

Department of Geography
School of Earth Sciences - Central University of Karnataka
NEP - B.Sc. Geography Syllabus – (June – 2023)

Year	Sem	Paper Type	Course Code	Course Name	Credit Distribution			Total Credits	Class Hours / Week	Assessment			Remarks
					L	T	P			IA	ES	Total	
1 st	I	DSC 1	UGETC10100	Geomorphology	5	1	0	06	6	60	90	150	Offered by Geog. Dept. to Geog. Students
		Minor 1	UGETM10100	<i>Students' choice course from another department</i>	5	1	0	06	6	60	90	150	Offered by Other Dept. to Geog. Students
		MDC 1	UGETD10100	<i>Students' choice course from another department</i>	2	1	0	03	3	30	45	75	Offered by Other Dept. to Geog. Students
		AEC1		English – Language				02		20	30	50	Offered by Eng. Dept.to Geog. Students
		SEC 1	UGETS10100	Economic Geography	2	1	0	03	3	30	45	75	Offered by Geog. Dept. to Geog. Students
		VAC1		Common Paper from University				02		20	30	50	Offered by Other Dept.to Geog. Students
		Semester Total Credit						22					
	II	DSC 2	UGETC20101	Climatology & Biogeography	5	1	0	06	6	60	90	150	Offered by Geog. Dept. to Geog. Students
		Minor 2	UGETM20101	<i>Students' choice course from another department</i>	5	1	0	06	6	60	90	150	Offered by Other Dept. to Geog. Students
		MDC 2	UGETD20101	<i>Students' choice course from another department</i>	2	1	0	03	3	30	45	75	Offered by Other Dept. to Geog. Students
		AEC2		English – Language				02		20	30	50	Offered by Eng. Dept.to Geog. Students
		SEC 2	UGECS20101	Thematic Mapping and Cartography	0	0	3	03	6	30	45	75	Offered by Geog. Dept. to Geog. Students
		VAC 2		Environmental Sciences				02		20	30	50	Offered by Env. Dept.to Geog. Students
		Semester Total Credit						22					

Year	Sem	Paper Type	Course Code	Course Name	Credit Distribution			Total Credits	Class Hours / Week	Assessment			Remarks
					L	T	P			IA	ES	Total	
2 nd	III	DSC 3	UGECC30200	Topographical Map Interpretation and Map Projection	4	0	2	06	8	60	90	150	Offered by Geog. Dept. to Geog. Students
		Minor 3	UGETM30200	<i>Students' choice course from another department</i>	4		0	04	4	40	60	100	Offered by Other Dept. to Geog. Students
		MDC 3	UGETD30200	<i>Students' choice course from another department</i>	2	1	0	03	3	30	45	75	Offered by Other Dept. to Geog. Students
		AEC 3		English – Language				02		20	30	50	Offered by Eng. Dept. to Geog. Students
		SEC 3	UGECS30200	Surveying	0	0	3	03	6	30	45	75	Offered by Geog. Dept. to Geog. Students
		VAC 3		Common Paper from University				02		20	30	50	Offered by Other Dept. to Geog. Students
	Semester Total Credit							20					
	IV	DSC 4	UGETC40201	Geographical Thought	5	1	0	06	6	60	90	150	Offered by Geog. Dept. to Geog. Students
		DSC 5	UGETC40202	Settlement Geography	5	1	0	06	6	60	90	150	Offered by Geog. Dept. to Geog. Students
		Minor 4	UGETM40201	<i>Students' choice course from another department</i>	3	1	0	04	4	40	60	100	Offered by Other Dept. to Geog. Students
		AEC 4		<i>Students' choice course from another department</i>				02		20	30	50	Offered by Other Dept. to Geog. Students
		VAC 4		Common Paper from University				02		20	30	50	Offered by Other Dept. to Geog. Students
		Semester Total Credit							20				

Year	Sem	Paper Type	Course Code	Course Name	Credit Distribution			Total Credits	Class Hours / Week	Assessment			Remarks
					L	T	P			IA	ES	Total	
3 rd	V	DSC 6	UGETC50300	Geography of India	5	1	0	06	6	60	90	150	Offered by Geog. Dept. to Geog. Students
		DSC 7	UGETC50301	Oceanography and Hydrology	5	1	0	06	6	60	90	150	Offered by Geog. Dept. to Geog. Students
		DSC 8	UGECC50302	Basics of GIS and Remote Sensing	2	0	2	04	6	40	60	100	Offered by Geog. Dept. to Geog. Students
		Minor 5	UGETM50202	<i>Students' choice course from another department</i>	3	1	0	04	4	40	60	100	Offered by Other Dept. to Geog. Students
		Semester Total Credit						20					
	VI	DSC 9	UGECC60303	Spatial Analysis	4	0	2	06	8	60	90	150	Offered by Geog. Dept. to Geog. Students
		DSC 10	UGECC60304	Population Geography	4	0	2	06	8	60	90	150	Offered by Geog. Dept. to Geog. Students
		DSC 11	UGEFW60100	Field Work	0	0	6	06	12	60	90	150	Offered by Geog. Dept. to Geog. Students
		SEC 4	UGEIW60100	Internship	0	0	2	02	4	20	30	50	Offered by Geog. Dept. to Geog. Students
		Semester Total Credit						20					

Year	Sem	Paper Type	Course Code	Course Name	Credit Distribution			Total Credits	Class Hours / Week	Assessment			Remarks
					L	T	P			IA	ES	Total	
B.Sc. WITH RESEARCH													
4 th	VII	DSC 12	UGECC70400	Application of Statistical Packages for Social Science	4	0	2	06	8	60	90	150	Offered by Geog. Dept. to Geog. Students
		DSC 13	UGECC70401	Satellite Image Processing and Analysis	4	0	2	06	8	60	90	150	Offered by Geog. Dept. to Geog. Students
		Minor 6	UGETM70300	<i>Students' choice course from another department</i>	3	1	0	04	4	40	60	100	Offered by Other Dept. to Geog. Students
		Minor 7	UGETM70301	<i>Students' choice course from another department</i>	3	1	0	04	4	40	60	100	Offered by Other Dept. to Geog. Students
		Semester Total Credit							20				
	VIII	DSC 14	UGECC80402	Quantitative Geography	2		2	04	6	40	60	100	Offered by Geog. Dept. to Geog. Students
		DSC 15	UGETC80403	Research Methodology & Publication Ethics	3	1	0	04	4	40	60	100	Offered by Geog. Dept. to Geog. Students
		SEC 5	UGERW80100	Dissertation	0	0	12	12	24	120	180	300	Offered by Geog. Dept. to Geog. Students
		Semester Total Credit							20				

Year	Sem	Paper Type	Course Code	Course Name	Credit Distribution			Total Credits	Class Hours / Week	Assessment			Remarks
					L	T	P			IA	ES	Total	
B.Sc. WITH HONORS													
4 th	VII	DSC 12	UGETC70400	Regional Planning and Development	5	1	0	06	6	60	90	150	Offered by Geog. Dept. to Geog. Students
		DSC 13	UGETC70401	Political Geography	5	1	0	06	6	60	90	150	Offered by Geog. Dept. to Geog. Students
		Minor 6	UGETM70300	<i>Students' choice course from another department</i>	3	1	0	04	4	40	60	100	Offered by Other Dept. to Geog. Students
		Minor 7	UGETM70301	<i>Students' choice course from another department</i>	3	1	0	04	4	40	60	100	Offered by Other Dept. to Geog. Students
	Semester Total Credit							20					
	VIII	DSC 14	UGECC80402	Methods in Population Geography	4	0	2	06	8	60	90	150	Offered by Geog. Dept. to Geog. Students
		DSC 15	UGECC80403	Agricultural Geography	4	0	2	06	8	60	90	150	Offered by Geog. Dept. to Geog. Students
		Minor 8	UGECCM80302	<i>Students' choice course from another department</i>	2	0	2	04	6	40	60	100	Offered by Other Dept. to Geog. Students
		Minor 9	UGETM80303	<i>Students' choice course from another department</i>	3	1	0	04	4	40	60	100	Offered by Other Dept. to Geog. Students
	Semester Total Credit							20					
Total Credits for B.Sc. Geography (3 Years / 6 Semester)							124						
Total Credits for B.Sc. Geography with Research or Honors (4 Years / 8 Semester)							164						

Department of Geography
School of Earth Sciences - Central University of Karnataka
NEP - B.Sc. Geography Syllabus – (June – 2023)
(Minor and Multi discipline Course offered to Other Department Students)

Year	Sem	Paper Type	Course Code	Course Name	Credit Distribution			Total Credits	Class Hours / Week	Assessment			Remarks
					L	T	P			IA	ES	Total	
1 st	I	Minor 1	UGETM10100	Physical Geography- General	5	1	0	06	6	60	90	150	Offered by Geog. to Other Students
		MDC 1	UGETD10100	World Regional Geography	2	1	0	03	3	30	45	75	Offered by Geog. to Other Students
		Semester Total Credit						09					
	II	Minor 2	UGETM20101	Physical Geography of India	5	1	0	06	6	60	90	150	Offered by Geog. to Other Students
		MDC 2	UGETD20101	Environmental Geography	2	1	0	03	3	30	45	75	Offered by Geog. to Other Students
		Semester Total Credit						09					
Year	Sem	Paper Type	Course Code	Course Name	Credit Distribution			Total Credits	Class Hours / Week	Assessment			Remarks
					L	T	P			IA	ES	Total	
2 nd	III	Minor 3	UGETM30200	Human Geography (General)	3	1	0	04	4	40	60	100	Offered by Geog. to Other Students
		MDC 3	UGETD30200	Basics of Remote Sensing	2	1	0	03	3	30	45	75	Offered by Geog. to Other Students
	Semester Total Credit							07					
	IV	Minor 4	UGETM40201	Socio-Economic Geography of India	3	1	0	04	4	40	60	100	Offered by Geog. to Other Students
		Semester Total Credit						04					

(Minor and Multi discipline Course offered to Other Department Students)

Year	Sem	Paper Type	Course Code	Course Name	Credit Distribution			Total Credits	Class Hours / Week	Assessment			Remarks
					L	T	P			IA	ES	Total	
3 rd	V	Minor 5	UGETM50202	Basics of Geographical Information System	3	1	0	04	4	40	60	100	Offered by Geog. to Other Students
		Semester Total Credit						04					
	VI												
		Semester Total Credit						00					

