

Department of General and Applied Geography

School of Applied Sciences



Curriculum Framework

B.A. / B.A.- B.Ed. / B.Sc.

Based on National Education Policy- 2020

Date of BoS: 16.09.2022

**Doctor Harisingh Gour Vishwavidyalaya
(A Central University)
Sagar-Madhya Pradesh-470003**

About the Department

The Department of General and Applied Geography is one of the pioneer departments in the country, established in 1953 with Prof. Mackim as its first Head. The department has a glorious history of sharing their domain knowledge and research at national and international academic platforms. The department has produced research of international repute, published in international journals such as Nature, Science and publishers viz. Elsevier, Springer, Taylor and Francis, etc. The department offers Ph.D., M.Sc./M.A. and B.Sc./B.A. programs in Geography. The department is currently supported by DST (GOI) under FIST Level-I program. The department has a Remote Sensing and GIS Lab and all advanced surveying instruments. The faculty of the department is committed to train the students to develop their skills in geoinformatics, surveying, statistical analyses and landscape interpretation. These skills are integral to the course and help the students in their research pursuits. Presently, the department has six meritorious, experienced and devoted faculties. The department has been pioneer in the teaching of Astronomy, Cartography and Applied Geography since its inception. The department has been attracting students from all over the country and has produced several academicians, scientists, administrative officers. Population Research Centre (PRC), Ministry of Health and Family Welfare, Govt. of India, New Delhi is an integral part of the department since 1999.

Curriculum Framework based on National Education Policy-2020

NEP-2020 has conceptualized the idea to develop well rounded competent individuals for making the nation a self-reliant and global leader. In the same spirit, we at **Department of General and Applied Geography** have developed a curriculum framework to encompass the goals of NEP 2020. To this end, we have incorporated choice of subject/disciplines of study, creating academic pathways having constructive combinations of disciplines for study with multiple entry and exit points as well as focus on **experiential learning** for students by introducing **multidisciplinary and skill enhancement courses** and actual Hand's on training in the recent and trending aspects of the area concern.

Under Graduate Curriculum Framework for Bachelor of Arts & Bachelor of Science

1. Name of the Programme: B. Sc., B. A. & B. A. B. Ed.

2. About the Programme:

The Bachelor of Science (B.Sc.), Bachelor of Arts (B.A.) and Bachelor of Education (B.A.-B.Ed.) in Geography programs offer students a holistic understanding of Geography. The purpose of the undergraduate geography program at Department of General and Applied Geography is to provide the fundamental knowledge of the major fields of geography to the students covering the general areas of physical and human geography along with the skills and abilities of fundamental cartographic practices, digital technologies and surveying so as the students may be specialised and skilled to undertake the various careers in government and private sectors. Moreover, the student will be trained in applied laboratory techniques, critical thinking, independent and team learning, and are provided with research opportunities. The faculty is committed to providing an apt academic milieu to address the individual needs of each student and encourage them to develop their potential.

3. Objectives of the Programme:

After Completion of the programme the student will learn:

- Understand and apply the fundamental principles, concepts and methods of Geographical Studies.
- Demonstrate the problem solving, analytical and logical skills in understanding physical and cultural landscapes.
- Apprise the techniques of surveying in spatial analysis and measurements.
- Understand the importance of geo-informatics in understanding the land use and land cover mapping.
- Enhance the learning of judicious use of GI technology for the sustainable growth of mankind in synergy with nature.
- Understand the professional, ethical and social responsibilities in the creation and use of geographical knowledge.
- Enhance the research culture and uphold the scientific integrity and objectivity.
- Express proficiency in oral and written communications to appreciate geographical knowledge.
- Develop industry focused skills and learning to lead a successful career.

4. **Programme Learning Outcomes:**

After the completion of the programme, students will be able to:

- **Disciplinary knowledge:** Demonstrate and understand basic concepts, and fundamental principles of geography.
- **Communication skills:** Effectively express their geographical understanding through means reports and presentations.
- **Critical thinking:** Collect and analyse the various scientific problems and draw a conclusion to design apt solutions.
- **Problem solving:** observe and simulate the geographical problems in day-to-day life.
- **Analytical reasoning:** Analyse and interpret data with appropriate methods and techniques in the domain.
- **Cooperation/Teamwork:** deliver and facilitate cooperative effort as a group in the field and lab experiment, assignments and group activities etc.
- **Information/digital literacy:** Access, evaluate, and use of relevant data sources in a systematic manner through appropriate software and web-based platforms.
- **Self-directed learning:** Engage in independent and self-directed learning to get in-depth knowledge through e-learning resources and MOOC courses.
- **Scientific reasoning:** Acquire reasoning and problem-solving skills to analyse, interpret and draw conclusions from quantitative and qualitative data.
- **Moral and ethical awareness/reasoning:** Embrace and practice research ethics adopted in geographical studies.
- **Leadership readiness/qualities:** Formulate an inspiring vision and motivate the team for the collective efforts in an efficient way.
- **Lifelong learning:** Develop knowledge and skills for personal and institutional development by adapting the industrial and work demands through skill development.

