

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

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

S.Y.B.Sc.		
Gg-210	Paper I	Geography of Resources
Gg-220	Paper II	Principles of Hydrology
Gg-201	Paper III	Cartographic Techniques

T.Y.B.Sc.		
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
Gg-343	Paper VI	Part – I
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
Gg-346	Paper XII	Part – II
Gg-347	Paper I	Map Analysis and Field Work
Gg-348	Paper II	Techniques of Spatial Analysis
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F. Y. B.Sc. (Geography)
Course No. Gg. 110: Paper I
Title of the Course : Physical Geography

Objectives:

1. To introduce the students to the basic concepts in Geomorphology.
2. To acquaint the students with the utility and applications of Geomorphology in different areas and environment.
3. To make the students aware of the need of protection and conservation of different landforms.

Section I			
Unit No.	Unit	Sub Unit	No.of periods
1	Introduction to Physical Geography	a. Introduction to Physical Geography and its branches b. Geomorphology – Definition, Nature and Scope c. Geological Time Scale	06
2	The Earth	a. Interior of the Earth- Structure and Composition b. Origin of Continents and Ocean basins i. Theory of Isostasy ii. Wegener’s Continental Drift Theory iii. Holme’s Convectional Current Theory iv. Seafloor Spreading v. Theory of Plate Tectonics	12
3	Minerals and Rocks	a. Difference between Minerals and Rocks b. Minerals – metallic and non-metallic c. Rocks – Classification of rocks on the basis of formation, Characteristics of igneous, sedimentary and metamorphic rock with Indian examples	08

4	Crustal Movements	a. Internal movements – slow and rapid b. Folds – Types of folds c. Faults – Types and associated landforms	08
5	Diastrophic Movements	a. Earthquakes- causes and effects, major earthquake regions of the world, Seismic waves. b. Volcanism- processes and effects of volcanism, types of volcanoes and associated landforms	06
Section II			
6	Weathering and mass Movement	a. Weathering- meaning, mechanical, chemical and biological weathering b. Mass movement- meaning and types	08
7	Agents of Erosion	Erosional, trasportational, and depositinal work of the following agents: a. River - Mechanism of river erosion, erosional and deposional landforms. Davisian cycle of erosion. b. Sea waves - Mechanism of sea wave erosion, breaking of waves, swash, backwash, erosional and deposional landforms. c. Wind : Mechanism of wind erosion, erosional and deposional landforms. d. Glaciers : Mechanism of glacial erosion, erosional and deposional landforms of valley and mountain glaciers.	08 08 08 08

Reference books:

- Ahirrao, W.R., Alizad, S.S. and Dhapte, C.S., 1998. Morphology and Landscape, Nirali Prakashan, Pune
- Bloom, A.L., 1998. Geomorphology. A Systematic Analysis of Late Cenozoic Landforms. Pearson Education (Singapore) Pte. Ltd.
- Christopher son, R.W. 2000, Geo-systems, Prentice Hall, INC. USA.
- Hamblin, W.K., 1989. The Earth's Dynamic Systems, Macmillan Publishing Company, New York.
- Husain, M., 2001. Fundamentals of Physical Geography, Rawat Publication, Jaipur.
- Kale, V.S. and Gupta, A., 2001. Introduction to Geomorphology, Orient Longman, Calcutta.
- Monkhouse, F.J., 1996. Principles of Physical Geography, Hodder and Stoughton, London.
- Robinson, H., 1969. Morphology and Landscape, University Tutorial Press Ltd, London.

- Siddhartha, K., 2001. The Earth's Dynamic Surface, Kisalaya Publications Pvt. Ltd, New Delhi.
- Singh, S., 1998. Geomorphology, Prayag Pustak Bhavan, Allahabad.
- Small, R.J., 1970. Study of Landforms, University Press, Cambridge.
- Sparks, Geomorphology.
- 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.
- Thornbury, Geomorphology.
- Various websites of internet.

F. Y. B. Sc. (Geography)
Course No. Gg. 120: Paper II

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Title of the Course: Geography of Atmosphere and Hydrosphere

Objectives:

4. To introduce the students to the basic principles and concepts in Climatology and Oceanography.
5. To acquaint the students with the applications of Climatology and Oceanography in different areas and environment.
6. To make the students aware of the Planet Earth and thereby to enrich the student's life.

