

# Faculty of Humanities & Social Sciences

**Geography**

*M.A. Geography*

**Curriculum**

1999



**Curriculum Development Centre**

***Tribhuvan University***

*Kirtipur, Kathmandu*

**Nepal**

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EXT BOOK

TEXT BOOK

*M.A. Geography*

*Effective from 1999*

*Office of the Dean*

**Faculty of Humanities & Social Sciences**

**Tribhuvan University**

**Kathmandu, Nepal**

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TEXT BOOK

## Courses of Study for M.A. in Geography

The course of master's degree in Geography has been divided into two streams- General stream and Specialized stream. The students are required to take 10 courses, each with 100 full marks. These 10 courses include compulsory courses, optional courses on geographic techniques, and other optional courses as suggested by the Department, Five courses (Geog. 501 – 504 and 506) are compulsory for both the streams.

### Admission Criteria:

Students should have successfully completed three years Bachelors' degree from a recognized university-with Geography as their major or Bachelor's degree recognized by Tribhuvan University shall be considered eligible to apply for admission to M.A. geography degree course. Other requirements are as per the Tribhuvan University rules.

An applicant seeking admission to M.A. Geography must appear in an Entrance Examination of two hours' duration conducted by the Central Department of Geography / Campus. The applicant who fails to appear in the Entrance Examination or to obtain a minimum qualifying score will not be given admission. Admission of the students will be based strictly on the merit list and on the enrollment capacity of the Central Department of Geography / Campus.

### Duration of the Course and Examinations

The duration of the course is of two years and there is an university examination at the end of each year. 70 percent attendance in the class is compulsory.

A students who has passed his/her two years of study will be graded on the basis of the two years' average marks as follows:

75	percent and above	Distinction
60	percent and above	First Division
50	percent and above	Second Division
40	percent and above	Third Division

### Course Structure

#### First Year: (General and Specialized Stream)

Paper	Code No.	Subject	Full Marks
I	Geog.501	Modern Geographical Thought	100
II	Geog.502	Research Techniques and Quantitative Methods in Geography.	100
III	Geog.503	Advanced Geomorphology	100
IV	Geog.504	Human Ecology	100
V		Optional (any one from Geog. 511 - 519)	100

**Second Year: (General Stream)**

VI	Geog.506	Seminar on Geographic Problems of Nepal	100
VII		Optional ( any three from Geog.: 521 - 549 )	100 X 3
VIII		Or	
IX		Optional ( Any Two from Geog. 521 - 549, and Any One from Geog. 551 - 559, 561 - 569, 571 - 579, and 581 - 589)	
X	Geog.510	Thesis	100
		or (Any one from Geog.: 521 - 549)	100

**Second Year: (Specialized Stream)**

VI	Geog.506	Seminar on Geographic Problems of Nepal.	100
VII		<u>Specialization</u>	100 X 2
VIII		(any two from Geog.: 551-559 or 561 - 569 or 571 - 579 or 581 - 589.	
IX		Optional:(Any one from Geog.511 - 519, 521 - 549)	100
X	Geog. 510	Thesis	100

**Optional Courses:**

	Geog.511	Field Research Methods in Geography	100
	Geog.512	Advanced Cartography and Surveying	100
	Geog.513	Remote Sensing and Geographic Information System	100
	Geog.521	Advanced Political Geography (to be developed)	100
	Geog.522	Advanced Agricultural Geography	100
	Geog.523	Advanced Settlement Geography	100
	Geog.524	Advanced Population Geography	100
	Geog.525	Geography of Tourism	100
	Geog.526	Migration and Urbanization	100
	Geog.527	Regional Planning	100
	Geog.528	Urban Geography and Urban Planning	100
	Geog.529	Locational Analysis for Infrastructural Planning (to be developed)	100
	Geog.530	Medical Geography (to be developed)	100
	Geog.531	Cultural Geography (to be developed)	100
	Geog.532	Environmental Impact Assessment	100
	Geog.533	Political Economy of Agrarian Change (to be developed).	100
	Geog.534	Development Theories (to be developed)	100
	Geog.535	Project Analysis (to be developed)	100
	Geog.536	Bio-geography (to be developed)	100
	Geog.537	Advanced Climatology (to be developed)	100
	Geog.538	Landscape Ecology (to be developed)	100
	Geog.539	Glacial and Periglacial Environment (to be development)	100

**Specialization Courses:**

(Rural Development Planning)			
	Geog.551	Rural Development Planning I	100
	Geog.552	Rural Development Planning II	100
			100
(Environment and Development)			
	Geog.561	Natural Resource Management	100
	Geog.562	Policy Context for Environmental Development	100
(Integrated Mountain Environment and Development)			
	Geog.571	Mountain Climate and Hydrology	100
	Geog.572	Mountain Environment, Landforms and Processes	100
(Society, Population and Development)			
	Geog.581	Population, Environment and Development	100
	Geog.582	Gender and Development	100

**Note:** Students choosing any specialization or optional will take courses in consultation with the Department.

**Modern Geographic Thought  
(Compulsory)**

**Geog. 501**

**Paper: I**

**Full Marks: 100**

**Teach. Hr. 150**

**Objectives:**

This course mainly aims to provide the advanced knowledge of the geographic ideas and trends. It takes the students to critical analysis of geographic ideas and their contribution to scientific studies. Its also highlights the development of geography as a systematic discipline in Nepal.

**Course Contents:**

<u>Units</u>	<b>Teach. Hrs.</b>
<b>I Geographic Ideas</b> The ideas of the Map, GIS & Remote Sensing, Human Adjustment, Spatial Organization and Interdependence, Central Place Theory and Locational Analysis, Megalopolis, Sense of Place	<b>20</b>
<b>II Geographic Contribution to Scientific Studies</b> Integration in Place, Relevance to Issues for Science and Society, Interdependencies between Places, Interdependencies between Scales, Spatial Representation, Geography as a Landscape Science	<b>15</b>
<b>III Foundation of Geography</b> Geography in the Modern World, Exploration, Environmental Determinism and Possibilism	<b>15</b>
<b>IV Growth of Systematic Studies and the adoption of Scientific Method</b> Behavioral Geography, Humanistic Geography, Radical Approaches	<b>15</b>
<b>V Recent Trends in Geography</b> Quantitative Revolution, Necessity of Statistics in Geography, Quantification in Geographical Literature, Quantification in Physical and Social Sciences, Quantification in Locational Theory, Proper Use of Statistical Methods in Geography, Quantitative and Qualitative Analysis in Geography, Changing Paradigms in Geography, Science of Relationship, Criticism of Quantification	<b>25</b>
<b>VI Regional and Systematic Geography</b> Historical Development of Region, Cultural Region, Region and Aerial Relationship, Causal Relationship, Classification of Region	<b>15</b>
<b>VII Use of Models in Geography</b>	<b>15</b>
<b>VIII Development of Geography in Nepal</b> Development of Academic Discipline, Development of Institutions	<b>30</b>

### References

1. Johaston, R. J, *Geography and Geographers*, London: Edward Arnold, 1991.
2. Hanson, Susan ed., *10 Geographic Ideas that Changed the World*, New Jersey: Rutgers University Press, 1997.
3. Dixshit, R. D., *Geographical Thought, A Contextual History of Ideas*, New Delhi: Prentice Hall of India, 1997.
4. Dr. Negi, B. S., *Geographical Thought*, New Delhi: Kedar Nath and Ram Nath, 1993-94.
5. James, Preston E. and Geoffrey J. Martin, *All Possible Worlds: A History of Geographical Ideas*, (2nd Edn), New York: John Wiley and Sons, 1972
6. Harvey, David, *Explanation in Geography*, London: Arnold, 1969.

⑤ 910.973  
J225a - American Geography.  
1988

**Research Techniques and Quantitative  
Methods in Geography  
(Compulsory)**

**Geog. 502**

**Paper: II  
Full Marks: 100  
Tech. Hr. 150**

**Objectives:**

This course has two objectives: First, it provides basic knowledge of research techniques and the processes and issues involved in writing research paper and the proposal. Secondly it familiarizes the students with basic quantitative and qualitative techniques used in geographical research.

**Course Contents:**

<u>Units</u>	<u>Tech. Hrs.</u>
<i>A) Research Techniques</i>	
<b>I Research and Scientific Method</b>	<b>5</b>
<b>II Theoretical Basis of Research: concept, hypothesis, model, law and theory</b>	<b>10</b>
<b>III Research in Geography</b>	<b>5</b>
<b>IV Research Design: concept paper, research design and proposal writing</b>	<b>15</b>
<b>V Review of Literature</b>	<b>5</b>
<b>VI Quantitative and Qualitative Techniques</b>	<b>5</b>
<b>VII Methods of Data Collection</b>	<b>5</b>
Questionnaire, Interview, Participant Observation, Field Notes: Types, Writing, Coding and Indexing, Knowing the Informants	
<b>VIII Unstructured and Semi-structured Techniques</b>	<b>5</b>
Interview Control, Probing, Focus Group Discussion, Key Informant Interview, RRA, PRA and other Techniques	
<b>IX Data Analysis and Interpretation</b>	<b>5</b>
Format of Research Reporting, General Framework, Bibliography, Footnotes	
<i>B) Quantitative Methods</i>	
<b>X Sampling Design, Methods, and Estimation</b>	<b>10</b>
Simple Random, Stratified, Systematic, and Cluster Sampling	
<b>XI Univariate Data Analysis</b>	<b>10</b>
Data Analysis for Univariate Samples, Characteristics of Sample Distribution, Outliners, Normality, and Transformation	
<b>XII Bivariate and Multivariate Data Analysis</b>	<b>25</b>
Correlation: Simple, Partial, Multiple, and Canonical, Regression: Simple, Partial, Multiple, and Logistic, Regression	
<b>XIII Analysis of Time Series</b>	<b>15</b>

	Introduction, Utility, Components, and Trend and Variation Measurements	
<b>XIV</b>	<b>Statistical Inference</b>	<b>10</b>
	Estimation: Point and Interval., Hypothesis Testing: chi-square, t, Z, F and ANNOVA	
<b>XV</b>	<b>Factor Analysis</b>	<b>5</b>
	Theory and Concept, Factor Analysis Operationalization	
<b>XVI</b>	<b>Cluster Analysis</b>	<b>5</b>
	Hierarchical, Multivariate, and Other Clustering Methods	
<b>XVII</b>	<b>Model Building</b>	<b>10</b>
	Models With single and double Quantitative Independent Variables, Model Testing, Models with one Qualitative Independent Variables, Model Building: Stepwise Regression	

**Note:** Students will be encouraged to use the Computer Statistical Packages such as SPSS, SAS etc.

### References

1. Agrawal, R. and A.K. Das (eds.), *Fundamentals of Social Science Research Methodology*, Kathmandu: CEDA.
2. Krishnaswami, O.R., *Methodology of Research in Social Sciences*, Bombay : Himalayan Publishing Home.
3. Brown, R., *Explanation in Social Sciences*, Chicago: Aldine.
4. Kunn, T. S., *The Structure of Scientific Revolution*, Chicago: Chicago University Press.
5. Harvey, D., *Explanation in Geography*, London : Arnold, 1969.
6. Abler, R., J.S. Adams & P. Gould, *Spatial Organization, The Geographer's View of the World*, Engliwood Cliff: Prentice – Hall, 1971.
7. Chorley, R.J. & P. Haggett (eds.), *Models in Geography*, London: Methuen, 1967.
8. Bernard, H. Russell, *Research Methods in Anthropology*, California: Altamira Press, 1995.
9. Bowerman, Bruce L. And Richard T. Oconnell., *Linear Statistical Model: An Applied Approach*, PWS- KENT Publishing Company, Boston, 1990.
10. Clark, W.A.V.and Hosking, P.L., *Statistical Methods for Geographers*, New York: John Willey and Sons, 1986.
11. Daniel, Wayne, W.and James C. Terrel, *Business Statistics: Basic Concepts and Methodology*, Bostan: Houghton Mifflin Company.
12. Gilbert, Norma, *Statistics*, Saunders College Publications, USA, London.
13. Jobson, J.D, *Applied Multivariate Data Analysis*, Vol. 1, Regression and Experimental Design, Springer-Verlag, 1992.
14. Jobson, J.D, *Applied Multivariate Data Analysis*, Vol. 2, Categorical and Multivariate Methods, Springer-Verlag, 1992.
15. King, I, *Statistical Analysis in Geography*, Englewood Cliffs: Prentice Hall, 1969
16. Kothari,C.R., *Quantitative Techniques*, Vikash Publishing House Pvt. Ltd.,1997.

