KUMAUN UNIVERSITY, NAINITAL

Wef 30.06 2021

M.A./M.Sc. Geography

COURSES OF STUDY

UNDER CHOICE BASED CREDIT SYSTEM

(CBCS)

Distribution of Semester-Wise Credits and Marks

Semester	Total		Theory			Practical				Dissertation		Seminar/ Presentation	
						Lab.Work		FieldSurvey					
	Credits	Marks	Core Course Credits	Elective Course Credits	Marks	Credits	Marks	Credits	Marks	Credits	Marks	Credits	Marks
First	**23**	**575**	16	00	400	3	75	1	25	2	50	1	25
Second	**23**	**575**	16	00	400	3	75	1	25	2	50	1	25
Third	**23**	**575**	08	08	400	3	75	1	25	2	50	1	25
Fourth	**25**	**625**	04	12	400	3	75	1	25	4	100	1	25
Total	**94**	**2350**	**44**	**20**	**1600**	**12**	**300**	**4**	**100**	**10**	**250**	**4**	**100**

Semester Course Framework

SEMESTER–I				
Course Type	**Name of Course**	Credit	**Course Code**	**Marks (Term end Exams + Assignment) (75+25)**
Core Course (Major)	(i) Advanced Geomorphology **(CCM-i)**	**4**	**101**	**75+25=100**
	(ii)Natural Resource Management **(CCM-ii)**	**4**	**102**	**75+25=100**
	(iii)Advanced Geography of India **(CCM-iii)**	**4**	**103**	**75+25=100**
	(iv) Principles of Remote Sensing & Applications **(CCM-iv)**	**4**	**104**	**75+20=100**
Core Course (Minor)	**(i)** Research Methodology **(CCm-i)** (ii)Seminar/Presentation **(CCm-**ii)	**2** **1**	**105** **106**	**50** **25**
Practical	**(i)** Topographical Analysis ,Basics of RS **(P-i)&** **(ii)** Field Survey **(P-ii))**	**3** **1**	**107** **108**	**75** **25**
Total Number of Marks for Semester-I=575(400Theory+100Practical+50Dissertation+25 Seminar/presentation				
Total Number of CreditsforSemester-I=23(16Theory+4Practical+2Dissertation+1Seminar/presentation				
SEMESTER–II				
Core Course (Major)	(i) Development of Geographical Thought **(CCM-i)**	**4**	**201**	**75+25=100**
	(ii) Urban Environment and Planning **(CCM-ii)**	**4**	**202**	**75+25=100**
	(iii)Climate Change Impacts and Adaptation **(CCM-iii)**	**4**	**203**	**75+25=100**
	(iv) GIS and GPS Applications **(CCM-iv)**	**4**	**204**	**75+25=100**
Core Course (Minor)	**(i)**Dissertation (Minor) **(CCm-i))** **(ii)**Seminar/Presentation **(-CCm-ii)**	**2** **1**	**205** **206**	**50** **25**
Practical	**(i)** Cartographic Representation of Urban and Climate Data, Basics of GIS & GPS **(P-i)&** **(ii)** Field Survey**(P-ii)**	**3** **1**	**207** **208**	**75** **25**
TotalNumberofMarksforSemester-II=575(400Theory+100Practical+50Dissertation+25Seminar/presentation				
TotalNumberofCreditsforSemester-II=23(16Theory+4Practical+2Dissertation+1Seminar/presentation				
SEMESTER–III				
Core Course (Major)	(i) Environmental Management and Sustainable Development (CCM-i)	**4**	**301**	**75+25=100**
	(ii) Agricultural Geography and Agro-ecosystem Management (CCM-ii)	**4**	**302**	**75+25=100**
Elective Course/Open Elective Course	(iiia) Bases of Hydrology (EC-iiia) or (iiib) Geography of Tourism (EC-iiib)	**4** **4**	**303 (a)** **303 (b)**	**75+25=100** **75+25=100**
	(iva) Glacial Geomorphology (EC–iva) or (ivb) World Regional Geography(EC-ivb)	**4** **4**	**304 (a)** **304 (b)**	**75+25=100** **75+25=100**
Core Course (Minor)	**(i)** Dissertation(Minor) **(CCm–i)** **(ii)** Seminar/Presentation **(CCm-–ii)**	**2** **1**	**305** **306**	**50** **25**
Practical	**(i)** Dumpy level, Theodolite surveying and Map Projections **(P-i)&** **(ii)** Field Survey**(P-ii)**	**3** **1**	**307** **308**	**75** **25**
TotalNumberofMarksforSemester-III=575(400Theory+100Practical+50Dissertation+25Seminar/presentation				
Total Number of Credits for Semester-III=23(16Theory+4 Practical+2 Dissertation+1 Seminar/presentation				
SEMESTER–IV				
Core Course (Major)	(i) Integrated Watershed Management **(CCM-i)**	**4**	**401**	**75+25=100**

Elective Course/Open Elective Course	(iia) Population Geography and Human Resource Development **(EC–ia)**	**4**	**402 (a)**	**75+25=100**
	or (iib) Integrated Mountain development with special reference to Uttarakhand **(EC-ib))**	**4**	**402(b)**	**75+25=100**
	(iiia) Soil Geography **(EC–iiia)**	**4**	**403(a)**	**75+25=100**
	or (iiib)Biogeography **(EC-iiib)**	**4**	**403(b)**	**75+25=100**
	(iva) Disaster Management **(EC–iiia)**	**4**	**404(a)**	**75+25=100**
	or (ivb) Rural Development Planning **(EC-iiib)**	**4**	**404(b)**	**75+25=100**
Core Course (Minor)	**(i)**Dissertation(Major)**(CCm-i)**	**4**	**405**	**100**
	(ii) Seminar/Presentation**(CCm-ii)**	**1**	**406**	**25**
Practical	**(i)** Use of Brunton Compass, and Interpretation of Geological Maps and Spatial Analysis **(P--i) &**	**3**	**407**	**75**
	ii) Field Survey**(P-ii)**	**1**	**408**	**25**
Total Number of Marks for Semester-IV=625(400Theory+100 Practical+100Dissertation+25Seminar/presentation				
TotalNumberofCreditsforSemester-IV=25(16Theory+4Practical+4DissertationMajor+1Seminar/presentation				

*** 75Marks for Term-end Examinations.**

**** 25Marks allotted for Internal Assessment by Submitting Two Assignments for Evaluation & 05 marks for attendance and overall performance in the class.**

SEMESTER – I
Code 101 (CCM i)
ADVANCED GEOMORPHOLOGY
Paper – I

Term End Exam. Marks	: 75	Time: 03 Hours
Internal Assessment Marks	: 25	(20 Marks allotted for Internal Assessment by Submitting Two Assignments for Evaluation & 05 for attendance and overall performance in the class)

Total Marks : 100
Total Credit : 04

Unit – I	**Conceptual Base:** Nature, Scope, Trends and Development of Geomorphology; Classical Landscape Evolution / Development Theories: (W.M. Davis, W. Penck, L.C. King, Hack); Recent Trends in Geomorphology
Uni t – II	**Processes and Landforms:** Tectonic processes and tectonic landforms; Drainage patterns and systems, Periglacial processes and landforms; Glacial processes and landforms, Arid processes and landforms, Fluvial processes and landforms, Karst Topography;
Unit – III	**Theories and Techniques:** Interruptions in the evolution of landforms: Polycyclic landforms Theories of Hill-slope Evolution; Geomorphic Mapping Techniques; Systems and Models in Geomorphology.
Unit –IV	**Applied Geomorphology:** Geomorphic Hazards and Mitigation Measures; Geomorphology in Civil Engineering;Soil and Geomorphology; Application of geomorphology in resource Management.

Books Recommended:

Bloom, A.L. (1978) : A Systematic Analysis of late Cenozonic Landforms, Englewe Cliffs, M.J. Prentice Hall.

Condle, K.C. (1989) : Plate Tectonics and Crustal Evolution. Pergamon Press. New York.

Chorley, R.J. (ed.) : Spatial Analysis in Geomorphology, London, Metheun.

Chorley, R.J. , S.A. Schum and D.E. Sugden (1985): Geomorphology, London

Coats, D.R. (1981. edt.). Geomorphology and Engineering, George Allenand Unwin,London.

Cooke, R.U. and J.C. Doornkamp (1974) : Geomorphology in Environmental Management, Oxford University Press.

Embleton, C. and J. Thornes : Processes in Geomorphology, London, Edward Arnold.

8.Garner,H.F.:TheOriginofLandscape–A Synthesis of Geomorphology, Oxford University Press, London, 1974.
Goudie, A. (ed.) (1990): Geomorphological Techniques. London, George Unwin and Hyman.
Hart, M.G. (1986) : Geomorphology : Pure and Applied, George Allen and Unwin, London.
Holmes, A. : Principles of Physical Geology, 3rd Edn. London . Nelson.1978.
King, C.A. M. : Techniques in Geomorphology : London : Edward Arnold.
Leopold, L.B. : Fluvial Processes in Geomorphology.
Lobeck, A.K. :Geomorphology.
Ollier, C.D. : Weathering, Edinburgh : Oliver and Royd.
– do - : Tectonics and Landforms. London: Methuen.
Pitty, A.F. : Geomorphology and Rural Settlement in India.
Scheidegner, A.E. : Theoretical Geomorphology. Berlin : Springer – Verlag.
Sharma, V.K. : Process in Geomorphology (Mc GrawHill).
Small, R.J. : A Text Book on the Study of Landforms.
Thorn, C.E. : Introduction to Theoretical Geomorphology.
Thornbury, W.D. : Principles of Geomorphology. New York: Wiley(1969).
Twidale, C.R. : Analysis of Landforms. New York : Wiley.
Worcester, P.G. : A Text Book of Geomorphology.

Semester-I
Paper Code : 102 (CCM – ii)
Natural Resource Management
Paper II

Term End Exam. Marks : 75 Time: 03 Hours
Internal Assessment Marks : 25 (20 Marks allotted for Internal Assessment by Submitting Two Assignments for Evaluation & 05 for attendance and overall performance in the class.)

