style="list-style-type: none">➤ The Earth geomorphic transition from beginning to present day.➤ Plate tectonics and related movements➤ Landforms carved by various agents of erosion➤ Earth's climate and that factors that influence it➤ Oceans system and biogeography of the world.		
Credits : 4	Core Compulsory	
Max Marks : 50	Min. Passing Marks : 20	
Total No. of Lecturers - Tutorials - Practical (in hours per week) : L-4/w		
Unit	Topics	No. of Lectures
I	Nature and Scope of Physical Geography, Origin of Universe, Solar System and Earth. Origin of Continents and Oceans, Isostasy, Earthquakes and Volcanoes.	16
II	Rocks, Folding, Faulting, Weathering, Erosion, Cycle of Erosion by Davis and Penck, Drainage Pattern. Fluvial, Karst	16
III	Composition and Structure of atmosphere : Insolation, Atmospheric pressure and winds. Humidity, Precipitation and rainfall types.	15

IV	<p>Ocean Bottoms, Composition of marine water temperature and salinity. Circulation of Ocean water-Waves, Currents and Tides, Ocean deposits, Corals and atolls.</p> <p>Biosphere, Biotic succession, Biome, Zoo-geographical regions of the world</p>	13
<p>Suggested Readings :</p> <p>1- Singh, Savinda (2018), Physical Geography (Eng./Hindi) Allahabad, India : Prayag Pustak.</p> <p>2- Huggett, R.J. (2007) : Fundamentals of Geomorphology, New York, U.S.A. : Routledge.</p> <p>3- Khullar. D.R. (2012). Physical Geography. New Delhi. India : Kalyani Publishers.</p> <p>4- Strahler, A.H. and Strahler, A N. (2001) : Modern Physical Geography (4/E). New York. U.S.A. : John Wiley and Sons. Inc.</p> <p>5- Thrnbury. W.D. (2004) : Principal of Geomorphology. New York, U.S.A.: Wiley.</p> <p>6- Bloom, A.L. (2003). Geomorphology : A Systematic Analysis of Late Cenozoic Landforms, New Delhi, India : Prentice - Hall of India.</p>		
<p>This course can be opted as an elective by the students of following subjects : Open for all</p>		
<p>Suggested Continuous Evaluation Methods :</p> <p>Assignment/Test/Quiz (MCQ)/Seminar/Presentations</p>		
<p>Suggested equivalent online courses :</p> <p>https://onlinecourses.swayam2.ac.in/cec21_hs03/preview</p> <p>https://onlinecourses.swayam2.ac.in/nos20_sc25/preview</p>		

BA/B.Sc. 1st Year Sem. 1

Course II

(Practical)

Programmes/Class Certificate/BA/B.Sc.	Year : First	Semester : First
Subject : Geography - Practical		
Course Code : A110102P	Course Title : Elements of Map and Surveying	
Course Learning Outcomes On completion of this course, learners will be able to : ➤ Understand the basic idea of Map, Scale and Topographic sheets.		
Credits : 2	Core Compulsory	
Max Marks : 25	Min. Passing Marks : 10	
Total No. of Lecturers - Tutorials - Practical (in hours per week) : P-2/w		
Unit	Topics	No. of Lectures
I	Cartography : Nature and Scope Scales - Concept and application; Graphical Construction of Plain, Comparative, Diagonal Scales and Vernier scale.	7
II	Map Projections : Classification, Properties and Uses; Graphical Construction of Polar Zenithal, Stereographic, Bonne's and Mercator's projections, and reference to Universal Transverse Mercator (UTM) Projection.	7
III	Topographical Map : Coverage, Scale and Topo Symbol, Interpretation of Survey of India Toposheets, Representation of landforms by Contours. Slope Analysis - Wentworth's method.	8
IV	Basics of Surveying : Surveying : meaning, classification, merits and demerits. Plane Table Surveying.	8
Suggested Reading : 1- Monkhouse, F.J. and Wilkinson, F.J. (1985): Maps and Diagrams. Methuen, London. 2- Raisz, E. (1962) : General Cartography. Hohn Wiley and Sons, New York. 5 th edition. 3- Sarkar, A.K. (1997): Practical Geography: A Systematic Approach. Orient Longman, Kolkata. 4- Sharma, J.P. (2001) : Prayogik Bhugol., Rastogi Publication, Meerut 3 rd edition. 5- Singh, R.L. and Singh, Rana P.B. (1993): Elements of Practical Geography. (Hindi and English Editions). Kalyani Pblishers, new Delhi. 6- Singh, L.R. (2006) : Fundamentals of Practical Geography, Shards Pustak Bhawan, Allahabad.		
This course can be opted as an elective by the students of following subjects : Open for all		

Note : In Final Examination Student shall be examined by external and internal examiners.

Marks Distribution : Written Exam, Viva, Practical File, Map Preparation, Topo Sheet interpretation.

BA/B.Sc. 1st Year Sem. II

Course I (Theory)

Programmes/Class Certificate/BA/B.Sc.	Year : First	Semester : Second
Subject : Geography - 100 (25 + 50 + 25)		
Course Code : A110201T	Course Title : Human Geography	
Course Learning Outcomes On completion of this course, learners will be able to : <ul style="list-style-type: none">➤ To understand the Concept, Nature, Meaning and Scope of Human Geography➤ To understand the natural and Cultural Changes in and around the Human Environs and their interrelationship.		
Credits : 4	Core Compulsory	
Max Marks : 50	Min. Passing Marks : 20	
Total No. of Lecturers - Tutorials - Practical (in hours per week) : L-4/w		
Unit	Topics	No. of Lectures
I	Concept and Nature, Meaning and Scope of Human Geography. Development of Geographical understanding in India with special reference to Puranas. man and Environment relationship - Determinism, Possibilism and Neo-determinism.	14
II	Distribution of populatino and world pattern, global migration - causes and consequences Human Settlements : Origin, types (Rural-urban) characteristics.	14
III	Primitive Economics-Food gathering, Hunting, Primitive agriculture. Cultural Regions, Race, Religion and Language.	16
IV	World Tribes : Eskimos, Kirghiz, Bushman, Pygmies. Indian Tribes : Gaddis, Tharus, Santhal, Nagas.	16
Suggested Reading : 1- Monkhouse, F.J. and Wilkinson, F.J. (1985): Maps and Diagrams. Methuen, London. 2- Raisz, E. (1962) : General Cartography. Hohn Wiley and Sons, New York. 5 th edition. 3- Sarkar, A.K. (1997): Practical Geography: A Systematic Approach. Orient Longman, Kolkata. 4- Sharma, J.P. (2001) : Prayogik Bhugol., Rastogi Publication, Meerut 3 rd edition. 5- Singh, R.L. and Singh, Rana P.B. (1993): Elements of Practical Geography. (Hindi and English Editions). Kalyani Pblishers, new Delhi. 6- Singh, L.R. (2006) : Fundamentals of Practical Geography, Shards Pustak Bhawan, Allahabad.		
Suggested Reading : 1- Chisholm, M. (1985) : Human Geography, 2 nd edition, Penguin Books, London. 2- B.N. Singh (2019) Manav Bhugol Ka Swaroop, Pravalika Publication, Allahabad. 3- De Blij. H.J. (1996) : Human Geography : Culture, society and Space. 2 nd edition John		

Wiley and Sons. New York.

4- Haggett. P. (2004) : Geography : A Modern Synthesis. 8th edition, Harper and Row, New York.

5- Hussain, M. (1994) : Human Geography, Rawat Publications, Jaipur.

6. B N Singh (2021) manav evam Arthik Bhugol, Pravalika Publication, Allahabad.

7- Kaushik, S.D. and Sharma, A.K. (1996) : Principles of Human Geography (in Hindi), Rastogi Publication, Meerut.

8- Norton. W. (2008) : Human Geography, Oxford University Press, new York, 5th ed.

9. Singh, K.N. and Singh, J. (2001) : Manav Bhugol, Gyanodaya Prakashan, Gorakhpur. 2nd edition.

10. Singh, L.R. (2005) : Fundamentals of Human Geography, Sharda Pustak Bhawan, Allahabad.

11. Smith, D. M. (1977) : Human Geography - A Welfare Approach, Edward Arnold (Publishers) Ltd., London.

12. Stoddard, R.H., Wishart, D.J. and Blouet, B.W. (1986): Human Geography. Prentice-Hall, Englewood Cliffs, New Jersey.

13. B N Singh (2020) Samajik uar Sanskritik Bhugol, Pravalika Publication, Allahabad

14. Johnston, R. J., Gregory, D., Pratt, G and Watts, M. (2009) : The Dictionary of Human Geography. 5th edition, Basil Blackwell Publishers, Oxford.

15- Ali, S. Muzafer (1966). Geography of the Puranas. New Delhi, People's Pub. House.

Suggested Continuous Evaluation Methods :

Assignment/Test/Quiz (MCQ)/Seminar/Presentations.