Year	Sem	Paper Type	Course Code	Course Name	Credit Distribution			Total Credits	Class Hours / Week	Assessment			Remarks
					L	T	P			IA	ES	Total	
B.Sc. WITH RESEARCH													
4 th	VII	Minor 6	UGETM70300	Spatial Analysis	3	1	0	04	4	40	60	100	Offered by Geog. to Other Students
		Minor 7	UGETM70301	Urban Geography	3	1	0	04	4	40	60	100	Offered by Geog. to Other Students
		Semester Total Credit							08				
	VIII												
		Semester Total Credit							20				

(Minor and Multi discipline Course offered to Other Department Students)

Year	Sem	Paper Type	Course Code	Course Name	Credit Distribution			Total Credits	Class Hours / Week	Assessment			Remarks
					L	T	P			IA	ES	Total	
B.Sc. WITH HONORS													
4 th	VII	Minor 6	UGETM70300	Spatial Analysis	3	1	0	04	4	40	60	100	Offered by Geog. to Other Students
		Minor 7	UGETM70301	Urban Geography	3	1	0	04	4	40	60	100	Offered by Geog. to Other Students
	Semester Total Credit							08					
	VIII	Minor 8	UGECEM80302	Quantitative Geography	1	1	2	04	6	40	60	100	Offered by Geog. to Other Students
		Minor 9	UGETM80303	Industrial Geography	3	1	0	04	4	40	60	100	Offered by Geog. to Other Students
	Semester Total Credit							08					

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					L	T	P			IA	ES	Total	
1 st	I	DSC 1	UGETC10100	Geomorphology	5	1	0	06	6	60	90	150	Offered by Geog. Dept. to Geog. Students
		Minor 1	UGETM10100	Physical Geography- General	5	1	0	06	6	60	90	150	Offered by Geog. to Other Students
		MDC 1	UGETD10100	World Regional Geography	2	1	0	03	3	30	45	75	Offered by Geog. to Other Students
		AEC1		English – Language				02		20	30	50	Offered by Eng. Dept.to Geog. Students
		SEC 1	UGETS10100	Economic Geography	2	1	0	03	3	30	45	75	Offered by Geog. Dept. to Geog. Students
		VAC1		Common Paper from University				02		20	30	50	Offered by Other. Dept.to Geog. Students
		Semester Total Credit						22					
	II	DSC 2	UGETC20101	Climatology & Biogeography	5	1	0	06	6	60	90	150	Offered by Geog. Dept. to Geog. Students
		Minor 2	UGETM20101	Physical Geography of India	5	1	0	06	6	60	90	150	Offered by Geog. to Other Students
		MDC 2	UGETD20101	Environmental Geography	2	1	0	03	3	30	45	75	Offered by Geog. to Other Students
		AEC2		English – Language				02		20	30	50	Offered by Eng. Dept.to Geog. Students
		SEC 2	UGECS20101	Thematic Mapping and Cartography	0	0	3	03	6	30	45	75	Offered by Geog. Dept. to Geog. Students
		VAC 2		Environmental Sciences				02		20	30	50	Offered by Env. Dept.to Geog. Students
		Semester Total Credit						22					

Year	Sem	Paper Type	Course Code	Course Name	Credit Distribution			Total Credits	Class Hours / Week	Assessment			Remarks
					L	T	P			IA	ES	Total	
2 nd	III	DSC 3	UGECC30200	Topographical Map Interpretation and Map Projection	4	0	2	06	8	60	90	150	Offered by Geog. Dept. to Geog. Students
		Minor 3	UGETM30200	Human Geography (General)	3	1	0	04	4	40	60	100	Offered by Geog. to Other Students
		MDC 3	UGETD30200	Basics of Remote Sensing	2	1	0	03	3	30	45	75	Offered by Geog. to Other Students
		AEC 3		English - Language				02		20	30	50	Offered by Eng. Dept.to Geog. Students
		SEC 3	UGECS30200	Surveying	0	0	3	03	6	30	45	75	Offered by Geog. Dept. to Geog. Students
		VAC 3		Common Paper from University				02		20	30	50	Offered by Other. Dept.to Geog. Students
	Semester Total Credit							20					
	IV	DSC 4	UGETC40201	Geographical Thought	5	1	0	06	6	60	90	150	Offered by Geog. Dept. to Geog. Students
		DSC 5	UGETC40202	Settlement Geography	5	1	0	06	6	60	90	150	Offered by Geog. Dept. to Geog. Students
		Minor 4	UGETM40201	Socio-Economic Geography of India	3	1	0	04	4	40	60	100	Offered by Geog. to Other Students
		AEC 4		Offered by Other Department				02		20	30	50	Offered by Other. Dept.to Geog. Students
		VAC 4		Common Paper from University				02		20	30	50	Offered by Other. Dept.to Geog. Students
		Semester Total Credit							20				

Year	Sem	Paper Type	Course Code	Course Name	Credit Distribution			Total Credits	Class Hours / Week	Assessment			Remarks
					L	T	P			IA	ES	Total	
3 rd	V	DSC 6	UGETC50300	Geography of India	5	1	0	06	6	60	90	150	Offered by Geog. Dept. to Geog. Students
		DSC 7	UGETC50301	Oceanography and Hydrology	5	1	0	06	6	60	90	150	Offered by Geog. Dept. to Geog. Students
		DSC 8	UGECC50302	Basics of GIS and Remote Sensing	2	0	2	04	6	40	60	100	Offered by Geog. Dept. to Geog. Students
		Minor 5	UGETM50202	Basics of Geographical Information System	3	1	0	04	4	40	60	100	Offered by Geog. to Other Students
		Semester Total Credit						20					
	VI	DSC 9	UGECC60303	Spatial Analysis	4	0	2	06	8	60	90	150	Offered by Geog. Dept. to Geog. Students
		DSC 10	UGECC60304	Population Geography	4	0	2	06	8	60	90	150	Offered by Geog. Dept. to Geog. Students
		DSC 11	UGEFW60100	Field Work	0	0	6	06	12	60	90	150	Offered by Geog. Dept. to Geog. Students
		SEC 4	UGEIW60100	Internship	0	0	2	02	4	20	30	50	Offered by Geog. Dept. to Geog. Students
		Semester Total Credit						20					

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B.Sc. WITH RESEARCH													
4 th	VII	DSC 12	UGECC70400	Application of Statistical Packages for Social Science	4	0	2	06	8	60	90	150	Offered by Geog. Dept. to Geog. Students
		DSC 13	UGECC70401	Satellite Image Processing and Analysis	4	0	2	06	8	60	90	150	Offered by Geog. Dept. to Geog. Students
		Minor 6	UGETM70300	Spatial Analysis	3	1	0	04	4	40	60	100	Offered by Geog. to Other Students
		Minor 7	UGETM70301	Urban Geography	3	1	0	04	4	40	60	100	Offered by Geog. to Other Students
		Semester Total Credit							20				
	VIII	DSC 14	UGECC80402	Quantitative Geography	2	0	2	04	6	40	60	100	Offered by Geog. Dept. to Geog. Students
		DSC 15	UGETC80403	Research Methodology & Publication Ethics	3	1	0	04	4	40	60	100	Offered by Geog. Dept. to Geog. Students
		SEC 5	UGERW80400	Dissertation	0	0	12	12	24	120	180	300	Offered by Geog. Dept. to Geog. Students
		Semester Total Credit							20				

Year	Sem	Paper Type	Course Code	Course Name	Credit Distribution			Total Credits	Class Hours / Week	Assessment			Remarks
					L	T	P			IA	ES	Total	
B.Sc. WITH HONORS													
4 th	VII	DSC 12	UGETC70400	Regional Planning and Development	5	1	0	06	6	60	90	150	Offered by Geog. Dept. to Geog. Students
		DSC 13	UGETC70401	Political Geography	5	1	0	06	6	60	90	150	Offered by Geog. Dept. to Geog. Students
		Minor 6	UGETM70300	Spatial Analysis	3	1	0	04	4	40	60	100	Offered by Geog. to Other Students
		Minor 7	UGETM70301	Urban Geography	3	1	0	04	4	40	60	100	Offered by Geog. to Other Students
	Semester Total Credit							20					
	VIII	DSC 14	UGECC80402	Methods in Population Geography	4	0	2	06	8	60	90	150	Offered by Geog. Dept. to Geog. Students
		DSC 15	UGECC80403	Agricultural Geography	4	0	2	06	8	60	90	150	Offered by Geog. Dept. to Geog. Students
		Minor 8	UGECC80302	Quantitative Geography	2	0	2	04	6	40	60	100	Offered by Geog. to Other Students
		Minor 9	UGETM80303	Industrial Geography	3	1	0	04	4	40	60	100	Offered by Geog. to Other Students
	Semester Total Credit							20					
Total Credits for B.Sc. Geography (3Years / 6 Semester)							124						
Total Credits for B.Sc. Geography with Research or Honors (4 Years / 8 Semester)							164						

I SEMESTER

DSC 1 - GEOMORPHOLOGY

Code: UGETC10100

Credits:06

Unit 1: Theories of the origin of the earth, Earthquakes, Internal structure of the earth, Isostasy – Theories of Isostasy, Earth movement forces, Folds, Faults, Continental drift theory, plate-tectonic theory, volcanoes.

Unit 2: Fundamental concepts of geomorphology as postulated by Thornbury Rocks, Weathering and Mass movement, Drainage system and pattern, structural controls on drainage network and landforms development- uniclinal structure, folded structure, faulted structure, horizontal structure, and dome structure.

Unit 3: Cycle of erosions- Geographical cycle of erosion by Davis; Penk's model of cycle of erosion; Rejuvenation; Poly cyclic reliefs; Cycle of Pediplanation by L. C King; Dynamic Equilibrium theory by J.T.Hack

Unit 4: Fluvial process and landforms; Delta; Karst topography; Marine process and landforms; Aeolian process and landforms; Fluvial desert landforms; Glacial processes and landforms, Periglacial processes and landforms.

Reference

1. Thornbury, W.D. (1960): Principles of Geomorphology, John Wiley and Sons, New York
2. Chorley, R.J., Schumm, S.A. and Sugden, D.E. (1984): Geomorphology, Methuen, London.
3. Ollier, C. (1981): Tectonics and Landforms, Longman Group Ltd.
4. Sparks, B.W. (1972): Geomorphology, Longman Group Ltd.
5. Strahler, A.H. and Strahler A.N. (1992): Modern Physical Geography, John Wiley and Sons (Asia) Pvt. Ltd.
6. Steers, J.A. (1937): The Unstable Earth, Methuen and Co. Ltd. London
7. Kale, V.S. and Gupta, A. (2001): Introduction to Geomorphology, Orient Longman, Calcutta.
8. Savindra Singh (2002): Geomorphology, Prayag Pustak Bhawan, Allahabad
9. Bloom, A.L. (2002). Geomorphology: A systematic analysis of late Cenozoic landforms. Prentice-Hall of India, New Delhi

I SEMESTER

Minor 1- PHYSICAL GEOGRAPHY- GENERAL

Code: UGETM10100

Credits: 06

Unit 1: Nature & Scope of Geography: Branches of Geography, Earth as a Planet, Size and Shape of the Earth, Rotation, Revolution, Latitude, Longitude, Time.