5. Structure of the Programme

Level: 5 Semester I			
Nature of Course	Course Code	Course Title	Credits
Discipline Specific Major-1	GOG-DSM-111	Physical Geography: Lithosphere	4
Discipline Specific Major-2	GOG-DSM-112	Map Reading and Interpretation (Practical)	2
Multi-Disciplinary Major-3	GOG-MDM-111	Physical Landscapes of India	6
Ability Enhancement Course	GOG-AEC-111	Chain & Tape Surveying	2
Skill Enhancement Course (SEC)	GOG-SEC-111	Introduction to Cartography	2

Semester II			
Nature of Course	Course Code	Course Title	Credits
Discipline Specific Major-1	GOG-DSM-121	Human Geography	4
Discipline Specific Major-2	GOG-DSM-122	Relief Analysis and Surveying (Practical)	2
Multi-Disciplinary Major-3	GOG -MDM-121	Resource Geography of India	6
Ability Enhancement Course	GOG -AEC-121	Prismatic Compass Survey	2
Skill Enhancement Course (SEC)	GOG -SEC-121	Introduction to Statistical Methods in Geography	2

6. Exit: Certificate in

7. Teaching Learning Approach:

Mainly this programme will transact the under given pedagogic approach-

- a. Lecture/ Seminar format: Chalk and board, PPT presentation, Field work
- b. Demonstration: Demonstration of Maps, Models and Geo-informatic data sets
- c. Readings/written assignments and Field Projects: Written Assignment, Seminars and Field Projects
- d. Group discussions/tutorial: Group discussions & tutorials in field projects and dissertations
- e. Project work: Project work and Assignments
- f. Field Visit/Survey/Dissertation: Geography being a spatial science field visits and surveys are integral part of geographical studies.

8. Assessment

The learner in the programme will be assessed throughout the duration of the programme in a formative and summative evaluations i.e. Mid (I & II) and End Semester examinations. To be eligible to appear in End semester examination a student must appear in Mid semester examinations along with 75 per cent attendance in classroom processes.

GOG DSM- 111- Physical Geography: Lithosphere								
Level& Semester	Course Code	Title of the Course	Credits				Marks	Course Coordinator
L5 Sem I	GOG- DSM- 111	Physical Geography: Lithosphere	L	T	P	C	IA (Mid)-40 EA (End Sem)- 60	Dr. Pawan Kumar Sharma Dr. Satheesh C. Dr. Rakesh Saini Dr. Parvendra Kumar
			60	0	0	4		

Lectures/Hrs. 60

1. Learning Objectives:

The purpose of the course is to introduce students the evolution, structure and configuration landforms and land forming process.

2. Course Learning Outcomes: After the completion of the course, the students will have the ability to:

- Understand the components of the earth system – atmosphere, lithosphere and hydrosphere;
- Appreciate and understand various features of the spheres with local, regional and global examples;
- Understand the Earth Movements and development of landforms.

3. Unit wise Learning Outcomes:

- UO 1. Know about the different theories of origin of the Earth.
 UO 2. Learn about the evolution of first and second order landforms.
 UO 3. Understand the major endogenetic processes of landscape evolution.
 UO 4. Understand the major exogenetic processes of landscape evolution.
 UO 5. Learn about the landform evolution in different environments.

Unit	Content	Lecture/Period
Unit I	Origin of the Earth - Hypotheses and theories: Nebular, Tidal and Big Bang Theory - The constitution of the earth's interior - Age of the earth - Geological time scale	12
Unit II	Landform Evolution - First order land forms: Continents and Oceans: Wegner's theory; Plate tectonics - Second order land forms: Mountains, Plateaus, plains: their classification and distribution; - Earth's Materials: Rocks- their origin, classification and characteristics	12
Unit III	Endogenetic Processes - Epeirogenetic and Orogenetic - Folds and Faults; - Seismic activities: causes and distribution - Earthquakes- Classification and world distribution; - Volcanic activity: causes, types, distribution and resultant landforms	12
Unit IV	Exogenetic Processes: - Denudational agents - Weathering Process: Physical, Chemical and Biological; - Mass wasting and resultant landforms	12
Unit V	Agents of Landforms Development: - Work of running water- erosional and depositional landforms. - Aeolian Landforms: erosional and depositional land forms; - Glacial landforms: erosional and depositional land forms	12

Essential Readings

1. Strahler, A.N. and Stahler, A.M. Modern Physical Geography. Wiley India, New Delhi, 2016.
2. Singh, S. Physical Geography. Pravalika Publications, Allahabad, 2016.
3. Bryant Richard, H. Physical Geography. Rupa Publication. New Delhi, 2016.
4. flag lfoUnz HkkSfrd Hkwxksy] izokfydk izdk'ku] xksj[kiqj] 2017
5. flag lfoUnz Hkw&vkd`fr foKku] olqa/kjk] xksj[kiqj] 2017

Suggested Readings

1. Hugget, R. J. Fundamentals of Geomorphology, Routledge Taylor & Francis, London, 2017.
2. Bloom A. L. Geomorphology. Rawat Pulication, Jaipur, 2012.
3. Robinson, P.J. & S. Henderson. Contemporary Climatology. Henlow, 1999.
4. Singh, S. Geomorphology. Prayag Publications, Allahabad, 1998.
5. Stoddart,D. R. Process and Form in Geomorphology (Edited). Routledge, New York, 1996.
6. Garner, H.F. The Origin of Landscape- A Synthesis of Geomorphology. O. U.P. London, 1974.
7. Chorley, R.J. Spatial Analysis in Geomorphology. Methuen, London. 1972.
8. Sparks, B.W. Geomorphology. Longman, London, 1960.
9. Thornbury,W. D. Principles of Geomorphology. John Wiley, New York, 1960.
10. Wooldridge, S.W. and Morgan, R. S. The Physical Basis of Geography- An Outline of Geomorphology. Longman, London, 1959.
11. dkSf'kd] ,l- Mh- Hkw&vkd`fr foKku] jLrksxh] esjB] 2012