17. Methews, John A., *Quantitative of Spatial Approaches in Geography*, Oxford: Pergamont Press 1981.
18. Mendenhall, William and Terry Sincich, *Statistics for the Engineering and Computer Science*, Collier Macmillan Publishers, London
19. Rayment, Richard and K.G. Jeroskog, *Applied Factor Analysis in the Natural Sciences*, Cambridge University Press; 1996.
20. Tailor, Peter J., *Quantitative Methods in Geography: An introduction to Spatial Analysis*, USA, 1977.
21. Wonnacott, Thomas H. and Ronald J. Wonnacott, *Introductory Statics for Business and Economics*, John Wiley and Sons, Newyork..

**Advanced Geomorphology  
(Compulsory)**

**Geog. 503**

**Paper: III  
Full Marks: 100  
Teach. Hr. 150**

**Objectives:**

The objective of this course is to familiarize students with the advanced knowledge of geomorphology.

**Course Contents:**

**Units**

**Teach. Hrs.**

**I Introduction**

**30**

**Approaches to Geomorphology**

Concepts, The Geomorphic System (System Structure, Complex Response Threshold), Geomorphic Scale (Time Scale, Spatial Scales), Objectives and History of Geomorphology (North America, Twentieth Century)

**Morphologic Evolutionary System**

Denudation Chronology, Criticisms of Cycles and Alternate Models, Strategies for Inferring Land form Evolution (Ergodic Assumptions), Direct Observation and Measurement (Simulation Model, Equilibrium Landforms)

**Methods of Geomorphologic Investigation**

Changing Scientific Methods within Geomorphology, The Main Branches of Geomorphological Enquiry, The Role of "Technique" Data Collection, Application of Geomorphological Models, New Evolutionary Concepts

**Cascading Processes**

The Solar Energy Cascades, The Hydrological Cycle, Denudation and Its Implication, River Sediment Discharge, Rates of Erosion and Other Surficial Processes, Regional Denudation, Diastrophism and Denudation

**II Hill Slope Processes and Development**

**30**

**Introduction**

Complexity in Hill Slope Evolution, Energy Available for Hill Slope Process, Hill Slope Stratigraphy and Form

**Weathering Processes and Landform**

Factors Affecting Weathering, Processes of Weathering, Land form from Weathering, Weathering Profiles

**Hill Slope Hydrology and Erosion**

Hill Slopes in the Hydrological Cycle, Run off Processes, Controls and Forms of Erosion, Distribution of Erosional and Depositional Sites

**Mass Wasting**

Classification Methods, Types, Morphology, Mechanism and Causes of, Slide, Fall, Flow, Slope Stability Analysis and its

Limitation

**Models and Hill Slope Development**

Types of Model, Evolution of Soil Covered Slopes, Simulation Models and Verification, Threshold Hill Slope Inclination and Landsliding, Limitations of Models, Evolution of Rock slopes, Deterministic models with Talus Formation, Hill Slopes Controlled by their Rock Mass, Strength, Rock Slopes that are not in Strength, Equilibrium

**II Drainage Basin, Rivers and Fluvial Depositional Landforms 30**

**I Drainage Basin**

The Basin Geomorphic Unit, Morphometric Analysis, Morphometric Controls, Drainage Basin Evolution

**Rivers**

Significance, Open Channel Hydraulics, Sediment Transport, Hydrology and Frequency Analysis of Flooding, Events

River Morphology (Hydraulic Geometry, Channel Patterns), Channel Stability (Stable Channel, Unstable Channel), Examples of River Metamorphosis, Historical River Metamorphosis, Geological River Metamorphosis)

**Fluvial Depositional Landforms**

Alluvial Fans (Fan Structure, Dry Fans, Wet Fans, Depositional Belts), Valley Fills (Flood Plains, River Terraces), Deltas (Delta Morphology, Experimental study of Delta Morphology, Avulsion)

**I Glacial And Periglacial Environment And Processes 30**

**V General Review of Glacial Landforms**

**Periglacial Processes**

Periglacial Environment and Processes, Periglacial Landform Development, Problems of Periglacial Environment

**V Applied Geomorphology 30**

**Introduction**

Nature of Applied Geomorphology, Objectives of Applied Geomorphology, Application of Geomorphology in Different Fields, Surveying and Mapping, Environment /Earth Science, Land Development (Rural and Urban, Industrial and Engineering), Terrain Analysis, Hazards Assessment (Fluvial, Landslide)

**References**

1. Chorley, Richard J; Stanley A. Schumm; David, E. Sudgen, *Geomorphology*. London: Methuen, 1984.
2. Goudie, Andrew (ed.), *Geomorphological Techniques*. London: Routledge, 1998.
3. Linsley, Ray K, Max A Kohler, Joseph L. H. Paulhus, *Hydrology for Engineers*. London: Mc Graw-Hill Book Company, 1988.
4. Selby, M. J., *Earth's Changing Surface*, Oxford: Oxford University Press, 1985.
5. Selby, M. J., *Hill Slope Materials and Processes*. Oxford: Oxford University Press, 1993

① 551.4 - 4569 ② ④ 551.4

③ 551.48-1655 h<sup>10</sup> - 5e48e-1985

⑤ 551.436 Ge 48h-1993

**Human Ecology  
(Compulsory)**

**Geog. 504**

**Paper: IV  
Full Marks: 100  
Teach. Hr. 150**

**Objectives:**

The main objective of this course is to familiarize the students with the concepts and theories of Human Ecology and Mountain people and its Adaptation.

**Course Contents:**

**A) General**

<u>Units</u>		<b>Teach. Hrs.</b>
<b>I</b>	<b>Introduction</b> Meaning and Scope of Ecology, Ecosystem, Components, Energy flow, Man, Energy and Food Chain: The Hunter Food Chain, Early Agriculture, Modern Agriculture, Organism and Environment, The Web of Life, Man's Place, in the Biotic Community, Human Ecology and its Relation to General Ecology	<b>15</b>
<b>II</b>	<b>Theories and Approaches</b> Theories of Man and Habitat Relationship: Environmental Determinism, Possibilism, Neo-Determinism, Approaches of Human Ecology: Cultural Approach, Population Approach, System Approach; Perception, Attitude, and Behavioral Approach, and Ethno-ecological Approach	<b>15</b>
<b>III</b>	<b>Basic Concepts of Human Ecology</b> Ecosystem Relationship: Population, Soil and Plant, Productivity, Energy Flow Model, Human Physiological Responses, Social and Cultural Adjustments, Information and Decisions	<b>15</b>
<b>IV</b>	<b>Human Population Ecology</b> Population, Population Interaction, Population Growth, Population Growth and Regulation, Carrying Capacity, Population Composition	<b>15</b>
<b>V</b>	<b>Ecological Organization of Human Beings</b> Community Structure, Spatial Aspects of Ecological Organisation, Ecological Process of Organization, Spatial Pattern of Ecological Organization.	<b>15</b>

**B) Mountain People**

<b>VI</b>	<b>Mountain Human Ecology</b> Characteristics of Mountain Ecological System, Adaptation to Hypoxia, Adaptation to Cold Stress, Adaptation to Mountain Landscape: Topography, Isolation, Barriers, Limited Resource Base and Low Product, Adaptation Strategies and Adjustment to /Mitigation of Mountain Hazards	<b>10</b>
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<b>VII</b>	<b>Agriculture, Settlement and Land Use in Mountains</b>	<b>10</b>
	Sedentary Agriculture, Pastoralism: Nomadic and Transhumance, Fixed Agriculture	
<b>VIII</b>	<b>Human Impact on Mountain Environment</b>	<b>10</b>
	Major Sources of Human Impact: Increasing Population, Settlements, Overgrazing, Deforestation, Roads, Dams and Reservoirs, Urban Built-up, Mining, Recreation and Tourism, Cultural Traits, Preservation of Mountain Environment	
<b>IX</b>	Human Ecology and Adaptation on Peruvian Andes	<b>10</b>
<b>X</b>	Human Ecology and Adaptation on the Nepal Himalayas	<b>10</b>
	Human Ecology of Caste/Ethnic Groups (in Nepal) e.g. Sherpa,	<b>10</b>
<b>XI</b>	Tharu.	
<b>XII</b>	Human Ecology of an Area (specific to Nepal): Arun Valley, Khumbu, Karnali	<b>15</b>

### References

1. Bishop, Berry, *Karnali Under Stress*, Chicago: Department of Geography Research Publications, 1990.
2. Blaikie, Piers and Harold Brookfield, *Land Degradation and Society*, London: Methuen, 1987.
3. Hardesty, Donald L., *Ecological Anthropology*, New York: John Wiley and Son, Chichester, Brisbane, Toronto.
4. Howley, A. H., *Human Ecology*.
5. Moran, Emilio F., *An Introduction to Ecological Anthropology*, Colorado: West View Press, Boulder, 1982.
6. Netting, Robert M., *Cultural Ecology*, Illinois: Waveland Press, 1986.
7. Odum, Eugene P., *Ecology*, London: Holt, Rinehart and Winston, 1975.
8. Price, Larry W., *Mountain and Man: A Study of Process and Environment*, England: University of California Press Ltd., London, 1981.
9. Sastrotoomo, Soetikno S., *Principles of Ecology in Environmental Science and Management*, (ed.), S .S. Sastrotoomo, South Asia Regional Center for Tropical Biology, Indonesia: Bogor, 1983.
10. Stevens, Stanley F., *Claiming the High Ground: Sherpas, Subsistence and Environmental Change in the Highest Himalaya*, Berkley: University of California Press, 1993.

### Journals and Periodicals

1. *Mountain and Development*, Boulder, Colorado
2. *Man and Biosphere*, Program on Man and Biosphere, UNESCO.
3. Publications of ICIMOD, Kathmandu, Nepal
4. Publications of IUCN, IUCN.