Unit 2: Geomorphology: Classification of Earth Interior, Endogenetic Force, Exogenetic Force, Earthquake, Volcanoes, Rocks, Weathering.

Unit 3: Climatology: Elements of Weather and Climate. Origin, Composition and Structure of Atmosphere. Temperature, Pressure, Winds, Humidity, Precipitation

Unit 4: Oceanography: Submarine Topography, Temperature, Salinity, Coral Reefs, Tides, Ocean Currents.

References

1. Critchfield H.J. (2010): General Climatology, prentice Hall of India, Pvt. Ltd. New Delhi-01
2. David Harvey (2000) Explanations in Geography, Macmillan, New York.
3. Dikshit R.D. (2001). Geographical Thought: A Conceptual History of ideas, prentice Hall publishing Company, New Delhi-2
4. Harvey ME (2002) theme in Geographical thought, R.K. Publications and distributors, Ansari Road, New Delhi – 2.
5. King Cuchalaine A.M. (2012) Oceanography for geographers, Edward Arnold publications, London
6. Majid Hussain (2011) Evolution of Geographic Thought, Rawat Publications, New Delhi-02
7. Siddhartha K (2011): Atmosphere, weather and climate, Kisalaya Publications Pvt.ltd., C—2, Padma apartment, Mehruli, New Delhi-30.
8. Strahler A.N. (1968) The Earth Sciences, Harper & Row Intl. Edn, New York
9. Thornberry W.D. (1969) Principles of Geomorphology, 2nd Edition, Wiley Intl. Edn. & Wiley Eastern Reprints 1984.
10. Woodridge S.W and R.S. Morgan (2015) An Outline of Geomorphology, The Physical Basis of Geography, Orient Longman, Kolkata.

Web Resources:

11. https://en.wikipedia.org/wiki/Spatial_science
12. www.nsf.gov/sbe/bcs/grs/GSS_StrategicPlan_2011.pdf
13. www.roebuckclasses.com › Orientation › Lectures
14. www.ccrs.nrcan.gc.ca/resource/tutor/fundam/index_e.php
15. <http://www.crisp.nus.edu.sg/~research/tutorial/rsmain.htm>

I SEMESTER

MDC 1- WORLD REGIONAL GEOGRAPHY

Code: UGETD10100

Credits: 03

Unit 1: Asia – Physiography: Mountains, Plains, Plateaus, Coastal Areas, Deserts, Rivers, Major Cities, Ports, and International Trade.

Unit 2: Europe & Africa: Physiography: Mountains, Plains, Plateaus, Coastal Areas, Deserts, Rivers, Major Cities, Ports, and International Trade

Unit 3: North & South America- Physiography: Mountains, Plains, Plateaus, Coastal Areas, Deserts, Rivers, Major Cities, Ports, and International Trade.

Unit 4: North & South America- Physiography: Mountains, Plains, Plateaus, Coastal Areas, Deserts, Rivers, Major Cities, Ports, and International Trade

References

1. Majid Husain., 2004., World Geography., Rawat Publications., Jaipur., India
2. Qazi S.A., NavaidShabirQazi., 2007., Geography of the World., APH Publishing Corporation., New Delhi., India.
3. Prajapathi R.V., 2008., Encyclopedia of World Geography., Cybertech Publications., New Delhi., India.

I SEMESTER

SEC 1- ECONOMIC GEOGRAPHY

Code: UGETS10100

Credits: 03

Unit 1: Introduction: Concept and classification of economic activity, Factors Affecting location of Economic Activities.

Unit 2: Primary Activities: Subsistence and Commercial agriculture, forestry, fishing and mining.

Unit 3: Secondary Activities: Manufacturing (Cotton Textile, Iron and Steel), Concept of Manufacturing Regions, Special Economic Zones and Technology Parks.

Unit 4: Tertiary Activities: Transport, Trade and Services.

References Books:

1. Alexander J.W., 1963: Economic Geography, Prentice-Hall Inc., Englewood Cliffs, New Jersey.
2. Coe N.M., Kelly P.F. and Yeung H.W., 2007: Economic Geography: A Contemporary Introduction, Wiley-Blackwell.
3. Hodder B.W. and Lee Roger, 1974: Economic Geography, Taylor and Francis.
4. Combes P., Mayer T. and Thisse J.F., 2008: Economic Geography: The Integration of Regions and Nations, Princeton University Press.
5. Wheeler J.O., 1998: Economic Geography, Wiley.
6. Durand L., 1961: Economic Geography, Crowell.
7. Bagchi-Sen S. and Smith H.L., 2006: Economic Geography: Past, Present and Future, Taylor and Francis.
8. Willington D.E., 2008: Economic Geography, Husband Press.
9. Clark, Gordon L.; Feldman, M.P. and Gertler, M.S., eds. 2000: The Oxford

II SEMESTER

DSC 2 - CLIMATOLOGY & BIOGEOGRAPHY

Code: UGETC20101

Credits:06

Unit 1: Introduction: Climatology, Elements of weather and climate, Atmospheric Composition, Atmospheric Layers, Earth's Insolation, Heat Budget.

Unit 2: Humidity, Evaporation; Condensation; Precipitation Forms and Characteristics. Formation of Precipitation.

Unit 3: Atmospheric pressure and General circulation of Atmosphere, Air mass, Front, Indian Monsoon, El Nino, La-Nina, and southern oscillation, Cyclone.

Unit 4: Biogeography: Introduction; Concept of Ecosystem, Concepts of trophic structure, food chain food web, Ecological Pyramid, Biotic succession, Biome, Deforestation, Biosphere reserves and National Parks in India.

References:

1. Barry R. G. and Chorley R. J. (2018) Atmosphere weather and climate (9th edition). Routledge
2. Finch J.C. and Trewartha, G.T.: Elements of Weather and Climate. Prentice-Hall, London.
3. Lal D. S. Climatology. Publisher Sharda Pustak Bhawan.
4. Singh S. Climatology. Publisher Pravalika Publication, Allahabad
5. Kendrew, W.C. (1998): Climatology. Edward Arnold, London. 5th edition.
6. Robinson, P.J. and Henderson, S. (1999): Contemporary Climatology, 2nd edition, Person Education Ltd., Harlow, UK.
7. Gupta L S (2000): Jalvayu Vigyan, Hindi Madhyam Karyanvay Nidishalya, Delhi Vishwa Vidhyalaya, Delhi
8. Singh Savindra (2020): BIOGEOGRAPHY, PRAVALIKA PUBLICATIONS, NSI PUBLICATION
9. Mal, Suraj., and Singh, R.B. (Eds.) (2009) Biogeography and Biodiversity. Rawat Publication, Jaipur
10. Odum, E. P. et al, 2005: Fundamentals of Ecology, Cengage Learning India
11. Cox, C. B., R. Ladle, and P. D. Moore. 2016. Biogeography: An Ecological and Evolutionary Approach. John Wiley & Sons
12. Gavin, D. G. 2012. Biogeography. Pages 77-89 in J. P. Stoltman, editor. 21st Century Geography: A Reference Handbook. SAGE Publications, Thousand Oaks, CA
13. Mathur, H. S. (2003): Essentials of Biogeography, Pointer Publishers, Jaipur.

II SEMESTER

MINOR 2 –PHYSICAL GEOGRAPHY OF INDIA

Code: UGETM20101

Credits: 06

Unit 1: Location and space relationship with neighboring countries.

Unit 2: Physiographic divisions of India- mountains, great plains, plateaus, costal arears, and islands. Physiographic regionalization of India by R. L. Singh.

Unit 3: Soils: Types, characteristics, distribution. Vegetation: Types, characteristics, distribution. Climate: Seasons, characteristics.

Unit 4: Drainage System of India: Difference between Himalayan River & Peninsular Rivers. Indus, Ganga, Brahmaputra, Narmada, Tapi, Mahanadi, Godavari, Krishna, Cauvery.

References

1. Deshpande C. D., 1992: India:A Regional Interpretation, ICSSR, New Delhi.
2. Johnson, B.L.C.,ed. 2001.Geographical DictionaryofIndia. VisionBooks, New Delhi.
3. MandalR.B.(ed.),1990:Patternsof Regional Geography– An International Perspective. Vol.3– Indian Perspective.
4. SdyasukGalina andP Sengupta (1967): EconomicRegionalization ofIndia, Censusof India
5. Sharma, T. C.2003:India -Economic andCommercial Geography. Vikas Publ., New Delhi.

II SEMESTER

MDC 2 – ENVIRONMENTAL GEOGRAPHY

Code: UGETD20101

Credits: 03

Unit 1: Environmental Geography – Concept and Scope. Human-Environment Relationships – Historical Progression, Adaptation in different Biomes.

Unit 2: Ecosystem – Concept, Structure and Functions. Environmental Problems in Tropical, Temperate and Polar Ecosystems.

Unit 3: Environmental Programmes and Policies – Global, National and Local levels.

Unit 4: Global Environmental Issues: Depletion of Ozone Layer, Green House Effect, Pollution of Oceans, Acid Rain.

References

1. Chandna R. C., 2002: Environmental Geography, Kalyani, Ludhiana.
2. Cunningham W. P. and Cunningham M. A., 2004: Principals of Environmental Science: Inquiry and Applications, Tata Macgraw Hill, New Delhi.
3. Goudie A., 2001: The Nature of the Environment, Blackwell, Oxford.
4. Singh, R.B. (Eds.) (2009) Biogeography and Biodiversity. Rawat Publication, Jaipur
4. Miller G. T., 2004: Environmental Science: Working with the Earth, Thomson Brooks Cole, Singapore.
5. MoEF, 2006: National Environmental Policy-2006, Ministry of Environment and Forests, Government of India.
6. Singh, R.B. and Hietala, R. (Eds.) (2014) Livelihood security in Northwestern Himalaya: Case studies from changing socio-economic environments in Himachal Pradesh, India. Advances in Geographical and Environmental Studies, Springer
7. Odum, E. P. et al, 2005: Fundamentals of Ecology, Ceneage Learning India.
8. Singh S., 1997: Environmental Geography, Prayag Pustak Bhawan. Allahabad.
9. UNEP, 2007: Global Environment Outlook: GEO4: Environment For Development, United Nations Environment Programme.
10. Singh, M., Singh, R.B. and Hassan, M.I. (Eds.) (2014) Climate change and biodiversity: Proceedings of IGU Rohtak Conference, Volume 1. Advances in Geographical and Environmental Studies, Springer
11. Singh, R.B. (1998) Ecological Techniques and Approaches to Vulnerable Environment, New Delhi, Oxford &IBH Pub.