Total Marks : 100
Total Credit : 04

Unit-I	**Basic Framework:** Concept; Definition; Classification of Natural Resources; Process of Natural Resource Development
Unit-II	**Application Remote Sensing and Geographic Information System (GIS) inNatural Resources Studies:** Resource Analysis; Resource Mapping; Natural Resources Information System
Unit-III	**Ecology and Ecosystem:** Meaning, Scope, Types and Classification of Ecology and Ecosystem; Functioning of Ecosystem; Productivity of Ecosystem; Tropic Levels, Food Chain and Food Web
Unit-IV	**Natural Resource Management and Sustainable Development in Himalaya:** Concept and Approaches of Natural Resource Management, Community Based Natural Resource Management; Participatory Natural Resource Management; Natural Resources Management and Sustainable Mountain Development

Book Recommended:

Zimmerman, E.W., World Resources and Industries, Harper and Row, London,1951
Paul, R.E. et.al, Eco-science: Population, Resource and Environment, W.H.Freeman, Sanfrancisco,1977 Wiley, New York,1977
G. Simmons, The Ecology of Natural Resources, Edward Arnold, London, 1974
ICIMOD, Mountains of the World –Ecosystem Services in a Time of Global and Climate Change: Seizing Opportunities – Meeting Challenges. Framework paper prepared for the Mountain Initiative of the Government of Nepal by ICIMOD and the Government of Nepal, Ministry of Environment, 2010

G. Rasul and M. Karki (eds) Policy Priorities for Sustainable Mountain Development, Kathmandu: International Center for Integrated Mountain Development, 2008

Huddlestone, B., Ataman, E. and d'Ostlanl, L. F., Towards a GIS-based analysis of mountain environments and populations, FAO, Rome, 2003

ICIMOD, Mountains of the world: ecosystem Services in a Time of global and climate change: seizing opportunities meeting challenges Framework paper prepared for the Mountain Initiative of the Government of Nepal by ICIMOD and the Government of Nepal, Ministry of Environment

M.S.S. Rawat et al. (eds), Environment, Resources and Development of the Indian Himalaya, Transmedia Publication, Srinagar, Garhwal, Uttarakhand, India, 2018

Tse-ring, K., Sharma, E., Chettri, N., Shrestha, A. (eds), Climate change vulnerability of mountain ecosystems in the eastern Himalayas. Climate change impact on vulnerability in the eastern Himalayas-synthesis report. Kathmandu: ICIMOD, 2010

M. Beniston, Environmental change in mountains and uplands. London, 2000.

Food and Agricultural Organization, Food Security in Mountains – High time for action. Brochure of the International Mountain Day 2008.
http://www.mountaineering.ie/documentbank/uploads/IMD08%20brochure.pdf

Food and Agricultural Organization, International Year of the Mountains. Food and Agriculture Organisation of the United Nations, Rome, 2002.

Food and Agricultural Organization, Land-water linkages in rural watersheds. Land and Water Bulletin 9. Food and Agriculture Organisation of the United Nations, Rome, 2002

Martin J. Haigh, Headwater control: integrating land and livelihoods, paper presented at the International conference on Sustainable Development of Headwater Resources. United Nation's International University, Nairobi, Kenya, September, 2002.

ICIMOD, Mountains of the World –Ecosystem Services in a Time of Global and Climate Change: Seizing Opportunities – Meeting Challenges. Framework paper prepared for the Mountain Initiative of the Government of Nepal by ICIMOD and the Government of Nepal, Ministry of Environment, 2010

Semester-I
Paper Code : 103 (CCM – iii)
Advanced Geography of India
Paper III

Term End Exam.Marks	: 75	Time: 03 Hours
Internal AssessmentMarks	: 25	(20 Marks allotted for Internal Assessment by Submitting Two Assignments for Evaluation & 05 For attendance and overall performance in the Class.)
Total Marks	**: 100**	
Total Credit	**: 04**	

Unit – I	**Physical Aspects:** Geological history, physiographic and drainage patterns and systems; climate including origin and mechanism of the Indian monsoon, , soils and natural vegetation: distribution and utilization
Unit – II	**Population and other Human Aspects:** Population distribution, density and growth, population problems and policies. Sex and literacy differentials, Genesis of ethnic/racial diversities; tribal areas and their problems; trends of urbanization, population policy.
Unit – III	**Agricultural Senerio and Industrial Resource Base** Agricultural efficiency and productivity, agricultural regionalization, green, white, blue and yellow revolutions, dry zone agriculture and agricultural land use policy. History of industrial development, Types of industries, new industrial policy industrial complexes and industrial, regionalization, Study of the transport network development.
Unit – IV	**Regional Divisions of India:** Detailed study of Kashmir region, Uttarakahnd Himalaya, Lower Ganga Plain, Chota-Nagpur Plateau, Thar Desert, Aravali uplands, Andhra Plateau and West Coastregion.

Books Recommended:

Spate & Learmonth India and Pakistan
Singh, R.L.(ed.) India, A Regional Geography
Tiwari,R.C. Geography of India,Allahabad,2003
Gopalakrishnan,R. Geography of India, Jawahar Publishers
Singh,Jagdish India: A Comprehensive Systematic Geography, Gyanodaya Pr.,Gorakhapur,2003
Sen Gupta,P. Economic Regionalization of India, Census of India Publication,1968

Mitra, Ashok Levels of Economic Development of India, Census of India Publication,1967
National Council of Applied Techno-economic Survey: Economic Research
Bose,A .(ed.) Pattern of Population Change in India,1951-1961
The Gazetteer of India,Vol.1
Pascoe, E.N. A Manual of the Geology of India and Burma, Vols.I &II.
Wadia ,D.N. Geology of India
Puri, G.S. Indian Forest Ecology, Vols. I &II
Davis, K. Population of India and Pakistan
Sharma,T. Location of Industries of India
Srivastava Trade in India
Bose, Ashish India's Urbanization, 1901-2001, NewDelhi,1980
Siddhartha,K. India, The Physical Aspects, NewDelhi,1998
The Hindu- (1) Survey of Indian Agriculture,2002 (2) Survey of Indian Industry, 2003
Govt. of India (Ministry of India-2003 & onwards, Information & Broadcasting, Bharat- 2003 & onwards, (Publication Division).

SEMESTER – I
Code: 104 (ccm-iv)
Principles of Remote Sensing & Applications
Paper – IV

Term End Exam. Marks	: 75	Time: 03 Hours
Internal Assessment Marks	: 25	(20 Marks allotted for Internal Assessment by Submitting Two Assignments for Evaluation & 05 for attandence and overall performance in the class)

Total Marks : 100
Total Credit : 04

Unit – I	Bases of Remote Sensing: Definition, Interaction of Electro-Magnetic Radiation (EMR) with Atmosphere and Earth surface. Sensors and remote sensing data products.
Unit – II	Aerial Photographs and Photogrammetry: Types of aerial photos, fundamentals of air photographs interpretation. Geometry of aerial photographs: tilt and relief displacement.
Unit – III	Digital Image Processing: Restoration; Enhancement and Classification: supervised and unsupervised
Unit – IV	Remote Sensing Applications: Application of Remote Sensing in land use/land cover, soil and rocks mapping.

Books Recommended:

Lillesand, T.M. & Kiefer,R.W. Remote Sensing and Image interpretation, Jhon Wiley & Sons, New York,1987.
Wolf, P.R. Elements of Photogrammetry, McGraw Hill, New York, 1983.
Smith,H.T.V. Aerial Photographs and their Applications, Appleton Century Crafts, New York,1943.
American Society of Photogrammetry, Manual of Photogrammetry, Falls Church,1980
American Society of Photogrammetry, Manual of Remote Sensing, Falls Church,1983.

Lindren, D.T. Landuse Planning and Remote Sensing,Niyheff,,Dordrecht, 1985
Siogal,B.S. and A.R.Gsllespio (eds.) Remote Sensing in Geology, Wiley, NewYork,1980
Muchrcke, P.C. Map Use-Reading Analysis and Interpretation, J.P.Publ.Madison,1986
Sprurr, S.H. Photogrammetry and Photo-Interpretation,Ronald Press, New York,1960
Avery, T.E.&Berlon,G.L. Interpretation of Aerial Photographs Burgess Minneapolies, 1985
Moffott.F.H. & Mikhail Photogrammetry, Harpor & Row, New York,1980
Stimson,A. Photometry and Radiometry for Engineers,Wiley, New York, 1974
Sabins, F.F.Jr. Remote Sensing Principles and Interpretation, Freeman, New York,1986
Basces, G.A. Digital Image Processing for Remote Sensing, Prentice Hall, 1984
Ekstrom, M.I. Digital Image Processing Techniques,Academic Press, New York,1984
Tomar, M.S. & M.R.Moslekar Aerial Photographs in Landuse and Forest Surveys, Jugal Kishor & Co.,Dehradun,1974
Curran, Paul J. Principle of Remote Sensing ,Longman Group,1985
Barrett,E.C. and L.F.Curties Photo Interpretation ,Mcmillan, New York, 1982
Compbell, J. Introdution to Remote Sensing, Guilford, New York,1989
Hord. R.M. Digital Image Processing of Remotely Sensed Data Academic, New York
Luder, D. Aerial Photography Interpretation:Principles and Application, Mcgraw Hill, New York,1959
Pratt,W.K. Digital Image Processing Wiley, New York,1978
Rao,D.P.(eds.) Remote Sensing for Earth Reources, Association of Exploration Geophysicist, Hyderabad,1998
Thomas M.Lillesand & Ralph W.Kefer Remote Sensing and Image Interpretation, John Wiley & Sons, New York,1994

SEMESTER – I

Code: 105 (CCm –i) : RESEARCH METHDOLOGY (CCm-i)

Total Marks Allotted	: **50 (Credits-02)**
Report	: 40
Viva –Voce Examination	: 10

Problem oriented work based Report

The students are required to select the topic and area with the help of their respective supervisors allotted to them by the Department. Report must be submitted to the Department one week before the commencement of the Theory Examinations. The size of the Report should normally range between 20 and 30 pages. The Report will be evaluated inhouse. The evaluation and viva –voce examination will be conducted by internal examiners.

SEMESTER – I

Code: 106 (CCm–ii): SEMINAR/ PRESENTATION

Total Marks : **25 (Credit-01)**

The students are required to select any one of the topics allotted to them by the Department. The Topic will be related to the disciplines already studied by students in the same semester as core or elective courses. The assessment of the presentation of the students/examinees will be done by external and internal examiners appointed by the Convener/Head of the Department/ University.

