SNDT Women's University

1, Nathibai Thackersey Road, Mumbai- 400020

Syllabus

As per NEP 2020
(2023)

M.A.-Geography

(Sem I & II)

Syllabus – Approved as per Agenda Item No. 7 (8) in the Academic Council held on 7th August 2023

SNDT WOMEN'S UNVERSITY, Mumbai-400020

Postgraduate Programmes

Academic Year 2023-24

Programme: M.A. Geography

Programme Degree		M.A.
Parenthesis if any		Geography
Preamble		M.A. (Geography) is a Two Year PG/ Master's Programme with one Exit Option/ One Year PG Programme. At the end of programme students will be skilled in discipline specific concepts, theories, and methodologies in Geography. They will equipped with the practical knowledge of surveying, mapping, spatial analysis and planning which can be applied in various fields and will help them to be competent for providing services related to the field, employability in various sectors etc.
Programme Specific Outcomes (POs)		After completing this programme, Learner will
	1.	Clearly understand concepts and applications in the discipline of Geography.
	2.	Able to make comprehensive analysis, interpret spatio-temporal problems, suggest proper solutions by using theoretical, methodological and instrumental knowledge of Geography.
	3.	Aware about the global to local environmental issues and enhancement of social sensitivity.
	4.	Acquire skills that will be useful in personal and professional life.
	5.	Develop research interest to solve critical and emerging issues related to geography and surrounding environment.
Eligibility Criteria for Programme		(1) For Two Year PG/ Master's Programme with one Exit Option: Any Graduate who has completed three year graduation with at least total 12 credits courses in Geography. (As per Agenda item 02, approved in Academic Council held on 17th Oct 2023) OR Any Graduate with Geography as a major, who has completed three year Bachelor's degree programme (Level 6, minimum of 80 to maximum of 88 credits). (2) For One Year PG Programme: Any Graduate with Geography as a major, who has completed a four year degree programme with honours or honours with Research (Level 6, minimum of 40 to maximum of 44 credits)
Intake		25

Structure with Course Titles

Postgraduate Programme of 2 years

Year I

SN	Courses	Type of Course	Credits	Marks	Int	Ext
	Semester I					
110711	Advances in Geomorphology	Major (Core)	4	100	50	50
110712	Advances in Climatology	Major (Core)	4	100	50	50
110723	Map Interpretation & Weather Reports	Major (Core)	4	100	50	50
110714	Principles of Regional Planning	Major (Core)	2	50	50	0
120711	Quantitative Techniques	Major (Elective)	4	100	50	50
130711	Research Methodology	Minor Stream (RM)	4	100	50	50
			22	550	300	250
	Semester II					
210711	Advances in Economic Geography	Major (Core)	4	100	50	50
210712	Advances in Population Geography	Major (Core)	4	100	50	50
210723	Techniques in Human Geography	Major (Core)	4	100	50	50
210714	Geography of Resources	Major (Core)	2	50	0	50
220711	Regional Study of Maharashtra	Major (Elective)	4	100	50	50
240741	OJT	OJT	4	100	50	50
			22	550	250	300

Exit option: (44 credits) after Three-Year UG Degree

Course Syllabus

Semester I

Major (Core): Advances in Geomorphology

Course Title	**Advances in Geomorphology**
Course Credits	4
Course Outcomes	After going through the course, learners will be able to
	1. Sensitise the students towards the judicial use of natural resources and particularly the land resource which is most immobile in nature.
	2. To understand the development of geomorphic thought, as well as review of fundamental geomorphic processes and theories of evolution of earth.
	3. To know various geomorphic processes and resultant landforms.
	4. To understand and application of geomorphic knowledge for land resource management and planning.
Module 1(Credit 1) Nature and Scope of Geomorphology	
Learning Outcomes	After learning the module, learners will be able to
	1. Understand basic concepts, principles and recent trends of Geomorphology.
Content Outline	**1. Nature and Scope of Geomorphology** 1.1 Definition, Nature and scope of Geomorphology 1.2 Approaches of Geomorphic Study 1.3 Various Fundamental concepts: Threshold, Equilibrium and Uniformitarianism 1.4 Recent Trends in Geomorphology
Module 2(Credit 1) Earth Movements	
Learning Outcomes	After learning the module, learners will be able to
	1. Understand sources of interior of the earth.
	2. Understand the developmental changes in the theories of earth evolution.
Content Outline	**2. Earth Movements** 2.1 Interior of the Earth, Sources of Knowledge with chronological development 2.2 Forces – Indogenic and Exogenic forces with reference to landform formation 2.3 Theories : Isostasy, Continental Drift Theory, Sea Floor Spreading, Plate Tectonics.
Module 3(Credit 1) Geomorphic Processes	

Learning Outcomes	After learning the module, learners will be able to
	Analyse the fundamental geomorphic processes in the formation of various landforms and theories of evolution of earth.
Content Outline	**3.Geomorphic Processes** 3.1 Denudational processes: Mass movement, Weathering, Erosion 3.2 Weathering and Mass Movement Processes and resultant landforms 3.3 Fluvial Processes, Aeolian Processes, Coastal Processes, Glacial Processes and formation of landforms.
Module 4(Credit 1) Applied Geomorphology	
Learning Outcomes	After learning the module, learners will be able to
	1.Apply the geomorphic knowledge for the available land resource management and planning
Content Outline	**4.Applied Geomorphology** 4.1 Applied geomorphology 4.2 Slope and models of slope development, 4.3 Terrain Evaluation 4.4 Geomorphic Mapping 4.5 Application of geomorphology in land resource management planning.

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

1. Seminar / Group Discussion : 10 Marks
2. Home Assignments/Group Activities: 10 Marks
3. Field Visit and Observation 10 Marks
4. Project Work and Presentation 20 Marks

Internal Assessment Total: 50 Marks

References

1. Allaby, Michael (2008), "*Oxford Dictionary of Earth Science*," Oxford University Press, New York.
2. Bloom, A.L. (1991), "*Geomorphology*, 2nd Ed Englewood Cliffs, M.J. Prentice Hall.
3. Brierley, G.J. &Fryirs, K.A. (2005), "*Geomorphology and River Management*," Blackwell Publishing, Oxford UK.
4. Briggs, K. (1985), "*Physical Geography Process and System*," Hodder and Stoughton, London.
5. Chorley, R.J. Schumm,S.A.&Sugden, D.E. (1985), "*Geomorphology*," Methuen & Co. Ltd., London, New York.

6. Cook, R.U. &Doornkamp, J.C.(1974), "*Geomorphology in Environmental Management*," an Introduction.
7. Fairbridge, R.W., ed. (1968), "*Encyclopaedia of Geomorphology Reinhold*," New York.
8. Goudie A.S. et.al (1990) (Edt), "*Geomorphological Techniques*", Routledge, London.
9. Goudie, A.S. (2004) (Edt), "*Encyclopedia of Geomorphology*", Routledge, London. London.
10. Hart, M.G. (1986), "*Geomorphology Pure and Applied*," George Allen and Unwin, London.
11. Kale, V.S. and Gupta, A. (2001), "*Introduction to Geomorphology*", Orient Longman, Calcutta.
12. King C.A.M. (1967), "*Techniques in Geomorphology*", Edward Arnold Publishers Ltd.
13. Leopold, L.B. Wolman, M.G. & Miller, J.P.(1964), "*Fluvial Processes in Geomorphology*," W.H.Freeman, San Fransisco.
14. Lobeck, A.K. (1939), "*Geomorphology*," McGraw Hill, New York. .
15. Moor, W.G. (1949), "*A Dictionary of Geography*," Penguin Books, England.
16. Morgan, R.S. & Wooldridge S.W (1959), "*Outline of Geomorphology the Physical basis of Geography*," Longmans Green, London.
17. Ollier, C (1981), "*Tectonics and Landforms*", Longman Group Ltd.
18. Robinson, Harry (1969), "*Morphology and Landscape*," University Tutorial Press Ltd. London.
19. Selby M.J. (1986),"*Earth's Changing Surface*," Oxford University Press.
20. Singh Savindar (2002),"*Geomorphology*," PrayagPustakBhawan, Allahabad
21. Singh, Savindra (1991), "*Environmental Geography*," PrayagPustakBhavan , Allahabad.
22. Sparks, B.W (1972), "*Geomorphology*", Longman Group Ltd.
23. Strahler, A.H and Strahler A.N (1992),"*Modern Physical Geography*," John Wiley and Sons (Asia) Pvt. Ltd.
24. Strahler, A.N (1969): Physical Geography. John Wiley & Sons Inc., NewYork.
25. Thornbury, W.D. (I960): "*Principles of Geomorphology*", John Wiley and Sons, New York
26. Wadia, D.N. (1993): Geology of India, Tata McGraw Hill Edition, New Delhi.
27. Worcester, P. G. (1948): Textbook of Geomorphology, Princeton, D.Van, Nortrand.