II SEMESTER

SEC 2 – THEMATIC MAPPING AND CARTOGRAPHY

Code: UGECS20101

Credits: 03

Unit 1: Maps: History of map making, Classification, and Types; Principles of Map Design; Uses of Maps.

Unit 2: Hands on Exercise: Scales: Concept and application; Graphical Construction of Plain, Comparative and Diagonal Scales, Vernier Scale.

Unit 3: Hands on Exercise: Diagrammatic Data Presentation: Line, Bar and Circle; Thematic Mapping.

Unit 4: Hands on Exercise: Areal Data: Choropleth, Dot, Proportional Circles; Point Data – Isopleths.

Reference:

1. Sarkar Ashis. Practical Geography: A Systematic Approach. Orient Longman.
2. Mishra R.P., Ramesh A. Fundamentals of cartography. Concept publishing company, New Delhi.
3. Saha Pijushkanti, Basu Partha. Advanced Practical Geography. Books and Allied (P) Ltd. Kolkata.
4. Cuff J.D. and Mattson M. T., 1982: Thematic Maps: Their Design and Production, Methuen Young Books
5. Dent B.D., Torguson J.S., and Holder T.W., 2008: Cartography: Thematic Map Design (6th Edition), McGraw-Hill Higher Education
6. Mishra R.P. and Ramesh A., 1989: Fundamentals of Cartography, Concept, New Delhi.
7. Sharma J.P., 2010: Prayogic Bhugol, Rastogi Publishers, Meerut.
8. Singh R.L. and Singh R.P.B., 1999: Elements of Practical Geography, Kalyani Publishers.

III SEMESTER

DSC 3 - TOPOGRAPHICAL MAP INTERPRETATION AND MAP PROJECTION

Code: UGECC30200

Credit: 06

Unit 1: Topographical Map– identification of map scale, legends, symbols, and contours, ; History of the topographical map; Derivation of topo map number.

Unit 2: Hands on Exercise: Physical Features on the Topographical Map– contour line pattern and identification of landforms; Slopes; Faults; Cuesta and hogback; valley; Drainage pattern- dendritic, tillage, rectangle, radial, centripetal, etc.; Meandering; Vegetations and forests. Physiographic divisions; Slope Analysis – Wentworth’s method.

Unit 3: Hands on Exercise: Cultural Features on the Topographical Map – Settlement types and pattern; Transport network; Other man-made features; Cross and Longitudinal Profiles.

Unit 4: Hands on Exercise: Map projections- basic terminologies, standard parallels, scale factors, classifications of map projections; Polar types- gnomonic projection, stereographic projection, orthographic projection, equal-area projection; Conical type- one standard parallel, two standard parallels; Cylindrical type- cylindrical equal area projection, Mercator’s projection; Modified projections- Bonne’s projection, Sinusoidal projection, Polyconic projection.

References

1. Sarkar Ashis. Practical Geography: A Systematic Approach. Orient Longman.
2. Mishra RP., Ramesh A. Fundamentals of cartography. Concept publishing company, New Delhi.
3. Saha Pijushkanti, Basu Partha. Advanced Practical Geography. Books and Allied (P) Ltd. Kolkata.

III SEMESTER

MINOR 3 - HUMAN GEOGRAPHY (GENERAL)

Code: UGETM30200

Credits: 04

Unit 1: Human Geography: Nature & Scope, Historical Perspective, Determinism, Possibilism, Neo-Determinism, Welfare Human Geography, Behavioral Environment.

Unit 2: Evolution and Races of Man: Evolution of Man, The races of Man, Ethnic Groups.

Unit 3: Population World Pattern: Distribution, Density, Sex Composition, Literacy, Birth Rate & Death Rate.

Unit 4: Migration: Causes, Consequences, Types of Migration, Important Migrations of the world.

References

1. Human & Economic Geography- Go cheng leong
2. Johnston R; Gregory D, Pratt G. et al. (2008) The Dictionary of Human Geography, Blackwell Publication.
3. Daniel, P.A. and Hopkinson, M.F. (1989) The Geography of Settlement, Oliver & Boyd, London. Human Geography, Rupa Publication
4. Human Geography, B.S. Negi
5. Chandna, R.C. (2010) Population Geography, Kalyani Publisher.
6. Hassan, M.I. (2005) Population Geography, Rawat Publications, Jaipur
7. Jordan-Bychkov et al. (2006) The Human Mosaic: A T

III SEMESTER

MDC 3 - BASICS OF REMOTE SENSING

Code: UGETD30200

Credit: 03

Unit 1: Introduction to Remote Sensing; EMR and EMS; Stages of Remote Sensing; Remote Sensing & its Types; Interaction of EMR with Atmosphere and Earth Surface Features.

Unit 2: Remote Sensing Platforms and Sensors; Satellite Series: IRS, Spot, IKONOS and Quick Bird.

Unit 3: Digital images and their types; Image Resolutions: Spatial, Spectral, Radiometric and Temporal; Image Histograms; Image Rectification: Radiometric and Geometric.

Unit 4: Aerial Photographs and their types; Geometry of Aerial Photographs; Scales of Aerial Photographs; Difference between Aerial Photographs and Maps; Difference between Aerial photographs and Imageries.

References:

1. Lillisand,T., Keifer, Ralph W., Chipman, J. 2011. Remote Sensing and Image Interpretation. John Wiley Pub., New York.
2. Campbell, J.B. 1996(2nd edition). Introduction to Remote Sensing. Taylor and Francis, London.
3. Curran, P. 1985. Principles of Remote Sensing. Longman, London.
4. Sabins, J.F.F. 1997. Remote Sensing: Principles and Interpretation. W.H. Freeman & Co., New York.
5. Jensen, J.R. 2013. Remote Sensing and Environment. Pearson India
6. Kumar, S. 2005. Basics of Remote Sensing and GIS. Laxmi Pub.
7. Joseph, G. 2005: Fundamentals of Remote Sensing, United Press India.
8. Jensen J. R., 2004: Introductory Digital Image Processing: A Remote Sensing Perspective, Prentice Hall.

III SEMESTER

SEC 3 – SURVEYING

Code: UGECS30200

Code: 03

Unit-I: Concepts of surveying- terminologies; bearing, levelling, classification; traverse survey and open survey.

Unit-II: Introduction of various surveying instruments- chains, prismatic compass, plane table, dumpy-level, theodolite.

Unit-III: Hands on Exercise: Chain survey; prismatic compass traversing; plane table traversing.

Unit – IV: Hands on Exercise: Theodolite traversing; Contouring- dumpy level; Trigonometric leveling.

References

1. Practical Geography, Pijushkanti Saha, Partha Basu, Boks and allied Pvt. Ltd,
2. Elementary surveying, Major basil Jackson
3. Surveying Volume-1, Dr. B.C. Punmia, Ashok k. Jain, Arun K. Jain, 16th edition, Lakshmi Publication Pvt. LTD, ISBN:81-7008-054-1
4. Surveying for field Scientist, JC Pugh, Metheun Ltd
5. Gopal Singh: Map Work and Practical Geography, 3rd edition, Vikas Publishing House, New Delhi,
6. Gupta K.K and Tyagi V.C: Working with maps Survey of India, Department of Science and Technology, Govt of India, Dehra Dun 1992.
7. Mishra R.P: Fundamentals of Cartography 1969, Prasara, University of Mysore, Mysore.
8. Singh. R.L: Elements of Practical Geography Kalyani Publishers, New Delhi, 1979.

IV SEMESTER

DSC 4 – GEOGRAPHICAL THOUGHT

Code: UGETC40201

Credits: 06

Unit 1: Brief history of geographical ideas during ancient and medieval periods; Schools of geographical thought and emergence of scientific knowledge during modern period – German, French, American, British, Russia.

Unit 2: Differential approaches in geography – Inductive vs Deductive, Ideographic Vs Nomothetic; Changing paradigm in geographical enquiry during post World War I – Human ecology, chorology, historical geography, functional organization of space; Fundamental concepts- Space and Place, Location, Time, Laws and theories, Models, System's analysis.

Unit 3: Man, and environment relationship – environmental determinism, possibilism, neo determinism; Positivism; Quantitative Revolution. Humanistic turned in geography, Radical approaches in geography.

Unit 4: Feminist approaches in geography; Geography of sexuality; Geography of ethnicity and races; Modernity and post modernity.

References

1. Arentsen M., Stam R. and Thuijjs R., 2000: Post-modern Approaches to Space, ebook.
2. Bhat, L.S. (2009) Geography in India (Selected Themes). Pearson
3. Bonnett A., 2008: What is Geography? Sage.
4. Dikshit R. D., 1997: Geographical Thought: A Contextual History of Ideas, Prentice– Hall India.
5. Hartshorne R., 1959: Perspectives of Nature of Geography, Rand MacNally and Co.
6. Holt-Jensen A., 2011: Geography: History and Its Concepts: A Students Guide, SAGE.
7. Johnston R. J., (Ed.): Dictionary of Human Geography, Routledge.
8. Johnston R. J., 1997: Geography and Geographers, Anglo-American Human Geography since 1945, Arnold, London.
9. Kapur A., 2001: Indian Geography Voice of Concern, Concept Publications.
10. Martin Geoffrey J., 2005: All Possible Worlds: A History of Geographical Ideas, Oxford.
11. Soja, Edward 1989. Post-modern Geographies, Verso, London. Reprinted 1997: Rawat Publ., Jaipur and New Delhi.

IV SEMESTER

DSC 5 – SETTLEMENT GEOGRAPHY

Code: UGETC40202

Credits: 06

Unit-1: Content and approach of settlement geography; origin and evolution of settlements; settlements and perception; site and situations; spacing of settlements; types and pattern of settlements; hierarchy of settlement.

Unit-2: Morphology of rural settlements- ground plan and layout, spatial-social morphology; functional classification of rural settlements; central place hierarchy- W. Christaller central place theory.