GOG DSM- 112- Map Reading and Interpretation (Practical)								
Level& Semester	Course Code	Title of the Course	Credits				Marks	Course Coordinator
L5 Sem I	GOG-DSM-112	Map Reading and Interpretation (Practical)	L	T	P	C	IA (Mid)-40 EA (End Sem)- 60	Dr. Satheesh C. Dr. Rakesh Saini Dr. R. B. Anuragi Dr. O. P. Dubey
			0	0	30	2		

Lectures/Hrs. 60

1. Learning Objectives:

The purpose of the course is to introduce students the basics of map science, basic reading and interpretational skills.

2. Course Learning Outcomes: After the completion of course, the students will have ability to:

1. Understand the Nature and Development of Cartography
2. Able to prepare maps with their basic elements.
3. Identification of different rocks structures with their basic properties.

3. Unit wise Learning Outcomes:

UO 1. Learn and appreciate the basics of cartography and their major application areas.

UO 2. Learn the different types of scales.

UO 3. Learn the methods of construction of scale.

UO 4. Understand the types of maps and techniques of map enlargement and reduction.

UO 5. Recognise the various types and characteristics of rocks

Unit	Content	Lecture/Period
Unit I	Introduction to Cartography • The nature and scope of cartography • Development of cartography • elements of cartography • Application of cartography	12
Unit II	Scale: Basic Concepts • Statement scale, • Representative Fraction (R.F.) • Graphical scale	12
Unit III	Construction of Scales • Graphical /Linear Scale • Simple & Comparative Scale • Diagonal and Time Scale • Conversion and Uses of Scale	12
Unit IV	Maps: Concept and Types • Enlargement and reduction of Maps • Graphical method: Square Method • Similar Triangle Method	12
Unit V	Identification of different rocks • Igneous rocks • Sedimentary rocks • Metamorphic rocks	12

Essential Readings

1. Singh L. R. *Fundamentals of Practical Geography*, Sharda Pustak Bhawan, Allahabad, 2016.
2. Singh, R.L. *Elements of Practical Geography*. Kalyani, New Delhi. 1991.
3. Sarkar, A. *Practical geography: A systematic approach*. Orient Black Swan Private Ltd., New Delhi, 2015.
4. Singh Gopal. *Map Work and Practical Geography*. Vikas Publishing, New Delhi. 2012
5. izk;ksfxd Hkwksy] jLrksxh] esjB] 2016-
6. feJk vkj- ,u- ,oa 'kekZ ih- ds-% izk;ksfxd Hkwksy] jkor ifCyds'ku t;iqj 2019

Suggested Readings

1. Robinson, A.H, et. al. *Elements of Cartography*. 6th ed. John Wiley, New York, 1995.
2. Misra, R.P. & A. Ramesh : *Fundamentals of Cartography*. Concept, New Delhi. 1989.
3. Monkhouse, F.J. *Maps and Diagrammes*. Methuen, London. 1982.
4. Raisz, E. *General Cartography*. John Wiley and Sons, New York. 5th edition, 1962.
5. flag] vkj- ,y- % izk;ksfxd Hkwksy ds ewyrRo] dY;k.kh] ubZ fnYyh. 2015.

GOG-MDM-111- Physical Landscapes of India								
Level& Semester	Course Code	Title of the Course	Credits				Marks	Course Coordinator
L5 Sem I	GOG-MDM-111	Physical Landscapes of India	L	T	P	C	IA (Mid)-40 EA (End Sem)-60	Dr. Satheesh C. Dr. Rakesh Saini Dr. Parvendra Kumar
			90	0	0	6		

Lectures/Hrs. 90

1. Learning Objectives:

The purpose of the course is to introduce students an improved understanding on various physical landscapes of India and enhance their analytical capacity to relate the diverse physical conditions.

2. Course Learning Outcomes: After the completion of the course, the students will have the ability to:

1. Understand the physiographic profile of the country
2. Understand the climatic conditions and its impacts in India
3. Apprise the synergy of drainage system, soils and forest resources in India.

3. Unit wise Learning Outcomes:

- UO 1. Learn about the major physiographic divisions of India.
 UO 2. Learn about Indian Monsoon system and their spatial characters.
 UO 3. Know about the major drainage system of India.
 UO 4. Learn about the process of pedogenesis and soil classification of India.
 UO 5. Recognise the major forest resources of India and relevant policy.

