

**UNIVERSITY OF PUNE**  
**Revised structure of B.Sc. Geography to be effective from June, 2008**

**F.Y.B.Sc. – June, 2008**

**S.Y.B.Sc. – June, 2009**

**T.Y.B.Sc. – June, 2010**

<b>F.Y.B.Sc.</b>		
Gg-110	Paper I	Physical Geography
Gg-120	Paper II	Geography of Atmosphere & Hydrosphere
Gg-101	Paper III	Techniques in Physical Geography

<b>S.Y.B.Sc.</b>		
Gg-211 (Sem. 1 <sup>st</sup> )	Paper I	Fundamentals of Geography of Resources
Gg-221 (Sem. 2 <sup>nd</sup> )	Paper I	Distribution, Development and Planning of Resources
Gg-212 (Sem. 1 <sup>st</sup> )	Paper II	Introduction to Hydrology
Gg-222 (Sem. 2 <sup>nd</sup> )	Paper II	Surface and Groundwater Hydrology
Gg-201	Paper III	Map Projections & Surveying

<b>T.Y.B.Sc.</b>		
Gg-331	Paper I	Principles and Techniques
Gg-341	Paper II	Water-shed Management
Gg-332	Paper III	Geography of Travel and Tourism
Gg-342	Paper IV	
Gg-333	Paper V	Fundamentals of Geoinformatics Part – I
Gg-343	Paper VI	
Gg-334	Paper VII	India : A Geographical Analysis
Gg-344	Paper VIII	
Gg-335	Paper IX	Geography of Soils
Gg-345	Paper X	
Gg-336	Paper XI	Fundamentals of Geoinformatics Part – II
Gg-346	Paper XII	
Gg-347	Paper I	Map Analysis and Field Work
Gg-348	Paper II	Techniques of Spatial Analysis
Gg-349	Paper III	Techniques of Geomorphology

UNIVERSITY OF PUNE  
S. Y. B. Sc.  
**Gg 201: Map Projections and Surveying**  
Effective from June 2009

Workload:-Four periods per week per batch (12 students per batch)

\*Examination of the course will be conducted at the end of academic year.

**\*Objectives**

- 1) To enable the students to use various projections to prepare maps.
- 2) To acquaint the students with the principles of surveying, its importance and Utility in the geographical area.
- 3) To introduce the importance and basic principles of GPS.

**A) Map Projections**

Sr.No.	units	Periods
1)	a) Meaning and definition of map projections. b) Classification of map projections.	4
2)	Construction and study of the following Projections.	8
	A) Zenithal projections. i) Zenithal polar Gnomonic projection. ii) Zenithal polar stereographic projection.	8
	b) Conical projections. i) Simple conical projection with one standard parallel. ii) Bonne's projection.	8
	c) Cylindrical projections. i) Cylindrical equal area projection. ii) Mercator's projection.	8
	d) Conventional map projections. i) Sinusoidal projection. ii) Mollwede's projection.	8
3)	A) Identification and choice of map projections. (Note:-construction of above map projections with properties and uses, for each group one example from each hemisphere)	4
<b>B)Surveying</b>		
1	A) Meaning and definition of surveying. b) Types of surveying.	4
2	A) Plane Table Survey. i) Equipments required for plane table survey ii) Plane table survey-Radiation method. iii) Plane table survey-Intersection method.	8
3	A) Prismatic Compass Survey. i)Systems of expressing bearing- 1) whole circle System. 2) Quadrantal system. ii) Prismatic compass traverse methods- 1) Open Traverse. 2) Closed Traverse. iii)Correction of bearing and closing of error by Bowditch method.	10

4	A) Dumpy level (Examples) i) Collimation method. ii) Rise and fall method.	4
5	A) Global position system ( GPS ) i)Introduction of GPS ii)Importance of GPS and uses of GPS iii)Finding out latitude (X), longitude ( Y), and Altitude (Z) values with the help of GPS	6
6	A) Fields excursion report / Village survey report. i)One short tour and one long tour of geographical Interest places anywhere in the country.	8

- Note :-**
- i) Use of stencils, log tables, calculators and computers are allowed.
  - ii) Journal should be completed and duly certified by practical in charge and Head of the Dept.
  - iii) Int. and Ext. examiner should set a jointly question paper for each batch.

