DEBRA THANA SAHID KSHUDIRAM SMRITI MAHAVIDYALAYA
(Autonomous)
P.O.- CHAKSHYAMPUR , DIST.- PASCHIM MEDINIPUR PIN:-7221124 , WEST BENGAL, INDIA
DEPARTMENT OF GEOGRAPHY
4 years Major and Minor course

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Syllabus Framework for the Semester-III (Major & Minor)

Level	YR.	SEM	Course Type	Course Code	Course Title	Credit	L-T-P	Marks		
								CA	ESE	Total
					SEMESTER-III					
B.Sc. (Hons.)	2nd	III	**Major-03**	UG/III/GEO/4/MJ-3	**T: Human Geography** **P: Human Geography (Practical)**	4	3-0-1	15	60	75
			Major-04	UG/III/GEO/4/MJ-4	**T: Statistical Methods in Geography** **P: Statistical Methods in Geography**	4	3-0-0	15	60	75
			SEC	UG/III/GEO/4/SE-3P	**P: Computer Programming (R/Python) (Practical)**	3	0-0-3	10	40	50
			AEC	AEC03	**MIL-3 (common for all programmes)**	2	2-0-0	10	40	50
			MDC	MDC03	**Multidisciplinary Course -03 (*to be chosen from the list*)**	3	3-0-0	10	40	50
			Minor -3 (Disc.-I)	UG/III/GEO/3/MI-3T	**T: Contemporary Environmental Issues *(To be taken by students of other Disciplines)***	4	3-0-1	15	60	75
			Semester-III Total			20				375

CC = Core Course, AECC = Ability Enhancement Compulsory Course, GE = Generic Elective , SEC = Skill Enhancement Course DSE = Discipline Specific Elective, CA= Continuous Assessment, ESE= End Semester Examination, TBD=To be decided, CT = Core Theory, CP=Core Practical, L = Lecture, T = Tutorial, P = Practical, MIL = Modern Indian Language, ENVS = Environmental Studies

Human Geography

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Course Learning Outcomes:

This paper focuses on the nature, scope, and key theoretical approaches of human geography. It examines the evolution of human societies and their adaptation to diverse environments, with a special focus on population trends, cultural regions, and settlement patterns in India. The practical portion emphasizes on the concepts and tools for assessing human development and gender equality through indicators such as HDI, GDI, GEM, and GGM. It also equips students to evaluate the socio-economic impacts of climate change and measure development using poverty indices. Additionally, students gain practical experience by interpreting topographical maps to identify settlement types and geographical features.

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Paper: - UG/III/GEO/4/MJ-3T   Human Geography (Theory)   3 Credits/40 marks

Course contents:

Unit I: Scope and Approaches

1. Elements of human geography: Nature, scope, and recent trends.
2. Perspective in the development of Human geography : Resource, locational, landscape, environment.
3. Evaluation of Humans: Concept of Race and Ethnicity.
4. Cultural regions of India: Language and Religion.

Unit II: Society, Demography and Ekistics

5. Evolution of human societies: Hunting and food gathering, pastoral nomadism, subsistence farming, and industrial society.

6. Human adaptation to the environment: Eskimo, Masai, Jarwa, Gaddi, Santhals.

7. Distribution, density, and growth of population in India; Demographic Transition Model.

8. Characteristics of settlements: Urban and rural.

9. Climate Change and human societies: Vulnerability, Exposure, Risk, Adaptation and Resilience

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Suggested reading

➤ Ashok, A., Lakshmaiah, P.V. 2018. Tribes of India, vol. 1 &2, Telugu Akademi.

➤ Bose, N.K. 2020. Tribal Life In India, 5th ed (updated by Tripathi, C.B.), National Book Trust.

➤ Chandna R.C. 2022. Geography of Population, Part 1: Concepts, Determinants and World Patterns,Kalyani Publishers.

➤ Dorrel, D., Henderson, P. 2018. Introduction to Human Geography. University of Georgia Press.

➤ Fouberg, E.H., Nash, A.B., Murphy, A.B., de Blij, H., 2015. Human Geography: People, Place, and

➤ Culture, 11th ed, Wiley.

➤ Ghosh S. 1998. An Introduction to Settlement Geography, Sangam Books Ltd.

➤ Gregory, D., Johnston, R., Pratt, G., Watts, K., Whatmore, S. (Eds) 2009. The Dictionary of Human Geography, 5th ed, Wiley-Blackwell.

➤ Knox, P.L., Marston, S.A. 2014. Human Geography, Places and Regions in Global Context, 6th ed, Pearson Education.

➤ Majumdar, P.K. 2013. India's Demography: Changing Demographic Scenario in India, Rawat Publications.

➤ Mercier, M., Norton, W. 2019. Human Geography, 10th ed, Oxford University Press.