Unit	Content	Lecture/Period
Unit I	Physiographic divisions • Himalayas: origin and classification • Northern Plains: origin and classification • Peninsular India: origin and classification • Coastal areas & Islands	18
Unit II	Climate • Origin of monsoon • Branches of monsoon • Climatic regions	18
Unit III	Drainage Systems • Himalayan River system • Peninsular drainage system • In-land drainage system	18
Unit IV	Soil • Pedogenesis processes • Classification of Indian soil • Soil erosion and conservation	18
Unit V	Vegetation • Classification of forests • Deforestation and conservation • National forest policy	18

Essential Readings:

1. Khullar, D.r. India: A Comprehensive study kalyani pub., Luchiana, New Delhi, 2016.
2. Tiwari, R.C., Geography of India. Allahabad: Pravalika Publication. Allahabad, 2016.
3. Singh Gopal. A Geography of India. Atmaram and Sons, New Delhi. 2010.
4. Husain, Majid, Geography of India, McGraw-Hill Com. New Delhi, 2008.
5. frokjh vkj- lh- Hkkjr dk Hkwxsy] bykgckn% iz;kx iqLrd Hkou] 2016
6. xkSre] vydk] Hkkjr dk c`gn~ Hkwxsy] “kkjnk iqLrd Hkou] bykgckn] 2015

Suggested Readings:

1. Basham, A. L. The Wonder that was India. Picador, London. 2004.
2. Das, P.K., The Monsoon. National Book Trust of India, New Delhi. 2002.
3. Sharma, T.C. & Countinho O., Economic and Commercial Geography of India, Vikash Publication, New Delhi. 1998.
4. Singh, R. L., ed., India- A Regional Geography. N. G. S. India, Varanasi, 1971.
5. caly] lqjs'k pan % Hkkjr dk o`gn Hkwxsy] ehuk{kh izdk'ku] esjB 2015
6. pkSgku ih- vkj- Hkkjr dk c`gn Hkwxsy] olqU/kjk izdk'ku] xksj[kiqj] 2013

GOG-AEC-111- Chain & Tape Surveying								
Level& Semester	Course Code	Title of the Course	Credits				Marks	Course Coordinator
L5 Sem I	GOG-AEC-111	Chain & Tape Surveying	L	T	P	C	IA (Mid)-40 EA (End Sem)-60	Dr. Satheesh C. Dr. R. B. Anuragi Dr. O. P. Dubey
			30	0	0	2		

Lectures/Hrs. 30

1. Learning Objectives:

The purpose of the course is to introduce method of chain and tape surveying.

2. Course Learning Outcomes : After the completion of the course, the students will have the ability to:

1. Understand the fundamentals of surveying.
2. Apprise and understand method of chain and tape surveying
3. Apply the techniques of chain and tape surveying in preparation of area plan map.

3. Unit wise Learning Outcomes :

- UO 1. Learn and appreciate the basics of surveying.
 UO 2. Learn about the basics of Chain and Tape surveying.
 UO 3. Learn about the setting of the Chain and Tape for preparation of map.
 UO 4. Learn about the different methods of Chain and Tape surveying.
 UO 5. Learn the survey plotting, construction of Map.

Unit	Content	Lecture/Period
Unit I	Introduction to surveying • Basic concept and methods • Types of north: true north, grid north and magnetic north	06
Unit II	Types of surveying • Geodetic and Plane surveying • Triangulation and Traverse surveying • Topographical surveying	06
Unit III	Chain & Tap Surveying • Basic concept and significance • Instruments of Chain & Tap Surveying	06
Unit IV	Methods of Chain & Tap Surveying • Traverse method: closed and open method • Triangulation method	06
Unit V	Surveying and Plotting • Survey process and steps • Preparation of field book • Construction of Area Plan	06

Essential Readings:

1. Singh L. R. Fundamentals of Practical Geography, Sharda Pustak Bhawan, Allahabad, 2016.
2. Sarkar, A. Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi, 2015.
3. Singh Gopal. Map Work and Practical Geography. Vikas Publishing, New Delhi. 2012
4. Singh, R.L. Elements of Practical Geography. Kalyani, New Delhi. 1991.
5. 'kekZ] ts-ih- % izk;ksfxd Hkwxksy] jLrksxh] esjB] 2016-
6. flag] vkj- ,y- % izk;ksfxd Hkwxksy ds ewyrRo] dY;k.kh] ubZ fnYyh. 1991.
7. feJk vkj- ,u- ,oa 'kekZ ih- ds-% izk;ksfxd Hkwxksy] jkor ifCyds'ku t;iqj 2019

Suggested Readings:

1. Robinson, A.H. , et. al. Elements of Cartography. 6th ed. John Wiley, New York, 1995.
2. Misra, R.P. & A. Ramesh : Fundamentals of Cartography. Concept, New Delhi. 1989.
3. Monkhouse, F.J. Maps and Diagrammes. Methuen, London. 1982.
4. Raisz, E. General Cartography. John Wiley and Sons, New York 5th edition, 1962.

GOG-SEC-111- Introduction to Cartography								
Level& Semester	Course Code	Title of the Course	Credits				Marks	Course Coordinator
L5 Sem I	GOG-SEC-111	Introduction to Cartography	L 30	T 0	P 0	C 2	IA (Mid)-40 EA (End Sem)-60	Dr. Pawan Kumar Sharma Dr. Satheesh C. Dr. Rakesh Saini Dr. R. B. Anuragi Dr. Hemant Patidar

Lectures/Hrs. 30

1. Learning Objectives:

The purpose of the course is to introduce the basics of cartography, their principles and applications in geographical studies.

2. Course Learning Outcomes: After the completion of the course, the students will have the ability to:

1. Understand the basics of cartographical methods in representation of variable earth features and processes.
2. Appreciate and understand the various principles, conventions and types of map-making.
3. Generate suitable map of the area of interest for relevant studies.

3. Unit wise Learning Outcomes:

- UO 1. Learn and appreciate the basics of cartography.
 UO 2. Learn about the branches of cartography.
 UO 3. Understand the historical development of cartography.
 UO 4. Know about the recent trends in cartography.
 UO 5. Learn the basics of Geo-informatics and their application.