Section I - Climatology			
Unit No.	Unit	Sub Unit	No.of periods
1	Introduction to Climatology	d. Definition, nature and scope e. Importance of Climatology in modern times.	05
2	The Atmosphere	a. Weather and climate, elements of weather and climate b. Composition and structure of the atmosphere	05
3	Insulation	c. Heat budget of the Earth. d. Factors affecting horizontal distribution of temperature. e. Inversion of temperature, lapse rate and its types. f. Global warming.	06
4	Atmospheric Pressure and Wind System	c. Vertical and horizontal distribution of pressure. d. Formation of pressure system belts and their relation with winds. e. Concept of pressure gradient. f. Type of winds- planetary wind, periodic winds (Monsoon winds), local winds (land and sea breezes, mountain and valley winds). e. Introduction to El Niño and La Niña	10

5	Atmospheric Moisture and Precipitation	<ul style="list-style-type: none"> a. Sources of moisture, methods to express humidity of the air- absolute and relative humidity. b. Forms of precipitation- rain, snow, dew, hail and fog. c. Types of clouds- high, medium and low clouds. 	08
6	Air Masses	<ul style="list-style-type: none"> a. Definition and source regions. b. Fronts and frontal zone of air masses and associated weather conditions. c. Cyclones- tropical and mid-latitude, and associated weather conditions. d. Anticyclones and associated weather conditions. e. Bjerknes Theory (Polar front theory of mid-latitude cyclone formation). 	06
Section II - Oceanography			
7	Oceanography	<ul style="list-style-type: none"> c. Definition, nature and scope. d. Importance of oceanography in modern times. 	06
8	Submarine Relief	<ul style="list-style-type: none"> a. General idea of ocean relief. b. Relief of Atlantic, Pacific and Indian oceans. 	08
9	Classification of Coasts	<ul style="list-style-type: none"> a. Types- Haff Nehrung, Fiord, Dalmatian, Ria coasts. b. Submerged and emerged coast. 	06
10	Properties of Ocean Water	<ul style="list-style-type: none"> a. Properties of ocean water- temperature, density. b. Salinity- meaning and causes. c. Salinity of oceans, seas, and lakes with examples. 	10
11	Movements of Ocean Water	<ul style="list-style-type: none"> a. Waves- Characteristics of sea waves, wave refraction, tsunamis. b. Ocean currents- meaning, causes, types. c. Ocean currents of Atlantic, Pacific and Indian Oceans d. Effects of ocean currents. e. Tides- meaning, causes, types. f. Equilibrium theory of tides. 	10

Reference books:

- Ahirrao, W.R., Alizad, S.S. and Dhapte, C.S., 1998. Climatology and Oceanography, Nirali Prakashan, Pune.
- Critchfield, H.J., 1997. General Climatology, Prentice Hall of India Pvt. Ltd, New Delhi.
- Dasgupta, A. and Kapoor, A.N., Principles of Physical Geography.
- Grald, S., General Oceanography.
- Ttrewartha, G., Introduction to Weather and Climate.
- King, C.A.M., Oceanography for Geographers.
- Lake, P., Physical Geography.
- Lutgens, F.K. and Tarbuck, E.J., 2007. The Atmosphere, Pearson Prentice Hall, New Jersey.
- Pirie, R.G., Oceanography (Contemporary).
- Ross, D.A., 1988. Introduction to Oceanography. Prentice Hall, New Jersey.
- Sharma, R.C. and Vatel. M., Oceanography for Geographers.
- Strahler, A.A. and Strahler, A. N., 2002. Physical Geography: Science and Systems of the Human Environment, John Wiley and Sons, INC.
- Strahler, A.H. and Strahler, A. N., 1992. Modern Physical Geography, John Wiley and Sons, INC.
- Strahler, A.N., 1965. Introduction to Physical Geography, John Wiley and Sons, INC.
- Various websites of internet.