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**Optional Courses on Geographical Methods**

<b>Paper</b>	<b>Geog.511</b>	<b>Field Research Methods in Geography</b>	<b>100</b>
<b>V</b>	<b>Geog.512</b>	<b>Cartography and Surveying</b>	<b>100</b>
	<b>Geog.513</b>	<b>Remote Sensing and Geographic Information System</b>	<b>100</b>

## Field Research Methods in Geography (Optional)

**Geog. 511**

**Full Marks: 100**

**Teach. Hr. 150**

### **Objectives:**

This course is designed to acquaint the students with field technique for the assessment of natural resources as well as to monitor the change in landscape and resources. This course consists three parts:

- Course Work: types of data needed for the analysis of the structure or form and availability of biophysical resources (climate, land, soil, water and vegetation).
- Field Work: use of techniques, equipment and tools to collect relevant data sets
- Preparation of an Field Report

**Class Work: 30**

**Field Work: 120**

### A) Physical Geography

#### **Course Contents:**

<u>Unit</u>	<u>Teach. Hrs.</u>
<b>I</b> Introduction to the investigation of biophysical resources, techniques and equipment and analytical tools	
<b>II</b> <b>Geomorphology</b> Forms: Mapping landforms and landscape materials, slope profiling, river channel cross-section and its geometry, Materials and properties: Rock description – type, mass and material strength; Soil description – type, mass and properties; river channel materials – type and properties, Processes: Masswasting – Morphometry and properties of materials and runoff; surface and subsurface	
<b>III</b> <b>Climate and hydrology</b> Climate: Precipitation, Temperature, Humidity, Wind, Cloudiness, etc., Hydrology: River discharge-velocity, area and volume Sediment transport – suspended, bed load and dissolved load	
<b>IV</b> <b>Vegetation</b> Composition and distribution: species composition, density and biomass, Dynamics: Growth and disturbances	
<b>V</b> <b>Land cover and Land use</b> - Typology and mapping, Dynamics and mapping.,	

## B) Human Geography

- VI Selection of sites
- VII Sampling
- VIII Preparation Field Instruments
- IX Processing of Survey Tools
- X Administration of Survey Tools
- XI Editing, Processing and Interpretation of Data
- XII Report Writing

### References

1. Goudie, A., *Geomorphological Techniques*, Boston: Unwin Hyman, 1990.
2. Dockombe, R. V. and Gardiner, V., *Ceomorphological Field Manual*, Boston: George Allen of Unwin, 1983.
3. Department of Interior, *National Handbook of Recommended Methods for Water Data Acquisition*, Raston, Virginia, 1977.
4. Caine Stainly, A. and Oliveira Castro, G.M. de, *Manual of Vegetation Analysis*, New York: Harper and Row Inc., 1959.
5. Publication of Department of Forest Resources Survey, Nepal (different volumes).
6. Agrawal, G.R. and A.K. Das (eds.), *Fundamentals of Social Science Research Methodology*, Kathmandu: CEDA.
7. Krishnaswami, *Methodology of Research in Social Sciences*, Bombay : Himalayan Publishing Home.
8. Brown, *Explanation in Social Sciences*, Chicago: Aldine.
9. Kunn, *The Structure of Scientific Revolution*, Chicago: Chicago University Press.
10. Harvey, *Explanation in Geography*, London : Arnold.
11. Abler, J.S. Adams & P. Gould, *Spatial Organization, The Geographer's View of the World*, Engliwood Cliff: Prentice – Hall.
12. Chorley & P. Haggett (eds.), *Models in Geography*, London.
13. Moser, *Survey Methods in Social Investigation*.  
T.U. Publication.

## **Cartography and Surveying** (Optional)

**Geog. 512**

**Paper: V**  
**Full Marks: 100**  
**Teach. Hr. 150**

### **A) Advanced Cartography**

#### **Objectives:**

The course aims to make the students aware of the needs and importance of maps. It teaches how maps are designed and how symbols are selected and designed to represent the spatial data. Emphasis will be given to changing techniques and methods in representation of statistical data in relation to the spatial environment.

#### **Course Contents:**

<u>Unit</u>	<u>Teach. Hr.</u>
<b>I Introduction to Cartography</b> Trends in Cartography, Analog Cartography, Digital Cartography/ Computer-assisted Cartography	<b>15</b>
<b>II General Principle and Techniques in Cartography.</b> Purpose of the map and map user, Scale of the map, Grid and graticule, Presentation of information: Topographic map, Thematic map	<b>15</b>
<b>III Introduction to Symbol Design ( Symbolism/ Simiology)</b> Spatial data characteristics, Cartographic symbols, The Visual Variables, Perception Properties of the visual variable, Systematic approach to symbol design	<b>15</b>
<b>IV Cartographic Principles in Thematic Mapping</b> Base maps and generalization in Thematic Mapping, Some concepts in Thematic Mapping (Qualitative and Quantitative mapping), Types of Thematic Maps: Inventory Map, Analytical Map, Synthetical Map	<b>15</b>
<b>V Basic Principles of Map Production</b> Map production flow diagram, Symbolism system used in general, The techniques used to construct simple two color map, Map reproduction ( photography, copy and printing)	<b>15</b>

#### **Student Assessment**

The theoretical and practical parts of the course are equally important. Student's knowledge of the theory is assessed by test in final examination. All practical exercises will be evaluated.

### **B) Surveying**

#### **Objectives:**

The main objectives of this course is to familiarize the students with Global Positioning System (GPS) and its use in mapping and map updating, and with

the Tacheometric Survey. It enables them to prepare a Topographical map of a given area with the help of survey instruments.

**Course Contents:**

<b>VI</b>	Triangulation, Travessing, Levelling (Direct and Indirect),and countouring	<b>10</b>
<b>VII</b>	Globe Positioning System (GPS): Introduction, Use in Mapping and Map Updating	<b>10</b>
<b>VIII</b>	Tacheometric Surveying: General Introduction	<b>5</b>
<b>IX</b>	Preparation of Topographical Map of the Field Study Area in the Survey camp of not less than 2 weeks	<b>50</b>

**References**

1. Monkhouse, F.J., *Maps and Diagram*, New Delhi: B.I. Publication, 1980 (Latest edition).
2. Robinson, Arthur H., *Elements of Cartography*, 6th edition, New York: John Wiley & sons, Inc, 1995.
3. Kraak, M. J. & F.J. Ormeling, *Cartography: Visulization of Spatial Data*, England: Addison Wasely Longman Limited, Edinburg Gate, 1996.
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5. Raiz, Erwin, *General Cartography*, London: Mac Graw Hill Book Co., 1989.
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**Remote Sensing and Geographic Information System  
(Optional)**

**Geog. 513**

**Paper: V  
Full Marks: 100  
Teach. Hr. 150**

**A) Remote Sensing**

**Objectives:**

This section of the course aims to give general and basic understanding of principle and concepts of Remote Sensing and Image Interpretation.

**Course Contents:**

<u>Units</u>	<u>Tech. Hrs.</u>
<b>I Introduction to Remote Sensing</b>	<b>10</b>
Remote Sensing - An Overview, History and Development of Remote Sensing, Electromagnetic Radiation and Its Characteristics, Interaction of EMR with Atmosphere and Earth, Surface, Ideal Remote Sensing System and Characteristics of Real Remote sensing system, Remote Sensing Platform, Sensor Types and Resolution, Types of Sensors used in Different Remote Sensing Satellites, Visible, Thermal and Microwave Remote Sensing: Characteristics and Application, Modern Trends in Remote Sensing	
<b>II Photogrammetry</b>	<b>10</b>
Aerial Photographs Types, Film, Filter and Cameras, Geometric Elements of Vertical Photography, Determining Horizontal Ground Lengths, Direction, and Angles from Photo Coordinates, Relief Displacement of Vertical features, Image Parallax and Its Measurement, Ground Controls in Aerial Photography and Its Use in Determining Flying Height and Air Base of Aerial Photographs, Orthophoto	
<b>III Image Interpretation and Analysis</b>	<b>15</b>
Introduction to Image Interpretation, Basic Principles of Image Interpretation, Elements of Image Interpretation, Interpretation Keys, Methods of Search and Sequence of Interpretation, Methods of Analysis and Multi-concepts in Image Interpretation, Image Interpretation for Multi-spectral, Thermal and Microwaves Imageries	
<b>Digital Image processing</b>	<b>15</b>
<b>IV Introduction, Image Rectification Restoration, Image Enhancement, Image Manipulation (Contrast, Spatial Feature, and Multi-Image), Image Classification (Supervised and Unsupervised)</b>	
<b>V Practical and Ground Truthing</b>	<b>10</b>
Aerial Photo Interpretation, Image Interpretation and Analysis, Digital Image Processing, Ground Truthing (Field Visit-3 days)	

<b>VI</b>	<b>Application of Remote Sensing for Specific Purpose*</b> Terrain Evaluation, Forestry, Settlement and Urban Planning, Agriculture	<b>15</b>
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\* Some guest lectures on relevant fields and pilot projects (of the prescribed subjects of Unit VI) in combination with GIS is recommended.

### B) Geographic Information Systems (GIS)

**Objectives:**

This section of the course aims to introduce students to the concept of Geographic Information Systems as tool for planning.

**Course Contents:**

<b>VII</b>	<b>INTRODUCTION TO GIS</b> Concept of GIS, Component of GIS, Maps and Spatial Information, Direction and Trends in GIS, Implementation of GIS, GIS Issues, GIS applications	<b>10</b>
<b>VIII</b>	<b>DATA STRUCTURE</b> Raster, Vector, Raster vs Vector	<b>5</b>
<b>IX</b>	<b>DATA ACQUISITION</b> Sources of Geographic Data, Generation of New Data, Data Accuracy	<b>10</b>
<b>X</b>	<b>DATABASE CONCEPT</b> Database Design, Database Management, Georeferencing	<b>10</b>
<b>XI</b>	<b>DATA INPUT</b> Spatial Data Input, Attribute Data, Data Conversion	<b>15</b>
<b>XII</b>	<b>GIS ANALYSIS FUNCTIONS</b> Spatial Analysis, Digital Elevation Model	<b>15</b>
<b>XIII</b>	<b>OUTPUT</b> Types of Output, Map Design and Annotation	<b>10</b>

**References**

1. Thomas Eugene Avery and Graydon Lennis Berlin, *Fundamentals of Remote Sensing and Airphoto Interpretation*, (5th edition), New York: Macmillan Publishing Company, 1992.
2. Thomas M. Lillesand and Ralph W. Kiefer, *Remote Sensing and Image Interpretation*, (2nd edition), New York: John Wiley and Sons, 1987.
3. FAO, Radar Imagery, *Theory and Interpretation Lecture Notes*, Rome: Remote Sensing Centre Research and Technology Development Division Agriculture Department, 993,
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10. Stan Aronoff , *Geographic Information Systems: A Management Perspective*, Ottawa: WDL Publications, 1989.
11. Burrough, *Principles of Geographical Information Systems for Land Resources Assessment*, Oxford: Clarendon Press, 1987.
12. Gleun E. Montgomery and Harold C. Schuch, *GIS Data Conversion Handbook*, 1993.
13. Noel Cressie, *Statistics for Spatial Data*, John Wiley and Sons, 1993.
14. Tor Bernhardsen, *Geographic Information Systems*, VIAK IT, 1992.
15. Thomas M. Lillesand and Ralph W. Kiefer, *Remote Sensing and Image Interpretation*, John Wiley and Sons, 1987.