Unit	Content	Lecture/Period
Unit I	Introduction to Cartography • Cartographic problems of the Earth • Meaning & Definition of Cartography • Nature and Scope of Cartography	06
Unit II	Branches of Cartography • Theoretical cartography • Analytical cartography • Applied cartography	06
Unit III	Development of cartography • Ancient cartography • Medieval cartography • Modern cartography	06
Unit IV	Recent trends in cartography • Aerial photographs • Satellite imageries	06
Unit V	Advanced techniques in cartography • Basics of Remote sensing • Basics of GIS and GPS • Hands on QGIS	06

Essential Readings:

1. Singh L. R. Fundamentals of Practical Geography, Sharda Pustak Bhawan, Allahabad, 2016.
2. Sarkar, A. Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi, 2015.
3. Singh Gopal. Map Work and Practical Geography. Vikas Publishing, New Delhi. 2012
4. Singh, R.L. Elements of Practical Geography. Kalyani, New Delhi. 1991.
5. 'kekZ] ts-ih- % izk;ksfxd Hkwxksy] jLrksxh] esjB] 2016-
6. flag] vkj- ,y- % izk;ksfxd Hkwxksy ds ewyrRo] dY;k.kh] ubZ fnYyh. 1991.
7. feJk vkj- ,u- ,oa 'kekZ ih- ds-% izk;ksfxd Hkwxksy] jkor ifCyds'ku t;iqj 2019

Suggested Readings:

1. Robinson, A.H. , et. al. Elements of Cartography. 6th ed. John Wiley, New York, 1995.
2. Misra, R.P. & A. Ramesh : Fundamentals of Cartography. Concept, New Delhi. 1989.
3. Monkhouse, F.J. Maps and Diagrammes. Methuen, London. 1982.
4. Raisz, E. General Cartography. John Wiley and Sons, New York 5th edition, 1962.

II Semester

GOG DSM- 121- Human Geography								
Level& Semester	Course Code	Title of the Course	Credits				Marks	Course Coordinator
L5 Sem I	GOG- DSM- 121	Human Geography	L	T	P	C	IA (Mid)-40 EA (End Sem)- 60	Dr. Hemant Patidar Dr. R. B. Anuragi Dr. O. P. Dubey
			60	0	0	4		

Lectures/Hrs. 60

1. Learning Objectives:

The purpose of the course is to introduce students the processes and patterns of human occupancy through changing state of human understanding and use of Earth's surface by employing spatial concepts and landscape analysis of human organization and its environmental consequences.

2. Course Learning Outcomes: After the completion of the course, the students will have the ability to:

1. Understand the basic concepts in various sub-fields of human geography;
2. Appreciate the growth, distribution and composition of population in different parts of the world;
3. Analyse the types and patterns of rural and urban settlements, urbanisation and related issues in India and other regions of the world.
4. Appreciate the nature and quality of human landscapes.

3. Unit wise Learning Outcomes:

- UO 1. Learn about the nature and scope of human geography.
 UO 2. Know about the concept, division and distribution of human races.
 UO 3. Understand the basic characteristics and distribution of human population in the world.
 UO 4. Recognise the different types of human settlement in their geographic contexts.
 UO 5. Learn the significance of geographic spaces on international politics.

Unit	Content	Lecture/Period
Unit I	Introduction to Human Geography • Meaning, Nature, scope and relevance of human Geography • Man-Environment relationships • Cultural regions of the world: classification and its attributes	12
Unit II	Human Races • Human races: concept, Division characteristics and • Distribution human races in the world and India • Human Adaptation to the natural environment: Eskimo, Bushman and Pigmy	12
Unit III	Human Population • Growth, Distribution and density of population • Migration: types, causes and consequences • Trends of urbanization	12
Unit IV	Human Settlements • Rural settlements: Types and patterns • Urban settlements: evolution and classification • Theories of urban settlements	12
Unit V	Geo-politics • Geo-politics, Indian Ocean and World politics • Nation, state and nation-state • Frontiers and Boundaries	12

Essential Readings

1. Hussain Mazid, *Human geography*, Anmol Publication, New Delhi, 2014.
2. Shelar, S. K. *Human Geography*. Chandralok Prakashan, Kanpur. 2012.
3. Singh, L.R. *Fundamentals of Human Geography*. Sharda Pustak Bhawan, Allahabad, 2012.
4. Prajapati, R. V. *Principles of Human Geography*. Cyber Tech. Publication. New Delhi. 2011.
5. Knowles R. & Wareing J., *Economic and Social Geography*, Rupa Publication, New Delhi, 2004.
6. dkSf'kd] ,l-Mh-% ekuo Hkwxsy] jLrksxh] esjB] 2015
7. gqIsu] ekftn % ekuo Hkwxsy] jkor ifCyds'kUl] t;iqj] 2014
8. flag] oh ,u-% ekuo Hkwxsy] bykgkckn% iz;kx iqLrd Hkou] 2003