Major (Core)

Course Title	**Advances in Climatology**
Course Credits	**4**
Course Outcomes	After going through the course, learners will be able to
	1. To analyze Solar and Terrestrial radiation and Heat Budget.
	2. To understand vertical and horizontal distribution of temperature
	3. To make Diagrammatic representation and explanation of Hydrological cycle.
	4. To understand Mechanism of Indian monsoon.
	5. To sensitize about the climatic influence on society, emerging issues such as global climate change and its consequences.
	6. Analyze the consequences as per the advances in Climatology
Module 1(Credit 1) Heat and Temperature	
Learning Outcomes	After learning the module, learners will be able to
	1. To analyze Solar and Terrestrial radiation and Heat Budget.
	2. To understand vertical and horizontal distribution of temperature
Content Outline	**Advances in Climatology**: Climate, Weather, Sub-divisions of Climatology. Modern development in Climatology; Vertical structure and chemical composition of earth's atmosphere. **Insolation and Heat Balance:** Solar Energy; Electromagnetic spectrum; basic processes of heating and cooling (conduction, convection, radiation, absorption, reflection, scattering, transmission), Factors affecting insolation, Effects of Atmosphere, Albedo, Heat Balance of Earth- atmospheric systems. **Temperature:** Heat and temperature, measurement and controls; Vertical temperature patterns (lapse rate and temperature inversions), horizontal distribution of temperature.
Module 2(Credit 1) Atmospheric Pressure and Wind	
Learning Outcomes	After learning the module, learners will be able to
	1. To analyze global/ local pressure distribution patterns and formation of winds.
	2. To map the circulation of the atmosphere.
Content Outline	**Atmospheric Pressure and Wind** Pressure Measurement, Factors affecting air Pressure and Observed distribution of surface pressure

	Wind observation and measurement, factors affecting wind (Pressure gradient, Coriolis force and frictional force), Geostrophic wind and Gradient wind, Local winds. **Circulation of the Atmosphere** Scales of Atmospheric Motion- Primary, Secondary, Tertiary. Local winds, Jet stream and its effect on the surface weather conditions.
Module 3(Credit 1) Atmospheric Moisture and Air Masses	
Learning Outcomes	After learning the module, learners will be able to
	1. Asses the atmospheric moisture and hydrological cycle
	2. Understand the concept of airmasses and its modifications
Content Outline	**Humidity:** Humidity measurement, forms of precipitation (rain, freezing rain, Sleet, Drizzle, Snow, Hail), types of precipitation (Convectional, Orographic, Frontal, Convergent); hydrological cycle. **Air Masses:** Source region, classification and modifications - (a) Mechanical (b) Thermodynamic; Fronts - Characteristics and Types.
Module 4(Credit 1) Monsoon and Weather Forecasting	
Learning Outcomes	After learning the module, learners will be able to
	1. To sensitize about the climatic influence on society, emerging issues such as global climate change and its consequences.
	2. Understand the weather forecasting and advances in the forecasting
Content Outline	**Monsoon:** Mechanism of Indian Monsoon, Monsoon and Indian economy. **Weather forecasting:** Methods and advances in forecasting**;** Climate Change**-** global warming and its effects.

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

1. Seminar / Group Discussion : 10 Marks
2. Home Assignments/Group Activities : 10 Marks
3. Project Work and Presentation : 30 Marks

Internal AssessmentTotal : 50 Marks

References

1. Barry, R. G. and Chorley P. J. (1998): Atmosphere, Weather and Climate, Routledge, London and New York.
2. Critchfield, J. H. (1993, Rep. 2010): "*General Climatology*", Prentice Hall, India, New Delhi.
3. Das, P. K. (2005): "*Monsoons*", Natinal Book Trust, New Delhi.
4. Fein, J.S. and Stephens, P.N. (1987): "*Monsoons*", Wiley Interscience.
5. India Meteorological Department (2011): "*Climatological Tables of Observatories in India*", Government of India.
6. Indian Weather Reports, (www.**imdpune**.gov.in*)*
7. Lal, D. S. (1986): "*Climatology*", Chaitanya Publications, Allahbad.
8. Lal, D. S. (Ed 2003): "*Climatology*", ShardaPustak Bhawan,11, University road Allahabad.
9. Lutgens, Frederic K. &Tarbuck, Edward J. (2010): "*The Atmosphere: An Introduction to Meteorology*", Prentice Hall, New Jersey
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11. McKnight T.L., (1987): 'Physical Geogrphy: A landscape appreciation, Prentice-Hall, Inc., Englewood Cliffs., N.J.
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13. Pant G. B. and Rupa Kumar K. (1997): "*Climates of South Asia*", John Wiley and Sons.
14. Robinson, P. J. and Henderson S. (1999): "*Contemporary Climatology*", Henlow.
15. Savindra Singh (Rep. 2011): "*Climatology*", PrayagPustakBhawan, Allahabad.
16. Thompson, R. D. and Perry, A (1997): (edt), "*Applied Climatology, Principles and Practice*", Routledge, London.
17. Triwanta Glenn T. (1943): "*An Introduction to Weather and Climate*", New York and London.

Major (Core) Practical I

Course Title	Map Interpretation & Weather Reports
Course Credits	**4**
Course Outcomes	After going through the course, learners will be able to
	1. To identify identification of types of slopes, micro-geomorphic features on the ground and their interrelationship.
	2. To get skills of climatic data representation, measurement of weather parameters and weather forecasting procedure.
Module 1(Credit 1) Representation of Relief	
Learning Outcomes	After learning the module, learners will be able to
	Identify and differentiate the landforms with the help of various methods of relief representation.
Content Outline	**1.Representation of Relief** 1.1 Relief, Methods of relief representation 1.2 Profile- longitudinal profile, Cross profile, Superimposed and composite profile 1.3 Methods of slope analysis
Module 2(Credit 1) Interpretation of SOI and Foreign Topographical maps	
Learning Outcomes	After learning the module, learners will be able to
	Develop the skill of Map Reading and interpretation.
Content Outline	**2.Interpretation of SOI and Foreign Topographical maps** 2.1 Marginal Information 2.2 Index System 2.3 Interpretation of SOI sheets 2.4 Introduction to Foreign topographical maps
Module 3(Credit 1) Representation of Climatic Data	
Learning Outcomes	After learning the module, learners will be able to
	Develop the skill of using appropriate methods to represent climatic data and interprete it.
Content Outline	**3.Representation of Climatic Data** 3.1 Climograph 3.2 Simple and compound wind roses 3.3 Hythergraph, Koppen's classification of climate 3.4 Water Budget
Module 4 (Credit 1) Indian Weather Reports	

Learning Outcomes	After learning the module, learners will be able to
	Develop the skill of weather report interpretation. Develop the skill of observation and interpretation.
Content Outline	**4. Indian Weather Reports** 4.1 Analysis of Indian weather reports (based on online data) 4.2 Field visit or survey

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

1. Seminar / Group Discussion : 10 Marks
2. Home Assignments/Group Activities : 10 Marks
3. Field visit ,Project Work and Presentation : 30 Marks

Internal Assessment Total : 50 Marks

References

1. Crone, G. R. (1966), "*Maps and Their Makers*", 3rd Edition, Hutchinson, London.
2. Goudie A.S. and et.al (1990): (Edt) "*Geomorphological Techniques"*, Routledge, London.
3. Indian Weather Reports, (*www.**imdpune**.gov.in)*
4. Kanetkar, T. P. and Kulkarni S. V. (2014), "*Surveying and Leveling*", Pune VidyarthiPrakashan, Pune.
5. King, C. A.M (1966): "*Techniques in Geomorphology*", Edward Arnold, London
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11. Sarkar Ashis (1997): "*Practical Geography: A Systematic Approach*", Orient Black-Swan.
12. Singh R. L. & Rana P. B. Singh (2005): "*Elements of Practical Geography*", Kalyani Publisher, New Delhi.
13. Singh R. L. (1979): "*Elements of Practical Geography*", KalyaniPublisher,New Delhi.
14. Tamaskar, B. G. (1974): "*Geographical Interpretation of Indian Topographical Maps"*, Orient Logman.