SEMESTER – I

PRACTICAL
Code: 107 & 108 (P-i & P-ii): TECHNIQUES FOR SPATIAL PATTERN OF DISTRIBUTION, BASIC RS, GIS& GPS, (Pi) (Credit 3) AND FIELD SURVEY (Pii) (Credit 1)

Term End Exam.	: Marks:	60	Time: 04 Hours
Record Work	: Marks:	10	
Viva – Voce	: Marks:	05	
Field Survey/Study	Marks:	25	

Local Field Survey will be organized in the supervision of Teachers nominated by the Department,
(Field Report 20 Marks and Viva Voce 05 Marks).

Total Marks:100
Credits :04

Unit – I	Techniques for spatial pattern of distribution: Choropleth, Isopleth and Chorochromatic maps.
Unit – II	Remote Sensing Platforms and Sensors, Optical Mechanical Sensors, EMR spectrum (Calculation of frequency for the corresponding wavelengths; Calculation of wavelength for the corresponding frequencies; Calculation of E (Quantum energy)),
Unit – III	Radiometric & Geometric Corrections – Image correction, Geometric errors and corrections
Unit – IV	Thermal Infrared Imagery – IR region of the EMR, Thermal properties of material, Characteristics of IR images, Radar imagery – SLAR system, Radar return & Image signatures, Radar image characteristics.

Books Recommended:

Hinks : Map and Surveying
Jameson & Ormsby: Mathematical Geography, vol.I &II
Lillesand, T.M. & Kiefer,R.W. Remote Sensing and Image interpretation, Jhon Wiley & Sons, New York,1987.
Wolf, P.R. Elements of Photogrammetry, McGraw Hill, New York, 1983.
Smith,H.T.V. Aerial Photographs and their Applications, Appleton Century Crafts, New York,1943.
American Society of Photogrammetry, Manual of Photogrammetry, Falls Church,1980
American Society of Photogrammetry, Manual of Remote Sensing, Falls Church,1983.
Steers : Introduction to Map Projection

SEMESTER – II
Code : 201 (CCM – i)
DEVELOPMENT OF GEOGRAPHICAL THOUGHT
Paper – I

Term End Exam.Marks : 75 Time: 03 Hours

Internal AssessmentMarks : 25 (20 Marks allotted for Internal Assessment by submitting two Assignments for evaluation & 05 marks for attendance and overall performance in the class)

Total Marks : 100

Total Credit : 04

Unit – I	**Basic Concepts:** Geography as the study of areal differentiation, Man-environment relationship and spatial organization; The measure of significance in geography, Time and genesis in Geography; Divisions and branches of geography and development of the main branches, Methods and approaches of Geography.
Unit – II	**Contemporary Trends:** Qualitative Paradigms and Changing Paradigms in Geography; Behavioral Revolution; Marxism, Radicalism and Welfare approach.
Unit – III	**Nature of Dichotomies in Geography:** Physical and Human Geography; Systematic and Regional Geography, Determinism and Possibilism, Modernism and Post Modernism, Post Structuralism and Post Colonialism
Unit – IV	**Recent Trends in Geography:** Modern Techniques and Concepts in Geography: Remote Sensing, systems approach and Geographic Information System.

Books Recommended:

Hartshorne, R. The Nature of Geography
Hartshorne, R. Perspective on the Nature of Geography
Minshull, R. The Changing Nature of Geography, London,1970
Minshull, R Regional Geography: Theory and Practice,1967
Spate, O.H.K. Let me Enjoy-Essays Partly Geographical
Taylor, G.(ed) Geography in the TwentiethCentury,1951
James & James(eds.) American Geography -Inventory and Prospect,1954
Wooldridge and East The Spirit and Purpose of Geography, London,1958
Wooldridge The Geographer as Scientist, essays on the scope and nature of Geography; London,

Board and Others Progress in Geography, Vol.I toV
Harvey, D. Explanation in Geography, London,1969
Freeman,T.W. A Hundred Years of Geography, London, 1961
Dickinson and Howarth The making of Geography, Oxford,1933
Spilphus The Background of Geography
Bundury,E.H. A History of Ancient Geography
Newton Travels and Travelers in the Middle Ages
Pensore,B. Travels and Discovery inRennaissance,1952
Tozer,H.F. A History of AncientGeography
Kimbli,G.H.T. Geography in the MiddleAges
Singh, L.R. Bhoogol Ki Prakriti (in Hindi)
Brock,J.M. Geography: Its scope andspirit
Stamp, L.D. London Essays in Geography,1951 Wooldridge
Prakasa,Rao,V.L.S.Regional Planning
Daysh,G.H.J. Essay in Regional Planning
Dickinson,R.E City and Region- A Geographical Interpretation
Dickinson,R.E. The Makers of Modern Geography,1969
Dickinson,R.E. Geography as Ecology
Stamp, L.D. Applied Geography
Singh, R.L.(ed.) Applied Geography
William Bunge Theoretical Geography
Haggett and Chorley Models in Geography, London, 1967
Cooke, F.D. &Johnson Trends in Geography
Haggett,Peter Geography: A Modern Synthesis, New york,1975
James, P.E. All Possible Worlds-A History of Geographical Ideas,1980
HeltJensen,A. Geography: Its History and Concepts
Dikshit ,R.D. Geographical Thought, Prentice Hall, India,1997
Adhikari, S. Fundamentals of Geographical Thought, Chaittanya, Allahabad
Haggett, P.& Chorley Models in Geography, London, 1969
Chatterjee, S.P. Fifty Years of Science in India: Progress of Geography, Calcutta, 1964
Kuhn, T.S. The Structure of Scientific Revolution: Chicago,1962
Cole & King Quantitative Geography; Techniques, Theories in Geography, JWS, 1968
Smith, D.M. Human Geography: A Welfare Approach; London,1977
Richard Peet Modern Geographical Thought: Badewell;1998
Thomas & Hugget Modeling in Geography,HRP,1980
R.de Souza(eds.) Reflections on Richard Hartsorn's The Nature of Geography, AAG,1989
Harvey &Holly(eds.) Themes in Geographic Thought, Rawat,1969
Charlls Gore Regions in Question, Mathur, London,1984
Berry Markble(eds.) Spatial Analysis, Prentice Hall,1968
Husain, Majid Evolution of Geographical Thought, Rawat,2001
Johnston, Hauer Regional Geography, London, 1990

SEMESTER – II
Code : 202 (CCM – ii)
URBAN ENVIRONMENT & PLANNING
Paper – II

Term End Exam. Marks : 75 Time: 03 Hours

Internal Assessment Marks : 25 (20 Marks allotted for Internal Assessment by submitting two Assignments for evaluation & 05 marks for attendance and overall performance in the class)

Total Marks : 100

Total Credit : 04

Unit – I	**Theoretical Base:** Basic concepts, meaning, scope of urban geography and planning, Significance of urban development planning in geography. Evolution of urban centres and Urbanization. Recent trends of urban growth with special reference to developing countries, Urban sprawl and its steering factors, Satellite towns.
Unit –II	**Morphology and Functions:** Urban morphology, Urban land use analysis and classification, Urban landscape. Functions of urban centers, Functional classifications of towns with special reference to India and Uttarakhand, Central places theory, Centrality and hierarchy of urban centres, Urbanization and regional development
Unit – III	**Urban Environmental Problems:** Environmental problems of urbanizations, Carrying capacity of urban settlements, Urbanization and global environmental change, Assessment of natural risks of urban growth with particular reference to developing countries, India and High mountains.
Unit – IV	**Urban Planning and Management:** Concept and approaches of urban development, Landscape ecology and sustainable urban development, urban land use planning, management of natural risks of urban growth in Uttarakhand, Application of remote sensing and Geographic Information System in Urban Development Planning.

Books Recommended

Alam, S.M. (1964) : Hyderabad – Secunderabad Twin Cities, Asia Publishing House, Bombay.

Berry, B.J.L. and Horton, F.F. (1970) : Geographic Perspective on Urban Systems, Prentice Hall, Englewood Cliffs, New Jersey.
Carter (1972) : The Study of Urban Geography, Edward Arnold Publishers, London.
Chorley, R.J.O. , Hagett P. (ed.) (1966) : Models in Geography, Methuen, London.
Dickinson, R.E. (1964) : City and Region, Routledge, London.
Dwyer, D.J. (ed.) (1971) : The City as a Centre of Change in Asia, University of Hongkong Press, Hongkong.
Gibbs, J.P. (1961) : Urban Research Methods, D. Van Nostrand Co. Inc., Princetown,New Jersey.
Hall, P. (1992) : Urban and Regional Planning, Routledge, London.
Hauser, Philip M. and Schnore Leo F. (ed.) (1965) : The Study of Urbanisation, Wiley, New York.
James, P.E. and Jones, C.F. (eds.) (1954) : American Geography, Inventory and Prospect, Syracuse University Press, Syracuse.
Kundu, A. (1992) : Urban Development and Urban Research in India, Khanna Publication.
Meyor, H.M. and Kohn, C.F. (eds) (1955) : Readings in Urban Geography, University of Chicago Press, Chicago.
Mumford, L. (1958) : Culture of Cities, Mc Milan and Co., London.
Nangia, Sudesh (1976) : Delhi Metropolitan Region : A Study in Settlement Geography, Rajesh Publication.
Rao, V.L.S.P.: Urbanisation in India: Spatial Dimensions, Concept Publishing Co., New Delhi.
Rao, V.L.S.P.(1979) : The Structure of an Indian Metropolis : A Study of Bangalore, Allied Publishers, Bangalore.
Singh, K. and Steinberg F. (eds.) (1998) : Urban India in Crisis, New Age Interns, New Delhi.
Smailes, A.E. (1953): The Geography of Towns, Hutchinson, London.
Tewari, Vinod K., Jay A. Weinstein, VLS Prakasa Rao (editors) (1986): Indian Cities: Ecological Perspective Concept.