Suggested Readings

1. Dikshit, R.D. *Geographical Thought: A Contextual History of Ideas*. Prentice-Hall of India, New Delhi. 2016.
2. Chandna, R.C. *Population Geography*. Kalyani Publisher, New Delhi. 2015.
3. Whyrne, Hammond, Charles. *Elements of Human Geography*, George Allen & Unwin, London, 1985.
4. Brock, J.C. & J.W. Webb, *Geography of Mankind*. McGraw Hills, New York. 1978.
5. Chisholm, M. *Human Geography Evolution or Revolution*. 1975
6. DeBlij, H.J. *Human Geography- Culture Society and Space*. John Wiley, New York, 1996.
7. Haggett, Peter, et al. *Locational Models*. Arnold Heinemann, 1979.
8. Llyod, P.E. & P. Dicken *Location in Space*. Harper & Row, London.
9. Smith, D.M. *Human Geography – A Welfare Approach*. Arnold Heinemann, London, 1984.
10. Ambrose, Peter *Analytical Human Geography*. Longman, 1970.
11. pkanuk] jes'kpUnz% tula[;k Hkwxsy] dY;k.kh] ubZ fnYyh 2015
12. iaMk] ch-ih- tula[;k Hkwxsy] e-iz- fgUnh xzaFk vdkneh] Hkksiky] 2004-

GOG DSM- 122- Relief Analysis and Surveying (Practical)								
Level& Semester	Course Code	Title of the Course	Credits				Marks	Course Coordinator
L5 Sem I	GOG-DSM-122	Relief Analysis and Surveying (Practical)	L	T	P	C	IA (Mid)-40 EA (End Sem)- 60	Dr. Satheesh C. Dr. Rakesh Saini Dr. R. B. Anuragi Dr. O. P. Dubey
			0	0	30	2		

Lectures/Hrs. 60

1. Learning Objectives:

Course Objectives: The purpose of the course is to introduce students the procedures of representation, surveying and mapping.

2. Course Learning Outcomes :

1. Distinguish between various types of maps and also appreciate the elements of map;
2. Appreciate how projections are applied to prepare maps from the globe;
3. Understand the basic principles of surveying
4. Acquire knowledge to interpretation of Topographic maps

The purpose of the course is to introduce students the basics of map science, basic reading and interpretational skills.

3. Unit wise Learning Outcomes :

- UO 1. Know and appreciate the major relief representation techniques.
 UO 2. Learn the methods of contouring and role of profiles in landscape depiction and analysis.
 UO 3. Learn about the basics of topographic maps and their classification.
 UO 4. Learn about the fundamentals of surveying.
 UO 5. Learn about the basics of chain and tape surveying.

Unit	Content	Period/Hours
Unit I	Relief representation • Hachure, Shading, spot heights, and Bench Mark • Contours: Representation of different landforms • Contours interpolation	12
Unit II	Contouring • Contour inspection method, Cross-section method and Gradient method • Cross Profiles: Types- Serial, Superimposed, composite, projected • Relevance in landforms mapping and analysis	12
Unit III	Topographic maps • Classification and Numbering • Conventional Sign; • Interpretation of physical and cultural features	12
Unit IV	Surveying • Basic principles of surveying • Types of surveying- Geodetic and Plane • Triangulation and Transverse surveying	12
Unit V	Chain and tape surveying • Open traverse • Closed traverse	12

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|--|-------------------|--|
| | • Tie line method | |
|--|-------------------|--|

Essential Readings

1. Singh L. R. *Fundamentals of Practical Geography*, Sharda Pustak Bhawan, Allahabad, 2016.
2. Singh, R.L. *Elements of Practical Geography*. Kalyani, New Delhi. 1991.
3. Sarkar, A. *Practical geography: A systematic approach*. Orient Black Swan Private Ltd., New Delhi, 2015.
4. izk;ksfxd Hkwksy] jLrksxh] esjB] 2016-
5. feJk vkj- ,u- ,oa 'kekZ ih- ds-% izk;ksfxd Hkwksy] jkor ifCyds'ku t;iqj 2019

Suggested Readings

1. Robinson, A.H, et. al. *Elements of Cartography*. 6th ed. John Wiley, New York, 1995.
2. Misra, R.P. & A. Ramesh : *Fundamentals of Cartography*. Concept, New Delhi. 1989.
3. Monkhouse, F.J. *Maps and Diagrammes*. Methuen, London. 1982.
4. Raisz, E. *General Cartography*. John Wiley and Sons, New York. 5th edition, 1962.
5. flag] vkj- ,y- % izk;ksfxd Hkwksy ds ewyrRo] dY;k.kh] ubZ fnYyh. 2015.

GOG-MDM-121- Resource Geography of India								
Level& Semester	Course Code	Title of the Course	Credits				Marks	Course Coordinator
L5 Sem I	GOG-MDM-121	Resource Geography of India	L 90	T 0	P 0	C 6	IA (Mid)-40 EA (End Sem)-60	Dr. R. B. Anuragi Dr. Satheesh C. Dr. Hemant Patidar

Lectures/Hrs. 90

1. **Course Objectives:** The purpose of the course is to introduce students about the state and distribution of resources in India.

2. Course Learning Outcome:

After the completion of the course, the students will have the ability to:

1. Understand resource profile of the country.
2. Evaluate the resource base, and potential and problems of resource development in India.
3. Comprehend the importance of resource development and conservation in India.

3. Unit wise Learning Outcomes:

- UO 1. Know the resource base and resource regions of India.
 UO 2. Know the different types of water resources and drainage systems of India.
 UO 3. Recognise the forest resources and their economic and environmental significance.
 UO 4. Learn about classification and distribution of mineral resources of India.
 UO 5. Learn about classification and distribution of power resources of India.