Major (Core)

Course Title	**Principles of Regional Planning**
Course Credits	2
Course Outcomes	After going through the course, learners will be able to
	1. To understand and evaluate the concept of region in geography and its role and relevance in regional planning and development 2. To identify the issues relating to the development of the region through the process of spatial organization of various attributes and their inter relationship
	3. To identify the causes of regional disparities in development, perspectives and policy imperatives
Module 1(Credit 1) Introduction to Region	
Learning Outcomes	After learning the module, learners will be able to
	Understand the various concepts of regions.
Content Outline	**1.Introduction to Region** 1.1 Meaning of Area and Space 1.2 Concept of Region 1.3 Regions in Geography 1.4 Type of Regions 1.5 Delineation of Regions 1.6 Methods of Regionalisation
Module 2(Credit 1) Role of Geography in Regional Planning	
Learning Outcomes	After learning the module, learners will be able to
	Analyse the various types of planning method and its application in regional planning.
Content Outline	**2.Role of Geography in Regional Planning** 2.1 Concept and Need of Planning. 2.2 Objectives, Types and Hierarchy of Planning 2.3 Concept of Planning region, Regional Planning and role of Geographer 2.4 Theories in planning and their application to India

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

1. Seminar / Group Discussion : 10 Marks
2. Home Assignments/Group Activities: 10 Marks
3. Project Work and Presentation 30 Marks

Internal AssessmentTotal: 50 Marks

References

1. Chand, Mahesh and Puri, Vinay Kumar (1983): Regional Planning in India, Allied Publishers Pvt. Ltd., New Delhi.
2. Chandana, R.C. (2000): "Regional Planning – A Comprehensive Text", Kalyani Publishers, Ludhiana.
3. Chorley, R.J. and Hagget, P.: Models in Geography, Methuen, London, 1967.
4. *Glasson,John* An Introduction to *Regional Planning*: Concepts, Theory and Practice. (University of California, Berkeley) Hutchinson, 1978
5. Gosal, G.S. and Krishan, G.: Regional Disparities in Levels of Socio-Economic Development in Punjab, Vishal Publications, Kurukshetra, 1984.
6. Kundu, A. and Raza, Moonis: Indian Economy- The Regional Dimension, Spectrum Publishers, New Delhi,1982.
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8. Misra, R.P. and Others (editors): Regional Development Planning in India-A Strategy, Institute of Development Studies, Mysore,1974.
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11. Raza Moonis (editer) Regional Development Heritage Publishers Delhi. 1988.
12. Richardson, H.W.: Regional Economics, Weidenfeld and Nicolson, London, 1969.
13. Sundaram, K.V.(ed.): Geography and Planning, Essays in Honour of V.L.S. Prakasa Rao, Concept Publishing Co., New Delhi,1985.
14. Tarlok Singh India's Development Experience, Mc Millan New Delhi, India, 1974.

Major (Elective) Quantitative Techniques

Course Title	**Quantitative Techniques**
Course Credits	**4**
Course Outcomes	After going through the course, learners will be able to
	1. To understand the basic concept of descriptive statistics and its applications.
	2. To get acquainted about statistical tools and techniques to be used in further research.
	3. To develop the ability of Computer application to compute and interpret data statistically.
Module 1(Credit 1) Basics of Statistics	
Learning Outcomes	After learning the module, learners will be able to
	Develop the basic concepts of statistics and its application in geographical research.
Content Outline	**1.Basics of Statistics** 1.1 Definitions of statistics, Importanceof statistical techniques in geography 1.2 Sources of statistical data in geography 1.3 Scales of measurement: Nominal, Ordinal, Interval and Ratio; 1.4 Frequency Distribution, Typical Patterns of Frequency Distribution.
Module 2(Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	Apply the appropriate statistical tools and techniques in their further research.
Content Outline	**2.Statistical Measurements and assessment** 2.1 Measurement of Central Tendencies - Mean, Median and Mode 2.2 Dispersion - Variance, Standard deviation, Mean deviation, Quartiles 2.3 Normal Distribution Curve, Gaussian curve and its properties; 2.4 Computation of Index of Skewness and Kurtosis,
Module 3(Credit 1)	
Learning Outcomes	After learning the module, learners will be able to

	Apply appropriate methods of hypothesis testing.
Content Outline	**3.Hypothesis Testing** 3.1 Concept of Population and sample, Sampling Methods 3.2 Hypothesis- Null hypothesis and Alternative hypothesis 3.3 Testing of hypothesis 3.4 Parametric Test - Student's 't' test 3.5 Non-parametric Tests - Chi square test
Module 4(Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	Achieve the ability of computer application in data analysis and its interpretation.
Content Outline	**4.Techniques of Bivariate Analysis :** 4.1 Concept of covariance and correlation 4.2 Pearson's Product-momentCorrelation Coefficient 4.3 Spearman's Rank Correlation Coefficient 4.4 Straight line regression equation 4.5 Demonstration and Use of MS-Excel for all units.

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

1. Seminar / Group Discussion	:	10 Marks
2.Home Assignments/Group Activities	:	10 Marks
4. Project Work, Report writing and Presentation		30 Marks

Internal AssessmentTotal:		**50 Marks**

References

1. Alvi, Z. (1995): "*Statistical Geography: Methods and Applications*", Rawat Publications, Jaipur
2. David Ebdon (1989) : "*Statistics in Geography-A Practical Approach*", 2nd Edn., Blackwell Publishing.
3. Gupta, C.B. (1978) : "*An Introduction to Statistical Methods*", VikasPub.House, New Delhi.
4. Jog, S.R. and Saptharshi, Pravin (1980): " *SankhykiBhugol*", Narendra Prakashan Pune.
5. John Matthews, (1981) : "*Quantitative & Statistical Approaches to Geography: A Practical Manual*", Pergamon Press.

6. KarlekarShrikant (2007): "*Statistical Methods in Geography*", Diamond Publication, Pune.
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11. Pal, Saroj K. (1982): "*Statistical Techniques, A Basic Approach to Geography*", Tata McGraw Hill Publishing Comp. Ltd. New Delhi.
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14. Shaw G. & Wheller D. (1985) : "*Statistical Techniques in Geogrphical Analysis*", John Wiley & Sons, New York.

Minor Stream (RM) Research Methodology

Course Title	**Research Methodology**
Course Credits	**4**
Course Outcomes	After going through the course, learners will be able to
	1. To make the students research oriented.
	2. To acquaint the students with the methods and techniques in Geographical research.
	3. To enable and encourage the students to undertake independent research work or dissertation
Module 1(Credit 1) Introduction to Research	
Learning Outcomes	After learning the module, learners will be able to
	1. Compare and classify the types of research and basic concepts of research.
Content Outline	**1.Introduction to Research** 1.1 Research and its types 1.2 Theories in Research 1.3 Explanation in Geography 1.4 Approaches to Geographical Research: Interdisciplinary, trans –disciplinary and multi- disciplinary
Module 2(Credit 1) Research Methods and Geographical Data	
Learning Outcomes	After learning the module, learners will be able to
	Apply the various techniques in Geographical research.
Content Outline	**2.Research Methods and Geographical Data** 2.1 Research Methods in Geography, 2.2 Collection of Data: Sources, Primary and secondary data, collection and classification 2.3 Sampling Methods: Techniques and types of sampling techniques 2.4 Hypothesis: Types, Characteristics, Formulation and testing
Module 3(Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	Achieve the research skill to select any research problem and design the framework of their future dissertation work.
Content Outline	**3.Research design** 3.1Meaning of Research Design, 3.2Formulation of research problem, analytical framework, 3.3 designing of a questionnaire, 3.4 Review of literature survey, types and role in research 3.5 Computer based analysis e.g. techniques of analysis spatio temporal changes etc.
Module 4(Credit 1) Report Writing /Thesis Writing	

Learning Outcomes	After learning the module, learners will be able to
	Present research report writing and academic writing.
Content Outline	**4.Report Writing /Thesis Writing** 4.1 Organization of a research report/ thesis. 4.2 Preliminaries (Pre writing considerations) 4.3 Format of report writing, Abstract Writing, Synopsis Writing 4.4 Techniques of writing a scientific paper, steps in report/thesis writing 4.5 Language and presentation (form and style) 4.6 References and Bibliography

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

1. Seminar / Group Discussion : 10 Marks
2. Home Assignments/Group Activities : 10 Marks
4. Research Proposal Writing and presentation 30 Marks

Internal AssessmentTotal: 50 Marks

References

1. Basil Gomez and John Paul Jones, (2010): "*Research Methods in Geography: A Critical* I*ntroduction (Critical Introductions to Geography)*", Wiley-Blackwell.
2. Davies Wayne K.D. (ed.), (1972): *"The Conceptual Revolution in Geography",* University of London Press Ltd., London.
3. DydiaDeLyser,Steve Herbert, Stuart Aitken and Mike A Crang, (2009) : *"The SAGE Handbook of Qualitative Geography*", Sage Publications Ltd.
4. HarPrasad,(1992): *"Research Methods and Techniques in Geography"*, Rawat Publications.
5. Harvey D., (1973): *"Explanation in Geography",* Edward Arnold, London.
6. Iain Hay, (2010): *"Qualitative Research Methods in Human Geography",* Oxford University Press, USA.
7. Keith Hoggart, Loretta Lees and Anna Davies, (2002): *"Researching Human Geography",* Oxford University Press, USA.
8. Misra R. P., (1989): *"Research Methodology: A Handbook",* Concept Publishing Company, New Delhi.
9. Murthy, K.L.Narasimha (1999): ,Geographical Research , Concept Publishing copany
10. Nicholas Clifford, Shaun French and Gill Valentine, (2010): *"Key Methods in Geography",* Sage Publications Ltd.
11. Robert Kitchin and Nick Tate, (1999): "*Conducting Research in Human Geography: theory, methodology and practice",* Benjamin Cummings.

