DEPARTMENT OF GEOGRAPHY

Category I

(B.A. Honours in Geography in three years)

SEMESTER-IV

DISCIPLINE SPECIFIC CORE COURSE – OCENOGRAPHY (DSC 10)

Course title & Code	Credits	Duration (Hrs per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
OCEANOGRAPHY	4	3	1	0	Class 12th	NIL

Learning Objectives:

The Learning Objectives of this course are as follows:

- To enable the learner to understand the basics of oceanography.
- To enable the learner to explain the configuration of the ocean bottom
- To enable the learner to discuss ocean water and its unique ecosystem
- To equip the learner to appreciate and elaborate the problems and policies for sustainable oceans
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Learning Outcomes:

The Learning Outcomes of this course are as follows:

- The students would be able to comprehend and establish the relationship between human action and global ocean conditions. They would be able to explain the ocean as a regulator of global climate.
- Illustrate the dynamic ocean bottom topography and appreciate the circulation of cold and warm Ocean currents.
- Discuss the salinity and temperature distribution of ocean water on a three-dimensional spatial perspective.
- Elaborate the marine ecosystems as well as explain the problems and address the policies to resolve them.

Course Outline:

UNIT 1: Introduction to Oceanography: (8 hrs)

- Significance of Oceanography, Human actions and the Oceans, Challenges to Sustainability of Marine Ecosystems, Role ofSea surface Temperature (SST) as Global Climate Regulator

UNIT 2: Geomorphological Oceanography: (8 hrs)

- Ocean Bottom Topography – Relief ofOcean Floor with Global examples

UNIT 3: Physical and Chemical Oceanography: (9 hrs)

- Properties of Ocean Water: Salinityand Temperature (Horizontal and Vertical Distribution); Oceanic currents

UNIT 4: Biological Oceanography: (10 hrs)

- Marine Ecosystems: Coral Reef, Mangrove, Openand Deep Sea

UNIT 5: Sustainability of Oceans- Problems and Policies: (10 hrs)

- Marine Challenges andManagement, Marine Policy: Integrated Coastal Zone Management (ICZM) with reference to India and SDG 14; Life Below Water

Readings

- Basu S.K. (2003). Hand Book of Oceanography. Global Vision, Delhi.
- Davis, R. J.A. (1996). Oceanography: An Introduction to the Marine Environment. Brown Co, Lowa.
- Garrison, T. (2016). Oceanography: An Invitation to Marine Science. 9th ed, Cengage Learning, Boston.
- Lal. D.S. (2003) Oceanography. Sharada Pustak Bhavan, Allahabad.
- Pinet, P.R. (2014). Invitation to Oceanography. 7th ed, Jones and Barlett Publishers, Burlington.
- Sharma, R. C. and Vatal, M. (2018) Oceanography for Geographers. Surjeet Publications, Delhi.
- Singh, S. (2015). Oceanography. Pravalika Publication, Allahabad,
- Sverdrup K. A. and Armrest, E. V. (2008). An Introduction to the World Ocean. McGraw Hill, Boston.

Readings (Hindi)

- Gautam, A. (2005) Jalwayu Evam Samudra Vigyan. Rastogi Publication, Meeruth.
- Kulshrestha, K.P. (2004). Samudra Vigyan. Kitab Ghar, Kanpur.
- Singh, S. (2015). Samudra Vigyan. Pravalika Publication, Allahabad.
- Tiwari, R. K. (2016). Bhautik Bhugol. Rajsthan Hindi Granth Academy, Jaipur.

DISCIPLINE SPECIFIC CORE COURSE – ECONOMIC GEOGRAPHY (DSC 11)

Course title & Code	Credits	Duration (Hrs per week)			Eligibility Criteria	Prerequisite
		Lecture	Tutorial	Practical/ Practice		
ECONOMIC GEOGRAPHY	4	3	1	0	Class 12th	NIL

Learning Objectives:

- To evolve an understanding about the significance of space and time as attributes of human economic activities.
- To comprehend the role of geographical factors in determining the transformation of human economic activities.
- To develop an understanding of historical progression of trends and transformation of Primary, Secondary and Tertiary economic activities.

Learning Outcomes:

- To enable the learner to appreciate the role of geographical parameters in determining various economic activities and to understand the scope of economic geography, differentiating it from classification of economic activities.
- To enable the learner to assess and analyse the role of space and location in pursuit of economic activities.
- To enable the learner to develop the capability of analyzing transformation of economic activities with reference to space, time and diffusion of technology.

Course Outline

UNIT 1: Introduction: (10 hrs)

- Nature, scope and concepts and Approaches to EconomicGeography; Classification of Economic activities.

UNIT 2: Locational Factors of Economic Activities: (9 hrs)

- Factors affecting location of economic activities in agriculture industry and services; Weber's Theory of IndustrialLocation.

UNIT 3: Transitions and emerging trends in primary and secondary economic activities: (9 hrs)

- contemporary agriculture, Agro based Industry; SEZ and Technology Parks.; Pharmaceutical Industry

UNIT 4: Progressions in Tertiary Activities: **(9 hrs)**

- Case study approach to Knowledge basedindustries; IT enabled Services industry; Wellness industry

UNIT 5: Globalization of Economic activities: **(8 hrs)**

- globalization, liberalization, Ecommerce, gig economy (selected case studies)

Readings

- Alexander J. W., 1963: Economic Geography, Prentice-Hall Inc., Englewood Cliffs, New Jersey.
- Coe N. M., Kelly P. F. and Yeung H. W., 2007: Economic Geography: A Contemporary Introduction,Wiley-Blackwell.
- Roy, Prithwish, 2014, Economic Geography, New Central Book Agency.
- Combes P., Mayer T. and Thisse J. F., 2008: Economic Geography: The Integration of Regions and Nations, Princeton University Press.
- Wheeler J. O., 1998: Economic Geography, Wiley..
- Maurya, S. D., 2018, Economic Geography, Pravalika Publication, Allahabad.
- Bagchi-Sen S. and Smith H. L., 2006: Economic Geography: Past, Present and Future, Taylor and Francis.
- Singh, S. and Saroha, J., 2021, Human and Economic Geography, Pearson.
- MacKinnon, D, and Cumbers A., 2007, An Introduction to Economic Geography: Globalization, Uneven Development and Place, Harlow: Pearson Education.
- Mamoria, C. and Joshi, R., 2019, Aarthik Bhugol (Economic Geography), Sahitya Bhawan Publication, Agra. (Hindi Edition).