Unit-3: Scope and content of urban geography, defining urban, historical origin and growth of urban centres, stages of urban development, functional classification of city, rank-size rule, urban slums and urban deprivation.

Unit-4: Urban morphology- the concentric zone theory, the sector model theory, the multiple nuclei theory; central business district, rural-urban fringe.

References

1. Chishlom M., 2007: Rural Settlement and Land Use, Transaction Publishers.
2. Daniel, P. 2002: Geography of Settlement, Rawat Publs., Jaipur & New Delhi.
3. Ghosh, Santwana 1999: A Geography of Settlements, Orient Longman, Kolkata.
4. Kalia Ravi, 1999: Chandigarh: The Making of Indian City, Oxford University Press.
5. Kaplan D. H., Wheeler J. O. and Holloway S. R., 2008: Urban Geography, John Wiley.
6. Pacione M., 2009: Urban Geography: A Global Perspective, Taylor and Francis.
7. Ramachandran R., 1989: Urbanisation and Urban Systems of India, Oxford University Press.
8. Singh R. Y., 1994: The Geography of Settlement, Rawat Publication, New Delhi.

IV SEMESTER

MINOR 4 – SOCIO-ECONOMIC GEOGRAPHY OF INDIA

Code: UGETM40201

Credits: 04

Unit 1: Population: Distribution and growth, Structure.

Unit 2: Economic: Mineral and power resources distribution and utilization of iron ore, coal, petroleum, gas; agricultural production and distribution of rice and wheat, industrial development: automobile and Information technology.

Unit 3: Social: Distribution of population by race, caste, religion, language, tribes and their correlates.

Unit 4: Regionalization of India: Physiographic (R. L.Singh),Socio-cultural (Sopher), Economic (Sengupta).

References:

1. Deshpande C. D., 1992: India:A Regional Interpretation, ICSSR, New Delhi.
2. Johnson, B.L.C.,ed. 2001.Geographical DictionaryofIndia. VisionBooks, New Delhi.
3. MandalR.B.(ed.),1990:Patternsof Regional Geography– An Intenational Perspective. Vol.3– Indian Perspective.
4. SdyasukGalina andP Sengupta (1967): EconomicRegionalisation ofIndia, Censusof India
5. Sharma, T. C.2003:India -Economic andCommercial Geography. Vikas Publ., New Delhi.

V SEMESTER

DSC 6 – GEOGRAPHY OF INDIA

Code: UGETC50300

Credits: 06

Unit 1: Physical: Physiographic Divisions, soil and vegetation, climate (characteristics and classification)

Unit 2: Population: Distribution and growth, Structure, Distribution of population by race, caste, religion, language, tribes and their correlates

Unit 3: Economic: Mineral and power resources distribution and utilization of iron ore, coal, petroleum, gas; agricultural production and distribution of rice and wheat, industrial development: automobile and Information technology

Unit 4: Regionalisation of India: Physiographic (R. L.Singh),Socio-cultural (Sopher), Economic (Sengupta)

References

1. Deshpande C. D., 1992: India:A Regional Interpretation, ICSSR, New Delhi.
2. Johnson, B.L.C.,ed. 2001.Geographical DictionaryofIndia. VisionBooks, New Delhi.
3. MandalR.B.(ed.),1990:Patternsof Regional Geography– An International Perspective. Vol.3– Indian Perspective.
4. SdyasukGalina andP Sengupta (1967): EconomicRegionalization ofIndia, Censusof India
5. Sharma, T. C.2003:India -Economic andCommercial Geography. Vikas Publ., New Delhi.
6. Singh R.L., 1971: India: ARegional Geography,National Geographical Society ofIndia.
7. Singh, Jagdish2003: India -A Comprehensive&Systematic Geography, GyanodayaPrakashan, Gorakhpur.
8. Spate O. H. K. and Learmonth A. T. A.,1967:India andPakistan: A Generaland Regional Geography,Methuen.
9. Tirtha, Ranjit2002:Geographyof India,Rawat Publs., Jaipur&New Delhi.
10. Pathak,C. R.2003:SpatialStructure andProcessesofDevelopment in India. Regional Science Assoc., Kolkata.
11. Tiwari, R.C. (2007) Geographyof India.Prayag PustakBhawan, Allahabad
12. Sharma, T.C.(2013) Economic Geographyof India. Rawat Publication, Jaipur

V SEMESTER

DSC 7 - OCEANOGRAPHY AND HYDROLOGY

Code: UGETC50301

Credits: 06

Unit 1: Oceanography-Origin of Ocean, History of Marine Science. Earths Structure and Plate Tectonics. Ocean Basin-Mapping, Ocean Morphology-Continental Margins and Topography of Deep Ocean. Ocean Sediments. Properties Of Oceanic Water-Moderating Effect of Ocean Water, Solvent, Salinity and Temperature.

Unit 2: Circulation-Atmospheric. Oceanic Circulation. Surface Circulation-Effect of Wind, Six Great Surface Circuits, Effect on Weather and Climate. Vertical Movement of Ocean Water. El Nina and La Nina. Thermohaline Circulation-Global Heat Connection and Deep-Water Formation.

Unit 3: Waves- Formation, Types of Waves, Wind Wave-Factors Influencing Wind Wave, Seiche Waves and Seismic Waves. Tides-Formation and Dynamic Theory of Tides. Coral Reefs and Theories of Formation of Coral Reef. Oceanic Community-Pelagic and Benthic. Use And Abuse of Ocean and Its Resources.

Unit 4: Hydrology-Introduction. Importance Of Water. Hydrological Cycle. Precipitation Process and Distribution, Measurement. Evaporation Process and Measurement. Storage. Runoff-Channel Flow, Measuring Stream Flow and Runoff, Estimating Stream Flow. Water Quality Measurement. Water Resource Management.

Reference:

1. Garrison T. (2012) Essentials of Oceanography 6th Edition. Published by Brooks/Cole, Cengage Learning, Canada.
2. Lal D. S. Climatology. Publisher Sharda Pustak Bhawan.
3. Davie T. (2008) Fundamentals of Hydrology 2nd Edition. Routledge fundamentals of Physical Geography series. Publisher Routledge.
4. Reddy P J R. A Textbook of Hydrology. Published by Laxmi Publications (p) Ltd.

V SEMESTER

DSC 8 - BASICS OF GIS AND REMOTE SENSING

Code: UGECC50302

Credits: 04

Unit 1: GIS basics: Introduction, Components of GIS, concept of data, information and knowledge. Data: sources, type, importance, integration, quality, error, topology editing, conversion. Advantages and disadvantages of raster and vector data models, Applications of raster and vector data models.

Unit 2: Hands on Exercise: Image Registration – Creation of Point, Line, Polygon–topology error correction - Attribute data creation – Thematic map creation – spatial and attribute query – Proximity analysis.

Unit 3: Introduction to Remote Sensing; EMR and EMS; Stages of Remote Sensing; Remote Sensing & its Types; Interaction of EMR with Atmosphere and Earth Surface Features. Remote Sensing Platforms and Sensors; Satellite Series: IRS, Spot, IKONOS and Quick Bird; Digital images and their types; Image Resolutions: Spatial, Spectral, Radiometric and Temporal.

Unit 4: Introduction of Thermal remote sensing and Microwave sensing and its basic concepts. Application of remote sensing in various earth resources mapping and monitoring: Case studies.

References:

1. Burrough P. A. and McDonnell R. A., 2000: Principles of Geographical Information Systems– Spatial Information Systems and Geostatistics, Oxford University Press.
2. Chang K.-T., 2009: Introduction to Geographic Information Systems, McGraw-Hill.
3. C.P.Lo and Albert K.W.Yeung (2006) “Concepts and Techniques of Geographic Information Systems” Prentice Hall of India, New Delhi.
4. Clarke K. C., 2001: Getting Started with Geographic Information Systems, Prentice Hall.
5. DeMers M. N., 2000: Fundamentals of Geographic Information Systems, John Wiley & Sons.
6. Heywood I., Cornelius S. and Carver S., 2006: An Introduction to Geographical Information Systems, Prentice Hall.
7. Lillisand,T., Keifer, Ralph W., Chipman, J. 2011. Remote Sensing and Image Interpretation. John Wiley Pub., New York.
8. Campbell, J.B. 1996(2nd edition). Introduction to Remote Sensing. Taylor and Francis, London.
9. Curran, P. 1985. Principles of Remote Sensing. Longman, London.
10. Sabins, J.F.F. 1997. Remote Sensing: Principles and Interpretation. W.H. Freeman & Co., New York.
11. Jensen, J.R. 2013. Remote Sensing and Environment. Pearson India
12. Kumar, S. 2005. Basics of Remote Sensing and GIS. Laxmi Pub.
13. Joseph, G. 2005: Fundamentals of Remote Sensing, United Press India.

V SEMESTER

MINOR 5 - BASICS OF GEOGRAPHICAL INFORMATION SYSTEM

Code: UGETM50202

Credits: 04

Unit 1: Introduction to GIS: Definitions, History, Components and Overview of GIS. Recent trends and applications of GIS. Data in GIS: Spatial Data - Raster and Vector. Attribute Data - Attribute Data Entry, Attribute Data Query.

Unit 2: Sources of Data, Data Accuracy, Precision, Error and Uncertainty, Sources of Errors. Types of Digitizing Errors, Causes for Digitizing Errors; Topology Building - Topological Editing and Non-topological Editing; Editing Using Topological Rules.

Unit 3: Coordinate Systems – Geographic and projection. Data Classification Methods: Manual interval, Defined interval, Equal interval, Quantile, Natural breaks (Jenks), Geometrical interval, Standard deviation. Symbolization: Single symbol, Unique values, Graduated colors, Graduated symbols, Proportional symbology, Dot density, Charts, Heat Map.

Unit 4: GIS Analysis: Buffer - Euclidean and Geodesic, Single and Multiring, fixed width variable width buffers. Interpolation and Extrapolation. GIS Project Design: Frame the Question, Explore and Prepare Data, Choose Analysis Methods and Tools, Perform the Analysis and Examine and Refine Results.