Course Syllabus

Semester II

Major (Core)

Course Title	**Advances in Economic Geography**
Course Credits	4
Course Outcomes	After going through the course, learners will be able to
	1. To comprehend the basic concepts in economic geography in the view of modernization of world economy**.**
	2. To understand theoretical models along with technological advancement and make their application for the economic development of lagging regions of the country and people therein.
	3. To assess the association between trade and transportation and its impact on economic development.
Module 1(Credit 1) Introduction to Economic Geography	
Learning Outcomes	After learning the module, learners will be able to
	Understand various approaches and recent trends in economic geography.
Content Outline	**1. Introduction to Economic Geography** 1.1 Definition, Nature and Scope of Economic Geography 1.2 Approaches of Economic Geography 1.3 Classification of Economic activities 1.4 Recent trends in Economic Geography
Module 2(Credit 1) Industrial Location Theories	
Learning Outcomes	After learning the module, learners will be able to
	Understand the principle of location of industry.
Content Outline	**2.Industrial Location Theories** 2.1 Factors of Industrial Location 2.2 Industrial Location Theory : Weber's Least Cost Theory August Losch'sProfit MaximationTheory 2.3 Industrial Regions
Module 3(Credit 1) Transportation and Trade	
Learning Outcomes	After learning the module, learners will be able to
	Analyse the association between transport and trade.
Content Outline	**3.World Transportation, Communication and Trade** 3.1 Roadways, Railways, Waterways, Air ways and Pipelines 3.2 GIS and Communication network 3.3 Types of Trade, Factors affecting International Trade 3.4 Trading Blocs 3.5 Changing pattern of India's foreign trade
Module 4(Credit 1) Development: Concepts and Measurements	

Learning Outcomes	After learning the module, learners will be able to
	Assess the relationship among the various development factors.
Content Outline	4. **DevelopmentMeasurements** 4.1 Concept of Growth and Development 4.2 Measurements of Development – Geographical, Economic,Social, Demographic Measures 4.3 Rostow's Model 4.4 Application of RS and GIS in Economic Geography

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

1. Seminar / Group Discussion : 10 Marks

2.Home Assignments/Group Activities: 10 Marks

3. Project Work and Presentation: 30 Marks

Internal Assessment Total: 50 Marks

References

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2. Hanink, D.M. (1997): "*Principles and Applications of Economic Geography, Economy, Policy, Environment*", John Wiley and Sons, New York.
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5. Kanan Chatterjee (2015): 'Basics of Economic Geography', Concept publishing Company Pvt. Ltd., New Delhi.
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7. Masjid Hussain, (2008): "*Models in Geography*", Rawat Publications, New Delhi.
8. Masjid Hussain, (2018): "*Economic Geography*", Rawat Publications, New Delhi.
9. Mitra, A (2002): 'Resource Studies', Sreedhar publishers, Kolkata.
10. Ray, P. k. (1997): '*Economic Geography*', New Central Book Agency (P) Ltd., Calcutta.
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14. Truman A Hartshorn, John W. Alexander (2010): "*Economic Geography*" PHL Learning Private Limited, New Delhi.

Major (Core) Advances in Population Geography

Course Title	**Advances in Population Geography**
Course Credits	4
Course Outcomes	After going through the course, learners will be able to
	1. Tointroduce the fundamental concepts of Population Geography.
	2. To explain determinants of population growth and distribution in Spatio - temporal perspective.
	3. To comprehend population dynamics and migration, issues and policies in developed and developing countries.
	4. To understand and analyse issues and challenges of population in the context of India.
Module 1(Credit 1) Introduction to Population Geography	
Learning Outcomes	After learning the module, learners will be able to
	Understand the historical development in population geography and sources of population data in India.
Content Outline	**1. Introduction to Population Geography** 1.1 Definition, Nature and Scope 1.2 Historical development of Population Geography 1.3 Approaches of Population Geography 1.4 Sources of population data with special reference to India 1.5 Brief history of Census, Census classification, Overview of census of India 2011/2021.
Module 2(Credit 1) Population Growth and Distribution Characteristics	
Learning Outcomes	After learning the module, learners will be able to
	Analyse the demographic characteristics and its impact.
Content Outline	**2. Population Growth and Distribution Characteristics** 2.1 Influencing Factors of Fertility and Mortality 2.2 Overview of Population growth and Density Population explosion 2.3 Demographic transition Model 2.4 Malthus and Karl Marx Theory of Population Growth 2.5 Over population, under population and optimum population 2.6 Population Projections
Module 3(Credit 1) Population Migration	
Learning Outcomes	After learning the module, learners will be able to
	Associate the push and pull factors of migration and relevance of migration theories.

Content Outline	3. **Population Migration** 3.1 Migration, types of migration, causes and impacts of migration 3.2 Human migration with special reference to India 3.3 Migration Theories: Lee's theory, Zelinsky's Mobility transition model 3.4 Recent issues related to Migration: Migration and Politics: Fiji Islands, reversal migration of brain drain to brain gain
Module 4(Credit 1)Population Issues and Population Policies	
Learning Outcomes	After learning the module, learners will be able to
	Evaluate various population issues in India and the role of population policies to overcome these issues.
Content Outline	**4.Population Issues and Population Policies** 4.1India: Population growth & Population Dividend 4.2 India: Gender issues & equality (Sex ratio, literacy, health) 4.3 Concept of Human Development Index: Global and national analysis 4.4 National Population Policy (NPP) 2000: Targets, achievements and challenges

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

1. Seminar / Group Discussion	:	10 Marks
2.Home Assignments/Group Activities	:	10 Marks
3. Project Work and Presentation	:	30 Marks

Internal Assessment Total:		**50 Marks**

References

1. Bhende, A. and Kanitkar, T. (2006): Principles of Population Studies, Himalaya Publishing House, Mumbai.
2. Bose Ahish (2000): "*India Towards Billion Plus*", Vikas Publishing House.
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4. Clarke, J.I. (1992): Population Geography, Second Edition, Pergamon Press, Oxford England.
5. Crook, N. (1997): Principles of Population and Development, Pergamon, New York.
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7. Garnier, B.J. (1970): Geography of Population, Longman, London.
8. Hassan Mohammed (2005): Population Geography, Rawat Publication, New Delhi

9. Lal Punna (2015) Population Geography Anmol Publications PVT. LTD , New Delhi
10. Majumdar P K (2013): India's Demography: Changing Demographic Scenario in India, Rawat Publication, New Delhi
11. Mamoria C.B. (1981): India's Population Problems, Kitab Mahal, New Delhi.
12. Premi M.K. (1991): India's Population: Heading Towards a Billion, B.R. Publishing, New Delhi.
13. Roy Rajeshwar (2013) Handbook Of Population Geography, Anmol Publications PVT. LTDAnmol.
14. UNDP Report (2012): Oxford University Press, Oxford.
15. Verma L.N. (2006): "*Urban Geography"*, Rawat Publications, New Delhi

Major (Elective) Practical II

Course Title	Techniques in Human Geography
Course Credits	4
Course Outcomes	After going through the course, learners will be able to
	1. To understand basic concepts, techniques and application of surveying.
	2. To explain various methods and data analysis techniques in human geography.
	3. To acquire the skill of data collection, analysis and report writing.
Module 1(Credit 1) Techniques in Agriculture and Transportation	
Learning Outcomes	After learning the module, learners will be able to
	Apply the proper methods of agricultural
Content Outline	**Agriculture and Transportation** 1.1 Crop Combination: Weavers and Thomas Methods; 1.2 Crop Diversification : Bhatia's Method, Jasbir Singh's Method 1.3 Agricultural Efficiency: Kendall's Method; 1.3 Measures of Network Structure: Alpha, Beta and Gama;
Module 2(Credit 1) Population	
Learning Outcomes	After learning the module, learners will be able to
	Apply the appropriate methods of population analysis.
Content Outline	**Population and Settlement** 2.1 Fertility **:**General Fertility Rate,Crude Birth Rate**;** 2.2Mortality : Infant Mortality Rate, Crude Death Rate; 2.3 Child women ratio, Sex Ratio, Age sex pyramid; 2.4 Population growth rate, Population projection**;** 2.5 Rural Settlement Dispersion Methods - Demangeon and R. B. 2.6 Mandal's Method and Rank size Rule
Module 3(Credit 1) Measures of Inequality	
Learning Outcomes	After learning the module, learners will be able to
	Apply the appropriate methods of settlement analysis.
	Apply the various measures of inequality and interpret the data.
Content Outline	**3.Measures of Inequality** 3.1 Lorenz Curve and its interpretation 3.2 Location quotient and its interpretation 3.3 Gini coefficient and its interpretation
Module 4(Credit 1) Field work	
Learning Outcomes	After learning the module, learners will be able to
	Develop the skill of observation and report writing.
Content Outline	**Field work** Socio Economic survey – Village / City Survey and Report writing

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

1. Seminar / Group Discussion :	10 Marks
2.Home Assignments/Group Activities :	10 Marks
3. Project Work and Presentation:	30 Marks
Internal Assessment Total:	**50 Marks**

References

1. AlkaGautam (2012): *"Agricultural Geography"* ShardaPustakBhawan, Allahabad.
2. Bhaduri, S. (1992) : " *Transport and Regional Development: A Case Study of Road. Transport of West Bengal*", Concept Publication, New Delhi.
3. Clarke, J.I. (1992): "*Population Geography*" Second Edition, Pergamon Press, Oxford England.
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6. Grigg David (1995): *"An introduction to agricultural geography",* (second edition), Routledge, London and New York
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8. HaqMahbulul (2000): "*Reflections on Human Development*", Oxford University Press, New Delhi.
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13. Robinson, H. And Bamford, C.G. (1978): " *Geography of Transport*", London: Macdonald
14. Sarkar Ashis (1997): "*Practical Geography: A Systematic Approach*", Orient Black-Swan.
15. Singh Jasbir and Dhillon S.S. (1994): *"Agricultural geography"*, Tata McGraw Hill Publication, New Delhi
16. Singh R. L. & Rana P. B. Singh (2005): " *Elements of Practical Geography*", Kalyani Publisher, New Delhi.
17. Singh R.L. et al (1975): "*Reading in Rural Settlement Geography"*, National Geographical society of India, Varanasi.