**Reference Books.**

- 1) Bygott, j.1955.Map work and practicalGeography.5 the Edition.
- 2) Davis, R.E.and Foote, F.s.1953.surveying, McGraw-HillBook Co.New York.
- 3) Deshpande, G.B.1991.surveying, Evrest publishing house, pune.
- 4) Kale.R.G.and Walvekar, G.V.1980survying parts I.
- 5) Kanatkar T.P.and Kulkarni S.V. survying and leveling, part I.pune vidyarthi Griha Prakashan, pune.
- 6) Khan M.Z.a.1998, Text book of Practical Geography, concept publishing company, New Delhi.
- 7) Sing & Dutta.Map work and Practical Geography.
- 8) Sing R.L. & Singh R.P.B, 1993 Elements of Practical Geography Kalyani publisher, New Delhi.
- 9) Steers J, A.1993, A study of Map Projections.
- 10) Gopal Singh. Map Work and Practical Geography, Vikas publishing house, New Delhi.

UNIVERSITY OF PUNE  
S. Y. B. Sc.  
**Gg 211 : FUNDAMENTALS OF GEOGRAPHY OF RESOURCES**  
Effective from June 2009

**Objectives:**

- 1) To acquaint the students to fundamental concepts of resources.
- 2) To acquaint the students to past, present and future utility and potentials of resources at regional, national and global levels.
- 3) To make aware the students about problems of utilization and conservation in the view of sustainable development.

No.	Unit	Sub Unit	Periods
<b>SEMISTER - I<sup>ST</sup></b>			
1.	Introduction to Resource Geography.	a) Meaning and Definition of Resource. b) Importance of study of resources. c) Components of resources, natural and human.	06
2.	Classification of Resources.	a) Basis of Classification. renewable and non-renewable resources. b) Importance of biotic and abiotic renewable resources. c) Importance of biotic and abiotic non-renewable resources.	10
3.	Forest Resources.	a) Use of forest resources. b) Environmental significance of forests. c) Meaning, causes and effects of deforestation. d) Remedial measures to conserve forest resources.	08
4.	Water Resources.	a) Water as a resource. b) Sources of water. c) Uses of water resources-domestic, agriculture, industry, transportation, tourism etc. d) Methods of conservation of water resources.	08
5.	Land Resources.	a) Importance of land resources. b) Use of land resources: agriculture, forest, mining, settlements & other. c) Land degradation due to agriculture, mining and deforestation. d) Methods of conservation of land resources.	08
<b>SEMISTER - II<sup>ND</sup></b>			
<b>Gg 221 : Distribution, Development &amp; Planning of Resources</b>			
6.	Mineral Resources.	a) World distribution and production of iron ore, bauxite in major Countries. b) Distribution and production of iron ore, bauxite in India.	08
7.	Energy Resources.	a) World distribution and production of coal, petroleum and natural gas in India & World. b) Significance and utilization of solar, wind and nuclear energy resources in India and world.	12
8.	Human Resources.	a) Population as resource. b) World distribution of population. c) Population distribution in India. d) Concepts of over, optimum and under population.	8
9.	Resources and Economic	a) Role of land resources in economic development. b) Role of water resources in economic development.	8

	Development	c) Role of mineral resources in economic development. d) Role of energy resources in economic development.	
10.	Planning of Resources.	a) Concept of resource planning. b) Need of resource planning. c) Resource planning with reference to India.	04

**Reference Books:**

- Chemprema, J. D., 1989. Geography and Energy. Longman Scientific and Technical Series. U. K.
- Daji, J. A., Kadam, J. R. and Patil, N. D. 1996. A Textbook of Soil Science. Media Promoters & Publishers Pvt. Ltd. Bombay.
- Gurjar & Jat. 2008. Geography of Water Resources. Rawat Publications. Jaipur.
- Morgan – Land , Soil, Water.
- Negi, B. S., 1997. Geography of Resources. Kedarnath Ramnath. Meerut.
- Owen, S. and Owens, P.L., 1991. Environment Resources and Conservation. Cambridge University Press. New York.
- Ray, S., 2008. Natural Resources, Organization & Technology Linkages. Rawat Publication. Jaipur.
- Saxena, H. M. , 2006. Environmental Geography. Rawat Publications, Jaipur.
- Singh, S., 2004. Environmental Geography. Prayag Pustak Bhawan. Allahabad.
- Skinner, B. J., 1969. Earth Resources. Prentice-Hall, Englewood Cliffs, N. J.
- World Resources Institute (WRI). 1994. World Resources 1994-95. Oxford University Press. New York.
- Zimmerman , E. W., 1951. – World Resources & Industries.

University of Pune  
S.Y. B.Sc  
**Gg. 212: Introduction to Hydrology**  
From June 2009

**Objectives:**

1. To acquaint the students with the basic elements of the hydrologic cycle.
2. To focus on presenting the principles of hydrology in the context of their application to real-world problems.
3. To support a theory-to-practice learning experience for beginning students in hydrology.
4. To make the students aware of the need of protection and conservation of water resources.