Unit	Content	Lecture/Period
Unit I	Resource base of India • Definition and Classification • Resource reserves & potentials • Resource regions of India • Resource conservation	18
Unit II	Water resource • Ground water resource • Surface water resource • Drainage systems	18
Unit III	Forest resource • Classification of forests • Economic and Environmental Significance of forest • Forest resource: degradation & conservation	18
Unit IV	Mineral resources • Types and importance • metallic minerals • Non-metallic minerals	18
Unit V	Power resources • Conventional sources • Non-conventional sources • Problems and policies	18

Essential Readings:

1. Khullar, D.r. India: A Comprehensive study kalyani pub., Luchiana, New Delhi, 2016.
2. Tiwari, R.C., Geography of India. Allahabad: Pravalika Publication. Allahabad, 2016.
3. Singh Gopal. A Geography of India. Atmaram and Sons, New Delhi. 2010.
4. Husain, Majid, Geography of India, McGraw-Hill Com. New Delhi, 2008.
5. frokjh vkj- lh- Hkkjr dk Hkwxsy] bykgckn% iz;kx iqLrd Hkou] 2016
6. xkSre] vydk] Hkkjr dk c`gn~ Hkwxsy] “kkjnk iqLrd Hkou] bykgckn] 2015

Suggested Readings:

1. Basham, A. L. The Wonder that was India. Picador, London. 2004.
2. Das, P.K., The Monsoon. National Book Trust of India, New Delhi. 2002.
3. Sharma, T.C. & Coutinho O., Economic and Commercial Geography of India, Vikash Publication, New Delhi. 1998.
4. Singh, R. L., ed., India- A Regional Geography. N. G. S. India, Varanasi, 1971.
5. caly] lqjs'k pan % Hkkjr dk o`gn Hkwxsy] ehuk{kh izdk'ku] esjB 2015
6. pkSgku ih- vkj- Hkkjr dk c`gn Hkwxsy] olqU/kjk izdk'ku] xksj[kiqj] 2013

GOG-AEC-121- Prismatic Compass Survey								
Level& Semester	Course Code	Title of the Course	Credits				Marks	Course Coordinator
L5 Sem I	GOG-AEC-121	Prismatic Compass Survey	L	T	P	C	IA (Mid)-40 EA (End Sem)-60	Dr. R. B. Anuragi Dr. Satheesh C. Dr. Parvendra Kumar Dr. Pawan Kumar Sharma
			30	0	0	2		

Lectures/Hrs. 30

1. Learning Objectives:

The purpose of the course is to introduce methods of prismatic compass surveying.

2. Course Learning Outcomes : After the completion of the course, the students will have the ability to:

1. Understand the fundamentals of surveying.
2. Apprise and understand method of prismatic compass surveying.
3. Apply the techniques of prismatic compass surveying in preparation of area plan.

3. Unit wise Learning Outcomes :

- UO 1. Learn and appreciate the basics of surveying.
 UO 2. Learn about the basics of prismatic compass surveying and types of bearing.
 UO 3. Learn about the setting of the prismatic compass for preparation of map.
 UO 4. Learn about the different methods of prismatic compass surveying.
 UO 5. Learn the survey plotting, construction and corrections in bearing.

Unit	Content	Lecture/Period
Unit I	Introduction to surveying • Basic concept and methods • Basic methods of surveying • Plane & Geodetic Open and Closed Traverse	06
Unit II	Prismatic Surveying • Basic concept, methods and significance • Instruments of Prismatic Surveying • Types of bearing: Whole Circle Bearing and Quadrant Bearing • True, Magnetic and Assumed bearing	06
Unit III	Prismatic Surveying Process • Setting of the prismatic compass • Reading of bearing • Preparation of field book	06
Unit IV	Methods of Prismatic Surveying • Radiation Method • Intersection Method • Traverse (Open and Closed) Method • Resection Method	06
Unit V	Surveying and Plotting • Correction of bearings • Construction of Area Plan • Merits & Demerits of Prismatic Surveying	06

Essential Readings:

1. Singh L. R. Fundamentals of Practical Geography, Sharda Pustak Bhawan, Allahabad, 2016.
2. Sarkar, A. Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi, 2015.
3. Singh Gopal. Map Work and Practical Geography. Vikas Publishing, New Delhi. 2012
4. Singh, R.L. Elements of Practical Geography. Kalyani, New Delhi. 1991.
5. 'kekZ] ts-ih- % izk;ksfxd Hkwxksy] jLrksxh] esjB] 2016-
6. flag] vkj- ,y- % izk;ksfxd Hkwxksy ds ewyrRo] dY;k.kh] ubZ fnYyh. 1991.
7. feJk vkj- ,u- ,oa 'kekZ ih- ds-% izk;ksfxd Hkwxksy] jkor ifCyds'ku t;iqj 2019

Suggested Readings:

1. Robinson, A.H. , et. al. Elements of Cartography. 6th ed. John Wiley, New York, 1995.
2. Misra, R.P. & A. Ramesh : Fundamentals of Cartography. Concept, New Delhi. 1989.
3. Monkhouse, F.J. Maps and Diagrammes. Methuen, London. 1982.
4. Raisz, E. General Cartography. John Wiley and Sons, New York 5th edition, 1962.