Course prerequisites : 12th Standard Pass/Open to all

Suggested equivalent online courses:

Courses on Swayam/MOOCs

https://onlinecourses.swayam2.ac.in/nou20_hs18/preview

BA/B.Sc. 1st Year Sem. II

Course I

(Practical)

Programmes/Class Certificate/BA/B.Sc.	Year : First	Semester : Second
Subject : Geography - Practical		
Course Code : A110202P	Course Title : Thematic Mapping and Surveying	
Course Learning Outcomes On completion of this course, learners will be able to : <ul style="list-style-type: none">➤ To understand the Concept, Nature, Meaning and Scope of Human Geography➤ To understand the natural and Cultural Changes in and around the Human Environs and their interrelationship.		
Credits : 2	Core Compulsory	
Max Marks : 25	Min. Passing Marks : 10	
Total No. of Lecturers - Tutorials - Practical (in hours per week) : P-2/w		
Unit	Topics	No. of Lectures
I	Maps- Classification and Types, Principles of Map Design. Diagrammatic Data Presentation - Line, bar and Circle	7
II	Thematic Mapping Techniques - Properties, Uses and Limitation; Areal Data - Choropleth, Dot, Proportional Circles; Point Data - Isopleths.	7
III	Cartographic Overlays - Point, Line and Areal Data, Thematic Maps - Preparation and Interpretation.	8
IV	Instrumental Survey : Prismatic Compass	8
Suggested Reading : 1- Monkhouse, F.J. and Wilkinson, F.J. (1985): Maps and Diagrams. Methuen, London. 2- Raisz, E. (1962) : General Cartography. Hohn Wiley and Sons, New York. 5 th edition. 3- Sharma, J.P. (2001) : Prayogik Bhugol., Rastogi Publication, Meerut 3 rd edition. 4- Singh, R.L. and Singh, Rana P.B. (1993): Elements of Practical Geography. (Hindi and English Editions). Kalyani Pblishers, new Delhi. 5- Singh, L.R. (2006) : Fundamentals of Practical Geography, Shards Pustak Bhawan, Allahabad. 6- Sharma J.P. (2008) : Prayogatmak Bhugol Ki Rooprekha, Rastogi Publication Meerut.		
Note : In Final Examination Student shall be examined by external and internal examiners. Marks Distribution : Written Exam, Viva, Practival File, Map Prepration.		

BA/B.Sc. 2nd Year Sem. III

Course I

(Theory)

Programmes/Class Certificate/BA/B.Sc.	Year : Second	Semester : Third
Subject : Geography - 100 (25+50+25)		
Course Code : A110301T	Course Title : Environment, Disaster Management and Climate Change	
Course outcomes : Students will be able to understand. <ul style="list-style-type: none">➤ The course aim is to give basic understanding of concept Environment, Climate Change and Disaster Management.➤ Understanding of the concept of appraisal and conservation of Environment and Natural Resources.➤ It will help in developing understanding about various Impacts of Climate Change.➤ This course shall introduce the basic concepts related to disaster Management.➤ This paper shall help in understanding Global effort in field of disaster Management.		
Credits : 4	Core Compulsory	
Max Marks : 50	Min. Passing Marks : 20	
Total No. of Lecturers - Tutorials - Practical (in hours per week) : L-4/w		
Unit	Topics	No. of Lectures
I	Concepts & components of environment, Ecology and ecosystem. Indian traditional knowledge in Environment and disaster manangement. Bio-diversity and its conservation, sustainable development.	16
II	Deforestation, soil erosion, Desertification, Air pollution, water pollution Disposal of solid waste. Tehri dam & Narmada Valley project	16
III	Science of climate change : Understanding Climate Change; Green House Gases sna Global Warming. National Action Plan on Climate Change	15
IV	Disasters, Hazads, Type of Disasters, Disaster Management. Flood, Drought, Cyclone, Earthquake, Tsunami, Landslide, Chemical and Nuclear Disasters.	13
Suggested Readings : <ol style="list-style-type: none">1- Casper J.K. (2010), Changing Ecosystems : Effecs of Global Warming. New York USA : Infobase Pub.2- Hudson, T. (2011). Living with Earth: An Introduction to Environmental Geology, Delhi, India : PHI Learning Private Limited.3- Miller, G.T. (2007). Living in the Environment : Principal, Connections, and Solutions. Belmont, Australia : Brooks/Cole Cengage Learning.4- Singh, R.B. (1993) Environmental Geography. Delhi, India : Heritage Publishers.5- UNEP. (2007). Global Environment Outlook : GEO4 : Environment for Development, United Nations Environment Programme. UK : University Press, Cambridge.6- Government of India. (2011). Diaster Management in India. Delhi, India : Ministry of		

Home Affairs.

- 7- Singh, Savendra (2019) Pryavaran Bhugol, Pravalika Publication, Allahabad.
- 8- Kapur, A. (2010). Vulnerable India. A Geographical Study of Disasters. Delhi, India
- 9- Singh, Savendra (2019) Apada Prabandhan, Pravalika Publication, Allahabad.
- 10- Ramkumar, M. (2009). Geological Hazards : Causes, Consequences and Methods of Continent, New Delhi, India : New India Publishing Agency.
- 11- Climate Change : Understanding Climate Change : Green House Gases and Global Warming : Global Climatic Assessment - IPCC
- 12- Climate Change and Vulnerability : Physical Vulnerability : Economic Vulnerability; Social Vulnerability.
- 13- Impact of Climate Change : Agriculture and Water; Flora and Fauna; Human Health.
- 14- Adaptation and Mitigation : Global Initiatives with Particular Reference to South Asia.
- 15- The Climate Change Policy Framework : Global Initiatives UNFCCC and COPs; national and Local Action Plan on Climate Change.
- 16- Government of India. (2008). Vulnerability Atlas of India. New Delhi, India : Building Materials & Technology Promotion Council, Ministry of Urban Development, Government of India.
- 17- Modh, S. (2010). Managing Natural Disaster : Hydrological, marine and Geological Disasters: Delhi, India: Macmillan.
- 18- Bansal SC. (2020) Jalvayu Vigyan Evam Samudra Vigyan, Meenakshi Publication, Meerut.
- 19- Bansal SC, (2019) Prayavarn ek adhyan, meenakshi Publication, Meerut.

This course can be opted as an elective by the students of following subjects : Open for all

Suggested Continuous Evaluation Methods :

Assignment/test/Quiz (MCQ)/Seminar/Presentations

Suggested equivalent online courses:

https://onlinecourses.swayam2.ac.in/aic19_ge05/preview

https://onlinecourses.swayam2.ac.in/nou21_bt03/preview

BA/B.Sc. 2nd Year Sem. III

Course II

(Practical)

Programmes/Class Certificate/BA/B.Sc.	Year : Second	Semester : Third
Subject : Geography - Practical		
Course Code : A110302P	Course Title : Statistical Techniques and Surveying	
Course outcomes : Students will be able to understand. <ul style="list-style-type: none">➤ To differentiate between qualitative and quantitative information.➤ To understand the nature of various data.➤ To understand sampling methods for data collection.➤ To present data through graphical and diagrammatic formats.➤ To use the concept of probability mainly the normal distribution.		
Credits : 2	Core Compulsory	
Max Marks : 25	Min. Passing Marks : 10	
Total No. of Lecturers - Tutorials - Practical (in hours per week) : P-2//w		
Unit	Topics	No. of Lectures
I	Use of Data in Geography : Significance of Statistical Methods in Geography; Sources of Data, Scales of Measurement (Nominal, Ordinal, Interval, Ratio)	8
II	Tabulation and Descriptive Statistics: Frequency Distribution Table, Cross Tabulation, Graphical Presentation of Data (bar diagram, Histograms, Frequency Curve and Cumulative Frequency Curves), Measurement of Central Tendencies (Mean, Median and Mode), Measurement of Partitions (Deciles, Quartiles and Percentiles), Dispersion (Standard Deviation, Variance and Coefficient of Variation).	8
III	Sampling : Probability sampling Non-probability sampling. Correlation : Rank Correlation and Product Moment Correlation	7
IV	Instrumental Sruvey : Sextant	7
Suggested Readings : <ol style="list-style-type: none">1- Berry B.J. L. and Marble D.F. (eds.): Spatial Analysis - A Reader in Geography.2- Ebdon D., 1977 : Statistics in Geography : A Practical Approach.3- Davis, R.E. and Foote, F.S. (1953) : Surveying, 4th edition. McGraw Hill Publication, New York.4- Sharma. J.P. (2001) Prayogik Bhugol, Rastogi Publication, Meerut.5- Hammond P. and McCullagh P.S., '1978' : Quantitative Techniques in Geography : An Introduction, Oxford University Press.6- Sharma. PM, (2009) Bhugol Me sankhkiya Vidhyan, Rajasthan Granth Accademy, Jaipur.7- Bansal SC, (2020) Shodh Vidhitantra va sankhikiya Vishyan, RK Books Publication, New Delhi.8- King L.S., 1969 : Statistical Analysis in Geography, Prentice-Hall.9- Mahmmod A., 1977 : Statistical Methods in Geographical Studies, Concept.10- Pal S.K., 1998 : Statistics for Geoscientists, Tata McGraw Hill, New Delhi.		

