BANASTHALI VIDYAPITH

Master of Philosophy (Geography)

Curriculum Structure

First Semester Examination, December, 2019
Second Semester Examination, April/May, 2020

BANASTHALI VIDYAPITH
P.O. BANASTHALI VIDYAPITH
(Rajasthan)-304022

July, 2019

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No. F. 9-6/81-U.3

Government of India
Ministry of Education and Culture
(Department of Education)

New Delhi, the 25th October, 1983

N O T I F I C A T I O N

In exercise of the powers conferred by Section 3 of the University Grants Commission Act, 1956 (3 of 1956) the Central Government, on the advice of the Commission, hereby declare that Banasthali Vidyapith, P. O. Banasthali Vidyapith, (Rajasthan) shall be deemed to be a University for the purpose of the aforesaid Act.

Sd/-
(M. R. Kolhatkar)
Joint Secretary of the Government of India

N O T I C E

Changes in Bye-laws/Syllabi and Books may from time to time be made by amendment or remaking, and a Candidate shall, except in so far as the Vidyapith determines otherwise, comply with any change that applies to years she has not completed at the time of change.

Programme Educational Objectives

Banasthali Vidyapith is an epitome of tradition and modernity. Vidyapith aims to preserve and inculcate the essential values and ideals of Indian culture. It believes in simple living and high thinking. Our educational ideology is based on the concept of fivefold education focusing on physical, practical, aesthetic, moral and intellectual aspects in order to develop a balanced personality.

Geography is concerned with human and physical environmental systems and their interaction, mapping and measuring natural and man-made resources, designing ways of using them, analyzing the distribution of welfare, recognizing and averting hazards and reviewing social institutions. Man's lifestyle is influenced by physical aspects in its immediate surroundings and Geography act as a bridge between man and its environment. Geography is also related to human dimension wherein man using the resources and creates its economic dimension. Various arenas of human aspects such as business, trade, commerce, agriculture, industry, navigation, military operations, spacecraft and administration needs Geography as a foundation.

Students will gain profound knowledge of current research problems, approaches, and insights regarding the interactions between the environment and society in the context of global change. Students learn to integrate scientific theories, findings, and procedures in order to analyze and model human-environmental systems.

The main objectives of the Master of Philosophy Geography programme are:

- To develop skills of assessing contrasting theories, explanations and policies; collecting, critically judging, evaluating and interpreting varied forms of evidence; preparing maps and diagrams; employing various methods of collecting and analyzing spatial and environmental information; combining and interpreting different types of evidence to tackle specific problems; and recognizing the ethical and moral dimensions of study.

- To develop oral presentation and report writing skills; and make meaningful contributions to improving legal/administrative structures and procedures relevant to the environment and sustainable development.
- To conduct independent research of a professional quality and describe specific research techniques and explain the literature and concepts in the conduction of original research.
- To communicate the results of research in both oral and written forms; entails demonstrating skills in oral presentation and the writing of formal papers during coursework, and ultimately, a dissertation.
- The opportunity to develop large-scale research management skills by completing a research thesis under academic supervision and guidance.
- To raise sensitivity for ethical codes of conduct, social values with help of eco-feminism, gender equality, social balance and respect for each strata of the society.

Programme Outcomes

- **PO1: Geography Knowledge:** The outcomes of the course are achieved both through focused study of selected specialized aspects of geographical research and through development of more general research skills and methods. Develop in-depth knowledge of some substantive area(s) of geography and geographical research; develop their capacity to frame research questions, to derive appropriate research designs, and develop awareness of alternative approaches.

- **PO2: Planning abilities:** A comprehensive understanding of techniques and a thorough knowledge of the literature, applicable to their own research; demonstrated some self-direction and originality in tackling and solving problems, and acted autonomously in the planning and implementation of research.

- **PO3: Design/development of solution for problems:** The research skills strengthen them to formulate hypothesis about any form of social, economic and environmental problems and collect facts to prove it.

- **PO4: Problem analysis:** Analyses the research problems occurring in our social and physical environment and develop methodology to depict and solve them. Demonstrate originality in the application of knowledge, together with a practical understanding of how research and enquiry are used to create and interpret knowledge in their field; shown abilities in the critical evaluation of current research problems and research techniques and methodologies.

- **PO5: Modern tool usage:** Use remote sensing and GIS techniques in medical, urban & rural settlements, environment, agriculture, resource, tourism and several other aspects from a geographical perspective. The applications can further enhance research in the discipline and contribute towards a better living environment. Acquired the skills to use library and internet resources independently and become critical and skilled readers of geographical and other research publications.

- **PO6: Leadership skills:** Develop a capability to manage research, including data management, conducting and disseminating research, working in a team, and understanding codes of research practice and research ethics.

- **PO7: Professional Identity:** Understand, analyze and contribute towards the discipline adopting professions as an educator, researcher and specialist in different arenas of geography; develop their capacity to frame research questions, to derive appropriate research designs, and develop awareness of alternative approaches; develop a competence and confidence in using a range of quantitative methods of gathering, analyzing and interpreting evidence.

- **PO8: Geographical Ethics:** Apply ethical principles in personal, professional and social levels. Demonstrate behavior that recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions.

- **PO9: Communication:** Communicate effectively with the Earth Science community and with society at large, by discussing their research at several levels in the form of conferences, seminars and symposium. They are able to comprehend and write effective presentations, documentation, research publications and with writing communicate their ideas at regional, national and international levels.

- **PO10: The Geographer and society:** Students contribute as a researcher by identifying socio-economic and environment problems and suggest measures, solutions to overcome the problems. Nevertheless, geographical specialists play an important role in the national development. With the help of most talented geographers, geographical theories are as much as the solution of the great problems of the society and economy, for which they requires a synthetic geographical approach.