Reference:

1. Peter A. Burrough and Rachael A. McDonnell, 2011, Principles of Geographic Information Systems, Oxford University Press.
2. Ian Heywood, Sarah Cornelius and Steve Carver, An Introduction to Geographic Information System, 2010, third edition, Pearson Education Ltd.
3. David O' Sullivan and David J. Unwin, 2010, Geographic Information analysis, second edition, John Wiley & Sons.
4. Paul a. Longley, Michael F. Goodchild, David J. Maguire, David W. Rhind, 2011, Geographic Information Systems and Science, third edition, John Wiley & Sons.
5. John R. Jenson and Ryan R. Jensen, 2013, Introductory Geographic Information system, Pearson Education.
6. C. P Lo and Albert K.W.Yeung, 2006, Concepts and Techniques of Geographic Information System, Prentice Hall India.
7. <https://www.princeton.edu/~alaink/Orf467F07/GNSS.pdf>
8. N.K. Agarwal, Essentials of GPS.

VI SEMESTER

DSC 9 - SPATIAL ANALYSIS

Code: UGECC60303

Credits: 06

Unit 1: Introduction to spatial analysis. Types and applications of spatial analysis. Basic spatial analysis: union, intersect, symmetrical differences, update, spatial join, clip, split.

Unit 2: Overlay: Fuzzy Overlay, Fuzzy Membership, Fuzzy Gaussian, Fuzzy Large, Fuzzy Linear, Fuzzy MS Large, Fuzzy MS Small, Fuzzy Near, Fuzzy Small. Weighted Overlay, Rank for classes and overall weightage, Analytic Hierarchy Process.

Unit 3: Hands on exercise: Vector overlay, Fuzzy Overlay, Weighted Overlay, Interpolation, DEM, Slope, Aspect, Hillshade, Viewshed. Measuring Geographical Distribution.

Unit 4: Hands on exercise: Point pattern analysis: clustered and random distribution. Network Analysis: Optimal route, closest facility, service area, OD cost matrix, location allocation, vehicle routing problem.

References:

1. Demers, M. N. (2000): Fundamentals of Geographic Information Systems, John Wiley and Sons, New Delhi
2. Burrough, P. A. and McDonnell, R. A. (2000): Principles of Geographical Information Systems, Oxford University Press, New York
3. Makrewski, J. (1999): GIS Multi-Criteria Analysis, John Wiley and Sons, New York
4. Chang, K. T. (2008): Introduction to Geographic Information Systems, Avenue of the Americas, McGraw-Hill, New York
5. Longley, P. A., Goodchild, M. F., Maguire, D. J. Rhind, D. W. (2002): Geographical Information Systems and Science, John Wiley & Sons, Chichester
6. Lo, C. P. Yeung, A. W. (2002): Concepts Techniques of Geographical Information Systems, Prentice-Hall of India, New Delhi.

VI SEMESTER

DSC 10 - POPULATION GEOGRAPHY

Code: UGECC60304

Credits: 06

Unit-I: Definition and scope of demography; measures of population distribution and growth, factors affecting population distribution, sources of demographic data- uses and limitations.

Unit-II: Age-sex composition; racial and religious composition, language families of population; population and development linkage; demographic transition model (DTM).

Unit-III: Basic concepts and terms of fertility studies; measures of fertility; determinants of fertility-social and proximate; Theories of fertility changes; Definition of death and fatal deaths; measures of mortality; infant mortality and its sub-divisions; maternal mortality; concept of life table.

Unit-IV: Basic concepts and definitions in migration studies; causes and types of migration; the significance of migration; migration theories and model- Ravenstein's laws of migration, Everett Lee's Theory of migration, Mobility field theory, Lewis Fei Ranis model of development, Todaro's model of rural – urban migration. Hands on Exercise: migration indices; estimation of lifetime and inter-censal migration rates using census data.

References:

1. Barrett H. R., 1995: Population Geography, Oliver, and Boyd.
2. Bhende A. and Kanitkar T., 2000: Principles of Population Studies, Himalaya Publishing House
3. Chandna R. C. and Sidhu M. S., 1980: An Introduction to Population Geography, Kalyani Publishers.
4. Clarke J. I., 1965: Population Geography, Pergamon Press, Oxford.
5. Jones, H. R., 2000: Population Geography, 3rd ed. Paul Chapman, London.
6. Lutz W., Warren C. S. and Scherbov S., 2004: The End of the World Population Growth in the 21st Century, Earthscan
7. Newbold K. B., 2009: Population Geography: Tools and Issues, Rowman and Littlefield Publishers.
8. Pacione M., 1986: Population Geography: Progress and Prospect, Taylor and Francis.
9. Wilson M. G. A., 1968: Population Geography, Nelson.

VI SEMESTER

DSC 11 -FIELDWORK

Code: UGEFW60100

Credits: 06

A field visit should be conducted for observation and data collection.

A report should be prepared from the field data, which includes a) Introduction, b) Objective, c) Data and methodology, d) results, e) discussions, and f) Conclusions.

The report should contain at least 70 pages, including figures, tables, photographs, maps, references, and appendices.

References

1. Creswell J., 1994: Research Design: Qualitative and Quantitative Approaches Sage Publications.
2. Dikshit, R. D. 2003. The Art and Science of Geography: Integrated Readings. Prentice Hall of India, New Delhi.
3. Evans M., 1988: "Participant Observation: The Researcher as Research Tool" in Qualitative Methods in Human Geography, eds. J. Eyles and D. Smith, Polity.
4. Mukherjee, Neela 1993. Participatory Rural Appraisal: Methodology and Application. Concept Publs. Co., New Delhi.
5. Mukherjee, Neela 2002. Participatory Learning and Action: with 100 Field Methods. Concept Publs. Co., New Delhi
6. Robinson A., 1998: "Thinking Straight and Writing That Way", in Writing Empirical Research Reports: A Basic Guide for Students of the Social and Behavioral Sciences, eds. by F. Pryczak and R. Bruce Pryczak, Publishing: Los Angeles.

VI SEMESTER

SEC 4 - INTERNSHIP

Code: UGEIW60100

Credits: 02

Students are encouraged to apply to government / private organizations and institutions for internships. This is to train and orient them for developing on-site skills and training and to make them employment ready. - Submission of the hardbound copies of final project report (three copies) - Presentation of the project work.

VII SEM - BSc with Research

DSC 12 - APPLICATION OF STATISTICAL PACKAGES FOR SOCIAL SCIENCE

Code: UGECC70400

Credits: 06

Unit-I: Introduction to SPSS; Identification of variables name; data labels; understanding of data type and structures; Data entry, data labels, value defines; import data from excel to SPSS; data cleaning; data merging.

Unit-II: Recode and computation of variables; Tabulations and Descriptive Statistics – frequencies and cross tabulations; Data visualization and graphing.

Unit-III: Consistency and validity check; hypothesis tests-parametric and non-parametric; correlation and correlation matrix; regression analysis.

Unit-IV: Large scale data analysis using NFHS data: data availability; type of files; merging of data; bivariate and multivariate analysis using NFHS data.

References

1. Barry K S and Bablnec J A. Data analysis with IBM SPSS Statistics. Pact. Mumbai
2. Prasad Lalit and Mishra Priyanka. Data analysis using SPSS: Text and Cases for Researchers, Teachers, and Students. Nirali Prakashan
3. Jasrai, Lokesh. Data analysis using SPSS. Sage.

VII SEM - BSc with Research

DSC 13 –SATELLITE IMAGE PROCESSING AND ANALYSIS

Code: UGECC70401

Credits: 06

Unit-1: Introduction to satellite image; Information Extraction using Visual interpretation, Introduction to satellite Image Processing, Visual interpretation vs. Digital Image Processing and Analysis. Errors in image and rectification, Image enhancement.

Unit-2: Concept of Image transformation, Concept and Types of Vegetation indices; Change detection using multitemporal satellite images. Introduction to Image classification, Pre-requisite for image classification, Stages of Image classification. Accuracy Analysis.

Unit-3: Hands on exercise: Display and study of metadata of satellite image in software platform, Import / Export of satellite image, Stacking and subset of satellite image, Mosaicking.

Unit-4: Hands on exercise: Introduction to Model Maker, Preparation of spectral indices in model maker, Image Classification, Accuracy Analysis.

References

1. Lillisand,T., Keifer, Ralph W., Chipman, J. 2011. Remote Sensing and Image Interpretation. John Wiley Pub., New York.
2. Jensen J. R., 2004: Introductory Digital Image Processing: A Remote Sensing Perspective, Prentice Hall.
3. P.M. Mather, Digital Image Processing of Remotely sensed Images, Wiley,2004.
4. Sabins, Floyd F.2007, Remote Sensing: Principles and Interpretation, H. Freeman and C., New York.

VII SEM - BSc with Research

MINOR 6 - SPATIAL ANALYSIS

Code: UGETM70300

Credits: 04

Unit 1: Introduction to spatial analysis. Types and applications of spatial analysis. Basic spatial analysis: spatial and attribute query, union, intersect, symmetrical differences, update, spatial join, clip, split, Thiessen polygon and proximity analysis.

Unit 2: Overlay: Fuzzy Overlay, Fuzzy Membership, Fuzzy Gaussian, Fuzzy Large, Fuzzy Linear, Fuzzy MS Large, Fuzzy MS Small, Fuzzy Near, Fuzzy Small. Weighted Overlay, Rank for classes and overall weightage, Analytic Hierarchy Process.

Unit 3: Surface Analysis: Interpolation, DEM, Slope, Aspect, Hillshade, Viewshed. Point pattern analysis: clustered and random distribution. Network Analysis: Optimal route, closest facility, service area, OD cost matrix, location allocation, vehicle routing problem.

Unit 4: Spatial Statistics: Spatial Autocorrelation, High/Low cluster, Average nearest neighbor, Hotspot analysis. Measuring Distribution: Mean and Median centre, directional distribution, central feature, neighborhood summary statistics, standard distance, directional distribution, and Linear directional mean.

References:

1. Demers, M. N. (2000): Fundamentals of Geographic Information Systems, John Wiley and Sons, New Delhi
2. Burrough, P. A. and McDonnell, R. A. (2000): Principles of Geographical Information Systems, Oxford University Press, New York
3. Makrewski, J. (1999): GIS Multi-Criteria Analysis, John Wiley and Sons, New York
4. Chang, K. T. (2008): Introduction to Geographic Information Systems, Avenue of the Americas, McGraw-Hill, New York
5. Longley, P. A., Goodchild, M. F., Maguire, D. J. Rhind, D. W. (2002): Geographical Information Systems and Science, John Wiley & Sons, Chichester
6. Lo, C. P. Yeung, A. W. (2002): Concepts Techniques of Geographical Information Systems, Prentice-Hall of India, New Delhi.

VII SEM - BSc with Research

MINOR 7 - URBAN GEOGRAPHY

Code: UGETM70301

Credits: 04

Unit 1: Scope and content of urban geography, defining urban, historical origin and growth of urban centres, stages of urban development.