SEMESTER – II
Code : 203 (CCM – iii)
CLIMATE CHANGE IMPACTS & ADAPTATIONS
Paper – III

Term End Exam.Marks : 75 Time: 03 Hours
Internal AssessmentMarks : 25 (20 Marks allotted for Internal Assessment by submitting two Assignments for evaluation & 05 marks for attendance and overall performance in the class)

Total Marks : 100
Total Credit : 04

Unit –I	**Fundamentals of Climatology:** Meaning, Nature and Scope; relationships with meteorology and with other sciences; types of climatology; Elements of climate, Solar radiation and terrestrial heat balance; humidity and precipitation.
Unit – II	**Climate Types:** Climatic Classification: Thronthwaite's, Koeppen and Geiger's; Regional Climatology: Tropical climates, mid latitude climates, polar and highland climates, monsoon, Mediterranean and desert climate.
Unit – III	**Climate Change: Responses & Adaptation:** Climatic Changes: Theories and Evidences of Paleo-Climates, global warming; ozone depletion; Variation in Precipitation Pattern; Impacts of Climate Change and Adaptation Strategies.
Unit –IV	**Climate change impacts (Case Studies)** Impact of climate change on: Glaciers of Himalaya, Water discharge of rivers and springs, Agro-ecosystem, Forest & grasslands, Disasters in Uttarakhand.

Books Recommended:

Aguado, E. Burt, J.E. (2001): Understanding Weather and Climate, Prentice Hallof India Pvt. Ltd, New Delhi.
Critchfield, H.J. (1983): General Climatology, Prentice Hall of India, NewDelhi.
Lal, D.S. –Climatology.
Oliver John, E. and Hidore John, J. (2003): Climatology, PearsonEducation.
Subramanyam (1983): General Climatology, Heritage, New Delhi.
Trewartha, G.T. and Horn, L.A. (1980): An Introduction to Climate, Mc Graw Hill, NewYork.

SEMESTER – II

Code : 204 (CCM – iv)
GIS & GPS Applications
Paper – Fourth

Term End Exam.Marks **: 75** Time: 03 Hours
Internal AssessmentMarks **: 25** (20 Marks allotted for Internal Assessment by submitting two Assignments for evaluation & 05 marks for attendance and overall performance in the class.)

Total Marks **: 100**
Total Credit **: 04**

Unit – I	**Basis of Geographical Information System:** Geography as a spatial science; Basic concepts of GIS; Components of GIS. Map Characteristics
Unit– II	**Geographical Data Sets:** Data Types; Spatial and Non-spatial data; Geo-Relational Data Model; Topological Data Structure
Unit– III	**Global Positioning System** GPS - Components and Basic, an overview of world GPS system, Application of GPS
Unit– IV	**GIS Applications:** Application of GIS in Geographical studies with special reference Natural Resource Management, Environmental Management, Agricultural Planning

Books Recommended:

Aroneff, S. Geographic Information System: A Management Perspective, DDL Publication, Otawa, 1989

Burrough,P.A. Principles of Geographic Information System for Land Resources Assessment, Oxford University Press, New York, 1986

Fraser Taylor, D.R. Geographic Information System, Pergamon Press Oxford, 1991

Maquire, D.J.M.F. Goodchild Geographic information Systems: Principles and Application, Taylor & Francis, Washngton,1991 and D.W. Rhind (eds.)

Mark S. Monmonier Computer-assisted Cartography- prentice Hall, Englewood Cliff, New Jersey

Peuquet D.J. & D.F.Marble Introductory Reading in Geographic Information System, Taylor & Francies, Washngton, 1990

Star J. and J.E. Estes Geographic Information Sytems : An Introduction: Prentice Hall, Engleweed Cliff, New Jersey

SEMESTER –II

Code: 205 (CCm –i): DISSERTATION (MINOR)

Total Marks Allotted for Dissertation : 50
(Credits-02)

Evaluation by External Examiner : 20
Evaluation by Internal Examiner : 20
Viva –Voce Examination : 10
(by both the examiners)

Problem Oriented Work Based Dissertation

The students will be required to select the topic and area with the help of their respective supervisors allotted to them by the Department. Dissertation must be submitted to the Department one week before the commencement of the Theory Examinations. The size of the dissertation should normally range between 40 and 50 pages. The Dissertation will be evaluated by a panel of examiners appointed by the Convener of BOS, Geography. The evaluation and viva –voce examination will be conducted by both the external and internalexaminers.

SEMESTER – II

Code: 206 (CCm–ii): SEMINAR/ PRESENTATION

TotalMarks :25 (Credit-01)

The students will be required to select any one of the topics allotted them by the Department. The Topic will be related to the disciplines already studied by students in the same semester as core or elective courses. The assessment of the presentation of the students/examinees will be done by external and internal examiners appointed by the Convener/Head of the Department/University.

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SEMESTER – II
PRACTICAL
Code: 207 & 208 (P-i & P-ii):
CARTOGRAPHIC REPRESENTATION OF URBAN & CLIMATE DATA,
BASIC OF GIS & GPS (Pi)
AND FIELD SURVEY (Pii)

Term End Exam	: Marks:	60	Time: 04 Hours
Record Work	: Marks:	10	
Viva - Voce	: Marks:	05	
Field Survey	:Marks :	25 (Local Field Survey will be organized in the Supervision of Teachers nominated by the Department (Field Report 20 Marks and Viva Voce 05 Marks).	

Total Marks : 100
Total Credits : 04 (Practical-03&Field Survey/Study01)

Unit – I	Nature and Scope and Development of Cartography; Cartographic representation of Urban data
Unit – II	Cartographic representation of climatic data: Climatograph, climograph, hythergraph and water balance graph.
Unit – III	Basic concepts of GIS; Components of GIS; Elements of GIS. Fundamentals of GIS; Basic Concepts of GPS - Components and Basic Facts; Components of a GPS. Base Map Preparation.
Unit – IV	Application of GIS in Urban Planning, Landuse planning and Disaster management

Books Recommended:

Singh, R.L. &Singh, R.P.B. Elements of Practical Geography (English & Hindi)
Singh, L.R.& R. Singh Map work and Practical Geography (Hindi& English)
Misra. R.P.& A. Ramesh Fundamental of Cartography, New Delhi,1986
Monkhouse, F. J. Maps and Diagrams, Methuen, London, 1971
Robinson, A.H. Elements of Cartography
Raise, E. Principles of Cartography
Birch, T.W. Maps: Topographical and Statistical
Garnett, A. A Geographical Interpretation of Topographical Map

Derk, C.L. &Brown, U.S. Interpretation of Topographical and Geological Maps
Goopson & Morris A Contour Dictionary
Holmes Practical Map Reading
Gregory, S. Statistical Methods and the Geographers (Hindi& English
Toyne & Newby Techniques in Human Geography
Agrawal, C.S. & Garg, P.K. Textbook on Remote Sensing, Wheeler,2000
Cracknell, A. P. Introduction to Remote Sensing, T.& F. London, 1990
Curran, P.J. Principles of Remote Sensing, Longman, 1985
Star, J.andEstes,J. GIS-An Introduction , Prentice Hall,1990
Mark, S. Monmorier Computer_ Assisted Cartography, PrenticeHall,1982
Aroneff, S. Geographic Information System: A Management Perspective, DDL Publication, Otawa, 1989
Burrough,P.A. Principles of Geographic Information System for Land Resources Assessment, Oxford University Press, New York, 1986
3. Fraser Taylor, D.R. Geographic Information System, Pergamon Press Oxford, 1991
Maquire, D.J.M.F. Goodchild Geographic information Systems: Principles and Application, Taylor & Francis, Washngton,1991 and D.W. Rhind (eds.)
5. Mark S. Monmonier Computer-assisted Cartography- prentice Hall, Englewood Cliff, New Jersey
Peuquet D.J. & D.F.Marble Introductory Reading in Geographic Information System, Taylor & Francies, Washngton, 1990
Star J. and J.E. Estes Geographic Information Sytems : An Introduction: Prentice Hall, Engleweed Cliff, New Jersey

SEMESTER – III

Code : 301 (CCM – i)
ENVIRONMENTAL MANAGEMENT & SUSTAINABLE DEVELOPMENT
Paper – I

Term End Exam.Marks **: 75** Time: 03 Hours
Internal AssessmentMarks **: 25** (20 Marks allotted for Internal Assessment by submitting two Assignments for evaluation & 05 marks for attendance and overall performance in the class)

Total Marks **: 100**
Total Credit **: 04**

Unit – I	**Environmental Problems:** Types of environmental problems; causes and consequences of environmental problems at global regional and local levels; Global environmental change; Natural disasters; Environmental Impact Assessment (EIA).
Unit – II	**Sustainable Development:** Concepts of Sustainable Development; Need of Sustainable Development; Sustainable Mountain Agriculture and Livelihood.
Unit –III	**Environmental Management:** Concept of Environmental Management; Approaches to Environmental Management; Integrated Watershed Management; Disaster Management
Unit – IV	**Environmental Management in Uttarakhand Himalaya:** Environmental Changes – Causes & Consequences; Environmental Planning & Sustainable Development; Disaster Management; Climate Change and Adaptation

Books Recommended:

Ahmad,Y.J., G.K. Sammy (1985): Guidelines to EIA in Developing Countries. Hordder & Stoughton, London.
Brundland, G. (1988) Our Common Future, Report of the World Commission on Environment and Development, UN.

Carpenter R A (ed) (1983):Natural Systems for Development: what planners need to known. Mc. Millan London.
Cheremisinoff, P.N. & A.C. Morresi (1977): Environment Assessment and Impact studies Handbook. An Arbor, Mich: Anarbor Science.
Wathern, Peter (1986): Enviromental Impact Assessment: Theory and Practice. Unwin & Hyman, London.
Pande G.C. & D.C. Pandey (1999) : Environmental Development and Management: Strategies and Policies (ed.), New Delhi.

SEMESTER – III
Code : 302 (CCM – ii)
AGRICULTURE GEOGRAPHY & AGRO-ECOSYSTEM MANAGEMENT
Paper – II

Term End Exam.Marks **: 75** Time: 03 Hours

Internal AssessmentMarks **: 25** (20 Marks allotted for Internal Assessment by submitting two Assignments for evaluation & 05 marks for attendance and overall performance in the class)

Total Marks **: 100**

Total Credit **: 04**

Unit – I	**Agricultural Types:** Definition, Nature, scope, Significance of Agricultural Geography Approaches to the study of Agricultural Geography, Agricultural Land Use and Location Theories Agricultural types and their world distribution, Spatial patterns of major commodities in each type.
Unit – II	**Techniques of Agricultural Regionalization:** Quantitative Techniques and methods in Agricultural Geography for measuring Agricultural Intensity, Agricultural Efficiency, Concentration and Diversification of Crops, Methods of delimitation of crop Combination and Agricultural regions. Whittlesey's classification of Agricultural regions of the world.
Unit – III	**Agricultural Ecology and Ecosystem:** Agro-ecosystem – connotation, components , types and functioning, agro-ecosystem degradation with special reference to Himalaya, Agro-ecosystem and agro- energy environment Management.
Unit – IV	**Planning and Management: Regional Perspective:** Problems of agriculture and agricultural planning in India, salient features of agricultural development of Uttarakhand Himalaya and their management and planning.