Major (Core)

Course Title	**Geography of Resources**
Course Credits	**2**
Course Outcomes	After going through the course, learners will be able to
	1. To understand the concepts and geography of resources.
	2. To get acquainted with the changing perception about the resources with the stages of development of a region.
	3. Toget comprehensive knowledge of natural resources available in the world and related crises.
	4. To analyse human resources, its strength and regional disparities.
	5. To design a plan for the conservation and management of the resources.
Module 1(Credit 1) Introduction	
Learning Outcomes	After learning the module, learners will be able to
	Understand the distribution classification of resources.
Content Outline	**1. Introduction:** 1.1 Definition and concept of Resources 1.2 Nature, scope and significance of the Geography of Resources, 1.3 Classification of Resources on the basis of biogenesis, renewability 1.4 Resources Availability and Distribution
Module 2(Credit 1) Natural Resources	
Learning Outcomes	After learning the module, learners will be able to
	Critically examine the importance of land and water resources.
Content Outline	**2. Natural Resources:** 2.1 Land Resources 2.2 Water resources 2.3 Conservation and sustainability of Land and water resources 2.4 Land and water Resource Management in India 2.5 Resource Development Policy and Planning

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

References

1. Adams, W. M. (1990),"Green Development", Environment and Sustainability in the Third World, Routledge, London.
2. Beck, U. (1992),"Risk Society", Towards a New Modernity, Sage, London.
3. Borton, I. and Kates, R.W. (1984), "Readings in Resource Management and Conservation, University of Chicago Press, Chicago.
4. Bruce, M. (1989),"Geography and Resource Analysis, John Wiley, New York.
5. Ehrlich P.R., Ehrlich R.H. &holdlen J.P. (1998) "*Eco science, Population, Resources & Development",* Freeman & Company, San Francisco.
6. Elcome D (1998): "*Natural Resources: Their use and Abuse*", Nelson Thomes.
7. Elliott, J.A. (1999),"An Introduction to Sustainable Development", Routledge.
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10. Holechek J.L. etal (2000)"*Natural Resources, Ecology, Economics & Policy*", Prentice Hall, New Jersey.
11. Mather, A.S. and Chapman, K. (1995) "Environmental Resources", Longman Scientific andTechnical, London.
12. Mitra A. (2000): "*Resource Studies*", Shridhar Publishers, Kolkata
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20. Robbias Paul, Hirtz J & Moore Sarah (2010): "*Environment &Societ : A Critical Introduction*", wdey, Backwell
21. Roy, P. K (2001),"Economic Geography, A Study of Resources", New Central Book Agency, Kolkata.
22. Sarre, P. and Blunder, J. (1995): An Overcrowded World Population, Resources and the Environment, the Open University, Oxford

Major (Elective)

Course Title	**Regional study of Maharashtra**
Course Credits	4
Course Outcomes	After going through the course, learners will be able to
	1. To familiar the students with basic knowledge and to orient the physical and economic settings of Maharashtra
	2. To create geographical interest in the state and motivate the students to carry out further study and research in these areas through field visits in Maharashtra.
	3. To aware the students with available natural resources and need of conservation and protection.
	4. To prepare students for NET, SET and competitive examinations.
Module 1(Credit 1) Introduction to Maharashtra	
Learning Outcomes	After learning the module, learners will be able to
	Evaluate the existing distribution of natural resources, need of conservation and planning for sustainable development
Content Outline	**1. Introduction to Maharashtra** 1.1 Geographical Setting Location 1.2 Geology and Mineral Wealth 1.3 Physical Divisions: Mountains, Plateaus and Plains 1.4 Climate 1.5 River Drainage systems and lakes
Module 2(Credit 1) Human Resources/ Cultural	
Learning Outcomes	After learning the module, learners will be able to
	Understand the contribution of human resources in overall development of Maharashtra.
Content Outline	**2. Human Resources** 2.1 History and creation of Maharashtra as State 2.2 Socio-Cultural Characteristics of Maharashtra 2.3 Population Characteristics - Growth and Density, Distribution, Age-sex structure, Occupational structure 2.4 Literacy and Education 2.5 Migration
Module 3(Credit 1) Resource and Development	
Learning Outcomes	After learning the module, learners will be able to
	Understand the distribution of resources and examine the role of resources in development.
Content Outline	**3. Resources** 3.1 Water Resources 3.2 Soil 3.3 Flora and Fauna 3.4 Power Resources- Hydel and Thermal 3.5 Agricultural Resources

4. Module 4(Credit 1)Development	
Learning Outcomes	After learning the module, learners will be able to
	Assess the role of technological and economic activities in development and the causes of regional disparity in Maharashtra.
Content Outline	**4.Development** 4.1 Irrigation Projects 4.2 Transport and Communication Network 4.3 Industrialization 4.4 Tourism 4.5 Regional Disparity in Maharashtra

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE)

1. Seminar / Group Discussion : 10 Marks

2.Home Assignments/Group Activities: 10 Marks

3. Project Work and Presentation 30 Marks

Internal Assessment Total: 50 Marks

References

1. Arunachalam B. (1967), Maharashtra - A Study in Physical and Regional Setting, A. R. Sheth and Co., Mumbai
2. Dasatane S. (1992), Glimpses of Maharashtra, DastaneRamchandra and Co., Pune
3. Deshpande, C.D (1971) Geography of Maharashtra National Book Trust, India;
4. DiddeeJaymala and et.al. (2002) Geography of Maharashtra Rawat Publications, New Delhi
5. Dikshit K. R. (1971), Maharashtra Region in India, A Regional Geography Singh R. H. (Ed.), Thinkers Library, Varanasi.
6. Dikshit, K.R (1981) Maharashtra in Maps Maharashtra State Board for Literature and Culture, Bombay
7. Dikshit K. R. (1981), The Western Ghats, A Geographic view in perspectives in Geography, Thinkers Library Allahabad
8. Gadgil G. and Deshpande A. (1988) Maharashtra, Problems, Potential and Prospects, Somaiya Publications Pvt. Ltd., Bombay.
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10. Savadi, A.B. (2012); The Mega State Maharashtra, NiraliPrakashan Pune

Structure with Course Titles

M.A. Geography Sem. III and IV

Year II

Code	Courses	Type of Course	Credits	Marks	Int	Ext
	Semester III					
310721	Internship	Major (Core)	4	100	50	50
310722	Internship	Major (Core)	4	100	50	50
310723	Advanced Cartography	Major (Core)	4	100	50	50
310714	Fundamentals of RS and GIS	Major (Core)	2	50	0	50
320711/ 320712	Regional Study of India / Geography of Rural Development	Major (Elective)	4	100	50	50
350731	Research Project	RP	4	100	50	50
			22	550	250	300
	Semester IV					
410711	Urban Geography	Major (Core)	4	100	50	50
410712	Soil Geography	Major (Core)	4	100	50	50
410723	Practicals in Remote Sensing	Major (Core)	4	100	50	50
420711/ 420712	Gender Geography/ Agriculture Geography	Major (Elective)	4	100	50	50
450731	Research Project	RP	6	150	100	50
			22	550	300	250

Course Syllabus

Semester III

Major (Core): Internship

Course Credits: 8

Major (Core): Advanced Cartography

Course Title	**Advanced Cartography**
Course Credits	**4**
Course Outcomes	After going through the course, learners will be able to
	Assess various tools and techniques of geographical analysis.
	Differentiate various tools and techniques of Cartography.
	Create various thematic maps throughcartography.
Module 1(Credit 1) Cartographic Techniques	
Learning Outcomes	After learning the module, learners will be able to
	Apply appropriate cartographic techniques to analyze any geographical data in their further research.
Content Outline	**1. Cartographic Techniques** 1.1 Definition of Cartography, History and Development of Cartography 1.2 Representation of Statistical Data 1.3 One Dimensional figures, Two Dimensional figures and Three dimensional figures
Module 2(Credit 1) Thematic Maps and Computer Cartography	
Learning Outcomes	After learning the module, learners will be able to
	Handle online free softwares to prepare various thematic maps.
Content Outline	**Thematic Maps and Computer Cartography** 1.1 Thematic Maps: Isopleth, Choropleth, Choroschematic, Dot maps. 1.2 Tabulation and Representation of data using MS-Excel 1.3 Data Interpretation
Module 3(Credit 1) Introduction to GIS	
Learning Outcomes	After learning the module, learners will be able to
	Assess various sources of data in GIS.