- 11- Sarkar, A. (2013) Quantitative geography : techniques and presentations. Orient Black Swan Private Ltd., New Delhi.
- 12- Silk J., 1979 : Statistical Concepts in Geography, Allen and Unwin, Landon.
- 13- Spiegel M.R. : Statistics, Schaum's Outline Series.
- 14- Yeats M., 1974 : An Introduction to Quantitative Analysis in Human Geograpy, McGraw Hill, New York.

This course can be opted as an elective by the students of following subjects : Open for all

Note : In Final Examination Student shall be examined by external and internal examiners.
Marks Distribution : Written Exam, Viva, Practical File, Instrumental Surveys.



BA/B.Sc. 2nd Year Sem. IV

Course I (Theory)

Programmes/Class Certificate/BA/B.Sc.	Year : Second	Semester : Fourth
Subject : Geography - 100 (25+50+25)		
Course Code : A110401T	Course Title : Economic Geography	
Course Learning Outcomes On completion of this course, learners will be able to: <ul style="list-style-type: none">➤ Define Meaning, concepts and approaches of Economic Geography.➤ Understand the nature of Economic activities, Resource Distribution➤ Understand the Effect of globalization on developing countries.		
Credits : 4	Core Compulsory	
Max Marks : 50	Min. Passing Marks : 20	
Total No. of Lecturers - Tutorials - Practical (in hours per week) : L-4/w		
Unit	Topics	No. of Lectures
I	Meaning, concepts and approaches of Economic Geography : Resource : meaning, concept and classification.	16
II	Economic organization of space, Forestry, fishing and mining activities. Agricultural typologies, agricultural land use model (J.H. Von Thunen)	14
III	Types of industries ; Factors of location on industries; iron and steel industry, cotton textiles and sugar; Theory of industrial location (Alfred Weber) World transportation : Sea routes and major transcontinental railways.	16
IV	WTO and International trade : patterns and trends Effect of globalization on developing countries	14
Suggested Readings : <ol style="list-style-type: none">1- B N Singh (2021) Manav Evam Arthik Bhugol, Pravalika Publication, Allahabad.2- Bryson, J., Henry, N., Keeble, D. and Martin, R (eds.) (1999): The Economic Geography Reader : Producing and Consuming Global Capitalism. John Wiley and Sons, Inc, New York.3- Clark, G.L. Gertler, M.S. and Feldman, M.P. (eds.) (2000) : The Oxford Handbook of Economic Geography. Oxford University Press, USA.4- Coe, N. (2007) : Economic Geography A contemporary Introduction. Black well Publishers, Inc., Massachusetts.5- Gautam A. (2006) : Aarthik Bhugol Ke Mool Tattava, Sharda Pustak Bhawan, Allahabad.6- Guha, J.S. and Chatteraj, P.R. (2002) : A New Approach to Economic Geography : A Study of Resources. The World Press Private Limited, Kolkata.7- Hanink, D.M. (1997) : Principles and Applications of Economic Geography : Economy, Policy. Environment. John Wiley and Sons, Inc, New York.8- Hartshorne, T.A. and Alexander, J.W. (1988) : Economic Geography (3rd revised edition)		

Englewood Cliff, New Jersey, Prentice Hall.

9- Hudson, R. (2005) : Economic Geographies : Circuits, Flows and Spaces. Sage Publications, London.

10- Knowles, R, Wareing. J. (2000) : Economic and Social Geography made Simple, Rupa and Compnay, New Delhi.

11- Sokal, Martin 2011. Economic Geographics of Globalisation : A short Introduction. Cheltenham, UK : Edward Elgar.

12- Alexander, J.W. (1988) : Economic Geography. Prentice-Hall, New Delhi.

Suggested Continuous Evaluation Methods :

Assignment/test/Quiz (MCQ)/Seminar/Presentations

Suggested equivalent online courses :

Courses on Swayam/MOOCs

https://onlinecourses.nptel.ac.in/noc21_hs50/preview



BA/B.Sc. 2nd Year Sem. IV

Course II

(Practical)

Programmes/Class Certificate/BA/B.Sc.	Year : Second	Semester : Fourth
Subject : Geography - Practical		
Course Code : A110402P	Course Title : Weather Maps, Geological Maps and Surveying	
Course Learning Outcomes On completion of this course, learners will be able to: ➤ Identify the various Survey Operations and Survey Instruments ➤ To understand the idea of Basic and applied Instrumental surveying		
Credits : 2	Core Compulsory	
Max Marks : 25	Min. Passing Marks : 10	
Total No. of Lecturers - Tutorials - Practical (in hours per week) : P-2/w		
Unit	Topics	No. of Lectures
I	Weather Maps, Study and Interpretation of Weather Map, Weather Forecasting.	7
II	Geological Maps : Types, Signs, Bed and Bedding plane, Rock Outcrops, Dip, Strike etc. Construction of Geological Sections.	7
III	Instrumental Survey : Indian Clinometer	8
IV	Instrumental Survey : Theodolite	8
Suggested Readings : 1- Sharma, JP (2001) Prayogik Bhugol, Rastogi Publication, Meerut 2- Jones, P.A. (1968) : Fieldwork in Geography, Longmans, Green and Company Ltd., First Publication, London. 3- Kanetker, T.P. and Kulkarni, S.V. (1967) : Surveying and Levelling, Vol I and II V.G. Prakashan. Poona. 4- Natrajan, V. (1976) : Advanced Surveying, B.I. Publications., Mumbai. 5- Pungh, J.C. (1975) : Surveying for Field Scientists, Methuen and Company Ltd., London, First Publication. 6- Punmia, B.C. (1994) : Surveying, Vol I, Laxmi Publications Private Ltd, New Delhi. 7- Shephard, F.A. (1968) : Surveying Problems and Solutions, Edward Arnold (Publishers) Ltd. London. 8- Singh, R.L. and Singh, Rana P.B. (1993) : Elements of Practical Geography. (Hindi and English editins), Kalyani Publishers, Ludhiana and New Delhi. 9- Venkatramaiah. C. (1997) : A Text Book of Surveying, Universities Press, Hyderabad. 10- Davis, R.E. and Foote, F.S. (1953) : Surveying, 4 th edition. McGraw Hill Publication, New York.		
Note : In final Examination Student shall be examined by external and internal examiners. marks Distribution : Written Exam, Viva, Practical File. Instrumental Surveys.		

BA/B.Sc. 3rd Year Sem. V

Course I (Theory)

Programmes/Class Certificate/BA/B.Sc.	Year : Third	Semester : Fifth
Subject : Geography -		
Course Code : A110501T	Course Title : Regional Geography	
On completion of this course, learners will be able to: <ul style="list-style-type: none">➤ To understand the concept of Region and Regional Planning.➤ To familiarize the students with Theories and Models for Regional Planning.➤ To develop understanding about concept of Development, Sustainable Development and Multi level planning.		
Credits : 4	Core Compulsory	
Max Marks : 75	Min. Passing Marks : 30	
Total No. of Lecturers - Tutorials - Practical (in hours per week) : L-4/w		
Unit	Topics	No. of Lectures
I	Definition of Region, Evolution and objectives of regional planning. Planning practices in Ancient India. Types of Regional planning, Formal, Functional and planning regions.	16
II	Delimitations of Region and Regional Planning. Theories and Models for Regional Planning : Growth Pole Model of Perroux ; Myrdal, Hirschman, Rostow and Friedmann.	16
III	Sustainable Development, Concept of Development and Underdevelopment. Efficiency-Equity Debate : Definition, Components and Sustainability for Development.	15
IV	Indicators (Economic, Social and Environmental) Need for regional planning in India. Five Year Plans and Regional Planning, Multi-level planning in India.	13
Suggested Readings : <ol style="list-style-type: none">1- Agyeman, Julian, Robert, D. Bullard and Bob, Evans. (Eds.) (2003). Just Sustainabilities : Development in an Unequal World. London : Earthscan. (Introduction and conclusion).2- Anand, Subhash., (2011) Ecodevelopment : Glocal Perspectives. New Delhi, India : Research India Press.3- Misra, R.P. Sundaram. K.V. and Rao, V.L.S. (1974). Regional Development planning in India. Delhi, India : Vikas Publishing House.4- Singh, MB () Pradesnik Vikas Niyogan, Tara Book Agency, Varanasi.5- Peet. R. (1999) . Theories of Development. New York, USA : The Guilford Press.6- Berry, B.J.L. and Horton. F.F. (1970) : Geographic Perspectives on Urban Systems. Prentice Hall, New Jersey.7- Bhat L.S. (1972) : Regional Planning In India, Statistical Publishing Society.8- Blij H.J. De, 1971 : Geography : Regions and Concepts, John Wiley and Sons.9- Kulshetra, S.K. (2012) : Urban and Regional Planning in India : A hand book for		

Professional Practitioners, Sage Publication, New Delhi.