Books Recommended:

Bhalla, G.S. and Alagh, Y.K. (1979) performance of India, agriculture: a district-wise study, sterling, NewDelhi.

Das, M.M. (1982) Peasant Agriculture in Assam, Inter India, NewDelhi.

Gobind, N. (1986) Regional perspective in agriculture, concept, NewDelhi.

Hussain, M. (1979) Agricultural Geography, Inter India, NewDelhi.
Mergra, W.B. & Munton, R.J.C. (1971) Agricultural Geography, methuen,London.
Mitchel, P. (1979) Agro-ecosystem, Inter India Publication,NewDelhi
Shafi, M. (1984) Agricultural Productivity and Regional Imbalance, Concept, New Delhi.
Singh J. & Dhillon, S.S. (1985) Agricultural Geography, Tata McGraw Hill, NewDelhi.
Singh, J. (1974) Agricultural Atlas of India: A Geographical perspective, Vishal Publications, Kurukshetra.
Morgan, Agricultural Geography.
Alexander, J.W., Economic Geography.
Thomas, R.S., The Geography of Economic Activity.
Gregor, Howard, F., Geography of Agriculture: Themes in Research.
Russel, J., World Population and World Food Supplies.
Stamp, L.D., Our Developing World.
Sykes, F., Food Farming and Future.
Courtnay, P.P., PlantationAgriculture.
Egher and Heady, Regional Adjustment in Grain Production.
Sauer, Carl O., Agricultural Origins and Dispersals,
Randhawa, M.S., Indian Agriculture.
Page, W.G., Origins of Agriculture
Bireshwar Banergee (ed), Agricultural Geography.
Padam Singh Jhina, Agriculture in the Hill regions of North India.
Singh, B.B., *Krishi Bhoogol* (inHindi).
Tiwari, R.C. & Singh,B.N., *Krishi Bhoogol*, Prayag Pustak Bhawan,Allahabad.
Kumar, Pramila, *Krishi Bhoogol*, Madhya Pradesh, Hindi Granth Academi, Bhopal.
Howard Greor, Geography of Agriculture, P.Hall,1967.
Singh, J. (1974) Agricultural Atlas of India: A Geographical Perspective Kurukshetra.
Wathern, Peter, Enviromental Impact Assessment: Theory and Practice.
Unwin & Hyman, London.1986.
Brundland, G., Our Common Future, Report of the World Commission on Environment and Development, UN ,1988.

SEMESTER – III
Code : 303(a) (EC – iiia)
BASES OF HYDROLOGY
Paper –III (a)

Term End Exam. Marks **: 75** Time: 03 Hours
Internal Assessment Marks **: 25** (20 Marks allotted for Internal Assessment by submitting two Assignments for evaluation & 05 marks for attendance and overall performance in the class)

Total Marks **: 100**
Total Credit **: 04**

Unit – I	**Conceptual Base:** Concepts and scope of hydrology, , hydrological cycle, Recharge and discharge of ground water, Types of aquifer.
Unit – II	**Underground Hydrosphere:** Structure of the underground hydrosphere, Vadose and phreatic Zones, Underground water classification.
Unit – III	**Ground Water Movements:** Hydraulic conductivity, Darcy's law, Permeability, Transmissibility, Concept of artificial recharge.
Unit –IV	**Flow Measurements and Hydrograph:** Rivers : Channel flow measurement, Hydrograph analysis; Surface water resources of India.

Books Recommended:

Chorley, R.J. (ed.) (1969) : Water Earth and Man, Methuen,London.
Dakshinamurthy, et.al. (1973) : Water, Resources of India and Their Utilization in Agriculture, IARI, NewDelhi.
Govt. of India, Ministry of Agriculture (1972), Report of the Irrigation Commission, Vol. 1 to IV, NewDelhi.
Govt. of India, Ministry of Agriculture (1974), Report of National Commission on Agriculture, Parts IV &V, NewDelhi.
Govt. of India, Ministry of Energy and Irrigation (Dept. of Irrigation, 91980), Rashtriya Barh Ayog, Report- National Commission on Floods, Vol. I &II.

Gregory, K.J. and Walling De (1973)) : Drainage Basin Form and Processes, Edward Arnold, London.
Jackson, P.J. (1977) : Climate, Water and Agriculture in the Tropics,London.
Law, B.C. (ed.) (1968) : Mountains and Rivers of India, 21, G.C. National Committee for Geography,Calcutta.
Linslay, R.K. et.al. (1958) : Hydrology for Engineers, Mc GrawHill.
Rao, K.L. : India's Water Wealth, OrientLongman.
David Knighton (1984) : Fluvial Forms and Processes, Edward Arnold, London

SEMESTER – III
Code : 303(b) (EC – iiib)
GEOGRAPHY OF TOURISM
Paper –Third (b)

Term End Exam.Marks **: 75** Time: 03 Hours
Internal AssessmentMarks **: 25** (20 Marks allotted for Internal Assessment by submitting two Assignments for evaluation & 05 marks for attendance and overall performance in the class.)

Total Marks **: 100**
Total Credit **: 04**

Unit – I	**Introduction and the Concept:** Definition, Scope, Nature, Significance and Development of Geography of Tourism; Geography of Tourism as Applied Geography; The Tourist Phenomenon; Concept of Man, Environment and Tourism : The Interrelated Phenomena.
Unit – II	**Measurements and Dimensions of Tourism:** Basic concept and Need of Tourism Phenomena; Tourist: the Connotation; Types of Tourist Statistics; Methods of Measurement; The Importance of Measurement; The Organization of Tourism, The National Tourism Organization; Dimensions of World Tourism; International Tourist Movements.
Unit – III	**Resort Towns and Morphology:** Analysis of Splendor Resources; Accommodation : Early History, Classification and Gradation, Attributes of Resort Towns, Morphology and Shape of Resort Towns, Parks and Wildlife Sanctuaries, Cultural, Social and Historical Attractions with special reference to Uttarakhand Himalaya.
Unit – IV	**Tourist Industry and Environment:** Transport and Tourism, Spatial Interaction Determinants and Pattern, Tourism Marketing; Tourism Promotion; Social and Economic significance of Travel and Tourism; Domestic and Foreign Travel , Planning for Tourism, Eco- friendly Tourism, Environmental Consequences of Tourism, Tourism Planning with special reference to India and UttarakhandState.

Books Recommended

Arvil, R.(1967): Man and Environment Crisis and Strategy of Choice, Penguin, Harmondsworth, 1967.
Berril, N.J.(1967): Inheriting the Earth- The Story of Man and Changing Planet, Forwcett, Greenwich, Connecticut, 1967.
Bhargava, Gopal (1992): Environmental Challenges and Ecological Disaster, Mittal Publication, New Delhi.
Botkin, D.B. (1982) : Environmental Studies, Charles, E. Meril and Keller, Edward, A. Publishing Co. Columus, Ohio.
C.S.E. (1984) : The State of India's Environment : A Citizens Report, Centre for Science and Environment, New Delhi.
Chada, S.K. (1993) : Fragile Environment, Anmol Publication, NewDelhi.
Darlington, P.J. (1957) : Zoo-Geography : The Geographical Distribution of Animals, Wiley, New York.
Dasman, R.F. (1972) : Environmental Conservation, John Wiley and Sons, NewYork.
Detwyler, J.R. (1975) : Man's Impact on Environment, John Wiley and Sons, New York.
Khusoo, T.N.: Environmental Management Policies and Issues.
Knowles, R. and Wareing, J. : Economic and Social Geography.
Marsh, C..P. (1967): Man and Nature, Morvad.
Odum, E.P. : Fundamentals of Ecology, Prentice Hall.
Rustomji, N.K. and Ramble Charles (1990) : Himalayan Environment and Culture, Indus Publishing Company, New Delhi.
Robinson, H. (1976) : A Geography of Tourism, Macdonald & Evans Ltd., Estober, Plymouth.
Bhatia, A.K. (1983) : Tourism Development: Principles andPractices,Sterling Publishers Pvt. Ltd., NewDelhi.
Cosgrove, I. and Jackson, R. (1972) ; The Geography of Recreation and Leisure,

SEMESTER – III
Code : 304(a) (EC – iva)
GLACIAL GEOMORPHOLOGY
Paper –IV(a)

Term End Exam.Marks : 75 Time: 03 Hours
Internal AssessmentMarks : 25 (20 Marks allotted for Internal Assessment by submitting two Assignments for evaluation & 05 marks for attendance and overall performance in the class.)
Total Marks : 100
Total Credit : 04

Unit – I	**Theoretical Base:** Definition of Glacial Geomorphology; Ice Age; Causes of ice ages; Pleistocene Glaciation; onset and retreat.
Unit – II	**Erosional Processes and Associated Landforms:** Erosional process; glacial erosion, development of erosional landforms; superglacial, englacial and basal .
Unit – III	**Depositional Processes and Associated Landforms:** Deposional processes: processes-stratified and non stratified; forms of moraines-glaciofluvial and glacio-lacustrine environment.
Unit – IV	**Periglacial Processes and Landforms:** Periglacial process: frozen ground phenomenon –identifical ,depth variations, classification and distribution; mechanism of frost action.Periglacial landforms;frost action and landforms-mass wasting and landforms, adaptation of human beings to periglacial environment.