Content Outline	**3. Introduction to GIS** 3.1 Definition, History and Development of GIS, Components of GIS 3.2 GIS Data types &Sources of Data 3.3 Georeferencing – Co-ordinate systems 3.4 Digitization of Features, 3.5 GIS Database and Data Attachment
1. Module 4(Credit 1) GIS Open-Source Softwareand Map Making	
Learning Outcomes	After learning the module, learners will be able to
	Achieve the skill of modern geographical tool like GIS and GPS
Content Outline	**1. GIS Open-Source Software and Map Making** 1.1 Introduction of Open-Source Software 1.2 Map making through Open-Source Software 1.3 GPS mapping 4.4 Application of GIS

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Assignments: Data download, Representation with appropriate cartographic method and its interpretation

Group Discussion: Applications of Cartographic techniques and GIS Techniques

Group Activities: Application of MS Excel and data analysis, Application of GIS in various fields

Project: Map making with Open Source Software and its analysis

References

Bernhardsen, Tor (1999): *"Geographic Information Systems: An Introduction",* John Wiley and Sons.

Burroughs, P. A (1986*): "Principles of Geographical Information Systems for land Resources Assessment",* Oxford University Press.

Chang, Kang-taung (2002): *"Introduction to Geographic Information Systems",* Tata McGraw-Hill.

Clarke, Keith C. (1999): *"Getting Started with Geographic Information Systems",* Prentice Hall.

Demers, Michael N. (2000): *"Fundamentals of Geographic Information Systems",* John Wiley.

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Sarkar Ashis (1997): "*Practical Geography: A Systematic Approach*", Orient Black-Swan.

Singh R. L. & Rana P. B. Singh (2005): "*Elements of Practical Geography*", Kalyani Publisher, New Delhi.

Training Course for GIS for resource management and development planning: Lecture notes, V1: *"GIS Fundamentals and Techniques"*, Government of India.

Major (Core): Fundamentals of RS and GIS

Course Title	**Fundamentals of RS and GIS**
Course Credits	**2**
Course Outcomes	After going through the course, learners will be able to
	Analyze the basic concepts Remote Sensing and Geographical Information System.
	Assess the modern techniques, tools of RS and GIS.
	Analyze Satellite Image and GIS Data.
Module 1(Credit 1): Fundamentals of Remote Sensing	
Learning Outcomes	After learning the module, learners will be able to
	Apply appropriate cartographic techniques to analyze any geographical data in their further research.
Content Outline	**Fundamentals of Remote Sensing** 1.1 Definition of Remote Sensing, History and Development of Remote Sensing 1.2 Elements of RS - Electro – Magnetic - Spectrum, platform and sensor 1.3 Interaction with Atmosphere and Earth surface 1.4 Types of satellite and Satellite orbits 1.5 Resolution types- Spatial, Temporal, Spectral and Radiometric 1.6 Application of Remote Sensing
Module 2(Credit 1) Fundamentals of GIS	
Learning Outcomes	After learning the module, learners will be able to
	Differentiate the types of data applied in GIS and its application. Handle online free softwares to prepare various thematic maps.
Content Outline	**Fundamentals of GIS** 2.1 Definition, History and Development of GIS 2.2 Components of GIS: hardware, software, data, people, and methods. 2.3 Sources of data: Maps, Images and other records 2.4 GIS Data types - Spatial and non-spatial, Raster and Vector

	data 2.5 Map Making- Georeferencing, Coordinate systems, Digitization of Features, Data Attachment, GIS Database, Map Making 2.5 Application of GIS

Internal Assessment Total: 50 Marks

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Assignments : History and development of Remote Sensing and GIS

Group Discussion : Applications of RS and GIS in the various fields

Group Activities: Data types in RS and GIS, Satellites and its main objectives, Data analysis in softwares

Project : Map making with Free Softwares and its analysis

References

Bernhardsen, Tor (1999): *"Geographic Information Systems: An Introduction",* J ohn iley and Sons.

Burroughs, P. A (1986*): "Principles of Geographical Information Systems for land Resources Assessment",* Oxford University Press.

Chang, Kang-taung (2002): *"Introduction to Geographic Information Systems",* Tata McGraw-Hill.

Clarke, Keith C. (1999): *"Getting Started with Geographic Information Systems",* Prentice Hall.

Demers, Michael N. (2000): *"Fundamentals of Geographic Information Systems",* John Wiley.

Guha P.K. (2003): *"Remote Sensing for the Beginner"*, Affiliated East-West Press Pvt. Ltd. New Delhi.

Haywood, Ian (2000): *"Geographical Information Systems",* Longman.

Lillesand T.M. and Kiefer R.W. (2010): *"Remote Sensing and Image Interpretation",* John Wiley & Sons Pvt. Ltd.

Training Course for GIS for resource management and development planning: Lecture notes, V1: *"GIS Fundamentals and Techniques",* Government of India.

कार्लेकर श्रीकांत (२००७): "दुरसंवेदन" , डायमंड पब्लिकेशन, पुणे.

Major (Elective): Regional Study of India

Course Title	**Regional Study of India**
Course Credits	**4**
Course Outcomes	After going through the course, learners will be able to
	1.Analyze the various regional divisions of India, their important characteristics, Intra-regional and inter-regional linkages.
	2.Analyse the natural and human resource endowments, their conservation and management
	3. Sensitize with development issues and policies and programmes designed for regional development.
Module 1(Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	Delineate various regional divisions of India, their important characteristics, Intra-regional and inter-regional linkages
Content Outline	**1. Regionalization and Physiographic Regions** 1.1 Regionalization: Concept of regional personality and perception of regional issues. 1.2 Elements of regional enquiry 1.3 Physiographic Regions, Drainage Systems, Climatic Characteristics, Natural Vegetation and Soil. 1.4 Geopolitical conditions/characteristics
Module 2(Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	1. Evaluate agricultural regions and issues in the region
	2. Analyze the agriculture developments through implementation of government initiatives
Content Outline	**2. Agriculture**: 2.1 Nature, problems and prospects 2.2 Infrastructure: Irrigation, fertilizers, power, seeds and farm technology 2.3 Green revolution and its socio-economic and ecological implications 2.4 Livestock resources and white revolution 2.5 Aquaculture; Sericulture; Apiculture and poultry 2.6 Agricultural regionalization; Agro-climatic regions; Agro-ecological zones.
Module 3(Credit 1)	
Learning Outcomes	After learning the module, learners will be able to

	Analyze the natural and human resource endowments, their conservation and management
Content Outline	**3. Industries:** 3.1 New industrial policy: Globalization and liberalization 3.2 Industrial complexes and industrial regions; Industrial houses and complexes including public sector undertakings; 3.3 Industrial regionalization; multi-nationals and liberalization 3.4 Special economic zones.
Module 4(Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	Evaluate development issues, policies and programmes designed for regional development.
Content Outline	**4. Population characteristics and composition** 4.1 Age, Sex, Literacy, Sex, work structure, etc. 4.2 Population problems and policies. 4.3 Contemporary Issues: Environmental Pollution and degradation 4.4 Natural Disasters – Pandemic, Regional Disparities, Globalization and Indian Economy.

Internal Assessment Total: 50 Marks

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Seminar, Group Discussion , Home Assignments , Group Activities , Field Visit and Observation ,Project Work and Presentation

References

Alka Gautam (2009): ***Geography of India***, Sharada pustakbhawan, University Road, Allahabad – UP.

Centre for Science & Environment (1988): ***State of India's, Environment***, New Delhi

Deshpande, C.D. (1992): ***India: A Regional Interpretation***, ICSSR & Northern Book Centre, New Delhi.

Dreze, J. & Sen A. (ed.) (1996): ***India's Economic Development and Social Opportunity,*** Oxford University Press, New Delhi.

Gautam, A. (2009): ***Advanced Geography of India,*** Second Edition, Sharada Pustak Bhawan, Allahabad.

Husain, M. (2008): ***Geography of India,*** Tata McGraw-Hill, New Delhi.

Khullar, D.R. (2009): ***India: A Comprehensive Geography***, Kalyani Pub., New Delhi.

Kundu A. and Raza, M. (1982): ***Indian Economy: The Regional Dimension***. Spectrum Publishers, New Delhi.

Majid Husain (2008): ***Geography of India***, Tata Mc. Graw hill publishing co. ltd. N. Delhi.