➤ Paul, C., Crang, P., Goodwine, M.G. 2014, Introducing Human Geographies, 3rd ed, Routledge. Rubenstein J.M., 2018, Contemporary Human Geography, 4th ed, Pearson.

➤ Short, R.J. 2017. Human Geography: A Short Introduction, 2nd ed, Oxford University Press. Sing, R.Y. 2009, A Geography of Settlements, Rawat Publications.

Human Geography (Practical)

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Course contents:

1. Different approaches to measure Human Development: Income approach, welfare approach, Basic needs approach and capabilities approach.

2. Methods of assessing human development: Calculating and Mapping components of Human Development Index (HDI) and Gender Development Index (GDI), Methods to measure Poverty Index (Pv1 and Pv2), Measuring methods

3. Concept of Gender Empowerment Measure (GEM) and methods to measure GEM, Gender Equality and Inequality Indices, Women's Economic Opportunity Index (WEOI), Gender Gap Measure (GGM) index.

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Suggested Readings:

➢ Papalia, D.E., Olds, S.W. and Feldman, R.D. (2006). Human development.9th Ed. New Delhi: Tata McGraw-Hill.

➢ Journal of Human Development and Capabilities, published by Taylor & Francis (Routledge), Print ISSN: 1945-2829

➢ Klasen, Stephan (2017): Working Paper UNDP's gender-related measures: Current problems and proposals for fixing them

➢ Economist Intelligence Unit, 2012, Women's Economic Opportunity Index 2012, EIU, August 23. Web Link:

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Course Learning Outcomes:

This course introduces students to the basic statistical methods used in geographic analysis. It covers data types, measurement scales, sampling techniques, and frequency distributions, which help students understand the collection and organization of data. The course includes tools necessary for data analysis, such as measures of central tendency, dispersion, correlation, regression, and hypothesis testing. Students also explore the shape and behavior of data through skewness, kurtosis, and normal distributions. Through practical applications, students develop skills in analyzing and interpreting geographic data using statistical techniques.

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Paper:- UG/III/GEO/4/MJ-4T **Statistical Methods in Geography (Theory)   1 Credits/20 marks**

Course contents:

Unit I: Frequency Distribution and Sampling

1. Discrete and continuous data, population and samples, scales of measurement (nominal, ordinal, interval and ratio)

2. Collection of data and preparation of statistical tables.

3. Sampling: Need, types, significance, and methods of random, systematic and stratified sampling.

4. Theoretical distribution: Frequency, cumulative frequency, normal and probability.

Unit II: Numerical Data Analysis

5. Central tendency: Mean, median, mode, and partition values .

6. Measures of dispersion range, mean deviation, standard deviation, and coefficient of variation .

7. The shape of the distribution of data Skewness and Kurtosis; normal distribution-properties of normal distribution.

8. Association and correlation: Product moment correlation and rank correlation .

9. Regression: Linear and non-linear; Residuals; Time series analysis (moving average) .

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Suggested Readings:

➢ Acevedo, M.F. 2012. Data Analysis and Statistics for Geography, Environmental Science and Engineering, CRC Press.

➢ Harris, R., Jarvis, C. 2011. Statistics for Geography and Environmental Science, Prentice Hall.

➢ Mahmood, A. 1999. Statistical Methods in Geographical Studies, Rajesh Publications.

➢ McGrew Jr., J.C., Lembo Jr., A.J., Monroe, C.B. 2014. An Introduction to Statistical Problem Solving in Geography, 3rd ed, Waveland Press.

➢ Pal, S.K. 1998. Statistics for Geoscientists: Techniques and Applications, Concept Pub Co.

➢ Rogerson, P.A. 2015. Statistical Methods for Geography: A Student's Guide, 4th ed, Sage.

➢ Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan.

Statistical Methods in Geography (Practical)

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Course contents:

1. Frequency distribution and graphical construction: histogram, frequency polygon, frequency curve.

2. Measuring central tendency and dispersion.

3. Analysis of bivariate data: scatter diagram, regression line, and residual, Correlation Co- efficient (rank correlation-Spearman, product moment correlation-Karl Pearson).

4. Time series analysis

5. Hypothesis testing: Chi-square test and Student t-test.

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➢ Acevedo, M.F. 2012. Data Analysis and Statistics for Geography, Environmental Science and Engineering, CRC Press.

➢ Harris, R., Jarvis, C. 2011. Statistics for Geography and Environmental Science, Prentice Hall.

➢ Mahmood, A. 1999. Statistical Methods in Geographical Studies, Rajesh Publications.

➢ McGrew Jr., J.C., Lembo Jr., A.J., Monroe, C.B. 2014. An Introduction to Statistical Problem Solving in Geography, 3rd ed, Waveland Press.

➢ Pal, S.K. 1998. Statistics for Geoscientists: Techniques and Applications, Concept Pub Co.

➢ Rogerson, P.A. 2015. Statistical Methods for Geography: A Student's Guide, 4th ed, Sage.