**Second Year  
(General Stream)**

VI	Geog.506	Seminar on Geographic Problems of Nepal	100
VII		Optional ( any three from Geog.: 521 - 549 ) Or Optional (Any Two from Geog. 521 - 549, and Any One from Geog. 551 - 559, 561 - 569, 571 - 579, and 581 - 589)	100 X 3
VIII			
IX			
X	Geog.510	Thesis	100
		or (Any one from Geog.:(521 - 549)	100

**Second Year: (Specialized Stream)**

VI	Geog.506	Seminar on Geographic Problems of Nepal.	100
VII		<u>Specialization</u> (any two from Geog.: 551-559 or 561 - 569 or 571 - 579 or 581 - 589.	100 X 2
VIII			
IX		Optional: ( Any one from Geog. 511-519, or 521 - 549 )	100
X	Geog. 510	Thesis	100

**Optional Courses**

	Geog.521	Advanced Political Geography (to be developed)	100
	Geog.522	Advanced Agricultural Geography	100
	Geog.523	Advanced Settlement Geography	100
	Geog.524	Advanced Population Geography	100
	Geog.525	Geography of Tourism	100
	Geog.526	Migration and Urbanization	100
	Geog.527	Regional Planning	100
	Geog.528	Urban Geography and Urban Planning	100
	Geog.529	Locational Analysis for Infrastructural Planning (to be developed)	100
	Geog.530	Medical Geography (to be developed)	100
	Geog.531	Cultural Geography (to be developed)	100
	Geog.532	Environmental Impact Assessment.	100
	Geog.533	Political Economy of Agrarian Change (to be developed).	100
	Geog.534	Development Theories (to be developed)	100
	Geog.535	Project Analysis (to be developed)	100
	Geog.536	Bio-geography (to be developed)	100
	Geog.537	Advanced Climatology (to be developed)	100
	Geog.538	Landscape Ecology (to be developed)	100
	Geog.539	Glacial and Periglacial Environment (to be development)	100

**Seminar in Geographic Problems of Nepal  
(Compulsory)**

**Geog. 506**

**Paper: VI**

**Full Marks: 100**

**Teach. Hr. 150**

**Objectives**

The main aim of this course is to familiarize students with the geographic problems of Nepal. This is an issue oriented course and not a course on General Geography of Nepal. Particular emphasis in this course will be placed on to physical, economic, social, and regional issues of Nepal.

**Course Contents:**

<u>Units</u>		<b>Teach. Hrs.</b>
<b>I</b>	<b>Physical Geography</b>	<b>10</b>
<b>II</b>	<b>Population Geography</b> Growth and Distribution, Composition, Migration	<b>10</b>
<b>III</b>	<b>Settlement Geography</b> Rural Settlements, Urban Settlements, Urbanization.	<b>10</b>
<b>IV</b>	<b>Geography of Natural Resources</b> Land, Water , Bio-diversity, Mineral	<b>10</b>
<b>V</b>	<b>Economic Geography</b> Agriculture, Trade and Transport, Industry, Tourism	<b>10</b>
<b>VI</b>	<b>Planning in Nepal: Regional, Urban, Rural</b>	<b>10</b>
<b>VII</b>	<b>Preparation and Presentation of Seminar Paper</b>	<b>90</b>

**N. B.:** This a seminar course. It is divided into *two* parts. The **first** part includes *lectures* by resource persons on various aspects of the geographic problems of Nepal. The **second** part covers preparation and presentation of paper by students on the selected specific geographic issues of Nepal.

## Advanced Agricultural Geography (Optional)

Geog. 522

**Full Marks: 100**  
**Teach. Hr. 150**

### Objectives:

The main objective of this course is to familiarize the students with the major issues of agriculture. The focus will be on geographical approach.

On completion of the course, students will understand the basic concepts of Agricultural Geography apply the techniques of agricultural regionalization critically analyze the situation and problems of agriculture in Nepal and prepare plans for development of agriculture.

### Course Contents:

<u>Units</u>	<u>Teach. Hrs.</u>
<b>I Introduction to Agricultural Geography</b> Definition, Nature and Significance, Origins and Development of Agriculture	<b>15</b>
<b>II Approaches to Agricultural Geography</b> Commodity Approach, Regional Approach, Principle Approach, Economical Approach, Ecological Approach, Systematic Approach	<b>15</b>
<b>II Determinants of Agriculture</b> Physical Determinants, Non-physical Determinants	<b>15</b>
<b>IV Agricultural Systems in the World</b> Classification of World Agriculture, Ecological or Near Ecological Systems, Intensive Subsistence System, Commercial, System Grain Farming, Commercial Dairy Farming and Agro-Forestry.	<b>15</b>
<b>V Concepts and Techniques of Agricultural Regionalization</b> Normative Techniques, Empirical Techniques, Single Element Techniques, and Statistical Techniques.	<b>30</b>
<b>VI Models in Agricultural Geography</b> <u>Von Thunen Model and Recent Development</u> , Behavioral Model and Recent Development, <u>Diffusion Model and Recent Development</u> , Environmental Model and Recent Development, Other Models	<b>30</b>
<b>VII Agriculture in Nepal</b> The importance, situation and problems of agriculture in Nepal, Planning for development of agriculture in Nepal.	<b>30</b>

### References

1. Gargor, Howard F., *Geography of Agriculture: Themes in Research*, London: Prentice Hall Inc, 1970.

2. Hussain M., *Agriculture Geography*, Delhi: Inter-India Publications, 1979.
3. Laut, P., *Agriculture Geography* (Mellborne Thomas Nelson Ltd, 1970).
4. Morgan, W.B and R.J.C. Munton, *Agriculture Geography*, London: Methuen and Co., 1971.
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6. Symons, L, *Agriculture Geography*, London: G. Bell, 1967.
7. Anderson, J.R., *A Geography of Agriculture*, Dubuque Iowa: WMC Grawn Co., 1970.

**Advanced Settlement Geography  
(Optional)**

**Geog. 523**

**Full Marks: 100  
Teach. Hr. 150**

**Objectives:**

The main objective of the course is to expose the students to the functional supports, resources, hierarchy and interaction of settlements in general and the development and location characteristics of settlement of Nepal in particular.

**Course Contents:**

<u>Units</u>	<u>Teach. Hrs.</u>
<b>I Evolution of Human Settlement</b> Models of Evolution of Human Settlement, Relation of Settlements with External Resources, Relation of Settlements with Internal Resources	<b>30</b>
<b>II Functional and Cultural Traits of Settlement</b> Functional Support of Settlement and Techniques of Functional Analysis of Human Settlement, Cultural Landscape of Human Settlement, Techniques of Analysis of Cultural Landscape of settlement, Techniques of Analysis of Infrastructure and Services in settlement	<b>30</b>
<b>III Settlement Pattern</b> Model of Settlement Pattern, Discordance of Settlement Pattern	<b>30</b>
<b>IV Settlement Morphology and Structure</b> Morphology of Rural and Urban Settlement, Settlement Hierarchy, Settlement Inter-action	<b>30</b>
<b>V Settlement in Nepal</b> Evolution of Settlement, Locational Characteristics of Settlement, Form and Pattern of Settlement, A Regional Case Study	<b>30</b>

**References**

1. Chisholm, M., *Rural Settlement and Land use*, London: Hutchinson and Co., 1966.
2. Hudson, F.S., *Geography of Settlement*, Plymouth: Macdonald and Evans, 1976.
3. Hagget, P., *Locational Analysis in Human Geography*, London: Edward.
4. Hanley, A.H., *Human Ecology*, New York: Ronald.
5. Chorley, R.J. and P Hagget, *Socio-economic Models in Geography*, London: Methuan.
6. Chorley, R.J. and P Hagget, *Methods in Geography*, London.
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9. Losch, A., *The Economics of Location*, New Haven.
10. Isard, W., *Location and Space Economy*, New York
11. Smails, A. E., *Geography of Towns*, London.
12. Hoover, E.M., *The Location of Economic Activity*.
13. Christaller, W., *Central Place in Southern Germany*.
14. Houston, J.M., *A Social Geography of Nepal*, Shrestha and Joshi, Bhaktapur, 1980.
15. Kammeir H.D. and P.J. Swain, *Equity with Growth*, Bangkok: ALT
16. Rondinelli D.A. (ed.), *Proceedings: Role of Market Towns in National Economic Development*, Kathmandu, USAID, 1990
17. Shrestha and M.S. Manandhar, *Settlement System, Small Towns and Market Centers in the Bagmati Zone Sub-region*, Kathmandu: ICIMOD, 1994.

## Advanced Population Geography (Optional)

**Geog. 524**

**Full Marks: 100**

**Teach. Hr. 150**

**Objectives:**

The aim of the course is to introduce the students to the important population issues from a geographical perspective. Students are expected to acquire an enhanced appreciation of the importance of population dynamics and how geography helps to illuminate them.

**Course Contents:**

<u>Units</u>	<u>Teach. Hrs.</u>
<b>I Approaches to Population Geography</b> Development of Population Geography, Roots of Population Geography, Contemporary Approaches to Population Geography	<b>10</b>
<b>II Growth and Distribution of World Population</b> Growth, Trends and Patterns (Please include calculation of Rates and Ratios), Distribution: General and South Asia in particular, Measures, Factors and Implications of Population Growth and Distribution	<b>15</b>
<b>III Selected Demographic Theories</b> Demographic Transition Theory and Its Relevance in the Developing Countries, Theory of Demographic Change and Response	<b>15</b>
<b>IV Demographic Processes: Mortality</b> Measures of Mortality: CDR, ASDR, SDR, eo, IMR, MMR, CMR, The Life Table, Geographic Patterns of Mortality: International Variations, Variations within the Countries, Mortality and Development	<b>15</b>
<b>V Demographic Processes: Fertility</b> Geography and Fertility, Concepts and Measurements, Period Measures: CBR, GFR, CWR, ASBR, SBR, Coale's Index of Fertility, Cohort Measures: TFR, GRR, NRR, Selected Theories of Fertility, Intermediate Fertility Variables, Theory of Intergenerational Wealth Flow, Modern Fertility Transition (Europe and Outside), Explanations for High Fertility, Geography of Unmet Need for Family Planning	<b>15</b>
<b>VI Demographic Processes: Territorial Mobility</b> Concepts, Definitions, and Measures, Typology of Population Movement, Migration Theories: Lee, Zelinsky, Todaro; Value, expectancy	<b>15</b>
<b>VII Migration and Urbanization</b> Urbanization and Urban Population Growth, Problems of Urbanization in Developing Countries, Role of Migration in Urbanization, Urbanization and the Urban Poor	<b>15</b>

<b>VIII</b>	<b>Migration , Education and Occupational Change</b>	<b>15</b>
	Links between Education and Migration , Internal Migration: Selectivity by Education, International Migration: The Brain Drain, Migration and Occupational Change	
<b>IX</b>	<b>Migration in Nepal</b>	<b>15</b>
	Historical Aspect, Trends and Patterns (Internal and International), Causes and Consequences, Population Redistribution Policies	
<b>X</b>	<b>Population Ageing</b>	<b>10</b>
	Issue and Measures, Population Ageing in Nepal, Policy implications of Population Ageing in Nepal	
<b>XI</b>	<b>Population and Environment</b>	<b>10</b>
	Population Growth and Environmental Degradation, Population and Resource Regions	

### References

1. Weeks, John R, *Population : An Introduction to Concept and Issues*, California: Wadsworth, 1992.
2. Heer, D M and Jill S., Greigsbry, *Society and Population*, New Delhi: Prentice Hall of India. 1994.
3. Shryock, H. S., J. S. Siegal and Associate, *The Method and Materials of Demography*, New York: Academic Press, 1976.
4. Pachauri, R.K. and Lubina F. Qureshy (eds), *Population Environment and Development*, New Delhi: Tata Energy Research Institute, 1997.
5. United Nations Mannual IV, *Methods of Measuring Internal Migration* , New York: United Nations Population Fund.
6. Chandana , R.C., *A Geography of Population*, New Delhi; Kalyani Publishers, 1994.
7. Parnwell, Mike, *Population Movements and The Third World*, London: Routledge, 1993.