10- Kundu, A. (1992) : Urban Development Urban Research in India, Khanna Publ. New Delhi.

11- Misra, R.P. Sundaram K.V. Prakash Rao, VLS (1974) : Regional Development Planning in India, VikashPublication, New Delhi.

12- Misra, R.P. (1992) : Regional Planning : Concepts, techniques, Policies and Case Studies, Concept, New Delhi.

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

This course can be opted as an elective by the students of following subjects : Open for all

Suggested Continuous Evaluation Methods :

Assignemtn/test/Quiz (MCQ)/Seminar/Presentations

Suggested equivalent online courses :

https://onlinecourses.swayam2.ac.in/aic19_ge05/preview.

BA/B.Sc. 3rd Year Sem. V

Course II

(Theory)

Programmes/Class Certificate/BA/B.Sc.	Year : Third	Semester : Fifth
Subject : Geography - Practical		
Course Code : A110501T	Course Title : Basics of Remote Sensing and GIS	
On completion of this course, learners will be able to: <ul style="list-style-type: none">➤ To understand the concept of Region and Regional Planning.➤ To familiarize the students with Theories and Models for Regional Planning.➤ To develop understanding about concept of Development, Sustainable Development and Multi level planning.		
Credits : 2	Core Compulsory	
Max Marks : 50	Min. Passing Marks : 20	
Total No. of Lecturers - Tutorials - Practical (in hours per week) : L-4/w		
Unit	Topics	No. of Lectures
I	Remote Sensing : Definition, Type, Scope and Historical Development. Types of Satellites.	14
	Electro-magnetic radiation : Characteristics, Spectral regions and bands, Stages or Process of Remote Sensing.	
II	Remote sensing satellites : Platform and sensors. Resolution : Spatial, Spectral, Temporal, Radiometric Resolution.	16
	Remote Sensing data processing and applications : Visual and digital image processing techniques.	
III	Remote sensing applications in Urban Planning, Agriculture, Forestry, Land use/Land cover Mapping, Oceanic Studies and Disaster management.	14
	Introductin to GIS : Definition, concept and history of GIS.	
IV	Computer fundamentals for GIS, GIS Packages like ARC GIS, ERDAS, QGI etc.	16

	Coordinate system, Datum, Raster and vector data.	
Suggested Readings : 1-Choniyal, D D, (2016) Sudur Samvaden Evam Bhogolic Suchna Pranali Ke Sighant, Sharda Pustak Bhavan, Allahabad. 2- Lillesand, T.M. and Kiefer, R.W. (2000) : Remote Sensing and Image Interpretation 4 th edition. John Wiley and Sons. New York 3- Campbell, J.B. (2002) : Introduction to Remote Sensing. 5 th edition, Taylor and Francis, London. 4- Bhatta, b. (2010) : Remote Sensing and GIS, Oxford University Press, New Delhi. 5- Nag Prithvish and Kudrat M. (1998) : Digital Remote Sensing, Concept Publishing Company, new Delhi. 6- Curran, P.J. (1985) : Principles of Remote Sensing, Longman, London.		
Suggested Continuous Evaluation Methods. Assignment/test/Quiz (MCQ)/Seminar/Presenatations.		
Suggested equivalent online courses : Courses on Swayam/MOOCs https://onlinecourses.swayam2.ac.in/aic20_ge05/preview .		



BA/B.Sc. 3rd Year Sem. V

Course III

(Practical)

Programmes/Class Certificate/BA/B.Sc.	Year : Third	Semester : Fifth
Subject : Geography - Practical		
Course Code : A110503R	Course Title : Tour and Tour Report	
On completion of this course, learners will be able to: <ul style="list-style-type: none">➤ The Variatin among geographical locations.➤ Interaction with people with different natural and cultural settings.➤ Study physical and human geography of area being visited.➤ Learn to prepare tour report.		
Credits : 2	Core Compulsory	
Max Marks : 50	Min. Passing Marks : 20	
Total No. of Lecturers - Tutorials - Practical (in hours per week) : P-2/w		
Unit	Topics	No. of Lectures
I	Hot to prepareField Book steps and methods for preparing Tour report, Methodology for Research in Field Trip, Various aspects of study in Field Trip, Preparation of Surveying in Field Trip. (30 lectures shall be taken before and during field trip)	30
Suggested Readings :		
This course can be opted as an elective by the students of following subjects : Open for all		
Suggested Continuous Evaluation Methods :		
The following shall be the guidelines and structure of educational tour:		
Geographical Excursion Committee		
1- All faculty members shall organize geographical excursion as 'tour in-charge' in rotation according to departmental seniority list.		
2- There shall be Geographical Excursion Committee headed by HOD in University and Principal in colleges. Tour in-charge shall act as convener of committee and shall convene a meeting at the beginning of session or semester. All other teachers of department shall be member of committee. Four/Five meritorious students based on last available examination result shall be invited by the tour in-charge to participate in meeting as members of committee.		
3- Committee Shall :		
a) Review the tour plan.		

- b) Confirm that all arrangements shall be made in advance before tour departure.
- c) Listen to the opinion of students and give recommendations to tour in-charge accordingly.
- d) Review academic nature of tour and evaluate day wise tour plan and academic activity as submitted by Tour in-charge.

Structure of the tour party

1. For 20 or less than 20 students one faculty member with one non teaching staff shall accompany the Tour party. For 21 to 50 students two faculty members with one non teaching staff shall accompany the Tour party. If two faculty members with one non teaching staff shall accompany the Tour party. If two faculty members are required for tour, second faculty member shall be selected on the recommendation of tour in-charge. If students are more than 50 then a separate tour batch shall be constituted in same manner.
2. If female students are also participating in tour and tour in-charge, accompany other faculty member or Non teaching staff none are female then one female attended (Female faculty member from Geography or any other departments/female non teaching staff) shall accompany with tour party.

Responsibility of tour in-charge

1. Tour shall at least of 6 days stay at location with nter region variation.
2. Tour in-charge shall submit tentative day wise activity report in advance to HOD in University and Principal in colleges.
3. Tour in-charge shall coordinate with Institutes./Colleges/Universities/Research institutes etc in location where tour is being planned for following activities like;
 - a) Interaction of students
 - b) Lectures on various local physical and cultural attributes of the area by the experts.
 - c) Local visit with faculty members having academic understanding of the area.
4. Lectures by tour in-charge on physical and human characteristics of area being visited for educational tour.
5. Survey with students with at least one nstrument like Dumpy level, Sextant, Theodolite, GPS etc.
6. Questionnaire survey on various socio-cultural or any other aspects. Questionnaire must be prepared in advance and shall be shared during Geographical Excursion Committee meeting.
7. Tour in-charge shall collect undertaking from all students which shall be counter signed by their guardian.
8. Tour in-charge will prepare list of students accompanying the tour with their information like mobile number, address, guardian contact information and one recent color photo. One copy will also be submitted to the head in universities and Principal in colleges.
9. Teacher shall always try to minimize tour expenditure of students by;
 - a) Using concession train reservation and avoiding buses if possible.
 - b) Making stay arrangements of students in advance in youth hostels/lodges/guest house etc.

c) Try to visit few important locations only with objective of spot study and avoiding unnecessary travel for sightseeing.

10. After the completion of tour there shall be presentation by students regarding learning outcomes and experiences under the supervision of tour in-charge. Presentation shall be attended by Geographical Excursion Committee members along with other faculty members, staff, students etc

11. All students shall submit tour report under supervision of Tour in-charge for evaluation. Tour report shall portray all activities conducted and places visited for the purposes of study.

12. In case of any incident/injury where one or more than one student can't join tour party in returnb journey. One teaching/non teaching staff membr shall stay with student until student's guardian arrives or alterntive arrangement is not made by the college. In case tour in-charge stays the other teacher/staff member shall act as tour in-charge for remaining tour period according to seniority.

Exemption of Students from Tour

1. Tour can be exempted n very special circumstances on recommendation of tour in-charge and head (in University) or Principal (in Colleges). Exempted students will prepare local tour report based on his/her own local tour visits. Report shall be prepared under supervision of tour in-charge.

TA, DA and other expenses

1. The TA, DA and other expenses of teachers and attendants shall be met out by college as admissible to their cadre as per government rules.

Suggested equivalent online courses.