Unit 2: Processes of urbanisation, suburbanization, urban sprawl, gentrification Patterns of Urbanisation in developed and developing countries.

Unit 3: Morphology of cities: Urban models- the concentric zone theory, the sector model theory, the multiple nuclei theory. Classification of cities: Ashok Mitra's Functional classification of Indian cities. Classification by Harris, Nelson.

Unit 4: Urban Issues: problems of housing, slums, civic amenities, Application Remote Sensing in addressing urban issues: Case studies of Delhi, Mumbai, Kolkata, with reference to Land use and Urban Issues.

References:

1. Hall T., 2006: Urban Geography, Taylor, and Francis.
2. Kaplan D. H., Wheeler J. O., and Holloway S. R., 2008: Urban Geography, John Wiley.
3. Knox P. L. and McCarthy L., 2005: Urbanization: An Introduction to Urban
4. Geography, Pearson Prentice Hall New York.
5. Pacione M., 2009: Urban Geography: A Global Perspective, Taylor, and Francis
6. Ramachandran R (1989): Urbanisation and Urban Systems of India, Oxford University Press, New Delhi
7. Ramachandran, R., 1992: The Study of Urbanisation, Oxford University Press, Delhi
8. Singh, R.B. (Eds.) (2001) Urban Sustainability in the Context of Global Change, Science Pub., Inc., Enfield (NH), USA and Oxford & IBH Pub., New Delhi.
9. Singh, R.B. (Ed.) (2015) Urban development, challenges, risks, and resilience in Asian megacities. Advances in Geographical and Environmental Studies, Springer.

DSC 14 - QUANTITATIVE GEOGRAPHY

Code: UGECC80402

Credits: 04

Unit -I Concept of data, scale of measurement, types of data distribution; Frequency distribution table; Cumulative frequency distribution, Graphical representation of frequency distribution- Histograms, frequency polygon, frequency curve, cumulative frequency polygon.

Unit -II: Hands on Exercise: Measures of central tendency- mean, median, mode; Measures of dispersions- absolute measures of dispersions, relative measures of dispersions; Measures of frequency curve- skewness, kurtosis.

Unit-III: Hands on Exercise: Correlations- meaning, types, scatterplots, coefficient of correlation; Regression- Linear regression, multiple linear regression, binary logistic regression.

Unit-IV: Hands on Exercise: Indexing methods- Z-score, Factor analysis; Principal component analysis.

Reference Books:

1. Sarkar, Ashis. Quantitative Geography: Techniques and Presentations. Orient BlackSwan.
2. Alvi Zamir. Statistical Geography: Methods and Applications. Rawat Publications.
3. Rogerson, Peter A. Statistical Methods for Geography. SAGE.
4. Spiegel and Stephens. Statistics. Tata McGraw Hill Education Private Ltd.

VIII SEM - BSc with Research

DSC 15 – RESEARCH METHODOLOGY & PUBLICATION ETHICS

Code: UGETC80403

Credits: 04

Unit 1: Research methodology overview: Procedure of Scientific research, Concept of research: meaning, definition and significance. Types of research and research design. Fundamental research and action research.

Unit-II Sampling- meaning, purpose and types, sample size; Data collection methods- quantitative, qualitative, and mixed methods.

Unit-III: Literature review- literature search, content analysis; Ethics with respect to science and research; Scientific misconduct – Falsification, Fabrication, and Plagiarism.

Unit-IV: Publication ethics- definition, importance, and violations of publication ethics; Conflict of interests; authorship and contributions; Predatory publications and journals; Open Access Publishing- publisher's copyright and self-archiving; Journal finder tools- Elsevier, Springer, Sage.

References

1. Singh, Yogesh Kumar. Fundamental of Research Methodology and Statistics. New Age International Publisher.
2. Kothari C R. Research Methodology Methods and Techniques. New Age International Publisher.
3. Ahuja Ram. Research Methods. Rawat Publication
4. Edwards Thomas. Research Design and Statistics: A Bio-Behavioural Focus. TATA McGraw-hill Edition.
5. Majhi R. Priti., Khatua K Prafull. Research Methodology: Concepts, Methods, Techniques and SPSS (Text and Cases). Himalaya Publishing House. Lib ref- 41170 001.42. MAJ
6. Ray Pratim Partha. A Guide to Research and Publication Ethics. New Delhi
7. Basu D., Chakraborty, S., and Sinha, A. Research and Publication Ethics: A Textbook. Concept Publishing Company.

VIII SEM - BSc with Research

SEC 5 - DISSERTATION

Code: UGERS80400

Credits: 12

Unit 1: Field Work in Geographical Studies – Role, Value and Ethics of Fieldwork. The Field and Identifying the Case Study – Rural / Urban / Physical / Human / Environmental.

Unit 2: Field Techniques – Merits, Demerits and Selection of the Appropriate Technique; Observation (Participant / Non-Participant), Questionnaires (Open/ Closed / Structured / Non-Structured); Interview with Special Focus on Focused Group Discussions; Space Survey (Transects and Quadrants, Constructing a Sketch)

Unit 3: Use of Field Tools – Collection of Material for Physical and Socio-Economic Surveys.

Unit 4: Designing the Field Report – Aims and Objectives, Methodology, Analysis, Interpretation and Writing the Report.

Survey and practical Report writing

1. Each student will prepare an individual report based on primary and secondary data collected.
2. The word count of the report should be about 8000 to 12,000 excluding figures, tables, photographs, maps, references, and appendices.
3. One copy of the dissertation on A 4 size paper should be submitted in soft binding.

References

1. Creswell J., 1994: Research Design: Qualitative and Quantitative Approaches Sage Publications.
2. Dikshit, R. D. 2003. The Art and Science of Geography: Integrated Readings. Prentice Hall of India, New Delhi.
3. Evans M., 1988: "Participant Observation: The Researcher as Research Tool" in Qualitative Methods in Human Geography, eds. J. Eyles and D. Smith, Polity.
4. Mukherjee, Neela 1993. Participatory Rural Appraisal: Methodology and Application. Concept Pubs. Co., New Delhi.
5. Mukherjee, Neela 2002. Participatory Learning and Action: with 100 Field Methods. Concept Pubs. Co., New Delhi
6. Robinson A., 1998: "Thinking Straight and Writing That Way", in Writing Empirical Research Reports: A Basic Guide for Students of the Social and Behavioural Sciences, eds. by F. Pryczak and R. Bruce Pryczak, Publishing: Los Angeles.
7. Special Issue on "Doing Fieldwork" The Geographical Review 91:1-2 (2001).
8. Stoddard R. H., 1982: Field Techniques and Research Methods in Geography, Kendall/Hunt.
9. Wolcott, H. 1995. The Art of Fieldwork. Alta Mira Press, Walnut Creek, CA.

VII SEM - BSc with Honors

DSC 12 – REGIONAL PLANNING AND DEVELOPMENT

Code: UGETC70400

Credits: 06

Unit 1: Concept of Region, Evolution and Types of Regional planning: Formal, Functional, and Planning Regions and Regional Planning; Need for Regional Planning; Types of regional Planning.

Unit 2: Choice of a Region for Planning: Characteristics of an Ideal Planning Region; Delineation of Planning Region; Regionalization of India for Planning (Agro Ecological Zones)

Unit 3: Theories and Models for Regional Planning: Growth Pole Model of Perroux; Growth Centre Model in Indian Context; Myrdal, Hirschman, Rostow and Friedmann; Village Cluster.

Unit 4: Changing Concept of Development, Concept of underdevelopment; Efficiency-Equity Debate. Measuring development: Indicators (Economic, Social and Environmental); Human development.

References:

1. Blij H. J. De, 1971: Geography: Regions and Concepts, John Wiley and Sons.
2. Claval P. I., 1998: An Introduction to Regional Geography, Blackwell Publishers, Oxford and Massachusetts.
3. Friedmann J. and Alonso W. (1975): Regional Policy - Readings in Theory and Applications, MIT Press, Massachusetts.
4. Gore C. G., 1984: Regions in Question: Space, Development Theory and Regional Policy, Methuen, London.
5. Gore C. G., Köhler G., Reich U-P. and Ziesemer T., 1996: Questioning Development; Essays on the Theory, Policies and Practice of Development Intervention, Metropolis-Verlag, Marburg.
6. Haynes J., 2008: Development Studies, Polity Short Introduction Series.
7. Johnson E. A. J., 1970: The Organization of Space in Developing Countries, MIT Press, Massachusetts.
8. Peet R., 1999: Theories of Development, The Guilford Press, New York.
9. UNDP 2001-04: Human Development Report, Oxford University Press.
10. World Bank 2001-05: World Development Report, Oxford University Press, New

Code: UGETC70401

Credits: 06

Unit 1: Introduction: Concepts, Nature, and Scope. 2. State, Nation, and Nation State – Concept of Nation and State, Attributes of State – Frontiers, Boundaries, Shape, Size, Territory and Sovereignty, Concept of Nation State.

Unit 2: Geopolitics; Theories (Heartland and Rimland) Electoral Geography – Geography of Voting, Geographic Influences on Voting pattern, Geography of Representation, Gerrymandering.

Unit 3: Political Geography of Resource Conflicts – Water Sharing Disputes, Disputes and Conflicts Related to Forest Rights and Minerals.

Unit 4: Politics of Displacement: Issues of relief, compensation, and rehabilitation: with reference to Dams and Special Economic Zones.

References:

1. Agnew J., 2002: Making Political Geography, Arnold.
2. Agnew J., Mitchell K., and Toal G., 2003: A Companion to Political Geography, Blackwell.
3. Cox K. R., Low M., and Robinson J., 2008: The Sage Handbook of Political Geography, Sage Publications.
4. Cox K., 2002: Political Geography: Territory, State and Society, Wiley-Blackwell
5. Gallaher C., et al, 2009: Key Concepts in Political Geography, Sage Publications.
6. Glassner M., 1993: Political Geography, Wiley.
7. Jones M., 2004: An Introduction to Political Geography: Space, Place and Politics, Routledge.
8. Mathur H M and M MCernea (eds.) Development, Displacement and Resettlement – Focus on Asian Experience, Vikas, Delhi
9. Painter J. and Jeffrey A., 2009: Political Geography, Sage Publications.
10. Taylor P. and Flint C., 2000: Political Geography, Pearson Education.
11. Verma M K (2004): Development, Displacement and Resettlement, Rawat Publications, Delhi
12. Hodder Dick, Sarah J Llyod, and Keith S McLachlan (1998), Land Locked States of Africa and Asia (vo.2), Frank Cass

VII SEM - BSc with Honors

MINOR 6 - SPATIAL ANALYSIS

Code: UGETM70300

Credits: 04

Unit 1: Introduction to spatial analysis. Types and applications of spatial analysis. Basic spatial analysis: spatial and attribute query, union, intersect, symmetrical differences, update, spatial join, clip, split, Thiessen polygon and proximity analysis.