## Geography of Tourism (Optional)

**Geog. 525**

**Full Marks: 100  
Teach. Hr. 150**

### **Objectives:**

The objectives of the course is to provide the students basic concepts of tourism and enable them analyses and evaluate tourist resources and activities. The course will also develop in them skill for planning sustainable development of tourism.

### **Course Contents:**

<u>Units</u>	<u>Teach. Hrs.</u>
<b>I Introduction to Tourism Geography</b> Concepts in Tourism, Definition and characteristics of Tourism, Scope and Nature of Tourism Geography	<b>25</b>
<b>II The History and Growth of Tourism</b> Historical Overview, Development Trends, Future of Tourism	<b>25</b>
<b>III Basic Facilities and Services for Tourism</b> Services for Tourism, Social and Cultural Activities, Administrative and Other Related Services, Publicity, Institutions	<b>25</b>
<b>IV Environment and Accessibility Issues</b> Resource Integrity, Image Conflicts, Resource Allocation, Sustainable Tourism Development, Potential Conflicts	<b>25</b>
<b>V Impact of Tourism</b> Economic, Socio-cultural, Environmental	<b>25</b>
<b>VI Tourism Resource Inventory and Planning</b> Tourism Resource Inventory, Assessment, Monitoring & Management Technique, Plannings and Programming	<b>25</b>

### **References**

1. Baud-Bovy, M. and F.Lawson, *Tourism and Recreation Development*, CBI Publishing Company, INC., Boston, USA, 1977.
2. Collier Alen, *Principles of Tourism*, Pitman, New Zealand. 1989.
3. Eco-tourism Society & IUCN, *Tourism, Eco-tourism and Protected Areas*, IUCN World Conservation Union) Gland, Switzerland, 1996.
4. HMG/DOT, *Nepal: Tourism Master Plan. His Majesty's Government (HMG)*, Ministry of Commerce & Industry, Dept. of Tourism (DOT), Kathmandu, 1972.
5. Inskeep, E., *National and Regional Tourism Planning : Methodologies and Case Studies*, Routeledge, London & New York, 1994.
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7. Matheson, A. & G. Wall, *Tourism : Economic, Social and Physical Impacts*, Longman, London & New York, 1982.

8. Melntyre George, *Sustainable Tourism Development : Guide for Local Planners*. World Tourism Organizations, Spain, 1993.
9. Murphy, P.E., *Tourism : A Community Approach*, Routedledge, London & New York, 1985.
10. Robinson, H., *A Geography of Tourism*, MacDonal and Evans, London, 1976.
11. Sharma, P., *A Framework for Tourism Carrying Capacity Analysis*, ICIMOD., Discussion Paper Series No. MEI 95/1. Kathmandu, Nepal, 1995.
12. Smith, S.L. J., *Tourism Analysis : A HandBook*, Longman Group, UK, 1987.
13. World Bank, *Social and Cultural Dimension of Tourism*, Staff Working Paper No. 326. The World Bank. Washington, DC, USA, 1979.

## Migration and Urbanization (Optional)

Geog. 526

**Full Marks: 100**  
**Teach. Hr. 150**

**Objectives:**

This course aims to expose the students to complex issues of migration and urbanization as these issues have important spatial and social implications for development. Apart from providing relevant theories, concepts and patterns, attention will be paid to how migration and urbanization vary between and within societies and how changes in their relationship interact with the broader issue of society, population and development.

**Course Contents:**

<u>Units</u>	<b>Teach. Hrs.</b>
<b>I Conceptualization of Migration</b> Concepts, definition and forms, Typologies of migration, Approaches to migration studies, Rural, urban dimension	<b>15</b>
<b>II World Pattern of Migration and Their Explanations</b> Historical pattern, Contemporary pattern, Migration policies	<b>15</b>
<b>III Theories of Migration</b> From Ravenstein to Lee, Hypothesis of mobility transition, Todaro model of migration, World systems, Decision making models	<b>15</b>
<b>IV Migration, Education and Occupation</b> The Links between education and migration, Internal migration: Selectivity by education, International migration: The brain drain, Migration and occupational change	<b>15</b>
<b>V Methodological Survey of Migration Studies</b> Data sources, Sample surveys, Other considerations	<b>15</b>
<b>VI Migration in Nepal</b> Historical aspects of migration in Nepal, Internal migration (contemporary), International migration: pattern and analytical framework, Causes and consequences	<b>15</b>
<b>VII Urbanization</b> Concepts and definitions, Population growth and urbanization, Role of migration in urbanization, Rural-urban continuum	<b>15</b>
<b>VIII World Pattern of Urbanization</b> Historical pattern, Western urbanization, Urbanization in developing countries, Urbanization and the urban poor	<b>15</b>
<b>IX Theories of Urban Growth and Structure</b> Central place theories, Concentric zone, sector and multiple nuclei theories, Ecological model of urban social space, Measures of urbanization, Primacy, Lorenz Curve, Gini Coefficient	<b>15</b>

Trends and patterns, Urban problems, Urbanization policies,  
Urbanization and development

### References

1. Brockerhoff, Martin and Ellen Brennan, *The Poverty of Cities in the Developing World*, Population Council Working Paper No. 96. New York: Population Council, 1997.
2. De Jong, Gordon F. and Robert W. Gardner (eds), *Migration Decision Making: Multidisciplinary Approaches to Microlevel Studies in Developed and Developing Countries*, New York: Pergamon Press, 1981.
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5. KC, Bal Kumar, *Trends, Patterns and Implications of Rural to Urban Migration in Nepal*, Kathmandu: Central Department of Population Studies, 1998.
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9. Palen, J. John, *The Urban World*, New York: McGraw-Hill, Inc., 1992.
10. Sharma, Pitamber, *Urbanization in Nepal*, Papers of the East-West Population Institute, No. 110. Honolulu: East West Center, 1989.
11. Subedi, Bhim P., "Migration and occupational change in Nepal: Preliminary findings," *Nepal Population Journal* 6 (5): 163-176, 1997.
12. ----- "International migration in Nepal: Towards an analytical framework," *Contributions to Nepalese Studies*, 18 (1): 83-102, 1991.
13. Todaro, Michael P., *Urbanization, Unemployment, and Migration in Africa: Theory and Policy*, Population Council Working Paper No. 104. New York: Population Council, 1997.
14. -----, *Internal Migration in Developing Countries: A Review of Theory, Evidence, Methodology and Research Priorities*, Geneva: International Labour Organization, 1977.
15. United Nations Population Fund, *Readings in Population Research Methodology*, Vol. 4, New York: United Nations, 1993.
16. Gould, WTS, *People and Education in the Third World*, London: Longman Scientific & Technical, 1993.

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## Regional Planning (Optional)

Geog. 527

**Full Marks: 100**  
**Teach. Hr. 150**

### Objectives:

The objectives of this course is to enable the students to study and analyse the concepts and strategies of Regional Planning with special reference to Nepal

### Course Contents:

<u>Units</u>	<u>Teach. Hrs.</u>
<b>I Concept of Planning</b> Introduction, Types, and Level of Planning.	<b>10</b>
<b>II Origin, Concept, Importance and Objectives of Regional Planning</b>	<b>10</b>
<b>III Techniques and Analysis of Regional planning</b> Input and Output Analysis, Linear Programming	<b>15</b>
<b>IV The Theory of Regional Development</b> Regional Equilibrium Models, <u>Core, periphery Concepts</u> , <u>Growth Poles</u> , <u>Growth Center</u> , and <u>Market Center Approach</u>	<b>15</b>
<b>V Regional Disparities and Development in Nepal.</b>	<b>10</b>
<b>VI Types of Regions, Problems of Regionalization and Planning Regions in Nepal</b>	<b>10</b>
<b>VII Regional and Rural Development Policy in Nepal's Five Year Plans (SADP, IRDP, SFDP, Rural Development Through Self Help Program(RDSP))</b>	<b>15</b>
<b>VIII Identification of Backward Areas</b>	<b>15</b>
<b>IX Backward Area and Rural Area Development Strategy</b>	<b>15</b>
<b>X State, District and Village Level Planning</b>	<b>15</b>
<b>XI Prospects and Problems of Regional Development Planning in Nepal</b>	<b>20</b>

### References

1. Isard, W., *Introduction to Regional Science*, N.J: Prentice Hall , 1975.
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**Urban Geography and Urban Planning  
(Optional)**

**Geog. 528**

**Full Marks: 100**

**Teach. Hr. 150**

**Objectives:**

The main objective of this course is to familiarize the students with Urbanization, Urban system, Urban Interaction and Urban Planning with special reference to Nepal.

**Course Contents:**

**Units**

**Teach.  
Hrs.**

**A) Urban Geography**

<b>I</b>	<b>Scope</b>	<b>10</b>
	Problems involved in the definition of urban localities: different forms of urbanized areas	
<b>II</b>	<b>Urbanization</b>	<b>10</b>
	World trend of urbanization; urbanization trends in developing countries with special reference to South and South-East Asia	
<b>III</b>	<b>Urban System</b>	<b>15</b>
	Concept of regional urban system, hierarchies of urban centers, models of the urban system	
<b>IV</b>	<b>Urban Morphology</b>	<b>15</b>
	Evolution of urban morphology; models of urban morphology and structure and analysis of urban landuse categories (commercial, residential, industrial and others)	
<b>V</b>	<b>Sphere of Influence of Towns</b>	<b>10</b>
	Concept of urban region, delineation of the spheres of influence of towns	
<b>VI</b>	<b>Urban Network in Nepal</b>	<b>15</b>
	Urbanization trends in Nepal, urban network and urban system, and characteristics of morphology of Nepalese towns	
	<b>B) Urban Planning</b>	
<b>VII</b>	<b>Objectives</b>	<b>15</b>
	Objective and scope of urban planning; relationship of urban planning with national, regional and rural planning	
<b>VIII</b>	<b>Town Planning</b>	<b>20</b>
	Planning for urban landuse; forecasting with reference to different landuse categories; residential areas and application of the neighborhood concept; and urban transportation, Public participation in urban planning; need and importance of public participation in town planning, and different forms of town planning with public participation	

<b>IX</b>	Planning Regional Urban System	<b>20</b>
	Importance of planning for regional urban system, planning for rural-urban partnership and planning for specialized urban center; planning for sectoral services in town planning	
<b>X</b>	<b>Urban Planning in Nepal</b>	<b>20</b>
	Practice of town planning in Nepal with reference to nature, scope and coverage	

### References

1. Backinsale and J. M. Houston(eds.), *Urbanization and its Problem.*
2. Carter, H. , *The Study Of Urban Geography*, London.
3. Dickson, R. E., *City and Region*, London.
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11. Murphy, R. E., *The American City*, New York.
12. Price, C. and A. Tsouros(eds), *Our Cities, Our Future: policies and Action Plans for Health and sustainable Development*, Copenhagen, OECD/OCDE.
13. Robson, B. I., *Urban Analysis*, London: Cambridge University
14. Schubelen, P., *Participation and Partnership in Urban Infrastructure Management*, Washington, World Bank.