BA/B.Sc. 3rd Year Sem. V

Course III

(Practical)

Programmes/Class Certificate/BA/B.Sc.	Year : Third	Semester : Fifth
Subject : Geography - Practical		
Course Code : A110504R	Course Title : Project Report-1	
Course outcome : Students will be able to understand <ul style="list-style-type: none">➤ In depth knowledge or research methodology.➤ Learn to prepare Project Report.		
Credits : 2	Core Compulsory	
Max Marks : 50	Min. Passing Marks : 20	
Total No. of Lecturers - Tutorials - Practical (in hours per week) : P-2/w		
Unit	Topics	No. of Lectures
I	Meaning , types and significance of Research, Literature review and formulation of research design, research problem, objectives, hypothesis, Research materials and methods, sampling etc. Techniques of writing scientific reports : Preparing notes, references, bibliography, abstract and keywords etc. 1. Each faculty member shall teach these topics of research to his/her Group of students independently. 2. Student shall choose supervisor according to his/her research interest and specialisation of Faculty member.	30
Suggested Readings :		
This course can be opted as an elective by the students of following subjects : Open for all		
Suggested Continuous Evaluation Methods :		
Seminar, Presentationns, VIVA		
Suggest equivalent online courses		

BA/B.Sc. 3rd Year Sem. VI**Course I****(Theory)**

Programmes/Class Certificate/BA/B.Sc.	Year : Third	Semester : Sixth
Subject : Geography - 25+50		
Course Code : A110601T	Course Title : Ceography of India	
Course outcome : Students will be able to understand <ul style="list-style-type: none">➤ Understand the importance of "Ek Bharat Shreshtha Bharat"➤ Understand the wider aspects of Geography of India.		
Credits : 4	Core Compulsory	
Max Marks : 50	Min. Passing Marks : 30	
Total No. of Lecturers - Tutorials - Practical (in hours per week) : L-4/w		
Unit	Topics	No. of Lectures
I	Space relatnshp of India with neighbouring coutries : Structure and relief; Drainage system and watersheds; Physiographic regions; Ex Bharat Shrestha Bharat: A Geographical Prospective. Mechanism of Indian monsoons and rainfall patterns, Tropical cyclones, and western disturbance; Floods and droughts; Climatic egiions; Natural vegetation; Soil types and their distributions.	16
II	Resources : Land, surface and grundwater, energy, minerals, biotic and marine resources; Forest and wildlife resources and their conservation; Energy crisis. Industry : Evolutio of industries; Locational factors of industries; Industrial houses and complexes including public sector undertakings; Industrial regionalization; New industrial policies; Special Economic Zones; Tourism including eco-tourism.	14
III	Cultural Setting: Historical Perspective of Indian Society; Racial, lingustic and ethnic diversities; religious minoriities; major tribes, tribal areas, and their problems; cultural regions. Population: Growth, distribution, and density of populatin; Demographic attributes: Sex-ratio, age structure, literacy rate, work-force, dependency ratio, longevity; migration (inter-regional, intraregional and international) and associated problems; Population problems and policies; Health indicators.	16

IV	<p>Agriculture, Infrastructure: Irrigation, seeds, fertilizers power; Institutional factors: landholdings, land tenure and land reforms; Cropping pattern, agricultural productivity, agricultural intensity, crop combination, land capability; agro and social-forestry; Green revolution and its socio-economic and ecological implications.</p> <p>Settlements : Types, patterns, and morphology of rural settlements; Urban developments; Morphology of Indian cities; Functional classification of Indian cities; Conurbations and metropolitan regions; urban sprawl; Slums and associated problems; town planning; Problems of urbanization and remedies.</p>	14
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Suggested Readings :

1. Chauhan, P.R. and Prasad, M. (2003): Bharat Ka Vrihad Bhugol, Vasundhara Prakashan, Gorakhpur.
2. Farmer, B.H. (1983): An Introduction to South Asia. Methuerr, London
- 3- Gautam, A (2006): Advanced Geography of India, Sharda Pustak Bhawan, Allahabd.
4. Johnson, B.L.C. (1963) : Development in South Asia. Penguin Books, Harmondsworth
5. Krishnan, M.S. (1982): Geology of India and Burma, CAS Publishers and Distributors, Delhi.
6. Bansal SC, (2018) Bharat Ka Bhugol, Meenakshi Publication, New Delhi, Meert.
7. Nag, P. and Gupta, S.S. (1982) : Geography of India, Concept Publishing Company, New Delhi.
8. Rao, B.P. (2007): Bharat kee Bhaugolik Sameeksha, Vasundhara Prakashan Gorakhpur.
9. Sharma T.C. and Coutinho, O. (2003) : Economic and Commercial Geography of India, Vikas Publishing House Private Ltd. New Delhi.
10. Singh, J. (2003) : India : A Comprehensive Systematic Geography. Gyanodaya Prakashan, Gorakhpur.
11. Singh, J. (2001) : Bharat : Bhougolik Aadhar Avam Ayam, Gyanodaya Pakashan Gorakhpur. (Hindi)
12. Singh, R.L. (ed.) (1971) : India : A Regional Geography. National Geographical Society of India, Varanasi.
13. Spate, O.H.K., Learmonth A. T.A. and Farmer, B.H. (1996) : India, Pakistan and Sri Lanka, Methuen, London, 7th edition.
14. Sukhwai, B.L. (1987) : India : Economic Resource Base and Contemporary Political Patterns. Sterling Publication, New Delhi.
15. Tiwari, R.C. (2007) : Geography of India, Prayag Pustak Bhawan, Allahabad.
16. Wadia, D.N. (1959) : Geology of India. Mac-Millan and Company, London and student edition, Madras.
17. Khullar, D.R. (2007): India : A Comprehensive Geography, Kalyani Publishers, New Delhi.

Suggested Continuous Evaluation Methods :

Assignment/test/Quiz (MCQ)/Seminar/Presentations

Suggested equivalent online courses : Courses on Swayam/MOOCs

https://onlinecourses.swayam2.ac.in/nou20_ag10/preview

BA/B.Sc. 3rd Year Sem. VI

Course II (Theory)

Programmes/Class Certificate/BA/B.Sc.	Year : Third	Semester : Sixth
Subject : Geography - 25+50		
Course Code : A10602T	Course Title : Evolution of Geographical Thought	
Course Learning Outcomes On completion of this course, learners will be able to : <ul style="list-style-type: none">➤ Understand the contribution of Indian and other renowned Geographers➤ Understand the concept of evolution of Geographical Thought.		
Credits : 4	Core Compulsory	
Max Marks : 50	Min. Passing Marks : 20	
Total No. of Lecturers - Tutorials - Practical (in hours per week) : L-4/w		
Unit	Topics	No. of Lectures
I	Contribution of Indian Geographers in Ancient India. Early Origins of Geographical Thinking, Concepts of distributions; relationships, interactions, area differentiation and spatial organization in Geography	14
II	Dualisms in geography; systematic & Regional geography, physical & human geography, Systematic and with regional geography. The myth and reality about dualisms. Contribution of Greek & Roman geographers in ancient world.	15
III	Contribution of Arab geographers in Middle ages, Renaissance period in Europe, Renowned travelers and their geographical discoveries. German school of thought - Kant, Humboldt, Ritter, Richthofen, Ratzel, Hettner French School of thought - Contribution of Blache & Brunhes.	16
IV	Soviet geographers, American school - Contribution of Sample, Huntington & Carl Sauer, British school - Contribution of Mackinder, Herbertson & L.D. Stamp. Paradigms in Geography, Thomas Kuhn theory about the growth and development of science. Application of Kuhn Model in Geography.	15
Suggested Readings : <ol style="list-style-type: none">1. Ali, S.M. (1960) : Arab Geography, Institute of Islamic Studies, Aligarh Muslim University, Aligarh, First Edition.2- Daniel, P., Bradshaw, M., Shaw, D. and Sidaway, J. (2000): Human Geography. Issues for the 21st Century Prentice Hall, London.3. Diddee, J. (ed.) (1990) : Indian Geography, Institute of Indian Geographers, Pune, first		

edition.

4. Dikshit, R.D. (2003) : Geographical Thought. A Critical History of Ideas, Prentice-all of India, New Delhi. ((in English and Hindi).
5. Dube. B. (1967) : Geographical Concepts in Ancient India. National Geographical Society of India, Varanasi.
6. Getice, A., Getis, J. and Fellman, J.D. (2007): Introduction to Geography, 10th edition. McGraw Hill, New York.
7. hartshorne, R. (1959) : Perspective on the Nature of Geography, John Murray, London.
8. Harvey, D. (1969) : Explanations in Geography. Arnold, London.
9. Holt-Jensen, A. (1980) : Geography : Its History and Concepts, harper and Row Publishers, London.
10. Husain, Majid, (2002) : Evolution of Geographical Thought, Rawat Publications, Jaipur.
11. Johnston, R., Gregory, D., Pratt, G., Watts, M. and Whatmore, S. (2003) : The Dictionary of Human Geography. Blackwell Publishers, Oxfor, 5th edition.
12. Johnston, R. and Sidaway, J.D. (2004) : Geography and Geographers : Anglo-American Human Geography Since 1945, Arnold Publishers, London.
13. Rawling, E. and Daugherty, R. (eds.) (2005) : Geography into the Twenty-first Century. 2nd edition. John Wiley and Sons, Chichester.
14. Taylor, G (ed.) (1953): Geography in the Twentieth Century. Methuen and Company, London.