GOG-SEC-121- Introduction to Statistical Methods in Geography								
Level& Semester	Course Code	Title of the Course	Credits				Marks	Course Coordinator
L5 Sem I	GOG-SEC-121	Introduction to Statistical Methods in Geography	L	T	P	C	IA (Mid)-40 EA (End Sem)-60	Dr. Pawan Kumar Sharma Dr. Hemant Patidar Dr. Satheesh C. Dr. Rakesh Saini
			30	0	0	2		

Lectures/Hrs. 30

Learning Objectives:

The purpose of the course is to introduce the students the basic statistical methods and their applicability in geographical studies.

Course Learning Outcomes : After the completion of course, the students will have ability to:

1. Understand the basic concept, types and formats of data.
2. Understand the basic statistical methods for data analysis.
3. Analyse and interpret geographical variables with appropriate statistical techniques.

Unit wise Learning Outcomes :

- UO 1. Learn and appreciate the major data types.
 UO 2. Learn about the techniques of data tabulation and classification.
 UO 3. Learn the measures of central tendency and their application.
 UO 4. Learn about measures of dispersion and application.
 UO 5. Learn about the measures of correlation.

Unit	Content	Lecture/Period
Unit I	Introduction to Data • Meaning & Definitions • Types of Data: Primary & Secondary • Types of data series	12
Unit II	Tabulation and Classification • Classification and Tabulation of data • Representation of data: Histogram, frequency polygon, Ogive curve	12
Unit III	Measures of Central Tendency • Arithmetic mean • Median • Mode	12
Unit IV	Measures of dispersion • Range • Mean deviation • Standard deviation	12
Unit V	Measures of Correlation • Scatter diagram • Karl Pearson's Correlation • Spearman's Rank Correlation	12

Essential Readings:

1. Mahmood Aslam. Statistical Methods in Geographical Studies, Rajesh Publication. New Delhi. 2016.
2. Singh L. R. Fundamentals of Practical Geography, Sharda Pustak Bhawan, Allahabad, 2016.
3. Sarkar, A. Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi, 2015.
4. Singh Gopal. Map Work and Practical Geography. Vikas Publishing, New Delhi. 2012
5. Gupta, S.P. Advanced Practical Statistics, Sultan Chand and Company, New Delhi. 1998.
6. Zamir, A. Statistical Geography: Methods and Applications, Rawat Publications, Jaipur. 2003.
7. Mahmood, A. Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi. 1986.
8. 'kekZ] ts-ih- izk;ksfxd Hkwxksy] jLrksxh] esjB] 2016-
9. feJk vkj- ,u- ,oa 'kekZ ih- ds-% izk;ksfxd Hkwxksy] jkor ifCysd'ku t;iqj 2019

Suggested Readings:

1. Bhagwathi, V. and Pillai, R.S.N. Practical Statistics, Sultan Chand and Company, New Delhi. 2003.
2. Robinson, A.H. et. al.: Elements of Cartography. 6th ed. John Wiley, New York, 1995.
3. Singh, R.L. Elements of Practical Geography. Kalyani, New Delhi. 1991.
4. Misra, R.P. & A. Ramesh. Fundamentals of Cartography. Concept, New Delhi. 1989.
5. Monkhouse, F.J. Maps and Diagrammes. Methuen, London. 1982.
6. Ebdon, D. Statistics in Geography: A Practical Approach, Blackwell Publishers Inc., Massachusetts. 1977.
7. Gregory, S. Statistical Methods and the Geographer, Longman, London. 1973.
8. Raisz, E. General Cartography. John Wiley and Sons, New York. 5th edition, 1962.
9. flag] vkj- ,y- izk;ksfxd Hkwxksy ds ewyrRo] dY;k.kh] ubZ fnYyh. 2015.

Essential e-Resources

1. [Statistical methods for geography | WorldCat.org](#)
2. [18MAG23C-U1.pdf \(gacbe.ac.in\)](#)
3. [Sample Chapter: Elementary Statistics for Geographers: Third Edition \(guilford.com\)](#)

Learning Outcomes-based Curriculum Framework for Undergraduate Education (2020), UGC, New Delhi

Qualification descriptors for a Bachelor's Degree programme:

The students who complete one/two/three years of full-time study of an undergraduate programme of study will be awarded a Certificate/Diploma/Bachelor's Degree.

Some of the expected learning outcomes that a student should be able to demonstrate on completion of a Certificate/Diploma/Degree -level programme may include the following:

- Demonstrate:
 - (i) a fundamental/systematic or coherent understanding of an academic field of study, its different learning areas and applications, and its linkages with related disciplinary areas/subjects;
 - (ii) procedural knowledge that creates different types of professionals related to the disciplinary/subject area of study, including research and development, teaching and government and public service;
 - (iii) skills in areas related to one's specialization and current developments in the academic field of study.
- Use knowledge, understanding and skills required for identifying problems and issues, collection of relevant quantitative and/or qualitative data drawing on a wide range of sources, and their application, analysis and evaluation using methodologies as appropriate to the subject(s) for formulating evidence-based solutions and arguments;
- Communicate the results of studies undertaken in an academic field accurately in a range of different contexts using the main concepts, constructs and techniques of the subject(s);
- Meet one's own learning needs, drawing on a range of current research and development work and professional materials;
- Apply one's disciplinary knowledge and transferable skills to new/unfamiliar contexts, rather than replicate curriculum content knowledge, to identify and analyse problems and issues and solve complex problems with well-defined solutions.
- Demonstrate subject-related and transferable skills that are relevant to some of the job trades and employment opportunities.