Robinson, F. (1989): ***The Cambridge Encyclopedia of India, Pakistan, Bangladesh, Sri Lanka, Nepal, Bhutan & Maldives,*** Cambridge University Press, London.

Pritivish Nag and Smita Sengupta (1992) ***Geography of India***, Concept Publishing Company, New Delhi – 59.

Sharma TC and Coutinho O (2005): ***Economic and Commercial geography of India***, Vikas Publishing House ltd., New Delhi-14

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Spate, O.H.K. & Learmonth, A.T.A. (1967): ***India & Pakistan***, Methuen, London.

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Major (Elective): Geography of Rural Development

Course Title	**Geography of Rural Development**
Course Credits	**4**
Course Outcomes	After going through the course, learners will be able to
	1. Overview of the Geography of Rural Development and the role of geography in rural development.
	2. Evaluate the factors affecting the rural development, changing dimensions of the rural society and rural economy, and
	3. Criticize various problems of the rural areas, its planning and rural development strategies in India.
Module 1(Credit 1) Introduction to Geography of Rural Development	
Learning Outcomes	After learning the module, learners will be able to
	Differentiate the indicators and factors affecting rural development.
Content Outline	1. **Introduction to Geography of Rural Development** 1.1 Definition, Nature and Scope of Geography of Rural Development 1.2 Meaning of Rural Areas, Development, Definition of Rural Development 1.3 Approaches to Rural Development – Sectoral Approach, Area Approach, Target Group Approach, Integrated / Holistic Approach 1.4 Factors affecting rural development - Geographical, Economic, Demographic, Social, Government Policy, etc.
Module 2(Credit 1) Rural Society and Economy	
Learning Outcomes	After learning the module, learners will be able to
	Assess the changing dimensions of the rural society and rural economy.
Content Outline	2. **Rural Society and Economy** 2.1 Concept of Rural Society and changing dimensions of the rural society 2.2 Basic Rural services and Infrastructural facilities 2.3 Contribution of Agriculture, Forestry, Animal Husbandry, Other Allied Agricultural Activities in Rural Development 2.4 Changing Rural Economic Structure
Module 3(Credit 1) Rural Development Problems in India	
Learning Outcomes	After learning the module, learners will be able to
	Evaluate major rural development problems with reference to

	India.
Content Outline	**3.Major Rural Development Problems in India** 3.1 Rural Unemployment 3.2 Rural poverty 3.3 Rural Housing 3.4 Transport Connectivity problem
Module 4(Credit 1) Rural Development Strategies in India	
Learning Outcomes	After learning the module, learners will be able to
	Classify different types of rural development and evaluate the strategies impact on rural development in India.
Content Outline	**4.Rural Planning and Development Strategies in India** - 4.1 Rural Planning - Types of rural planning 4.2 Integrated Watershed Management for Integrated Rural Development, Success story of Ralegan Siddhi 4.3 Rural Development Programmes in India: Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), Deen Dayal Upadhyay Grameen Kaushal Yojna: Swachchh Bharat Mission, Sansad Adarsh Gram Yojna 4.5 Applications of Remote Sensing and GIS in Rural Planning and Development

Internal Assessment Total: 50 Marks

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Seminar : Approaches to Rural Development, Basic Rural services and Rural Development

Assignments : Participation of community in Rural Development,

Group Discussion : Rural issues and rural development, Rural Development Programmes and Rural development

Group Activities: Role of Government policies and rural Development, Applications of Remote Sensing and GIS

Project : Visit to native place and analysis of rural development, Rural Planning and Rural Development,

References

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RP: Research Project

Course Credits: 4

Internal Assessment Total: 50 Marks

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Group Activity : Downloading of Research Papers, Government Reports, Data etc.,

Assignment : Selection of Research Topic, Writing of review of literature, Writing of Book Review, Writing of Research Proposal etc.

Presentation : Presentation of Research Proposal

References

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Course Syllabus

Semester IV

Major (Core): Urban Geography

Course Title	**Urban Geography**
Course Credits	**4**
Course Outcomes	After going through the course, learners will be able to
	Acquaint the students with the spatial and structural characteristics of urban settlements.
	Create awareness of/on special issues related to urban settlements enabling them to research and understand the practical applications of the same.
	Develop ability to evaluate critically different theories and analytical approaches in process of urbanization
Module 1(Credit 1) Introduction to Urban Geography	
Learning Outcomes	After learning the module, learners will be able to
	Develop various concepts of urban geography.
	Analyze the process of urbanization and trends of urbanization.
Content Outline	**1.Introduction to Urban Geography** 1.1 Definition, nature and scope of urban geography 1.2 Definition of urban places: Global, including UN and India: problem in defining an urban Place 1.3 Process of Urbanization, World Urbanization 1.4 Trends and patterns of urbanization in India.
Module 2(Credit 1) Urban Functions and Theories	
Learning Outcomes	After learning the module, learners will be able to
	1. Evaluate functional classification of urban towns.
	2. Relevance of urban growth theories with urban functions in present situation.
Content Outline	**2.Urban Functions and Theories** 2.1 Site and situations of urban places, 2.2 Functional classification of towns. 2.3 Urban growth and various theories by Christaller's, Losch, Perroux etc.
Module 3(Credit 1) Urban morphology	
Learning Outcomes	After learning the module, learners will be able to
	1. Examine changing patterns of urban morphology and relevance of various city models of urban areas.
	2. Associate the hierarchy of urban settlements in the context of India.

Content Outline	**3. Urban morphology** 1.1 Urban morphology and land use structure, 1.2 Classic models of the city: Contemporary models of the city 1.3 New urban order, gentrification and Suburbanization 1.4 Hierarchy of Urban settlements, City - Region concept, Urban Expansion and Umland.
Module 4(Credit 1)Contemporary Urban Issues	
Learning Outcomes	After learning the module, learners will be able to
	1. Analyze contemporary urban issues at local and national level.
	2. Apply GIS and RS techniques in studying urban issues.
Content Outline	**4.Contemporary Urban Issues** 4.1Urban poverty, urban renewal, urban sprawl, slums; 4.2 Urban infrastructure; Urban crime and Issues of Urban health 4.3 Trends of Urban Research in India 4.4 Smart cities and sustainability of cities 4.5 Application of GIS and RS in Urban issues

Internal Assessment Total: 50 Marks

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Seminar, Group Discussion , Home Assignments , Group Activities , Field Visit and Observation ,Project Work and Presentation

References

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Major (Core) Soil Geography

Course Title	**Soil Geography**
Course Credits	**4**
Course Outcomes	After going through the course, learners will be able to
	1. Analyze the process of soil formation, distribution of soil in India and Maharashtra.
	2.Classify and differentiate physical, chemical and biological properties of soils and their significance in soil fertility and productivity
	3. Examine the Plant-water-soil relationship and evaluate the soil erosion
	4. Create awareness of soil conservation plans for the regions in India.
Module 1(Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	1.Examine the concepts of land and soil
	2.Associate the Plant-water-soil relationship and evaluate the soil erosion
Content Outline	**Introduction** 1.1 Soil and Soil Science, Concept of land and soil; Soil and Land relationship. 1.2 Plant-water-soil relationship; 1.3 Constituents of Soil- soil minerals, organic components, soil air, soil water, soil organism. 1.4 Soil as a system of Dynamic Equilibrium in Nature
Module 2(Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	1.Evaluate soil formation processes
	2. Analyze factors of soil formation and classify the soils.
Content Outline	**2. Soil Formation and Classification** 2.1 Soil formation factors - Physical: parent rock, time, topography and climate; 2.2 Process of soil formation- weathering, humification, in-situ and transported soils; 2.3 Soil Profile; 2.4 Genesis and Classification of soils 2.5 Types of soils in India and Maharashtra.
Module 3(Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	1.Classify and differentiate physical, chemical and biological properties of soils and their significance in soil fertility and productivity
	2. Evaluate role of physico-chemical properties in soil fertility and productivity.

Content Outline	**3. Soil Properties**: 3.1 Physical properties - colour, texture, pore space, bulk density, infiltration, moisture content; 3.2 Chemical properties - pH, salinity, ion-exchange capacity; 3.3 Biological properties - soil organisms; Soil organic matter - total organic matter, humus, effect of organic matter on physical and chemical properties of soil; 3.4 Concept of soil fertility and plant productivity 3.5 Role of physico-chemical properties in soil fertility and productivity.
Module 4(Credit 1)	
Learning Outcomes	After learning the module, learners will be able to
	1. Evaluate soil degradation in different regions
	2.Develop the soil conservation plans for the regions in India
Content Outline	**4. Soils of India:** 4.1 Soils in Agro-climatic regions of Maharashtra 4.2 Problems and prospect of utilization of different soils in India; 4.3 Soil Degradation- Factors, process and resultant forms in different parts of India. 4.4 Conservation of major soils of India with special reference to Maharashtra.