**Environmental Impact Assessment  
(Optional)**

Geog. 532

**Full Marks: 100  
Teach. Hr. 150**

**Objectives:**

The objective of this course is to enable the students to understand the concepts and methodologies of and assessment processes for the study of the impacts on the environment together with environmental monitoring.

**Course Contents:**

<u>Units</u>	<u>Teach. Hrs.</u>
<b>I Introduction and Scope of Environmental Impact Assessment (EIA)</b> Introduction to EIA, National Environmental Policy, Screening in the EIA process, EIA at the international level, Utility of the EIA processes, Scope of EIA	<b>10</b>
<b>II Planning and Management of Impact Studies</b> Conceptual approach for Environmental Impact Studies, Proposal development, Interdisciplinary team formation, General study management	<b>10</b>
<b>III Methods for Impact Identification</b> Matrix methodologies, Network methodologies, Checklist methodologies	<b>10</b>
<b>IV Description of Environmental Setting (Affected Environment)</b> Conceptual framework, Initial list of factors and Selection process, Data sources, Documentation of selection process, Special issues and concerns	<b>10</b>
<b>V Prediction and Assessment of Impacts on the Air Environment</b> Air quality and issues (Air pollution and its sources and effects), Air quality index, legislation and regulations, Conceptual approach for addressing Air Environment Impact	<b>10</b>
<b>VI Prediction and Assessment of Impacts on the Surface-Water Environment</b> Basic information on surface water quantity, quality and issues, Water quality index, legislation and regulations, Conceptual approach for addressing Surface-Water Environment Impact	<b>10</b>
<b>VII Prediction and Assessment of Impacts on Soil and Groundwater Environments</b> Background information on Soil Environment and Issues, Background information on Groundwater quantity, quality and issues, Legislation and regulations on the Soil and Groundwater Environments, Conceptual approach for addressing Soil and Groundwater Environment Impacts	<b>10</b>

<b>VIII</b>	<b>Prediction and Assessment of Impacts on the Noise Environment</b>	<b>10</b>
	Basic information on noise, Noise quality index, legislation and guidelines, Conceptual approach for addressing Noise-Environment Impacts	
<b>IX</b>	<b>Prediction and Assessment of Impacts on the Biological Environment</b>	<b>10</b>
	Basic information on Biological Systems, Key Legislation and regulations, Conceptual approach for addressing Biological Impacts	
<b>X</b>	<b>Habitat-Based Methods for Biological Impact Prediction and Assessment</b>	<b>10</b>
	Habitat evaluation system, Habitat evaluation procedure, Current issues related to HEP methods	
<b>XI</b>	<b>Prediction and Assessment of Visual Impacts</b>	<b>10</b>
	Basic definitions and concepts, Legislation Related to Aesthetic Resources, Conceptual approach for Visual Impact Prediction and Assessment	
<b>XII</b>	<b>Prediction and Assessment of Impacts on the Socioeconomic Environment</b>	<b>10</b>
	Background Information, Conceptual approach for addressing Socioeconomic Impacts, Socioeconomic Impacts, Education Service Impacts, Traffic and Transportation System Impacts, Human Health Impacts	
<b>XIII</b>	<b>Preparation of Written Documentation</b>	<b>10</b>
	Initial Planning Phase, Detailed Planning Phase, Writing Phase	
<b>XIV</b>	<b>Public Participation in Environmental Decision Making</b>	<b>10</b>
	Objectives of Public Participation, Public Participation in the EIA Process, Advantages and Disadvantages of Public Participation	
<b>XV</b>	<b>Environmental Monitoring</b>	<b>10</b>
	Purpose of environmental monitoring, Case studies of monitoring, Planning considerations for a monitoring program, Guidelines and policies	

#### **References**

1. Walter E. Westman, Ecology, *Impact Assessment and Environmental Planning*, John Wiley & Sons, Inc., 1985.
2. Glasson J, T. Riki and C. Andrew, *Introduction to EIA, The Nature & Built Environment Series*. 1 UCL., London. UK, 1994.

### Specialization Courses

(Rural Development Planning)			
	Geog.551	Rural Development Planning I	100
	Geog.552	Rural Development Planning II	100
			100
(Environment and Development)			
	Geog.561	Natural Resource Management	100
	Geog.562	Policy Context for Environmental Development	100
(Integrated Mountain Environment and Development)			
	Geog.571	Mountain Climate and Hydrology	100
	Geog.572	Mountain Environment, Landforms and Processes	100
(Society, Population and Development)			
	Geog.581	Population, Environment and Development	100
	Geog.582	Gender and Development	100

## Rural Development Planning I (Specialization)

Geog. 551

**Full Marks: 100**  
**Teach. Hr. 150**

**Objectives:**

The objective of this course is to provide detailed knowledge on the theoretical aspects of rural development planning and to enable students to evaluate and analyze rural development projects.

**Course Contents:**

<u>Units</u>	<b>Teach. Hrs.</b>
<b>I Needs of Rural Development Planning</b> Overview, Accelerating change, Polarization : overclass and underclass, The evolving consensus, The power and will to act	<b>15</b>
<b>II Concept and Changing Nature of Rural Development</b> Meaning and concept, Changing nature of Rural Development	<b>15</b>
<b>III Methods and Techniques of Rural Development</b> The Challenges, Stream of Change, PRA: confluence and spread, PRA and RRA compared, Practical application, Participatory alternatives to uestionnaire survey, Insights for policy	<b>20</b>
<b>IV Rural Development Interventions</b> Content , Changing emphasis	<b>10</b>
<b>V Approach to Rural Development</b> Area Development Approach, Target Group Approach, Employment Approach, Welfare Approach, Integrated Development Approach, Participatory Approach, Review of Participatory literature from South Asia	<b>15</b>
<b>VI Rural Poverty</b> Introduction, Concept of income level and poverty line, Measurement of rural poverty with special reference to the Human Development Index, Causes of rural poverty, Poor people's realities, Reversals for complexity and diversity	<b>15</b>
<b>VII Decentralization, Diversity and Dynamics</b> Paradigm and development, The new High Ground, Parallel evolution, Permanently provisional: the evolving paradigm	<b>15</b>
<b>VIII Socio economic Dynamics and Changing Rural Livelihood</b> Rural livelihood and social policy: introduction, Population problems and local resources, Water, public health and rural environmental condition, Education and rural change: strategies and programe	<b>15</b>
<b>IX Introduction to Project Planning and Project Analysis</b> Introduction, The Project cycle: (Project identification, Project preparation/ feasibility, Project Appraisal, Project implementation, Evaluation, Project Analysis)	<b>30</b>

**Note:** Students are recommended to take any one completed or on going project for detail analysis and overview.

### References

1. Chambers R., *Whose Reality Counts: Putting the first last*, London: IT Publications, 1996.
2. Chambers R., *Rural Development: Putting the Last first*, London: Longman, 1983.
3. Booth, D. (ed.), *Rethinking Social Development: Theory, Research and Practices*, Harlow: Longman Scientific and Technical, 1994.
4. Apthorpe, R. and D. Gasper (eds.), *Arguing Development Policy: Frames and Discourse*, London: Frank Cass, 1996.
5. Johnston, B.F. AND W.C. Clark, *Redesigning Rural Development: A Strategic Prespectives*, Baltimore, Johns Hopkins University Press, 1982.
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19. Graham -Brown, S., *Education in Developing World: Conflict and Crisis*, London , Longman, 1991.
20. Griffin, K. and McKinley T., *Implementing a Human Development Strategy*, London: Macmillin, 1994.

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22. Keissling, K. and Landberg, H.(eds), *Population, Economic Development and the Environment: The Making of Our Common Future*, Oxford: Oxford University Press.
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24. Bernstein, H., B., Crow and H. Johnston, *Rural Livelihoods Crisis and Responses*, Oxford: Oxford University Press, 1992.
25. Bromley, D.,(ed), *Making the Common Work: Theory, Practice and Policy*, San Francisco, CA: Institute for Contemporary Studies, 1992.
26. Midgley, J., Hall, A., Hardiman, M.and Narine, D., *Community Participation, Social Development and the State*, London:Methuen, 1986.
27. Barraclough, S. L. and Ghimire, K.B., *Forests and Livelihoods : The Social dynamics of Deforestation in developing Countries*, UNRISD Macmillan Press, 1995.
28. Berkes, F. (ed), *Common Property Resources : Ecology and community based Sustainable Development*, London : Belhaven, 1989.
29. Bromley, D.W. and Cernea, M.M., *The management of common Property Natural Resources : Some Conceptual and Operational Fallacies*, World Bank Discussion Paper No 57, 1989.
30. Colchester, M., 'Sustaining the Forests : The Community based Approach in South and South-East Asia' *Development and Change*, Vol. 25, p 69 - 100, 1994.
31. Hobley, M., *Participatory Forestry : The Process of Change in India and Nepal Rural Development Forestry Guide 3*, London : ODI, 1996.
32. Korton, D. (ed), *Community Management : Asian Experiences and perspectives*, Connecticut ; Kumarian Press, 1986.

**Rural Development Planning II  
(Specialization)**

**Geog. 552**

**Full Marks: 100  
Teach. Hr. 150**

**Objectives:**

The objective of the course is to give the students in-depth knowledge on rural development planning in Nepal and its changing nature.