Suggested Continuous Evaluation Methods :

Assignment/test/Quiz (MCQ)/Seminar/Parepresentations

Suggested equivalent online courses :

Courses on Swayam/MOOCs

https://onlinecourses.swayam2.ac.in/nou21_lg06/preview

BA/B.Sc. 3rd Year Sem. VI

Course III (Practical)

Programmes/Class Certificate/BA/B.Sc.	Year : Third	Semester : Sixth
Subject : Geography - Practical		
Course Code : A110603P	Course Title : Remote Sensing and GIS	
Course Learning Outcomes On completion of this course, learners will be able to : <ul style="list-style-type: none">➤ Understand and Conceptualize Remote Sensing and GIS Technique➤ Understand the use of various image processing Software➤ basic idea of Geographical Information System.		
Credits : 2	Core Compulsory	
Max Marks : 50	Min. Passing Marks : 20	
Total No. of Lecturers - Tutorials - Practical (in hours per week) : P-2/w		
Unit	Topics	No. of Lectures
I	Overview of image processing & GIS Packages (Including open source software's)- ARC GIS, ERDAS, MAP INFO, ILWIS, GEOMEDIA, IDRISI, GRASS, SAGA, QGIS	5
II	Creation of Shape File in GIS Software's. Coordinate system and projections in GIS Software's. GIS Data Structures : Types (spatial and Non-spatial), Raster and Vector Data Structure.	5
III	Geo-Referencing of Maps. Creation of Point, Line and Polygon Files and features. Preparation of Maps with Legend, Scale, North Arrow etc and Export of Map in various Formats.	10
IV	Downloading of Remote sensing Images from various online platforms (like Bhuvan, USGS, ASF, Copernicus etc). Land use Classification (Supervised and Un-supervised) using downloaded images and GIS Packages.	10
Suggested Readings : <ol style="list-style-type: none">1. Curran, P.J. (1985) : Principles of Remote Sensing, Longman, London.2. Chaunial, D. D. (2004) : Remote Sensing and Geographical Information System (in Hindi), Sharda Pustak Bhawan, Allahabad.3. Cracknell, A. and Ladson, H. (1990): Remote Sensing Year Book. Taylor and Francis, London.4. Curran, P.J. (1985) : Principles of Remote Sensing. Longman, London.5. Deekshatulu, B.L. and Rajan, Y.S. (ed.) (1984) : Remote Sensing. Indian Academy of Science, Bangalore.6. Floyd, F. and Sabins, Jr. (1986) : Remote Sensing : Principles and Interpretation. W.H.		

Freeman, New York.

7. Gautam, N.C. and Raghavswamy, V. (2004) , Land Use/land Cover and Management Practices in India. B.S. Publication., Hyderabad.
8. Jensen, J.R. (2004) : Remote Sensing of the Environment : An Earth Resource Prespective. Prentice Hall. Englewood Cliffs, New Jersey, Indian reprint available.
9. Lillesand, T.M. and Kiefer, R.W. (2000) : Remote Sensing and Image Interpretation John Wley and Sons, New York.
10. Nag. P. (ed.) (1992) : Thematic Cartography and Remote Sensing. Concept Publishing Company, New Delhi.
11. Rampal, K.K. (1999) : Handbook of Aerial Photography and Interpretation, Comcept Publishing. Company, New Delhi.
12. Campell, J.B. (2003) : Introduction to Remote Sensing. 4th edition. Taylor and Francis, London.

Note : In final Examination Student shall be examined by external and internal examiners.
Marks Distribution : Written Exam, Viva, Practical File, Map Preparation using open source GIS, Image processing Software Use.

BA/B.Sc. 3rd Year Sem. VI

Course III (Practical)

Programmes/Class Certificate/BA/B.Sc.	Year : Third	Semester : Sixth
Subject : Geography - Practical		
Course Code : A100604R	Course Title : Project Report-2	
Course Learning Outcomes Student will be able to understand <ul style="list-style-type: none">➤ In-dephh knowlede and application of RS and GIS technology in research.➤ Learn to prepare Project Report.		
Credits : 2	Core Compulsory	
Max Marks : 50	Min. Passing Marks : 20	
Total No. of Lecturers - Tutorials - Practical (in hours per week) : P-2/w		
Unit	Topics	No. of Lectures
I	Project report shall be on any topic of interest of students. It must include Remote sensing and GIS technology directly or indirectly. Link project can be based on investigation of any issue using above techonology or these technology must be used in data analysis or representation. Note : 1- Each faculty member shall teach and guide to his/her Group of students independently. 2- Student interest and specialisation of Faculty member.	30
Suggested Readings :		
This course can be opted as an elective by the students of following subjects : Open for all		
Suggested Continuous Evaluation Methods : Seminar, Presentations, VIVA		
Suggested equivalent online courses.		

BA/B.Sc. 4th Year Sem. VII

Course I (Theory)

VIIth Semester

Paper A11070IT

25+50=75

501 : Geomorphology

Objectives -

- Detailed exposure of concepts of Geomorphology.
- Students will be able to understand landforms and other Geomorphological features.
- Students will be able to apply knowledge for logical explanation of landform development.
- Students will be able to identify and calculate rate of various process working in landform development.
- Students will be able to compute landform development of entire region by studying Geomorphological features.
- Students will be able to evaluate Geomorphological process working in area being studied.

Unit-I

Meaning and scope of geomorphology, Fundamental Concepts, Modern Geomorphologists - Hutton, Strahler, King. Concept of Cycle of Erosion - Davis and Penck.

Unit-II

Endogenetic process - Plate tectonic, Mountain, Building, Volcancity, Seismicity, Earthquakes, tsunami, Isostasy

Unit-III :

Geomorphometric Analysis - Drainage density, Drainage Frequency, Bifurcation ratio, Drainage Frequency, Bifurcation ratio, Slope types and analysis.

Unit-IV:

Development of Geomorphology in India, Recent trends in Geomorphology Applied Geomorphology, Regional geomorphology of Indo-Gangetic plain, Rajasthan Desert & Chhota Nagapur Plateau.

Methods of Teaching - Chalk & Talk, Assignment Method, Project Method, Books Recommended.

- Ahmed, E. (1985) : Geomorphology, Kalyani Publishers New Delhi
- Students will be able to understand various aspect of Geography of India.
- Students will be able to make conclusion regarding various physical and human issues.
- Students will be able to analyse caue of various physical and human aspects of Geography of India.

- Students will be able to make plans and strategies for addressing various issues related to the subject.
- Students will be able to evaluate physical structures and human aspects of Indian Geography.

Unit - I :

Making of India through geological times, Structure and Relief regions, Drainage, physiographic division soil types.

Unit-II

Climatic characteristics, Mechanism of Indian Monsoon, Climatic Regions, Natural Vegetation & wild life, vegetation regions.

Unit-III :

Agricultural Characteristics and Trends, Crop Combination regions, Green, White, Blue and Yellow revolutions.

Unit -IV :

Industrial region Transport - Rail, Road, Air. Population growth trends and patterns, distribution density & national population policy.

Methods of Teaching - Chalk & Talk, Assignment Method, Project Method, Group Discussion and cartographic methods.

Books Recommended :

- 1- Chapman, G. and Baker, K.M. (eds.) (1992) : The Changing Geography of Asia. Routledge, London.
- 2- Farmer, B.H. (1983) : Introduction to South Asia. Methuen and Company Ltd. and Company Ltd. London.
- 3- Ganguly, S. and Neil, De Votta (eds.) (1992) : The changing Geography of Asia. Routledge, London.
4. Gole, P.N. (2001) : Nature Conservation and Sustainable Development in India. Rawat Publications, Jaipur and New Delhi.
- 5- Johnson, B.L.C. (ed.) (2001) : Geographical Dictionary of India. Vision Books, New Delhi.
6. Johnson, B.L.C. (1983) : Development in South Asia. Penguin Books, Harmondsworth.
7. Khullar, D.R. (2006) : India. A Comprehensive Geography, Kalyani Publishers., New Delhi.
8. Krishnan, M.S. (1968) : Geology of India and Burma. 4th edition. Higgin Bothams Private Ltd. Madras.
9. Nag, P. and Gupta, S.S. (1992) : Geography of India. Concept Publishing. Company, New Delhi.
10. Sharma. T.C. (2003) : India : Economic and Commercial Geography. Vikas Publication., New Delhi.
11. Singh, J. (2003) : India : A Comprehensive and Systematic Geography. Gyanodaya Prakashan, Gorakhpur.

12. Singh, R.L (ed.) (1971) : India. A Regional Geography. National Geographical Society of India, Varanasi.
13. Spate, O.H.K., Learmonth, A.T.A. and Farmr, B.H. (1979) : India and Pakistan. Methuen and Company Ltd. and Company Ltd., London.
14. Subbarao, b. (1959) : The Personality of India. University of Baroda Press, baroda.
15. Sukhwal, B.L. (1987) India. Economic Resource Base and Contemporary Political Patterns. Sterling Publication, New Delhi.
16. Tirtha, R. (2002) : Geography of India, Prayag Pustak Bhawan, Allahabad.
18. Wadia, D.N. (1959) : Geology of India. MacMillan and Company, London and Madras. Student edition.