Books Recommended:

Brown,R.J.E, Permafrost in Canada. University of TorontoPress,Toronto,1970
Carson MA. And kirkby M.J., Hillslope form and Process, Cambridge University press,1972
Coates,D.R. (ed) Glacial Geomorphology. State University of New York,1974, NewYork,1974

Dixon, J.C. and Abrahams, A D (eds),: Periglacial Geomorphology. John Wiley newYork,1992.
Drewry,D., Glacial Geological Processes, Edward Arnold, London,1986.
Embleton,C. and Thormes,J. (rds), Process in Geomorphology, Arnold-Hesnemann, NewDelhi,1980.
Embleton,C and king, C.A.M., Glacial and periglacial Geomorphology, Edward Arnold, London,1968.
Hails, J R (ed), Applied Geomorphology, Elsevier Sci.Amsterdam,1977.
Pewe,T.L. (ed): The periglacial Environment. Mc. Gill-Queen's University press, montreal1969.
Peterson, W.S.B., The physics of Glacials. Pergamon press, oxford1969.
Price,L.W., The periglacial Environment, Permafrost and man., Commission on College Geography, Resource Paper no. 14, Washington, D.C.1972.
Ritter, D.F. Craig, R. and Miller, J.P., Process of Geomorphology., W.C Brown Dubuque,1995.
Slymaker, O.(ed0, Steepland Geomorphology.,John Wiley, London,1995.
Sugden,D.E. and John, B.S. Glaciers and landscape EdwardArnold, London,1976.
Vander veen, c. J., Fundamentals of glacier Dynamics., A.A. Balkemma, Rotterdam,1999.
Wright, A E and Mosley, p. (eds), ice ages: ancient and Modern., Seel house press, Liverpool,1975.

SEMESTER – III
Code : 304(b) (EC – ivb)
WORLD REGIONAL GEOGRAPHY
Paper –IV (b)

Term End Exam.Marks **: 75** Time: 03 Hours
Internal AssessmentMarks **: 25** (20 Marks allotted for Internal Assessment by submitting two Assignments for evaluation & 05 marks for attendance and overall performance in the class)

Total Marks **: 100**
Total Credit **: 04**

Unit – I	**Conceptual Base:** Regional Geography: Concepts, Approaches, Methods and Significance; Major World Regions and blocks (of macro, meso and micro levels) on various delimitation bases specially with reference to Natural, Political, Economic, Trade and Development Regionalization.
Unit – II	**Natural Regions of the World:** Physical Regions, Vegetation Regions, Climatic Regions, Bio-geographical Regions and Biomes
Unit – III	**Resource, Cultural and Economic Regions:** Resource Regions, Population Regions and Cultural Regions of the world, Agricultural Regions of the World; Industrial Regions of the World; Micro Agro-Industrial Regions of USA, Japan and China
Unit – IV	**Regional Planning and Development:** Important concepts, approaches and methods of Regional Development and their application with special reference to Uttarakhand

Books Recommended:

English, Paul Ward & Miller, J.A, .World regional Geography: A Question of Place, John Wiley, New York, 1989
Jaclspm. R.H. &Hadman L.E., World Regional Geography: Issue for today, John Wiley, New York, 1991
Blij, H.Muller,O., Geography, regions and Concepts, John Wiley,NewYork,1993
Don,R.H.(ed.), Essential of Geography and Development, McMillan, New York,1980
Mead,W.R., The United States andCanada
White, Regional Geography of Anglo-America
Jonesand Bryan, NorthAmerica

Watson,J.W. North America
Dury, G.H. & Methieson, R., The United States and Canada
Gregory and Sheawe, Geography of The U.S.S.R.
Turin, The U.S.S.R.
Shoad,T., Geography of the U.S.S.R.
Robinson,H., The U.S.S.R.
Lydoloph, Geography of thU.S.S.R.
StampandBeaver, The British Isles
Mackinder, Britain and British Isles
Unstead, The British Isles
WatsonandTissions, The British Isles
Trewartha, Japan
Fisher,C.A., South EastAsia
Dobby, Monsoon Asia
Stamp, L.D., Asia
Fisher,C.A., South EastAsia
Laborde, Australia, New Zealand and Pacific Islands
Taylor, Australia
Stamp, L.D., Africa
Shahman, South America
Saklani,P.S.(ed.), Tectonic Geology of the Himalaya,1978
Singh,R.L., India: A Regional Geography,1971
Nityanand & K.Kumar, The Holi Himalaya
Valdiya, K.S,. Land and People, 1988
Bose, S.C., Land and People of the Himalaya,Calcutta,1968
Singh O.P.(ed.), The Himalaya: Nature, Man and Culture,1983
Joshi,S.C. et.al, Kumaun Himalaya, Nainital,1983
Joshi,S.C., Uttaranchal: Environment &Development

SEMESTER –III

Code: 305 (CCm –i): DISSERTATION (MINOR)

Total Marks Allotted for Dissertation : 50
(Credits-02)

Evaluation by External Examiner : 20
Evaluation by Internal Examiner : 20
Viva –Voce Examination : 10
(by both the examiners)

Problem Oriented Work Based Dissertation

The students will be required to select the topic and area with the help of their respective supervisors allotted to them by the Department. Dissertation must be submitted to the Department one week before the commencement of the Theory Examinations. The size of the dissertation should normally range between 40 and 50 pages. The Dissertation will be evaluated by a panel of examiners appointed by the Convener of BOS, Geography. The evaluation and viva –voce examination will be conducted by both the external and internalexaminers.

SEMESTER – III

Code : 306 (CCm–ii): SEMINAR/ PRESENTATION

Total Marks :25 (Credit-01)

The students will be required to select any one of the topics allotted them by the Department. The Topic will be related to the disciplines already studied by students in the same semester as core or elective courses. The assessment of the presentation of the students/examinees will be done by external and internal examiners appointed by the Convener/Head of the Department/University.

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SEMESTER – III

PRACTICAL

Code: 307 & 308 (P-i & P-ii): SURVEYING AND MAP PROJECTION(Pi); AND FIELD SURVEY (Pii)

Term End Exam : Marks: 60 Time: 4 hrs
Record Work : Marks: 10
Viva – Voce : Marks: 05
Field Survey :Marks : 25 in the supervision of Teachers nominated by the Department (Field Report 20 Marks and Viva Voce 05 Marks).

TotalMarks :100
Total Credits : 04 (Practical 03 & Field Survey/Study 01)

Unit –I	EDM, and Leveling with Dumpy level.
Unit – II	Theodolite Surveying - Measurement of horizontal and vertical angles, Triangulation survey.
Unit – III	Map Projection: Meaning and classification; Principles, merits, demerits.
Unit –IV	Construction (with emphasis on mathematical/ trigonometrical methods) and use of the following projections: Gall's, Mercator's, Bonne's, Polyconic, International Mollweilde's - main and interrupted, Sinusoidal- main and interrupted, Gnomomic, Stereographic and Orthographic Zenithal Projections.

Books Recommended:

Bygott, G.L. : Mapworks and Practical Geography.
Mahmood, Aslam (1977) : Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi.
Mishra, R.P. and Ramesh, A. (1969) : Fundamentals of Cartography,Concept Publishing Company, New Delhi.
Singh, R.L. and Singh Rana, P.B. (1991) : Elements of Practical Geography, Kalyani Publishers, Ludhiana.
Singh, L.R. and Singh, R. (1991): Mapwork and Practical Geography, Central Book Depot, Allahabad.
Wilkinson, H.R. and Monkhouse, F.J. (1952) : Maps and Diagrams, B.I. Publications Pvt. Ltd., New Delhi.

SEMESTER – IV
Code : 401 (CCM-i)
INTEGRATED WATERSHED DEVELIOMENT
Paper –I

Term End Exam.Marks : 75 **Time: 03 Hours**

Internal AssessmentMarks : 25 (20 Marks allotted for Internal Assessment by submitting two Assignments for evaluation & 05 marks for attendance and overall performance in the class)

Total Marks : 100

Total Credit : 04

Unit I	**Conceptual Base:** Concept, Scope and Significance: Approaches of Watershed Management, Drainage of Watershed Management, Functioning of Ecosystem and Environmental Impact Assessment (EIA).
Unit II	**Ecosystem and Energy Environment:** Land Use Pattern, Natural Resource appraisal and Development, Ecological Processes and Ecosystem: Agro-Ecosystem, forest Ecosystem, River Ecosystem and Hydrological Cycle; Energy Analysis and Energy Budget of the Watershed.
Unit III	**Environmental Status and Hazards:** Environmental Health Status: Physical properties (Viz, Temperature, Rainfall, Soil etc.) and Human Habitat of the Watershed; Impact of Environmental and Anthropogenic Interferences on the Status and Quality of the Watershed; Major Natural Hazards: Landslides, Erosion, Floods, Droughts, Sedimentation, Disruption of Hydrological Cycle etc.
Unit IV	**Watershed Management:** Watershed Management: Techniques and Methods, Land and Soil Conservation, Run-off Control, Sustainable Environment Management Plan for Local Resources.

Recommended:

C.S.E.; The State of India's Environment-Citizens Report, Centre for Science and Environment. (CSF), New Delhi, 1982

Valdiya, K.S.; EnvironmentalGeology: Indian Cntext, T.M.H., New Delhi,1987.

Dassman, R.F.; Environmental Conservation, John Wiley &Sons,NewYork, 1976

Edington, J.M.& Edington. M.A.; Ecology and environmental Planning, Chapman and Hall, London, 1977

arvey, B. and Hallet, J.D.; Introductory Analysis, Macmillan,London,1977

Thomas, W.L.(ed.); Man's role in changing the Face of the Earth, University of Chicago Press, Chicago, 1956

Simmons, I.G., The Ecology of Natural Resources, Edward Arnold, London,1974

Whittaker, R.H.; Communities and Ecosystems ,2nd Edn. Collier-Macmillan, London,1975

Singh, L.R. et.al.(eds.); Environmental Management, Allahabad Geographical Society, Dept. of Geography, University of Allahabad,1983

Singh, Savindra; Environmental Geography, Allahabad, 1991(both in English & Hindi) latest edn.

SEMESTER – IV
Code : 402(a) (EC-ia)
POPULATION GEOGRAPHY & HUMAN RESOURCE DEVELIOMENT
Paper – II (a)

Term End Exam.Marks **: 75** **Time: 03 Hours**

Internal AssessmentMarks **: 25** (20 Marks allotted for Internal Assessment by submitting two Assignments for evaluation & 05 marks for attendance and overall performance in the class.)

Total Marks **: 100**

Total Credit **: 04**

Unit – I	**Fundamentals of Population Geography:** Meaning, Nature, Scope and Significance of Population Geography, Methods, Techniques and Approaches of Population Geography. Population Geography and Demography; Human Resource Development and Population Explosion, Population Theories: Malthusian, Neo-classical & Marxist, Population Data and Methods and Techniques of Mapping Population Data
Unit – II	**Demographic Traits:** Measures and methods of estimating fertility and mortality; Population composition: age, sex, literacy, occupation, caste and tribe; Population Growth and Distribution: World patterns and Indian Growth Trends. Determinants of population distribution, The great human agglomerations, population cycle, population growth and its consequences; Population densities; population pressure; concepts of under, optimum and over- population.
Unit – III	**Human Migration:** Types of migration, causes and consequences of migration; Growth and migration theories, Rural and urban population, population movements: International and internal causes and consequences of migration,
Unit – IV	**Population Projection and Planning:** Typology of population regions with special reference to India, The balance of people and resources; population resource regions; population projection; population potential and dispersion, population education and Human Resource Development planning.