➢ Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan.

SEC-3: Computer Programming (R/Python)

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Course Learning Outcomes:

This course learn to computer programming using either R or Python, depending on the available infrastructure. It aims to build foundational coding skills essential for analyzing geographic and geospatial data. Students will gain hands-on experience in writing code, working with various data structures, and applying data filtering and summarization techniques. The course also focuses on developing the ability to create visualizations and build regression models. Emphasis is placed on preparing students for advanced research in Geospatial Science, Earth and Atmospheric Sciences, and Human Geography. By the end of the course, students will be equipped to use programming tools effectively in academic and applied contexts.

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Course contents:

1. Basics of computer programming: understanding the interface of programming languages such as R and Python.

2. Data structure in R/Python: array, vector, matrix, data frame, importing data in R/Python.

3. Functions in R/Python: the basic syntax of statistical functions, writing and using functions in R/Python

4. Data filtering and summary methods in R/Python: conditional functions, loop functions such as for and while loop for iterative calculation. Executing statistical tests in R/Python.

5. Building graphics in R/Python: creating histogram, scatterplot, boxplot, line plot; building a regression model, visualization data using R/Python.

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Suggested Readings:

➢ Tilman M. Davies. 2016. The book of R: A first course in programming and statistics. No Starch Press, US.

➢ Andy Field, Jeremy Miles, and Zoe Field. 2022. Discovering statistics using R. SAGE Publications India Pvt Ltd. India.

➢ Jared P. Lander. 2018. R for everyone: Advanced analytics and graphics. 2nd Edition. Pearson Education. India.

➢ Bharti Motwani. 2019. Data analytics with R. Wiley. India.

➢ Sandip Rakshit. 2017. R programming for beginners. McGraw Hill Education. India.

➢ Eric Matthes. 2016. Python crash course. No Starch Press, US.

➢ Paul Barry. 2016. Head-first Python, 2nd Edition. O'Reilly.

➢ William McKinney. 2017. Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython, O'Reilly Media.

➢ David Landup. 2021. Data Visualization in Python with Pandas and Matplotlib. Stack Abuse.

➢ Log2Base2 courses on python (https://log2base2.com/courses/python).

➢ Coursera. Data Analysis with Python (https://www.coursera.org/learn/data-analysis-with-python)

➢ Free codecamp. Data analysis with python (https://www.freecodecamp.org/learn/data-analysis-with-python/)

➢ Coursera. Data analysis with R-programming (https://www.coursera.org/learn/data-analysis-r?).

Syllabus for the Semester-III 3 years Minor course

(Minor Theory)

Paper:- UG/II/GEO/3/MI-3T   **Credits:-4**   **Full Marks:-75**

Contemporary Environmental Issues (Theory)

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This course provides a comprehensive understanding of contemporary environmental issues and their intersections with key social challenges. It explores topics such as climate change, pollution, human health, migration, and the gender-climate nexus. Students will gain foundational knowledge of climate science and the policies related to climate change adaptation. The course also examines the impacts of environmental pollution on health. It sheds light on how climate change influences migration patterns and exacerbates gender-based vulnerabilities. By the end, students will have a clearer perspective on the socio-environmental dynamics shaping today's world.

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Course contents:

1. Climate change: basic science and global scenario of climate change.

2. Climate change mitigation and adaptation policy

3. Pollution and environmental degradation, effect on human health with reference to air, water, soil and plastic.

4. Environmental refugee: migration-climate nexus.

5. Gender and climate change.

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Suggested Readings:

➢ IISD, UNITAR & UNEP (2009). IEA Training Material: Vulnerability and Climate Change Impact Assessment for Adaptation. (link)

➢ IPCC (2013). Climate Change 2013. The Physical Science Basis - Summary for Policymakers.

➢ OECD (2009): Guidance on Integrating Climate Change Adaptation into Development Co-operation. (link)

➢ UNEP (2009). Climate Change Science Compendium. (link)

➢ UNEP (2009). Climate in Peril, a Popular Guide to the Latest IPCC Report. (link)

➢ UNEP & UNDP (2011). Mainstreaming Climate Change Adaptation into Development Planning: A Guide for Practitioners. (link)

➢ Global Gender and Climate Alliance (2016). Gender and climate change: A closer look at the existing evidence. (link)

➢ UN Women watch (2009). Women, gender equality and climate change. (link)

➢ Myers, N (2001). Environmental refugees; a growing problem of 21st century. (link)

➢ UNCHR, (2022). Climate Change, Displacement and Human Rights. (link)

➢ Brookings. (2019). The climate crisis, migration and refugees. (link)

➢ VK Ahlualia. (2014). Environmental Pollution and Health. TERI Press, New Delhi, ISBN:9788179934616.

➢ Frank R. Spellman. (2021). The science of environmental pollution. ISBN 9781032016832. CRC Press. Boca Raton