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Seminar, Group Discussion , Home Assignments , Group Activities , Field Visit and Observation ,Project Work and Presentation, Project Work and Presentation

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National Bureau of Soil Survey and Land Use Planning (https://www.nbsslup.in/)
IIRS, Agriculture and Soils Department (https://www.iirs.gov.in/agricultureandsoilsdepartment)
Farmer's Portal, Govt. of India (https://farmer.gov.in/)
Department of Agriculture, Govt. of Maharashtra (http://krishi.maharashtra.gov.in/1001/Home)

Major (Core): Practicals in Remote Sensing

Course Title	**Practicals in Remote Sensing**
Course Credits	**4**
Course Outcomes	After going through the course, learners will be able to
	1. Apply appropriate cartographic techniques to analyze the any geographical data in their further research.
	2.Handle the open source software to prepare various thematic maps.
Module 1(Credit 1) Basics of Remote Sensing	
Learning Outcomes	After learning the module, learners will be able to
	1.Corelate the basic concepts of Remote Sensing with Geography.
	2. Evaluate appropriate remote sensing data.
Content Outline	**1. Basics of Remote Sensing** 1.1 Aerial Photographs 1.2 Satellite Images in Remote Sensing 1.3 Global Positioning System (GPS)
Module 2(Credit 1) Elements of Aerial Photography	
Learning Outcomes	After learning the module, learners will be able to
	1. Interpret Aerial Photographs
	2. Analyze and differentiate various physical and cultural features in Aerial photographs
Content Outline	2**. Elements of Aerial Photography** 1.1 Basic Principles of Aeiral Photography 1.2 Types of Aerial Phtotographs 2.3 Flight management 2.4 3D visualization of Aerial Photos 2.5 Visual Interpretation of Aerial Photo
Module 3(Credit 1) 3. Satellite Images	
Learning Outcomes	After learning the module, learners will be able to
	1. Interpret images visually
	2. Create False and True Color Composite. 3. Analyze and differentiate various physical and cultural features in Satellite Images
Content Outline	**3.Satellite Images** 3.1 Types of Images: True & False Colour Composite 3.2 Elements of Visual Image Interpretation 3.3 Visual Interpretation of Images (Any Four)

Module 4(Credit 1) Image Analysis	
Learning Outcomes	After learning the module, learners will be able to
	1. Utilize Satellite data from the archives
	2. Create dataset using Digital Image Processing
Content Outline	**4.Image Analysis** 4.1 Download different satellite data 4.2 Introduction to Image Analysis Software / Portal 4.3 Digital Image Analysis

Internal Assessment Total: 50 Marks

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Seminar : Importance of Toposheet and Satellite image

Group Discussion : Modern techniques in Geography

Home Assignments : Types of Aerial Photographs, Satellite Remote Sensing, Global Positioning System (GPS)

Group Activities : Download different satellite data , Interpretation of Images, GPS Survey , Explore tools and functions of Software

Project Work and Presentation : Image Analysis in RS Software

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Srivastava P. K., T. G. B. Srikant, T. P. Srinivasan, M. P. T. Chamy, P. M. Udani (1989), "SPOT Stereo Data Processing: Determination of Digital Terrain Model from SPOT stereo pairs, Mathematical formulation and functional design"

Major (Elective)

Course Title	**Gender Geography**
Course Credits	**4**
Course Outcomes	After going through the course, learners will be able to
	1. To introduce the fundamental concepts of Gender Geography.
	2. To comprehend various variables of gender and its impact on the development.
	3. To explore how gender relations and geography are mutually structured and transformed spatially.
	4. To analyze the gender inequality and bridging gender gap in the context of India.
Module 1(Credit 1) Introduction to Gender Geography	
Learning Outcomes	After learning the module, learners will be able to
	Differentiate the approaches of gender geography while studying various gender issues.
Content Outline	**1.Introduction to Gender Geography** 1.1 Definition, nature and Scope of Gender Geography 1.2 Emergence of Gender Geography 1.3Concept of interdependence between men and women 1.4 Approaches and trends in Gender Geography
Module 2(Credit 1) Gender Variables and Gender Development:	
Learning Outcomes	After learning the module, learners will be able to
	Analyze various variables of gender development.
Content Outline	**2. Gender Variables and Gender Development** 2.1 Historical Variables, Socio-Cultural, Demographic, economic, Political etc. 2.2 Administrative and institutional variables 2.3 Role of gender variables in development
Module 3(Credit 1) Gender Gap	
Learning Outcomes	After learning the module, learners will be able to
	Analyze the parameters of gender gap and the causes of gender inequality in context of Indian scenario.
Content Outline	**2.Gender Gap** 2.1 Concept of Gender Gaps, Parameters of Gender Gap 2.2 Gender Gap Analysis-Education, Education attainment, Health care and nutrition, Life expectancy, livelihood, participation in politics and enfranchisement 2.3 Global Scenario of Gender Inequality

	2.4 Spatial Gender Inequality in India
Module 4(Credit 1) Bridging Gender Gap	
Learning Outcomes	After learning the module, learners will be able to
	1. Analyze the Gender Audit
Content Outline	**4.Bridging Gender Gap** 4.1 Concept of Gender Audit 4.2 Role of Gender Budget in bridging Gender Gap 4.3 Bridging Gender Gap - Empowerment of women with education, economic opportunities, access to reproductive health services, involvement in decision making processes in various sectors

Internal Assessment Total: 50 Marks

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Seminar : Role of gender variables in development of Maharashtra, Pune District

Home Assignments : . Gender Variables and Gender Development
Group Discussion : Gender equality in India, Home Assignments : Approaches and trends in Gender Geography

Group Activities : Overview of Government policies for Bridging Gender Gap

Project Work and Presentation : State-wise Gender Gap Analysis, Changing scenario to bridge the gender gap

References

Boserup, E. (1989): "Women's *Role in Economic Development*". Earthscan, London.

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Major (Core): Agriculture Geography

Course Title	**Agriculture Geography**
Course Credits	**4**
Course Outcomes	After going through the course, learners will be able to
	1.Evaluate the origin and development of agriculture in India.
	2.Analyze physical, economic, technological and institutional factors and its impact on the agricultural sector with special reference to India.
	3.Examine the characteristics of agricultural types, agriculture regionalization and the problems and prospects of Indian agriculture.
Module 1(Credit 1) Introduction to Agriculture Geography	
Learning Outcomes	After learning the module, learners will be able to
	Analyze Agriculture in Spatial perspective and will able to create agricultural plans for different regions. Evaluate role of agriculture in Indian economy
Content Outline	**1. Introduction to Agriculture Geography** 1.1 Definition, Nature and Scope of Agriculture Geography, 1.2 Development of agriculture geography 1.3 Approaches to the study of Agricultural Geography 1.4 Significance of Agriculture in World Regions 1.5 Role of Agriculture in Indian Economy.
Module 2(Credit 1) Determinants of Agriculture	
Learning Outcomes	After learning the module, learners will be able to
	Analyze the impact of various determinants on types of agriculture and its importance in economic development.
Content Outline	**2. Determinants of Agriculture** 2.1 Factors influencing agriculture -Physical- Relief, Climate, Soil 2.2 Economic factors-Landholding, marketing, Transport 2.3 Technological factors- Irrigation, Seeds, Fertilizers, Power 2.4 Institutional factors- Land Reforms,Von Thunen's Theory of Agricultural Location
Module 3(Credit 1)World Agricultural Typology	
Learning Outcomes	After learning the module, learners will be able to
	Classify farming systems and practices based on various criteria like climate, soil, technology etc. Differentiate characteristics and role of various types of agriculture in economy.

Content Outline	3. **World Agricultural Typology** 3.1 Shifting cultivation 3.2 Intensive Subsistence Tillage 3.3 Mixed farming 3.4 Commercial grain farming 3.5 Plantation agriculture
Module 4(Credit 1)Agricultural regions, Problems and Prospects	
Learning Outcomes	After learning the module, learners will be able to
	Evaluate the problems and emerging perspectives in agriculture and role of Government Initiatives for Sustainable agriculture.
Content Outline	**4. Agricultural regions, Problems and Prospects** 4.1 Regionalization: Concept and Criteria, Methods of regionalization 4.2 Agricultural regions of India 4.3 Problems and Prospects of Indian Agriculture 4.4 Emerging Perspectives in Agriculture and Government Initiatives for Sustainable agriculture 4.5 National agriculture policy

Internal Assessment Total: 50 Marks

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Seminar : Agricultural regions of India, Problems and Prospects of Indian Agriculture

Group Discussion : Role of Agriculture in Indian Economy, Agriculture type and characteristics

Group Activities : National agriculture policy and agriculture development

Project Work and Presentation : Changing cropping pattern and agriculture development.

References

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RP: Research Project

Course Credits: 6

Internal Assessment Total: 150 Marks

Assignments/Activities towards Comprehensive Continuous Evaluation (CCE):

Assignment: Writing of Research Proposal, Data Collection and Analysis.

Research Project and Representation: Research paper presentation and publication, Research Project Chapter writing, Research Project submission

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