Unit 2: Overlay: Fuzzy Overlay, Fuzzy Membership, Fuzzy Gaussian, Fuzzy Large, Fuzzy Linear, Fuzzy MS Large, Fuzzy MS Small, Fuzzy Near, Fuzzy Small. Weighted Overlay, Rank for classes and overall weightage, Analytic Hierarchy Process.

Unit 3: Surface Analysis: Interpolation, DEM, Slope, Aspect, Hillshade, Viewshed. Point pattern analysis: clustered and random distribution. Network Analysis: Optimal route, closest facility, service area, OD cost matrix, location allocation, vehicle routing problem.

Unit 4: Spatial Statistics: Spatial Autocorrelation, High/Low cluster, Average nearest neighbor, Hotspot analysis. Measuring Distribution: Mean and Median centre, directional distribution, central feature, neighborhood summary statistics, standard distance, directional distribution, and Linear directional mean.

References:

1. Demers, M. N. (2000): Fundamentals of Geographic Information Systems, John Wiley and Sons, New Delhi
2. Burrough, P. A. and McDonnell, R. A. (2000): Principles of Geographical Information Systems, Oxford University Press, New York
3. Makrewski, J. (1999): GIS Multi-Criteria Analysis, John Wiley and Sons, New York
4. Chang, K. T. (2008): Introduction to Geographic Information Systems, Avenue of the Americas, McGraw-Hill, New York
5. Longley, P. A., Goodchild, M. F., Maguire, D. J. Rhind, D. W. (2002): Geographical Information Systems and Science, John Wiley & Sons, Chichester
6. Lo, C. P. Yeung, A. W. (2002): Concepts Techniques of Geographical Information Systems, Prentice-Hall of India, New Delhi.

MINOR 7 - URBAN GEOGRAPHY

Code: UGETM70301

Credits: 04

Unit 1: Scope and content of urban geography, defining urban, historical origin and growth of urban centres, stages of urban development.

Unit 2: Processes of urbanisation, suburbanization, urban sprawl, gentrification Patterns of Urbanisation in developed and developing countries.

Unit 3: Morphology of cities: Urban models- the concentric zone theory, the sector model theory, the multiple nuclei theory. Classification of cities: Ashok Mitra's Functional classification of Indian cities. Classification by Harris, Nelson.

Unit 4: Urban Issues: problems of housing, slums, civic amenities, Application Remote Sensing in addressing urban issues: Case studies of Delhi, Mumbai, Kolkata, with reference to Land use and Urban Issues.

References

1. Hall T., 2006: Urban Geography, Taylor, and Francis.
2. Kaplan D. H., Wheeler J. O., and Holloway S. R., 2008: Urban Geography, John Wiley.
3. Knox P. L. and McCarthy L., 2005: Urbanization: An Introduction to Urban
4. Geography, Pearson Prentice Hall New York.
5. Pacione M., 2009: Urban Geography: A Global Perspective, Taylor, and Francis
6. Ramachandran R (1989): Urbanisation and Urban Systems of India, Oxford University Press, New Delhi
7. Ramachandran, R., 1992: The Study of Urbanisation, Oxford University Press, Delhi
8. Singh, R.B. (Eds.) (2001) Urban Sustainability in the Context of Global Change, Science Pub., Inc., Enfield (NH), USA and Oxford & IBH Pub., New Delhi.
9. Singh, R.B. (Ed.) (2015) Urban development, challenges, risks, and resilience in Asian megacities. Advances in Geographical and Environmental Studies, Springer.

VIII SEM - BSc with Honors

DSC 14 - METHODS IN POPULATION GEOGRAPHY

Code: UGECC80402

Credits: 04

Unit-I: Appraisal of quality of the demographic data- coverage error, sampling error, detection of digit preference and smoothing of data, Age-sex pyramid, population growth rates. Fertility indices -CBR, GER, ASFR, TFR, GRR, NRR; Mortality indices- CDR, ASDR, IMR, MMR; Life table.

Unit-II: Migration indices-measuring lifetime and inter censal migration from census and survey data; Measuring urbanization- rates and indices, tempo of urbanization.

Unit-III: Hands on Exercise: Measures of index – Gini Index, Lorenz curve, Human Development Index (HDI), Human Poverty Index (HPI), Index of dissimilarity and similarity.

Unit-IV: Hands on Exercise: Population Projection- Balancing equation method, interpolation and extrapolation, mathematical methods, ratio methods, component methods; Household projection; Labour force projection.

Reference books:

1. Bhende A Asha., Kanitkar Tara. Principles of Population Studies. Himalaya Publishing House.
2. Preston H Samuel., Heuveline Patrick., Guillot Michel. Demography: Measuring and modelling population process. Blackwell publishers
3. S.D Maurya. Population Geography. Pravalika Publications.
4. Shryock, S.H., Siegel S J., et al. The Methods and Materials of Demography. Academic Press, INC.
5. Moultrie, T., et al. Tools for Demographic Estimation.
Access: <http://demographicestimation.iussp.org/content/get-pdf-book-website>
6. Population Analysis for Policies and Programmes.
Access: <https://papp.iussp.org/#3>.

DSC 15 - AGRICULTURAL GEOGRAPHY

Code: UGECC80403

Credits: 06

Unit I: Introduction of the subject, nature, and scope; land use and land cover definition and classification.

Unit-II: Determinants of agriculture – Physical, technological, and Institutional; Agricultural revolution of India – Green, White, Blue, and Pink.

Unit-III: Agricultural Systems of the World (Whittlesey's classification) and Agricultural Land use model (VonThuenen, modification and relevance).

Unit- IV: Hands on Exercise: Agricultural regions and regionalization techniques, Cropping pattern, Crop diversity, Agricultural efficiency; Agricultural regions in India –Agro-climatic regions.

Reference books:

1. Basu, D.N., and Guha, G.S., 1996: Agro-Climatic Regional Planning in India, Vol.I& II, Concept Publication, New Delhi.
2. Bryant, C.R., Johnston, T.R, 1992: Agriculture in the City Countryside, Belhaven Press, London.
3. Burger, A., 1994: Agriculture of the World, Aldershot, Avebury.
4. Grigg, D.B., 1984: Introduction to Agricultural Geography, Hutchinson, London.
5. Ilbery B. W., 1985: Agricultural Geography: A Social and Economic Analysis, Oxford University Press.
6. Mohammad, N., 1992: New Dimension in Agriculture Geography, Vol. I to VIII, Concept Pub., New Delhi.
7. Roling, N.G., and Wageruters, M.A.E.,(ed.) 1998: Facilitating Sustainable Agriculture, Cambridge University Press, Cambridge.
8. Shafi, M., 2006: Agricultural Geography, Doring Kindersley India Pvt. Ltd., New Delhi
9. Singh, J., and Dhillon, S.S., 1984: Agricultural Geography, Tata McGraw Hill, New Delhi.
10. Tarrant J. R., 1973: Agricultural Geography, David and Charles, Devon.

MINOR 8 - QUANTITATIVE GEOGRAPHY

Code: UGECM80302

Credits: 04

Unit -I Concept of data, scale of measurement, types of data distribution; Frequency distribution table; Cumulative frequency distribution, Graphical representation of frequency distribution- Histograms, frequency polygon, frequency curve, cumulative frequency polygon.

Unit -II: Hands on Exercise: Measures of central tendency- mean, median, mode; Measures of dispersions- absolute measures of dispersions, relative measures of dispersions; Measures of frequency curve- skewness, kurtosis.

Unit-III: Hands on Exercise: Correlations- meaning, types, scatterplots, coefficient of correlation; Regression- Linear regression, multiple linear regression, binary logistic regression.

Unit-IV: Hands on Exercise: Indexing methods- Z-score, Factor analysis; Principal component analysis.

References

1. Sarkar, Ashis. Quantitative Geography: Techniques and Presentations. Orient BlackSwan.
2. Alvi Zamir. Statistical Geography: Methods and Applications. Rawat Publications.
3. Rogerson, Peter A. Statistical Methods for Geography. SAGE.
4. Spiegel and Stephens. Statistics. Tata McGraw Hill Education Private Ltd.

MINOR 9: INDUSTRIAL GEOGRAPHY

Code: UGETM80303

Credits: 04

Unit 1: Nature and Scope of Industrial Geography, Types, Geographical Characteristics and Location of Industries (Weber's Theory): Small and Medium Industries, Heavy Industries.

Unit 2: Mega Industrial Complexes: National Capital Region, Mumbai-Pune Industrial Region, Bengaluru-Chennai Industrial Region, and Chota Nagpur Industrial Region.

Unit 3: Impact of Industrialization in India: Environmental; Social and Economic.

Unit 4: Industrial Policy of India, Rural Industries in India, Iron & Steel Industries, Cotton textile Industries, Sugar Industries in India.

References:

1. Alexander J.W. (1979). Economic Geography, Printice Hall of India Pvt. Ltd., New Delhi.
2. Goh Cheng Leong (1997). "Human and economic geography", Oxford University Press, New York.
3. Thoman, R.S., Conkling E.C. and Yeates, M.H. (1968). Geography of Economic Activity, McGraw Hill Book Company, 1968.
4. Miller, E. (1962) Geography of Manufacturing Printice Hall - Englewood Cliff, New Jersey
5. Gunnar Alexanders son (1967). "Geography of Manufacturing, Prentice Hall, New Jersey
- Truman, A. Harishorn, John W. Alexander (2000) "Economic Geography", Prentice Hall of India Ltd., New Delhi.
6. Singh, Jagdish 2003: India - A Comprehensive & Systematic Geography, Gyanodaya Prakashan, Gorakhpur.
7. Tirtha, Ranjit 2002: Geography of India, Rawat Publs., Jaipur & New Delhi.
8. Pathak, C. R. 2003: Spatial Structure and Processes of Development in India. Regional Science Assoc., Kolkata.
9. Tiwari, R.C. (2007) Geography of India. Prayag Pustak Bhawan, Allahabad
10. Sharma, T.C. (2013) Economic Geography of India. Rawat Publication, Jaipur