**Course Contents:**

<u>Units</u>	<u>Teach. Hrs.</u>
<b>I Rural Development Planning in Nepal</b> Level of planning, Development thoughts and issues, Strategies of rural development, Administrative and organizational structure for planning in Nepal	<b>15</b>
<b>II Approaches to Rural Development Planning</b> Past approaches to rural development program, Recent approaches to rural development program	<b>15</b>
<b>III Problems and Issues of IRDP in Nepal</b> Policy Intervention in the program, Project type phase and process type phase of IRDP, Institutional and administrative contradiction and constraints, Multiplicity of programs, Diversity in IRDPS, Investment Approach	<b>15</b>
<b>IV Rural Livelihood, Social Policy and Rural Change</b> Population : situation and problems, Education and rural development, Educational strategies and programs, Public health: policy, efforts and constraints, Agriculture and development, Agricultural situation, Farming system: landholding, farm size and distribution, agricultural services delivery system, irrigation system and management, agricultural production and productivity, agriculture policy and planning, Water resource development, Water resource development priorities and strategies, Cooperation with neighboring countries, Agencies in water resource development, Conflicts and constraints of water resource development	<b>20</b>
<b>V Decentralization, Peoples' Participation and Rural Development in Nepal</b> Decentralization, Definition and objectives of decentralization, Forms, types and scope of decentralization, Dimension and component of decentralization, Variables determining the success of decentralization, Peoples' Participation, Mechanism and strategy of participatory activities	<b>20</b>
<b>VI INGOs, NGOs and CBOs in Rural Development</b> Role of INGOs in rural development planning, Role of NGOs in rural development planning, Role of CBOs/ User Groups in	<b>15</b>

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	rural development planning.	
<b>VII</b>	<b>Rural Poverty and Efforts of Poverty Alleviation in Nepal</b>	<b>15</b>
	Rural poverty, Concept and measurement of the poverty line, Dynamics of poverty, Dimensions of poverty with special reference to regional variation, Poverty alleviation: strategies and efforts	
<b>VIII</b>	<b>Employment and Rural Development</b>	<b>15</b>
	Concept of employment, unemployment and underemployment, Employment situation, Sectors of employment, Rural,urban dimension of employment, Employment policy and strategies	
<b>IX</b>	<b>Achievements and Constraints of Rural Development in Nepal</b>	<b>20</b>
	Achievements, Institutional building, peoples' participation in development, Constrains, Donor based program, Conflict in the decentralization scheme	

### References

1. Pradhan, Bharat Bahadur, *Rural Development In Nepal: Problems and Prospects*, Maharajjung, 1982.
2. Pradhanang, Aishwarya Lal, *A study of Rural Development Projects in Nepal*, a research report submitted to the Institute of Humanities and Social Science, T.U. , 1985.
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6. Sharma, Sharad, *Decentralization and Local Participation for Development: Policies and Realities in Nepal*, Sobha Sharma, Maharjung, 1998.
7. Bhatta, Bhim Dev, *Decentralization in Nepal*, Reliance Publication House, New Delhi, 1990.
8. Amatya, Soorya Lal, *Rural Development Through Decentralized Planning: A Case Study of Nepal*, East-West Association, Honolulu, Hawaii, 1988.
9. HMG/ Ministry of Water, *Water the Key to Nepal's Development*, Ministry of Water Resource, 1991.
10. *Human Development Report*, Nepal
11. *Agricultural Prespective Plan*.

**Natural Resource Management  
(Specialization)**

Geog. 561

**Full Marks: 100  
Teach. Hr. 150**

**Objectives:**

The main objective of this course is to enable the students to understand and analyse the concept, prospects and problems of mountain natural resources (land, forest and water) and their utilization (with problems) and management.

**Course Contents:**

<u>Units</u>		<u>Teach. Hrs.</u>
I	Introduction to world mountain system	15
II	Concept of natural resources and management	15
III	Characteristics and prospects of mountain natural resources	15
IV	Relationship between population and resources, the technology and resources	20
V	Mountain resources management (watershed management) for sustainable development	20
VI	Utilization and management problems of natural resources (land, forest and water) in the mountains with special reference to the Nepal Himalayas	20
VII	Mountain resources use and environmental implications	15
VIII	Strategy for Mountain Resources Management in Nepal a case study	30

**References**

1. Becht, J.E. & Belzung L.D., *World Resource Management*, Prentice Hall 1975.
2. *Natural Resources and Human Environment*, Rome, F.A.O. 1980.
3. ICIMOD, *Managing Mountain Watersheds*, Kathmandu ICIMOD 1985.
4. ICIMOD, *Environmental Management in the Mountains*, Kathmandu ICIMOD 1989.
5. ICIMOD, *Mountain Environment and Development: Constraints and Opportunities*, Kathmandu ICIMOD 1994.
6. ICIMOD Occasional Papers.
7. Ives Jack D., *The Himalayan Dilemma: Reconciling Development and Conservation*, Lonan Routledge 1989.
8. Joshi S.C (Ed.), *Nepal Himalaya: Geo-ecological Perspective*, Nainital, Himalayan Research Group 1986.
9. Malla U.M & C.B. Shrestha, *Environmental Resource Management in Nepal*, Kathmandu 1983.
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## **Policy Context in Environment and Development (Specialization)**

**Geog. 562**

**Full Marks: 100  
Teach. Hr. 150**

### **Objectivess**

This course aims to broaden the students understanding of the concepts and main issues of environment and development in the context of policy making in general. It also reviews the status, role and execution of environmental policy and strategies in Nepal in relation to various institutions involved in conservation of environment and sustainable development.

### **Course Contents:**

<u>Units</u>	<u>Teach. Hrs.</u>
<b>I Environment and Development: Concepts and Issues</b>	<b>30</b>
i. Concepts: Environment, Environmentalism, Sustainable Development, and Environmental Policy and Principles ii. World Overview of Environment and Development: Issues in the context of Population, Poverty and Economic Growth, Evolution of Sustainable Development and nature of its challenges (Policies and Institutions, and Strategy), Policy and institutions for managing Environment and Development as recommended by the World Commission on Environment and Development iii. An Introduction to Political Ecology: The Reflection of Global Interdependencies in the Natural and Social World, Regional/North-South Tensions in the context of Environmental Impacts iv. A Chronology of Global Environmental Events over the past 30 Years (from Stockholm, Brundtland, Rio, IPCC, Climate and Biodiversity Conferences and Conventions). The Framing of Agendas and International Politics, Local and National(ist) agendas	
<b>II Policies and Institutions for Environment and Development</b>	<b>30</b>
i. The Role of the State, Multilateral Institutions, Business, NGOs, Grassroot Organizations and the Media. ii. Institutions and their conceptual tools for claims in the name of Environment and Development iii. Policies and Institutions at International level: International Accords (e.g. World Heritage, CITES, Dumping Convention, ITTA on Tropical Forest and Biodiversity Conventions), Framing the Problems, Why the Nations Sign Up, and Factors involved in Implementation and Compliance iv. International Law and Implementation	

<b>III</b>	<b>Environmental Policy Context in Nepal</b>	<b>30</b>
	<ul style="list-style-type: none"> <li>i. An Overview of Nepal's Environmental Situation</li> <li>ii. Sustainable Development in the context of major socio-economic issues: Population, Agriculture, Forestry, Energy, Tourism, Industry, Urbanization, Policy and Program Responses</li> <li>iii. Political and Social Structure: Introduction: Centralized government decision making, bureaucratic culture, participatory village decision making, patriarchal relationships, caste and ethnic divisions, and religion and environmental values</li> <li>iv. Economic aspects</li> </ul>	
<b>IV</b>	<b>Environmental Law and Administration in Nepal</b>	<b>30</b>
	<ul style="list-style-type: none"> <li>i. Constitutional Law and the Environment</li> <li>ii. Environmental Planning and Land-Use Control: Environmental Policies in National Periodic Plans, Topographical Mapping and Land Resource Surveying, Rural Planning and Development (Soil Conservation and Watershed Management, Irrigation, Livestock and Pasture Management; and Land Tenure Regulations), Decentralization and Rural Development, Urban Planning and Development, Mining Activities, Energy Development, Environmental Impact Assessment</li> <li>iii. Environmental Conservation: Forestry (Feudal Antecedents and the Nationalization of Forest, Forestry Management the Under Panchayat System, Community Forestry Management); Cultural Heritage and Natural Heritage Conservation</li> <li>iv. Pollution Control: Water supply and quality control, air Pollution, Noise Pollution, Land Pollution, and Hazardous Waste and Toxic Substances</li> <li>v. Tourism</li> <li>vi. Occupational Health and Safety</li> <li>vii. Consumer Protection</li> <li>viii. Intersectoral Administrative Coordination and the Ministry of Population and Environment</li> <li>ix. Implementation of International Environmental Law</li> </ul>	
<b>V</b>	<b>Strategies and Policies for Environment and Development in Nepal</b>	<b>30</b>
	<ul style="list-style-type: none"> <li>i. Nepal Environmental Policy and Action Plan I, 1993 for Integrating Environment and Development</li> <li>ii. Nepal Environmental Policy and Action Plan II, 1998: Environmental Strategies and Policies for Industry, Forestry and Water Resource Sectors</li> <li>iii. Region-specific Environmental Policy in Nepal</li> <li>iv. <b>New Strategies for Environment Policy Making in Nepal:</b> Community Participation, Indigenous System of Environmental Management, Integrated Environmental Management (IRDP, ACAP, MBNPCA), Linking Community Environment Management with Government Administrative Process</li> </ul>	

## References

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2. Alheritiere, D. , *Legal Aspects of Environmental Policy in the Kingdom of Nepal*, Rome, FAO, 1983.
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9. Ellis, F., *Agricultural Policies in Developing Countries*, Cambridge : Cambridge University Press. Chapter 2 : Policy Analysis : Framework, 1992 (good description of the tinbergen maintream prescriptive framework)
10. EPC, *Nepal Environmental Policy and Action Plan: Integrating Environment and Developement*, Environment Protection Council, HMG/N, Kathmandu, Nepal, 1993.
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12. Hannigon, J.A., *Environmental Sociology*. Routedledge, 1995.
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14. HMG-DANIDA, *Environmental Strategies and Policies for Industry, Forestry, and Water Resources Sectors*, Vol.2 HMG/N, Kathmandu, Nepal, 1998.
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17. O' Riordan, T., *Environmental Science for environmental management*, Longman.
18. Pepper, D. (1996) *Modern Environmentalism: an Introduction*. Routledge, 1995.