BA/B.Sc. 4th Year Sem. VII

Course III (Theory)

A110703T : Environmental Geography

25 +50 =75

Objectives -

- The course aim is to give advance understanding of concept of Environment Geography.
- It will help in understanding about various concept of Environmental Geography.
- Studnets will be able to apply knowledge gained from Environmental Geography for addressing various environmental issues.
- Students will be able to analyse environmental process working in local and global level.
- Students will be able to evaluate present condition of environment.

Unit-I

Meaning Scope crept approaches of environmental geography, Types of environment, environmental perception. Environment & society, environment and development.

Unit-II

Concept of ecology and ecosystem, Biosphere as an ecosystem, Abiotic and biotic components of biosphere and ecosystem, Ecological production and energy flow-tropic level, food chain and food web. Ecological pyramids, Bio-geochemical cycles-nitrogen, Hydrological cycle, carbon cycle.

Unit-III :

Environmental hazards, natural Hazard - Flood, Drought, Landslide, Soil erosion earthquake, desertification. man-made hazards - urbanization Industrialization, technological hazard, global climatic changes, global warming, green house effect, ozone depletion.

Unit-IV:

Environmental pollution, pollutants, Sources and types of pollution-water sail, air and noise pollution, solid waste disposal, environmental pollution and health, Environmental education, Envoronmental monitoring. Environmental impact analysis, Enviromental policies and legislation, Envoronmental management.

Methods of Teaching - Chalk & Talk, Assignment Method, Project Method, Mothod, Group Discussion and cartographic methods.

Books Recommended :

- 1- Anjuneyulu, Y. (2002) : Environmental Impact Assessment Methodologies. B.S. Publications. Hyderabad.
2. Anjuneyulu, Y. (2004) : Introduction to Environmental Science. B. S. Publications, Hyderabad.

3. Athavale, R.N. (2003) : Water Harvesting and Sustainable Supply in India. Rawat Publications., Jaipur.
4. Bilas. R. (1988) : Rural Water Resource Utilization and Planning. Concept Publishing Company, New Delhi.
5. Blaikie, P. Cannon, T. and Davis, I. (eds.) (2004) : At Risk : Natural Hazards, Peoples Vulnerability and Disasters. Routledge, London.
6. Clarke, J.I. Curson, P., Kayastha, S.L. and Nag, P. (eds.) (1991) : Population and Disaster. Basil Blackwell, USA.
7. Gautam, A. (2007) : Environmental Geography, Sharda Pustak Bhawan, Allahabad.
8. Huggeft, R.J. (1998) : Fundamental of Biogeography. Routledge, London.
9. Kayastha, S.L. and Kumra, V.K. (1986) : Environmental Studies. Tara Book Agency, Varanasi.
10. Khoshoo, T.N. (1981) : Environmental Concerns and Strategies. Ashish Publishing Houe, New Delhi.
11. Kumra, V.K. (1982) : Kanpur City. A Study in Environmental Pollution. Tara Book Agency, Varanasi.
12. Mathur, H.S. (2003) : Essentials of Biogeography. Pointer Publication, Jaipur.
13. Nag, p., Kumra, V.K. and Singh, J. (1990) : Geography and Environmental Issues at Local, Regional and National Levels. (in 3 vols.), Concept Publishing Company, New Delhi.
14. Odum, E.P. (1975) : Ecology. Rowman and Littlefield, Lanham USA.
15. Rajagropaln, R. (2005) : Environmental Studies : From Crisis to Cure, Oxford University Press, New Delhi.
16. Reddy, M.A. (2004) : Geoinformatics for Environmental Management. B.S. Publishers., Hyderabad.
17. Sexena, K.K. (2004) : Envoronmental Studies. University Book House Private Ltd., Jaipur.
18. Saxena, H.M. (1999) : Environmental Geography. Rawat Publications., Jaipur and New Delhi.
19. Saxena, H.M. (2000) : Environmental Management. Rawat Publications. ; Jaipur and New Delhi.
20. Singh, A.K., Kumra, V.K. and Singh, J. (1986) : Forest Resource, Economy and Environment. Concept Publishing. Compnay, New Delhi.
21. Singh, D.N. Singh, J. and Raju, K.N.P. (eds.) (2003) : Water Crisis and Sustainable Management, Tara Book Agency, Varanasi.
22. Singh, J. (2001) : Paryavaran Evam Samvikas. Gyanodaya Prakashan, Gorakhpur.
23. Singh, O, Nag, P., Kumra, V.K. and Singh, J. (eds.) (1993) : Frontier in Environmental Geography. Concept Publishing Company, New Delhi.
24. Singh, O., Kumra, V.K. and Singh, J. (1988) : India's Urban Environment. Pollution, Perception and Management. Tara Book Agency, Varanasi.

25. Singh, R.B. (ed.) (1990) : Environmental Geography. Heritage Publication, New Delhi.
26. Singh, R.B. (ed.) (1995) : Studies in Environment and Development. Rakesh Prakashan, Varanasi.
27. Singh, Rana P.B. (ed.) (1993) : Environmental Ethics : Discourses and Cultural Traditions. National Geographical Society of India, BHU, Varanasi.
28. Singh, S. (2006) : Environmental Geography. Prayag Pustak Bhawan, Allahabad.
29. Singh, S. (2007) : Paryavaran Bhoogol. Prayag Pustak Bhawan, Allahabad.
30. Singh, S.N. (1993) : Elements of Environmental Geography and Ecology (in Hindi), Tara Book Agency, Varanasi.
31. Wrigley, N. (1985) : Categorical data Analysis for Geographers and Environmental Scientists. Longman, London.

BA/B.Sc. 4th Year Sem. VII

**Course IV
(Theory)**

A110704T : Cartography

25+50=75

Objectives -

The differentiate between qualitative and quantitative information, Topographical Sheets and Understand the idea of Map & Projection.

Part A : Cartographic Work

Unit-I

Measures of central tendency-Mean, median and mode, Mean deviation, Quartile deviation. 20

Unit-II

Measures of dispersion, Standard Deviation, Co-efficient of variation, Co-efficient of Correlation, Rank Correlation, Chi square test. 20

Unit-III :

Geological maps and cross section Horizontal, Inclined, Unconformable, Folded and Folded strata. 35

BA/B.Sc. 4th Year Sem. VII

**Course V
(Practical)**

A110705-P Practical **100**

Unit-I

Collection of data : Methods, Sources and Types, Classification and Tabulation Data processing (With special reference to village/Ward/Town area). 30

Unit-II

Local excursion and report (Maximum 2 days) 30

Unit-III :

Practical record 20

Viva -Voice examination 20

Methods of Teaching - Chalk & Talk, Assignment Method, Project Method, Method, Group Discussion and cartographic methods.

Books Recommended :

- 1- Monkhouse, F.J. Maps & Diagrams.
- 2- Robinson, A.H. Elements of Cartography.
- 3- Singh, R.L., Elements of Practical Geography.
- 4- Singh, L.R. & Singh, R.N. Map Work and Practical Geography (Eng./Hindi)
- 5- Sharma, J.P. Prayogatmak Bhoogol Ki Rooprekha (Hindi)
- 6- Hira Lal, Prayogatmak Bhoogol Ke Adhar (Hindi)
- 7- Lal, Hira, Matratmak Bhoogol (Hindi)
- 8- Tiwari, R.C. and Tiwari, Sudha, Abhinav Prayogic Bhoogol.

VI- GR506 : Project - 1

BA/B.Sc. 4th Year Sem. VIII

**Course I
(Theory)**

Paper - 1

A110801T : Climatology

25 + 50 =75

Objective -

- The course aim is to give advance understanding of concept of Climatology.
- Students will be able to understand various aspects of Climatology.
- Students will be able to understand its local climate and can comprehend global climatic patterns.
- Students will be able to analyse cause of climatic trends and patters.

- Students will be able to understand and comprehend pattern of climatic phenomenon.
- Student will be able to evaluate climatic patterns.

Unit-I

Definition, Scope, Significance and evolution of climatology; Elements of weather and climate; Relation with meteorology.

Composition and structure of Atmosphere; Insolation, process of heating and cooling; heat balance of the earth and atmosphere, Greenhouse effect.

Unit-II

Air Pressure and pressure belts; Atmospheric motion, Force controlling motion of air, vertical motion and vorticity, Jet stream. Permanent, Seasonal and Local wind cyclone and anticyclone.

Concepts, classification, characteristics of air mass and front, Ocean atmospheric interaction-El Nino, Southern Oscillation (ENSO) and La-Nina.

Unit-III :

Climatic Classification of Koppen, Thornthwait, and G.T. Trewartha and World climatic region, climatic changes, evidences and possible causes, Global Warming.

Unit-IV :

Applied climatology and weather forecasting, Impact of Human civilization on health, food, clothing, agriculture, Mining, Industry, trade and development; manclimate interrelationship.

Methods of Teaching - Chalk & Talk, Assignment Method, Project Method, Group Discussion and Cartographic methods.