DISCIPLINE SPECIFIC CORE COURSE – FUNDAMENTALS OF GIS (PRACTICAL) (DSC 12)

	Credits	Duration (Hrs per week)				Prerequisite
Course title & Code		**Lecture**	**Tutorial**	**Practical/ Practice**	**Eligibility Criteria**	
FUNDAMENTALS OF GIS (PRACTICAL)	**4**	**2**	**0**	**2**	**Class 12th**	**NIL**

Learning Objectives:

The learning objectives of this course are as following:

- In this course the students will get the basic understanding of the concept of GIS, its definitions and components and its significance in geographical study.

- They will gain the working experience to handle digitally, both spatial and attribute geographical data, its collection, storage and management through GIS and the use of locational specific data in GIS using GPS.
- They learn the fundamental steps in data analysis and the GIS application to the geographical study of land uses, urban sprawl, and forests through the means of spatial mapping.

Learning Outcomes:

Through this practical, hands-on course the students will be able to know the GIS basics and when completed they would be able to:

- Develop a basic understanding of GIS skills and learn to work on a GIS Software using computer/ laptop/ and or any other digital medium.
- Understand GIS Data Structures and GIS Data Analysis for geographical enquiry.
- Learn to apply basic GIS operations/skills to analyse the spatial data for mapping, monitoring and to detect both spatial and temporal changes in land use/cover, forests, urban sprawl, and natural resources.
- Students will be aware of spatial thinking and its manifestation in resolving issues through this computer-based technology.

Course Outline

UNIT 1: Geographical Information System/Science (GIS): **(5 hrs)**

- Definition and overview,Components, Different types of GIS Software, Significance and emerging trends.

UNIT 2 : GIS Data Structures: (5 hrs)

- Types (spatial and non-spatial), Point, Line and Area;Raster and Vector Data Structure, Database Management System (DBMS).

UNIT 3: GIS Data Analysis – I: **(5 hrs)**

- Data Input; Methods, Geo-referencing, GPS for GIS Data creation, Digitization, Input of Attribute data, Data Editing; Errors in input data, BasicGeo-processing tools.

UNIT 4: GIS Data Analysis – II: (5 hrs)

- Query and Output; Conversion, Buffering, Overlays, MapLayout

UNIT 5: Application of GIS : (5 hrs)

- Land Use / Land Cover Change, Morphometric Analysis,Urban Studies

Practical Record: 60 Hrs.

- A **record file** consisting of **5 exercises** using any GIS Software.
- The exercises should focus on any one of the above-mentioned applications based on using vector / raster data layers for Query analysis /Proximities / Finding relationship / Seeing Patterns / monitoring change.

Readings:

- Bhatta, B. (2010). *Analysis of Urban Growth and Sprawl from Remote Sensing*, Berlin, Germany: Springer.
- Burrough, P.A., McDonnell, R.A. and Lloyd, D. McDonnell (2016). *Principles of Geographical Information Systems,* UK: Oxford University Press.
- DeMers M. N., 2000: *Fundamentals of Geographic Information Systems*, NJ, USA: John Wiley & Sons.
- Gomarasca, M. A. (2009). *Basics of Geomatics.* NY, USA: Springer Science.
- Heywoods, I., Cornelius, S and Carver, S. (2006). *An Introduction to Geographical*
- *Information system.* NJ, USA: Prentice Hall.
- Jones, C. B. (2014). *Geographical Information Systems and Computer Cartography*. London, UK: Taylor& Francis.
- Longley, P. A., Goodchild, M., Maguire, D. J., & Rhind, D. W. (2010). *Geographic Information Systems and Science.* NJ, USA: John Wiley & Sons.
- O'Sullivan, D., & Unwin, D. (2014). *Geographic Information Analysis*. NJ, USA: Wiley.
- Saha K and Froyen YK (2022) *Learning GIS Using Open Source Software: An Applied Guide for GeoSpatial Analysis*, Routledge
- Singh, R.B. and Murai, S. (1998). *Space Informatics for Sustainable Development*. NewDelhi, India: Oxford and IBH.

Suggestive:

- Chang K.-T., 2009: *Introduction to Geographic Information Systems,* McGraw-Hill.
- Chauniyal, D.D. (2010). *Sudur Samvedanevam Bhogolik Suchana Pranali.* Allahabad, India: Sharda Pustak Bhawan.
- Clarke K. C., 2001: *Getting Started with Geographic Information Systems*, NJ, USA: Pearson Prentice Hall.
- Elangovan.K (2020) *GIS Fundamentals, Applications, and Implementations*, New India Publishing Agency
- Kumar, Dilip, Singh, R.B. and Kaur, R. (2019). *Spatial Information Technology for*
- *Sustainable Development Goals.* New Delhi, India: Springer.
- Nag, P. (2008). *Introduction to GIS.* New Delhi, India: Concept.
- Sarkar, A. (2015) *Practical geography: A systematic approach*. New Delhi, India:Orient Black Swan Private Ltd.