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22. World Commission on Environment and Development, *Our Common Future*, Oxford, Oxford University Press, 1987.
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**Mountain Climate and Hydrology  
(Specialization)**

**Geog. 571**

**Full Marks: 100**

**Teach. Hr. 150**

**A) Mountain Weather and Climate**

**Course Contents:**

<u>Units</u>	<u>Teach. Hrs.</u>
<b>I Introduction</b> Mountains and their climatological studies	<b>10</b>
<b>II Geographical controls of Mountains Meteorological elements</b> latitude, altitude and topography	<b>10</b>
<b>III Circulation system related to orography - planetary, synoptic</b> and local gravitational	<b>10</b>
<b>IV Climatic characteristics of mountains- energy budget,</b> temperatures, cloudiness, precipitation, evaporation, other hydrometeors	<b>10</b>
<b>V Mountain Bioclimates- Human bio-climatology, Weather</b> Hazard, Valley Air Pollution.	<b>10</b>
<b>VI Change in Mountain Climates- evidence and significance</b>	<b>10</b>
<b>VII Project Works (either in climate or in hydrology)- Analysis of</b> climatic data; spatial and temporal variation of tem, perature and precipitation; extreme events analysis; implication of weather and climate on landuse, infrastructure and economic activities	<b>15</b>

**B) Hydrology**

<b>VIII Introduction definition, Hydrological Cycle, Hydrologic</b> budget.	<b>5</b>
<b>IX Hydrologic Inputs: Drainage Basin Weather and Precipitation</b>	<b>5</b>
<b>X Sub-Surface Flow-Infiltration and Soil Moisture, Ground</b> Water and Base Flow.	<b>10</b>
<b>XI Above Surface Flow: Evaporation and Transpiration,</b> Interception and Pression on Storage	<b>10</b>
<b>XII Stream Flow Measurement and Hydrography Analysis: Stream</b> Flow Analysis, Stream Flow Hydrograph.	<b>10</b>
<b>XIII Precipitation- Runoff Relation: Estimation of Surface Runoff</b> volume, Estimation of Peak Discharge, Snow and Snowmelt Runoff.	<b>10</b>
<b>XIV Watershed Simulation: Stream Flow, Erosion and Sediment</b> yield, Hydrology of Water Quality	<b>10</b>
<b>XV Project Work</b>	<b>15</b>

**References**

1. Roger Barry, *Mountain Weather and Climate*, London: Methuen Ltd., 1991.
2. Sing, V. P. , *Elementry Hydrology*, Englewood Cliffs, Printice Hall International, 1992.
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4. Goudie Andrew, *Geomorphological Technique*, London: Unwin Hyman Ltd., 1990.
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## Mountain Environment, Landforms and Process (Specialization)

Geog. 572

**Full Marks: 100**  
**Teach. Hr. 150**

### Objectives:

This course has been designed to provide insight into major issues in the theory and in applied aspects of Mountain Environment and Development. The main feature of this course is to introduce major landforms and processes with special emphasis on natural hazards and land use change

### Course Contents:

<u>Units</u>	<u>Teach. Hrs.</u>
<b>I Introduction to Mountain Environment</b> Definition, origin and classification, Mountain Systems, Mountain Landscapes, Mountain Geomorphological System, Mountain Specificities: Problems and Prospects	<b>30</b>
<b>II Hillslope Stratigraphy and Forms</b> Stratigraphy and Slope Deposits, Hillslope Stratigraphy and Forms, Hillslopes in the Hydrological Cycle, Weathering processes and landforms, Strength and behavior of rocks and soil materials	<b>30</b>
<b>III Hillslope Processes</b> Runoff processes and Erosion, Factors of Erosion (Climatic, Topography, Vegetation, Soil materials), Wash, Rill, Gully and Piping processes, Distribution of Erosional and Depositional sites on Hill slopes, Solution, Rates of Erosion, Hill slope Failure/ Mass Wasting, Soils and Rocks, Classification of Mass Wasting, Types of Mass Wasting in soils, Field Studies of landslides, Stability Analysis, Factors influencing Landsliding in Soils, Hill slopes on soil with distinctive properties.	<b>30</b>
<b>IV Mountain Hazards and Risks</b> Landslides and Erosion, Hazard Mapping and Risk assesment, Adoptation and Mitigation	<b>30</b>
<b>V Models of Hill Slope Development</b> Types of models, Evaluation of soil,covered hill slopes, Evaluation of rock slopes	<b>30</b>

### References

1. Singh, R.B., *Disaster Environment and Development*, New Delhi: Culcutta, Oxford and IBPublishing Co. Pvt. Ltd., 1996.
2. Price, Larry W., *Mountains and Man* (A Study of Process and Environment), Berkeley, Los Angeles, London, 1981.

3. Tylev, G. and Miller, Jr., *Living in the Environment : Principles, Connections, and Solutions*, Belmont, California, Wordsworth Publishing Co. Inc., 1994.
4. Verstappen, H. Th. , *Applied Geomorphology: Geomorphological Survey for Environmental Development*, Amsterdam, The Netherlands, Elsevier Since Publishers B.V., 1983.

**Population, Environment and Development  
(Specialization)**

**Geog. 581**

**Full Marks: 100**

**Teach. Hr. 150**

**Objectives:**

This course aims to broaden student's understanding of relationships between population, environment and development. It specifically focuses on the complex issue of environmental and implications of population change primarily in the developing countries.

**Course Contents:**

<u>Units</u>	<u>Teach. Hrs.</u>
<b>I The Population Problem</b> Nature of Exponential growth, Growth of world population, World economic growth, Population growth and Urbanization in developing countries	<b>15</b>
<b>II The Human Carrying Capacity</b> Concepts and related issues, Natural constraints and human choices, Utility of carrying capacity concept	<b>15</b>
<b>III Population and Human Resources</b> Links with environment and development, The perspective (population), Health and education, Managing distribution and redistribution	<b>15</b>
<b>IV Population Growth and Environmental Degradation</b> Land degradation and over grazing, Deforestation, Crowding and poverty, Climatic change, Population-resource regions	<b>15</b>
<b>V Sustainable Development</b> Concept of sustainable development, Equity and common interest, Policy imperatives	<b>15</b>
<b>VI Environmental Sustainability</b> Socio-cultural expression, The food issue, The global food crisis, Sustainable food habit, The issue of grain-based diet, Non-food agriculture	<b>15</b>
<b>VII Population Environment and Food Security</b> Population pressure and food supply system: the framework, supply factor, population density and food supply system, Perspectives on population growth and food supply: Food consumption level and demand, The Pessimist's Perspective, The optimist's Perspective	<b>15</b>
<b>VIII World Environment Policies</b> Before Stockholm, The UN Conference on Human Environment, Stockholm to Rio – the In-between ears, UN Conference on environment and Development (Rio Declaration), Beyond the Rio Conference, The UN Framework of convention on climatic	<b>15</b>

	change	
<b>IX</b>	<b>Population and Environment: Nepal's Case</b>	<b>15</b>
	Environmental issues and policies, Critique of population and environmental policies, Assessment of population-environment situation in Nepal, Problems of policy implementation, Poverty, environment and government	
<b>X</b>	<b>Environment, Women and Indigenous People</b>	<b>15</b>
	Women and environment: burden and articulation of women's concern, empowerment, recognition of vital role, Indigenous people and environment: the concern, Participation or appropriation, activism among indigenous people.	

### References

1. Bongaarts, John, *Population Pressure and Food Supply System in the Developing World*, Population Council Working Paper No. 86. New York: Population Council, 1996.
2. -----*Population Growth and Food Supply: Conflicting Perspectives*, Population Council Working Paper No. 86. New York: Population Council, 1993.
3. Desai, Udaya (ed.), *Ecological Policy and Politics in Developing Countries*, New York: State University of New York Press, 1998.
4. Elliott, Lorraine, *The Global Politics of the Environment*, New York: New York University Press, 1998.
5. Engelman, Robert and Pamela LeRoy, *Conserving Land: Population and Sustainable Food Production*. Washington DC: Population Action International, 1995.
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8. Mazur, Laurie Ann (ed.), *Beyond the Numbers: A Reader on Population, Consumption and the Environment*, Washington DC: Island Press, 1994.
9. Meadows, Donella H. Dennis L. Meadows, Jorgen Randers and William W. Behrens III. *The Limits to Growth*, Washington DC: Potomac Associates Book, 1972.
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11. Peters, Gary L. and Robert P. Larkin, 1989 Iowa: Kendall/Hunt Publishing.
12. Ramphal, Shridath and Steven W. Sinding (eds.), *Population Growth and Environmental Issues*, Westport CT: Prager, 1996.
13. Smil, Vaclav, "How Many People Can the Earth Feed," *Population and Development Review*, 20 (2): 255-292, 1994.

14. Subedi, Bhim P., "Population Environment Interrelationships: The Case of Nepal," In R.K. Pachauri and Lubina F. Qureshy (eds.), *Population, Environment and Development*, New Delhi: Tata Energy Research Institute, pp.191-214, 1997.
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17. World Commission on Environment and Development, *Our Common Future*, . Oxford: Oxford University Press, 1987.

**Gender and Development  
(Specialization)**

Geog. 582

**Full Marks: 100**

**Teach. Hr. 150**

**General Objectives**

This course has been designed to provide insight into major issues in the theory and practice of development policies and strategies in view of gender concerns for a new vision of development with more equality. The key feature of this course is provide explicit attention to previously neglected areas of rural development with special emphasis on gender concerns in rural economics, environment and rural change.

**Specific Objectives:**

The subject aims to provide conceptual underpinnings for a better understanding of Gender Issues in Development, o allow for critical analysis of development policies and strategies from the gender perspective, to highlight the gender roles in environment management, to give a clear understanding on impact of rural change and gender relations and to widen vision on gender analysis for sustainable development project formulation. Emphasis is placed also on the documentation and analysis of women's situation and critical evaluation of current development strategies for equitable development along with a search for alternative methods, policies and strategies based on experiences of other countries.

**Course Contents:**

<u>Units</u>	<u>Teach. Hrs.</u>
<b>I Gender and Development: Theoretical Conceptualization</b>	<b>25</b>
Gender and Development: An Overview of Issues, Women, Gender and Development: WID, GAD, WAD as evolving perspectives and practices, Gender Relations and Gender-based Inequality, Social and Cultural Dynamics of Gender Relations	
<b>II Gender Matters in Economic Development Strategies</b>	<b>25</b>
Gender and Entitlement Systems, Gender and Household Economics, Gender and Cooperative Conflicts, Gender Division Labor, Beyond the Poverty Line: Feminization of Poverty, Overview of Economic Adjustments on Gender Relations	
<b>III Gender Roles in Environment Management</b>	<b>25</b>
Women and Environment, Integration of Gender Considerations in Rural Environment, The Urban Environment and Gender Concerns, Interest Representation from the Grassroots, Gender Roles in Natural Resource Management	
<b>IV Gender Concerns and Rural Change</b>	<b>25</b>
Women's Participation in Rural Development, Technological Advancement for Rural Development, Effects of Technological	

	Advancement on Rural Women	
<b>V</b>	<b>Gender and Development: Policies and Planning</b>	<b>25</b>
	Gender Planning and Development: Theory, Practice and Training, Gender Planning in Development Agencies, Women Development Programs: An Overview, The Experiences of National Machinery	
<b>VI</b>	<b>Project Paper on Relevant Topic in Gender and Development</b>	<b>25</b>

### **EVALUATION PROCESS (ASSESSMENT)**

The students are expected to have conceptual clarity, which will be evaluated through written assignments on given topics at individual level. Group works will be assessed based on the participation and presentation in the class. The students are expected to submit a project paper using the skills developed during the theoretical classes. Finally, the students will be assessed through written examination.

### **References**

1. Acharya, M., *The Statistical Profile on Nepalese Women: An Update in the Policy Context*, IIDS, 1994.
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  17. Rogers, B., *The Domestication of Women: Discrimination in Developing Societies*, London: Kogan Page, 1980.
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  20. Shiva, V., *Staying Alive: Women, Ecology and Survival in India*, London: ZED, 1989.
  21. Shiva, V., *The Violence of the Green Revolution*, London: ZED, 1988.
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  23. Subedi, P., *Nepali Women Rising*, Women Awareness Centre, 1993.
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  26. Waring, M., *If Women Counted – A New Feminist Economics*, London: Macmillan, 1989.
  27. Young, K. (ed.), *Of Marriage and the Market*, London: CSE Books, 1981.
  28. Young, K., *Planning Development with Women: Making A World of Difference*, Macmillan, 1993.

TEXT BOOK

*CDC - T.U./016/2056 (99) - M.A.*