<b>Semester I : Introduction to Hydrology</b>			
Unit No.	Unit	<i>Sub Unit</i>	No. of periods
1	Introduction to Hydrology	a. Meaning and definition of Hydrology b. The hydrologic cycle c. Global water in storage d. The hydrologic budget e. Introduction to Palaeohydrology f. Applications of Hydrology	12
2	<b>Hydrologic Measurements and Data Sources</b>	a. Units of measurement b. Sources of hydrologic data c. Measurements hydrologic variables	08
3	Precipitation	a. Water vapor: Measures of atmospheric moisture b. Precipitation: Types c. Global distribution of precipitation d. Point precipitation and areal precipitation e. Probable Maximum Precipitation (PMP) f. Gross and net precipitation and precipitation frequency analysis	14
4	Interception and Depression Storage	a. Interception b. Throughfall c. Depression storage	06
<b>Semester II</b>			
<b>Gg. 222: Surface Water and Ground Water Hydrology</b>			
5	Evaporation and Transpiration	a. Evaporation b. Method of evaporation control c. Transpiration d. Methods of transpiration control e. Evapotranspiration	10
6	Surface Water Hydrology	a. Runoff b. Streamflow c. Annual hydrograph and river regime d. Floods: Definition and causes e. Flood or storm hydrograph f. Snowmelt Hydrology	12
7	Groundwater Hydrology	a. Introduction to ground water Hydrology b. Groundwater flow: general characteristics c. Subsurface distribution of water d. Saltwater intrusion e. Groundwater basin development	10

8	Urban Hydrology	a. Introduction and approaches to urban Hydrology b. Effects of urbanization on runoff c. Rational method of peak flow for urban areas d. Storm Water Management Model (SWMM)	08
---	-----------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----

**Reference books:**

- Baker, V.R., Kochel, R.C. and Patton, P.C., 1988. Flood Geomorphology, Wiley, New York.
- Bedient, P.B. and Huber, W.C., 1989. Hydrology and floodplain analysis, Addison-Wesley Publication Company, New York.
- Chow, V.T., 1964. Handbook of Applied Hydrology. McGraw-Hill, New York.
- Eagleson, P.S., 1970. Dynamic Hydrology, McGraw-Hill Book Company, New York.
- Hamblin, W.K., 1989. The Earth's Dynamic Systems, MacMillan Publishing Company, New York.
- Kale, V.S. and Gupta, A., 2001. Introduction to Geomorphology, Orient Longman, Calcutta.
- Kazmann, R.G., 1972. Modern Hydrology, Harper and Row Publishers, New York.
- Linsley, R.K. (Jr.), Kohler, M. A. P. and Joseph L. H., 1975. Applied Hydrology, Tata McGraw-Hill Publishing Company Ltd., New Delhi.
- Mutreja, K.N., 1995. Applied Hydrology. Tata McGraw-Hill Publishing Company Ltd. New Delhi.
- Raghunath, H.M., 1985. Hydrology: Principles, Analysis and Design. Wiley Eastern Ltd, New Delhi.
- Rodda, J.C., Downing, R. A. and Law, F. M., 1976. Systematic Hydrology, Newnes-Butterworths, London.
- Shaw, E.M., 1988. Hydrology in Practice. Van Nostrand Reibhold Int. Co. Ltd, London.
- Strahler, A.A. and Strahler, A. N., 2002. Physical Geography: Science and Systems of the Human Environment, John Wiley & Sons, INC.
- Strahler, A.H. and Strahler, A. N., 1992. Modern Physical Geography, John Wiley & Sons, INC.
- Strahler, A.N., 1965. Introduction to Physical Geography, John Wiley & Sons, INC.
- Viessman, W. and Lewis, G., 2003. Introduction to Hydrology, Pearson Education, Singapore.
- Ward, R., 1978. Floods. A Geographical Perspective. The Mac Millan Press Ltd, London.
- Wilfried, B., 2005. Hydrology: An Introduction. Cambridge University Press, Cambridge.
- Wisler, C.O. and Brater, E. F., 1959. Hydrology, John Wiley and Sons, Tokyo.

**Equivalence of Syllabus in Geography to be effective from June 2009.  
S.Y. B.Sc.**

Old Syllabus			New Syllabus		
G-210 (Gg-211)	Paper I	Agricultural Geography	Gg-211	Paper I	Geography of Human Resources
			Gg-221	Paper I	Distribution, Development and Planning of Resources.
Gg-220	Paper II	Biogeography	Gg-212	Paper II	Introduction to Hydrology
			Gg-222	Paper II	Surface and Groundwater Hydrology
Gg-201	Gg-220	Cartographic Techniques	Gg-201	Paper III	Map Projections & Surveying