Suggested Reading :

- 1- Barry R.G. and Chorley R.J. : Atmosphere, weather and climate, Routledge, London and New York, 1998.
- 2- Critchfield, J.J. : General Climatology, Prentice Hall, New Delhi, 1993.
- 3- Lal, D.S. : Climatology, Chaitanya Publications, Allahabad, 1986.
- 4- Lydolph, P.E. : The Climate of the Earth, Rowman, 1985.
- 5- Robinson P.J. and Henderson S; Contemporary Climatology, Henlow, 1999.
- 6- Upadhyaya D.P. and Singh R.A. : Climatology and Hydrology, Vasundhara Publication, Gond : 111:w. 2000 (Hindi).
- 7- Addison H.: Land, water and Flood, Chapman and Hall, London, 1961.
- 8- Chorley R.J, Water, Earth and Man, Methuen, London, 1967.
- 9- Jones J.A.A. : Global Hydrology : Process Resources and Environmental Management, Longman, London, 1997.
- 10- Todd, D.K.: Ground Water Hydrology, John Wiley, New York, 1959.

Pedagogy :

- 1- Weather and climatic maps and charts are to be made available to the students. Audio-Visual aids to be used for effective teaching.

- 2- Students to be taken on a field visit to nearby reservoir. Data pertaining to water table in the local wells in different seasons has to be collected.

BA/B.Sc. 4th Year Sem. VIII

Course II (Theory)

Paper - II

A110802T : Basics of Remote Sensing

25 + 50 =75

Objective -

- The course aim is to give basic contemporary skills to understand the of concept of Remote Sensing.
- Students will be able to understand process and application of Remote Sensing.
- Students will be able to use software's to do various image processing tasks with software related to Remote Sensing.
- Students will be able run various tasks for remote Sensing analysis.
- Students will be able to find out inferences form various image processing techniques.
- Students will be able to evaluate functions related to Remote Sensing.

Unit-I

Remote Sensing definition and scope, electro-magnetic radiation, characteristics : interaction with matter, type of remote sensing and remote sensing platform.

Unit-II

Aerial Photos : Types, Scale, resolution, geometric properties of aerial photos, Stereoscopic parallax, Relief displacement.

Unit-III :

General orbital characteristic of remote sensing satellites, general characteristic of remote sensing sensors, characteristics of raw remote sensing data.

Unit-IV :

Elements of image interpretation, image processing techniques, visual and digital, Remote sensing in resource mapping and environmental monitoring. Land use and land cover mapping : a cover study.

Methods of Teaching - Chalk & Talk, Assignment Method, Project Method, Group Discussion and cartographic methods.

Books Recommended :

- 1- Campbell, J.B. (2002) : Introduction to Remote Sensing Year Book, Taylor and Francis, London.

2. Cracknell, A. and Hayes, L. (1990) : Remote Sensing Year Book, Taylor and Francis, London.
- 3- Curran, P.J. (1985) : Principles of Remote Sensing, Longman, London.
- 4- Deekshatulu, B.L. and Rajan, Y.S. (ed.) (1984) : Remote Sensing. Indian Academy of Science, Bangalore.
- 5- Floyd, F. and Sabins, Jr. (1986) : Remote Sensing : Principles and Interpretation W.H. Freeman, New York.
- 6- Guham, P.K. (2003) : Remote for Beginners. Affiliated East-West Press Private Ltd. New Delhi.
- 7- Hallert, B. (1960) : Photogrammetry, Mc. Graw Hill Book Company Inc., New York.
- 8- Harry, C.A. (ed.) (1978) : Digital Image Processing, IEEE Computer Society, California.

Pedagogy :

- 1- Weather and climatic maps and charts are to be made available to the students. Audio-Visual aids to be used for effective teaching.
- 2- Students to be taken on a field visit to nearby reservoir. Data pertaining to water table in the local wells in different seasons has to be collected.
- 3- Curran, P.J. (1985) : Principles of Remote Sensing, Longman, London.
- 4- Deekshatulu, B.I. and Rajan, Y.S. (ed.) (1984) : Remote Sensing. Indian Academy of Science, Bangalore.
- 5- Floyd, F. and Sabins, Jr. (1986) : Remote Sensing : Principles and Interpretation, W.H. Freeman, New York.
- 6- Guham, P.K. (2003) : Remote Sensing for Beginners. Affiliate East-West press Private ltd. New Delhi.
- 7- Hallert, B. (1960) : Photogrammetry McGraw Hill Book Company Inc., New York.
- 8- Harry, C.A. (ed.) (1978) : Digital Image Processing, IEEE Computer Society, California.
- 9- Hord, R.M. (1982) : Digital Image processing of Remotely Sensed Data Academic Press, New York.
- 10- Leuder, D.R. (1959) : Aerial Photographic Interpretation : Principles and Application. McGraw Hill, New York.
- 11- Lillesand, T.M. and Kiefer, R.W. (2000) : Remote Sensing and Image Interpretation. 4th edition. John Wiley and Sons, New York.
- 12- Nag, P. (ed.) 1992 : Thematic Cartography and Remote Sensing, Concept Publishing. Company, New Delhi.
- 13- Reeves, R.G. (ed.) (1983) : Manual of Remote Sensing, Vols. I and 2, American Society of Photogrammetry and Remote Sensing, Falls Church, Virginia.
- 14- Siegel, B.S. and Gillespie, R. (1985) : Remote Sensing in Geology, John Wiley and Sons, New York.
- 15- Silver, M. and Balmori, D. (eds.) (2003) : Mapping in an Age of Digital Media. Wiley-Academy, New York and Chichester.

BA/B.Sc. 4th Year Sem. VIII

Course III (Theory)

Paper iii : Economic Geography

25+50=75

A110803T

Objectives -

- Detailed exposure economics and economics Geography of India.
- Students will be able to understand various economic activities and its role in Indian Economy.
- Students will be able to apply knowledge gained form Economics Geography and Economic models to solve problem like least transport cost, industrial location etc.
- Students will be able to analyse trends and prospects of economic growth of region.
- Students will be able to make plans for sustainable economic growth.
- Students will be able to evaluate cause of economic activities and future.

Unit-I

Meaning, scope, evolution and recent trends of economic geography, Fundamental concepts. Relation of Economic geography with economics and other branches of social sciences.

Unit-II

Classification of industries : Iron & Steel, textile, sugar & Petro-chemicals. Elements and. Theories of Industrial location - Weber, Losch, Isard & Hoover.

Unit-III :

Case studeies of selected industries - Iron & steel, textile, sugar & Petro-chemicals. Industrial regions - delimitation and structural factors; Industrial regions of world.

Unit-IV :

Theories of transport development, Economic regions and their salient features. Impact of WTO, globalization, Liberalization, Economy of developing world.

Methods of Teaching - Chalk & Talk, Assignment Method, Group Discussion and cartographic methods.

Books Recommended :

1. Alexander, J.W., Economic Geography, Prentice-hall, New Delhi.
- 2- Robinson A.H., Jones C.F. and darkenwarld. G.G. Principles of Economic Geography.
- 3- Boesh Hans, A Geography of World Economy, Von Nostrand, new York.
- 4- Bengston and Royen, Fundamentals of Economic Geography.
- 5- Zimmerman, E.W. Inroduction to World Resources.

- 6- Chisholm M., Modern World Development - A Geographical Perspective.
- 7- Singh K.N. & Singh J., Arthik Bhoogol Ke moo! Tatva (Hindi), Gyanodaya Prakash, Gorakhpur.
- 8- Jain, P. Arthik Bhoogol Ki Samiksha (Hindi).
- 9- Srivastava V.K. & Rao B.P., Arthik Bhoogol.
- 10- Wheeler, J.O. et al: Economic Geography, John Wiley, New York 1995.
- 11- Robertson, D. (ed) Globalization and Environment, E. Elgas Co. U.K., 2001. development prospects of region.

BA/B.Sc. 4th Year Sem. VIII

Course IV (Theory)

Paper IV : Cartography

25+50=75

A110804T

**Objectives - The teaching of many type of projection and central tendency of data.
The present data through graphical and diagrammatic formats.**

Unit-I

Map Projection : Classification, Properties, Choice, merits and demerits of map rojection.

Drawing of the following map projections by using mathematical methods, Bonne's, Polyconic, Gall's, Equatorial cases of Gnomonic, Stereographic and Orthographic projections, Mollwied's and Interrupted Mollweide's Sinusoidal and Interrupted Sinusoidal and International Projections.

Unit-II

Cartographic Representation of Statistical Data :

Water Surplus Graph, Rainfall Dispersion diagram, Elypsographic curve, Water Balance graph, Locational Quotient, Coefficient of Localizaion and Localzation curve.

Unit-III

Block Diagrams.

BA/B.Sc. 4th Year Sem. VIII

**Course V
(Practical)**

Paper V - Practical (Field-cum-lab work) 100

A110805-P

Unit-I

Aerial Photo Interpretation - 25

Unit-II

Computer : Components and Characteristics, Application in Map Making Unit 25

Practical Record 25

Viva-voce 25

Methods of Teaching - Chalk & Talk, Assignment Method, Project Method, Group Discussion and cartographic methods.