Books Recommended:

Clarke, John I. Population Geography
Wilson, M.G.A. Population Geography
Bose, A. Patterns of Population change in India,1951-61
Zelinsky, W. A Prologue to Population Geography
Woytinsky, S.N.& World Population and Production
United Nations The Determinates and Consequences of Population Trends
Hauzer, P.M. etal. Study of Population: Inventory and Appraisal
Smith T. Lynn Fundamentals of Population Study
Clarke, John I. Population Geography and Developing Countries
Garnier, J. Beaiyeu Geography of Population
Demkoetal. Readings in Population Geography
Trewartha, Glen T. A Geography of Population : World Patterns,1969
Trewartha, G.T. The Less Developed Realm : A Population Geography
Russel, SirJohnWorld Population and World Food Supplies
Chandrashekher, S. Hungry People and Empty Land
P.E.P.(ed.) World Population and Resources
Agrawal, S.N. India's Population: Some Problems in Perspective Planning
Census of India Reports, Various Year
United Nations Year Book & Reports
Chandra, R.C. (i) Geography of Population, Kalyani,1986
Population, Kalyani, 1999
UNDP,UNEP & UN's Current Report on Human Resource Development
Bhendea A. and Kanitkar, T. (1985) : Principles of Population Studies ,Himalaya Publishing House, Mumbai.
Chandra, R.C. and Sidhu, M.S. (1980): Introduction to Population Geography, Kalyani Publishers, Ludhiana.
Clorke, J.L. (1972) : Population Geography, Pergamon Press, Oxford.
Demko, G.J. and Rose, H.M. and Schnell, G.A. (1979): Population Geography: A Reader, Mc Graw Hill, New York.
Dubey, R.M. (1981): Population Dynamics in India, Chugh Publications, Allahabad.
Mandal, R.B., Uyanga, J. and Prasad, H. (1989): Introductory Methods in Population Analysis, Concept, New Delhi.
Sundaram, K.V. and Nangia, S. (1985): Population Geography, Heritage, and New Delhi.

SEMESTER – IV
Code : 402(b) (EC-ib)
INTEGERATED MOUNTAIN DEVELOPMENT WITH SPECIAL REFERENCE TO UTTARAKHAND
Paper – II (b)

Term End Exam.Marks : 75 **Time: 03 Hours**

Internal AssessmentMarks : 25 (20 Marks allotted for Internal Assessment by submitting two Assignments for evaluation & 05 marks for attendance and overall performance in the class.)

Total Marks : 100

Total Credit : 04

Unit – I	Mountain Systems of the World Location, Extent, Origin and Physiography of the major mountain systems (i.e., Alps, Andes, Rockies) of the world. The Himalaya: Land Resource, Water Resource (Rivers, Glaciers and Lakes), Forests (Natural Vegetation) and Biodiversity, Degradation of natural resources.
Uni t – II	Major Environmental Challenges of the Himalaya Erosional Hazards, Deforestation, Loss of Biodiversity, and wild life, Natural Disasters: Earthquakes, Landslides, Forest Fires, Climate Change.
Unit – III	Demographic Traits, Society and Culture Population: Growth and Distribution, Population Migration, MajorTribes (Gaddies, Bhotias, Gujars and Nagas), Local Indigenous Knowledge of different societies/groups,
Unit – IV	Economic Perspective Agriculture, Livestock, Livelihood and Food Security, Tourism, Future prospects of development in theHimalaya.

Books Recommended:

Valdiya ,K.S.: LandandPeople,1988
Bose, S.C.: Land and People of the Himalaya,Calcutta,1968
Singh O.P.(ed.):TheHimalaya:Nature,ManandCulture,1983
Joshi ,S.C. et.al:KumaunHimalaya,Nainital,1983
Singh, O.P .& Pande, R.K.: Human Habitat in the Mountain(1998)
Joshi,S.C.:Uttaranchal:Environment&Development,2001
Saklani, P.S.(ed.):TectonicGeologyoftheHimalaya,1978

SEMESTER – IV
Code : 403(a) (EC-iia)
SOIL GEOGRAPHY
Paper – III (a)

Term End Exam.Marks	**: 75**	**Time: 03 Hours**
Internal AssessmentMarks	**: 25**	(20 Marks allotted for Internal Assessment by submitting two Assignments for evaluation & 05 marks for attendance and overall performance in the class.)

Total Marks : 100
Total Credit : 04

Unit – I	**Conceptual Base:** Concept, scope, approaches and significance of Soil Geography Soil profile. Soil erosion and Conservation
Unit – II	**Soil Properties :** Physical, Chemical and Biological properties of soils
Unit –III	**Formation & Capability:** Soil Forming Factors, Soil Forming Processes; Soil Catena, Land Capability Classifications.
Unit –IV	**Soil Classification:** Genetic Classification of soils; Soil taxonomy: Soils orders and sub-order level

Books Recommended:

Buckman, H.O. & Brady, N.C. (1960): The Nature and Properties of Soils, New York: MacMillan, 1960.
Bunting, B.T.(1967): The Geography of Soils, London: Hutchinson.
Clarke, G.R. (1957): Study of the Soil in the Field, Oxford: Oxford University press.
Jenny, H. (1941): Factors of Soil Formation, New York: Mc Graw Hill.
Robinson, G.W. (1949): Soils, their Origin, Constitution and Classification, London: Murley.
Russell, E.J.(1961) : The World of the Soil, Collins: fountain Library.
Wilde, S.A. (1946) : Forest Soils and Growth , Waltham, Chronica

SEMESTER – IV
Code : 403(b) (EC-iib)
Biogeography
Paper – III (b)

Term End Exam.Marks : 75 **Time: 03 Hours**

Internal AssessmentMarks : 25 (20 Marks allotted for Internal Assessment by submitting two Assignments for evaluation & 05 marks for attendance and overall performance in the class.)

Total Marks : 100

Total Credit : 04

Unit-I	**Fundamental Concepts:** Concept, Scope, Significance and Development of Biogeography; Environment, Habitats and Plant-animal Association
Unit-II	**Plant Geography and Zoo-geography:** Elements of Plant Geography, Distribution of Forests and Major Plant Communities;Zoogeography and its environmental relationship; Classification and distribution of animals; faunal regions; biomes and their types; Biodiversity and its depletion
Unit-III	**Climate Change: Temporal Perspectives:** Impact of Climate Change on Flora and Fauna with special reference to Uttarakhand Himalaya
Unit-IV	**Biotic Resource Management:** National Forest and Wildlife Policy of India; Protected Areas and their management with special reference to National Parks, Wildlife Sanctuaries and Biosphere Reserves of Uttarakhand

Book Recommended:

Agarwal, D.P. (1992) : Man and Environment in India Through Ages, Books and Books.
Bradshaw, M.J. (1979): Earth and Living Planet, ELBS, London.
Cox, C.D. and Moore, P.D. (1993): Biogeography: An Ecological and Evolutionary Approach, 5th Edn., Blackwell.
Gaur, R. (1987): Environment and Ecology of Early Man in Northern India, R.B. Publication, Corporation.
Hoyt, J.B. (1992): Man and the Earth, Prentice Hall, U.S.A.

Hugget, R.J. (1998): Fundamentals of Biogeography, Routledge, U.S.A.
Illies, J. (1974): Introductory to Zoogeography, Mcmillan, London.
ICIMOD, Mountains of the world: ecosystem Services in a Time of global and climate change: seizing opportunities meeting challenges Framework paper prepared for the Mountain Initiative of the Government of Nepal by ICIMOD and the Government of Nepal, Ministry of Environment
IPCC, Climate change: Impacts, adaptation, and vulnerability, Part A: Global and sectoral aspects, Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Summary for policymakers, Cambridge University Press, Cambridge, United Kingdom and New York, USA, 2014
Jean Palutikof et al. (eds.) Climate Adaptation Futures, Wiley Publishing Company, U.K., 2013
Khoshoo, T.N. and Sharma, M. (eds.) (1991): Indian Geosphere – Biosphere Har – Anand Publication, Delhi.
Ning, Wu; Rawat, G.S.; Joshi, S.; Ismail, M.; Sharma, E. (Eds) High-altitude rangelands and their interfaces in the Hindu Kush Himalayas. Kathmandu: ICIMOD, 2013
Lapedes, D.N. (ed.) (1974) : Encyclopedia of Environmental Science, McGraw Hill.
Mathur, H.S. (1998) : Essentials of Biogeography, Anuj Printers, Jaipur.
Pears, N. (1985) : Basic Biogeography, 2nd Edn. Longman, London.
Simmon, I.G. (1974) : Biogeography, Natural and Cultural, Longman, London.
Tivy, J. (1992) : Biogeography : A Study of Plants in Ecosphere, 3rd Edn., Oliver and Boyd, U.S.A.
Tiwari, P.C. and Bhagwati Joshi (1997): Wildlife in the Himalayan Foothills of Uttar Pradesh: Conservation and Management, New Delhi
Velma Grover et al.(eds), Global Change and Mountains: Consequences, Responses and Opportunities, Science Publishers, CRS Press, Taylor and Francis, USA,2015

SEMESTER – IV
Code : 404(a) (EC-ia)
DISASTER MANAGEMENT
Paper –IV (a)

Term End Exam.Marks	**: 75**	**Time: 03 Hours**
Internal AssessmentMarks	**: 25**	(20 Marks allotted for Internal Assessment by submitting two Assignments for evaluation & 05 marks for attendance and overall performance in the class.)
Total Marks	**: 100**	
Total Credit	**: 04**	

Unit – I	**Fundamentals of Disaster Management:** The significance of disaster, Disaster threat, National disaster management policy, Major requirements for coping with disaster, Disaster and disaster management cycle,
Uni t – II	**Long term Measures:** Prevention, Mitigation, Preparedness, Disaster and development, Disaster legislature, Counter disaster resources, Disaster management plans, Utilization ofresources.
Unit – III	**Response and Recovery:** Response; Search, Rescue and Evacuation, Logistic; Incident command system, Recovery, Post disaster review and damage assessment, Relief, Rehabilitation and Restructuring
Unit – IV	**Regional Pattern of Disaster Management:** International disaster assistance, Leadership in disaster, Organization, Disaster scenario of Uttarakhand, Disaster management system in Uttarakhand.