F. Y. B. Sc. (Geography)
Course No. Gg. 101: Paper III
Title of the Course: Techniques in Physical Geography

Objectives:

7. To acquire the knowledge of various techniques in Physical Geography.
 8. To enable the student to use techniques of specific maps and their geographical interpretation.
 9. To acquaint the students with the weather instruments and their utility and applications in geographical phenomena.
- * Batch of 15 students each & 4 periods per batch

Section I - Maps			
Unit No.	Unit	Sub Unit	No. of periods
1	Maps	a. Definition, elements of map, scale, direction, projection, conventional signs and symbols.	06
2	Toposheets	c. Introduction to toposheets, marginal information, grid reference, conventional signs and symbols (SOI). d. Types of toposheet/Indexing of toposheets a. 1: 1000000/Million sheet b. 1:250000/Degree sheet/Quarter inch sheet c. 1:100000/Half inch sheet d. 1:50000/One inch sheet e. 1:25000	08
3	Map Scales	g. Definition and types- Verbal Scale (VS), Representative Fraction (RF), graphical h. Conversion of scale- VS into RF and RF into VS (Minimum 4 examples each) c. Exercise on simple graphical scale (Minimum 4 exercises)	08

4	Relief	<p>g. Methods of relief representation.</p> <p>a. Qualitative- hachures, hill shading, layer tint</p> <p>b. Quantitative- contours, form lines, spot height, bench mark, triangulation station</p> <p>h. Representation of following features by contours- uniform slope, concave slope, convex slope, terraced slope, conical hill, plateau, ridge, saddle, V-shaped valley, U-shaped valley, waterfall, gorge, spur, cliff.</p>	06
5	Profile	d. Cross profile, longitudinal profile, intervisibility.	04
6	Toposheet Reading	<p>e. At least one from the following regions- mountainous, plateau, plain.</p> <p>f. One day field excursion for orientation of toposheet, observation of landforms, identification of landforms and preparation of brief report.</p>	08
Section II- Weather maps			
7	Weather Maps	<p>e. Introduction to weather maps.</p> <p>f. India Meteorological Department (IMD) weather symbols.</p> <p>g. Use of satellite images in weather forecasting.</p>	08
8	Isobaric Patterns	c. Drawing of isobaric patterns and associated weather- cyclone, anticyclone, ridge, trough, wedge, secondary depression, col.	08

9	Weather Instruments	<ul style="list-style-type: none"> c. Measurement of temperature <ul style="list-style-type: none"> i. Simple thermometer ii. Maximum and minimum thermometer iii. Thermograph (Mechanism and functioning) b. Measurement of humidity <ul style="list-style-type: none"> i. Hygrometer ii. Hygrograph (Mechanism and functioning) c. Measurement of precipitation <ul style="list-style-type: none"> i. Rain gauge (Mechanism and functioning) d. Measurement of air pressure <ul style="list-style-type: none"> i. Aneroid barometer ii. Barograph (Mechanism and functioning) e. Measurement of wind direction and velocity <ul style="list-style-type: none"> i. Wind vane ii. Cup anemometer (Mechanism and functioning) 	10
10	Weather Map Reading	<ul style="list-style-type: none"> d. Reading of weather map of three seasons <ul style="list-style-type: none"> i. Summer ii. monsoon iii. winter (Satellite images indicating weather phenomena should be shown). 	10
11	Compilation of Information	<ul style="list-style-type: none"> f. Information should be compiled regarding weather forecasting. g. Compilation of weather information and its presentation (Should be compiled from daily news papers, television, internet, etc. and preparation of brief report). h. One day visit to nearby weather station of IMD 	04

* The student will maintain a journal for all the practicals and it will be certified by the concerned teacher and Head.

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Reference books:

Singh, G., 2005. Map work and practical geography. Vikas Publishing House Pvt. Ltd., New Delhi.

Singh, R.L., and Dutt, P.K., 1968. Elements of practical geography, Students' Friends, Allahabad.

Singh, L.R. and Singh, R., 1973. Map work and practical geography, Central Book Depot, Allahabad.

Siddhartha, K., 2006. Geography through maps, Kishoreya Publications Pvt. Ltd, New Delhi.

Ramamurthy, K., 1982. Map Interpretation, Rex Printers, Madras.

Monkhouse, F.J. and Wilkinson, H.R., 1971. Maps and Diagrams. Methuen and Co. Ltd., London. UK.

Singh, R.L., 2005. Elements of Practical Geography. Kalyani Publishers, New Delhi. India.

Steers, J.A., 1970. An Introduction to Study of Map Projections. University of London Press Ltd., London. UK.

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