Books Recommended

Feilden, B. 1987, "Between Two Earthquakes; Cultural Property in Seismic Zones", ICCROM and Getty Conservation Institute

Getty Conservation Institute, Online Bibliography for Museum Emergency Programme; http://gcibibs.getty.edu/asp/ accessed on 25 August 2008

Stovel, H. 1998, "Risk Preparedness: A Management Manual for World Cultural Heritage", Rome, ICCROM

Jigyasu, R. & Masuda, K. 2005, "Proceedings; Cultural Heritage Risk Management", World

Conference on Disaster Reduction Kyoto; Research Center for Disaster Mitigation of Urban Cultural Heritage, Ritsumeikan; Kyoto, Japan

Menegazzi, C. 2004, "Cultural Heritage Disaster Preparedness and Response", Proceedings of the International Symposium held at Salar Jung Museum, Hyderabad, India, 23-27 November 2003, ICOM Paris
http://icom.museum/disaster_preparedness_book/copyright.pdf accessed on 15 August 2008

Risk Preparedness; Heritage at Risk, Bibliography, UNESCO-ICOMOS Documentation Centre, Paris
http://www.international.icomos.org/centre_documentation/bib/riskpreparedness.pdf

Spenneman, D. & Look, D. (eds.) 1998, "Disaster Management Programs for Historic Sites", US National Park Service, Western Chapter of the Association of Preservation Technology, California and the Johnstone Centre, Charles Sturt University, Albery, Proceedings of a Symposium organized by the U.S. National Park Service, Western Regional Office, San Francisco, in collaboration with the Western Chapter of the Association for Preservation Technology, and held on 27-29 June, 1997 in San Francisco

UNESCO-WHC 1983, "Desirability of adopting an international instrument on the Protection of the cultural heritage against natural disasters and their consequences", Report of the Director General; http://unesdoc.unesco.org/images/0005/000560/056088eo.pdf accessed on 15 August 2008

UNESCO-WHC 2008, "Policy Document on the Impacts of Climate Change on World Heritage Properties", UNESCO Paris http://whc.unesco.org/en/CC-policy-document/

"Case Studies on Climate Change and World Heritage", 2007, UNESCO: Paris
http://unesdoc.unesco.org/images/0015/001506/150600e.pdf

Michalski S. 2004, "Care and Preservation of Collections", in Running a Museum, A Practical Handbook (ed. P. Boylan), ICOM, Paris. p. 51 - 91

Waller R. 2003, "Cultural Property Risk Analysis Model, Development and Application to Preventive Conservation at the Canadian Museum of Nature", Gutenberg Studies in Conservation 13, Gutenberg Act UniversitatisGothoburgensis.

Humanitarian Early Warning Service, Inter-Agency Standing Committee developed by the World Food Programme. http://www.hewsweb.org/

Epidemic and Pandemic Alert and Response, World Health Organization,
http://www.who.int/csr/en/

Global Outbreak Alert and Response Network, World Health Organization,
http://www.who.int/csr/outbreaknetwork/en/

Severe Weather Information Centre, World Meteorological Organization,
http://severe.worldweather.wmo.int/

A joint CARE-IUCN-WWF "Alert" publication on earthquake related environmental issues.

The Rapid Response Facility, Flora and Fauna International,
http://www.fauna-flora.org/rrf.php

Crisis Response Centre, World Wildlife Fund,
http://www.panda.org/news_facts/newsroom/crisis/index.cfm

SEMESTER – IV
Code : 404(b) (EC-ib)
RURAL DEVELOPMENT PLANNING
Paper – Fourth b)

Term End Exam.Marks **: 75** **Time: 03 Hours**

Internal AssessmentMarks **: 25** (20 Marks allotted for Internal Assessment by submitting two Assignments for evaluation & 05 marks for attendance and overall performance in the class.)

Total Marks **: 100**

Total Credit **: 04**

Unit – I	**Fundamental Base:** Meaning, concept and scope of Rural Development and Planning: Basic elements of Rural Development, Growth versus Development, Approaches to Rural Development, Development and change, Dimensions of Rural Economy
Unit – II	**Paradigm of Rural Development:** The dependency theory of Marxist School, Gunner Myrdal's thesis of spread and backwash effects, The Gandhian model of Rural development, Changing Paradigm of Rural development.
Unit – III	**Rural Development Programmes in India:** Community Development Programmes and Panchayati Raj, Integrated Rural Development Programmes, special groups, MAGNREGA and area specific programmes, drought prone, desertdevelopment. Mountain and tribal development programmes in India.
Unit – IV	**Planning for Rural Development:** Rural Development Policies in India. Levels and functions of Rural Planning, methods of micro level planning in agriculture, Block and District level planning. People's participation in Rural Planning.

Books Recommended:

Boudeville, J.R. (1966) Problems of Regional Economic Planning, Edinburgh University Press Edinburgh.

Bunge, W. (1966) Theoretical Geography, Lund Studies in Geography Series, CI, Lund, Gleerup.

Cheema, G.S. and Rondinelli, D.A. (1983) Decentralization and Development: Policy Implementation in Developing Countries, Sage, Beverly Hills.

Chenery, H. et. al. (1974) Redistribution with Growth, Oxford UniversityPress, Oxford.
Darwent, D.F. (1969) 'Growth poles and growth centres in regionalplanning: a review, Environment and Planning, 1 (1), 5-31.
Frank, A.G. (1981) Crisis in the Third World, heineman, London.
Tolmer, H. and Oosterhaven, J. (eds.) (1979), Spatial Inequalities and Regional Development, Nijhoff, leiden.
Forbes, D. (1982) Geography of Under-development, Croom Helm,London.
Friedmann, J. and M. Douglass 91978) Agropolitan Development: Towards a new strategy for regional planning in Asia in Lo, Fu-chen and K. Salih(eds.) Growth Pole Strategy, Pergamon, London.
Gilbert, A. (ed.) (1976), Development Planning and Spatial Structure,John Wiley, London.
Hagerstrand, T. (1967) Innovation Diffusion as a Spatial structure, JohnWiley, London.
Hall, P. (1975) Urban and Regional Planning, David and Charles,London.
Harvey, P. (1982), The Limits to Capital, Bsil Blackwell,Oxford.
Hilhorst, J.G.M. (1971) Regional problems, Macmillan,London.
Johnson, E.A.J. (1970), The Organization of Space inDeveloping countries, Harvard University press, Cambridge,Mass.
Kitching, G.N. (1982) Development and Under-development in Historical perspective: Population, Nationalism and Industrialization, methuen,London.
Kuklinski, A (1975) Regional Disaggregation of National policies andPlus, Monton,paris.
Lo, Fu-Chen and Salih, K. (eds.) (1978), Growth Pole Strategy andRegional Development Policy, Pergamon,Oxford.
Lipton, M. (1977) Why people Stay Poor: a study of urban bias inworld development, Temple SmithLondon.
Massey, D. (1984) Spatial Division of Labour, Macmillan,London.
North D.C. (1955): Location theory and regional economic growth, Journal of Political Economy, 63 (3)243-58.

SEMESTER – IV

Code: 407(CCm –i): DISSERTATION (MAJOR)

Total Marks Allotted for Dissertation : 100 (Credits04)

Evaluation by External Examiner	: 35
Evaluation by Internal Examiner	: 35
Viva –Voce Examination (by both the examiners)	: 3 0

The students will be required to select the topic and area with the help of their respective supervisors allotted to them by the Department. Dissertation must be submitted to the Department one week before the commencement of the Theory Examinations. The size of the Dissertation normally range between 60 and 70 pages. The Dissertation will be evaluated by the external and internal examiners as stated above. The viva –voce examination will be conducted by both the examiners.

SEMESTER – IV

Code: 408 (CCm–ii): SEMINAR/ PRESENTATION

Total Marks :25 (Credit 01)

The students will be required to select any one of the topics allotted them by the Department. The Topic will be related to the disciplines already studied by students in the same semester as core or elective courses. The assessment of the presentation of the students/examinees will be done by the external and internal examiners appointed by the Convener/Head of the Department/University.

SEMESTER – IV

PRACTICAL
Code: 407 & 4108 (P-i & P-ii):
USE OF BRUNTON COMPASS
INTERPRETATION OF GEOLOGICAL MAPS AND TECHNIQUES OF SPATIAL ANALYSIS (Pi); AND FIELD SURVEY (Pii)

Term End Exam : Marks: 60 Time: 04 Hours
Record Work : Marks: 10
Viva Voce : Marks: 05
Field Survey : Marks : 25 (Regional Field Survey will be organized inthe supervision of Teachers nominated by the Department (Field Survey Report 20 Marks and Viva Voce 05 Marks).

Total Marks : 100
Total Credits : 04 (03 Practical and 01 Field Survey/Study)

Unit I	Geological Maps and their Interpretation, field exercise with brunton compass.
Unit II	Folded and faulted structures, effect of relief on the sequence and pattern of rock outcrops..
Unit III	Representation of economic data: Agricultural land use & production and industrial data.
Unit IV	Representation of population data: Growth, distribution and employment.

Books Recommended:

Bygott, G.L.: Map works and Practical Geography
Mahmood, Aslam (1977) : Statistical Methods in Geographical Studies,Rajesh Publications, New Delhi.
Mishra, R.P. and Ramesh, A. (1969) : Fundamentals of Cartography, Concept Publishing Company, New Delhi.
Singh, R.L. and Singh Rana, P.B. (1991) : Elements of Practical Geography, Kalyani Publishers, Ludhiana.
Singh, L.R. and Singh, R. (1991): Map work and Practical Geography, Central Book Depot, Allahabad.

Monkhouse, F.J.(1971) Maps and Diagrams, Methuen, London.
Derk, C.L. &Brown,U.S. Interpretation of Topographical and Geological Maps
Curran, P.J.(1985) Principles of Remote Sensing, Longman
Wilkinson, H.R. and Monkhouse, F.J. (1952) : Maps and Diagrams, B.I. Publications Pvt. Ltd., New Delhi.