- **PO11: Environment and sustainability:** Employing various methods of collecting and analyzing spatial and environmental information; combining and interpreting different types of evidence to tackle environmental problems; and recognizing the ethical and moral responsibility towards sustainability.

- **PO12: Life- long learning:** Students develop lifelong learning towards major issues and develop an attitude to depict them through their publications and presentation. They also become critical and skilled readers of geographical and other research publications. The research provides them an essential strength to describe or solve problem associated to different zones of the discipline. Students are familiar with an appropriate range of intellectual and methodological traditions within geographical research and the social sciences.

Curriculum Structure

Master of Philosophy (Geography)

First Year

Semester - I

Course	Code	Course Name	L	T	P	C*
GEOG	616	Pedagogy in Geography	4	0	0	4
GEOG	607	Research Methodology and Statistical Analysis in Geography	4	0	0	4
GEOG	613L	Digital Cartography and Geoinformatics Lab	0	0	8	4
GEOG	619P	Term Paper	0	0	24	12
		Reading Elective - I	0	0	0	2
		Semester Total:	**8**	**0**	**32**	**26**

Semester - II

Course	Code	Course Name	L	T	P	C*
GEOG	614D	Dissertation	0	0	36	18
GEOG	702S	Seminar	0	0	8	4
		Reading Elective - II	0	0	0	2
		Reading Elective - III	0	0	0	2
		Semester Total:	**0**	**0**	**44**	**26**

List of Reading Elective

Course	Code	Course Name	L	T	P	C*
GEOG	611R	Climate Change and Future Crisis	0	0	0	2
GEOG	612R	Contemporary Social Challenges in India	0	0	0	2
GEOG	615R	Industrialization and Regional Development	0	0	0	2
GEOG	617R	Resource: Challenges and Management	0	0	0	2
GEOG	618R	Solid Waste Management for a Smart City in India	0	0	0	2
GEOG	620R	Tourism and Heritage	0	0	0	2

*** L - Lecture hrs./week; T - Tutorial hrs./week; P-Project/Practical/Lab/All other non-classroom academic activities, etc. hrs./week; C - Credit Points of the Course**

Evaluation Scheme and Grading System

Continuous Assessment (CA) (Max. Marks)					End-Semester Assessment (ESA) (Max. Marks)	Grand Total (Max. Marks)
Assignment				Total (CA)		
I	II	III	IV			
10	10	10	10	40	60	100

In all theory, laboratory and other non classroom activities (project, dissertation, seminar, etc.), the Continuous and End-semester assessment will be of 40 and 60 marks respectively. However, for Reading Elective, only End semester exam of 100 marks will be held. Wherever desired, the detailed breakup of continuous assessment marks (40), for project, practical, dissertation, seminar, etc shall be announced by respective departments in respective student handouts.

Based on the cumulative performance in the continuous and end-semester assessments, the grade obtained by the student in each course shall be awarded. The classification of grades is as under:

Letter Grade	Grade Point	Narration
O	10	Outstanding
A+	9	Excellent
A	8	Very Good
B+	7	Good
B	6	Above Average
C+	5	Average
C	4	Below Average
D	3	Marginal
E	2	Exposed
NC	0	Not Cleared

Based on the obtained grades, the Semester Grade Point Average shall be computed as under:

$$SGPA = \frac{CC_1 * GP_1 + CC_2 * GP_2 + CC_3 * GP_3 + ---- + CC_n * GP_n}{CC_1 + CC_2 + CC_3 + ---- + CC_n} = \frac{\sum_{i=1}^{n} CC_i * GP_i}{\sum_{i=1}^{n} CC_i}$$

Where n is the number of courses (with letter grading) registered in the semester, CC_i are the course credits attached to the i^{th} course with letter grading and GP_i is the letter grade point obtained in the i^{th} course. The courses which are given Non-Letter Grades are not considered in the calculation of SGPA.

The Cumulative Grade Point Average (CGPA) at the end of each semester shall be computed as under:

$$CGPA = \frac{CC_1 * GP_1 + CC_2 * GP_2 + CC_3 * GP_3 + ----+ CC_n * GP_n}{CC_1 + CC_2 + CC_3 + ----+ CC_n} = \frac{\sum_{i=1}^{n} CC_i * GP_i}{\sum_{i=1}^{n} CC_i}$$

Where n is the number of all the courses (with letter grading) that a student has taken up to the previous semester.

Student shall be required to maintain a minimum of 4.00 CGPA at the end of each semester. If a student's CGPA remains below 4.00 in two consecutive semesters, then the student will be placed under probation and the case will be referred to Academic Performance Review Committee (APRC) which will decide the course load of the student for successive semester till the student comes out of the probationary clause.

To clear a course of a degree program, a student should obtain letter grade C and above. However, D/E grade in two/one of the courses throughout the UG/PG degree program respectively shall be deemed to have cleared the respective course(s). The excess of two/one D/E course(s) in UG/PG degree program shall become the backlog course(s) and the student will be required to repeat and clear them in successive semester(s) by obtaining grade C or above.

After successfully clearing all the courses of the degree program, the student shall be awarded division as per following table.

Division	CGPA
Distinction	7.50 and above
First Division	6.00 to 7.49
Second Division	5.00 to 5.99
Pass	4.00 to 4.99

CGPA to % Conversion Formula: % of Marks Obtained = CGPA * 10

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First Semester

GEOG 616 Pedagogy in Geography

Max. Marks : 100	**L**	**T**	**P**	**C**
(CA: 40 + ESA: 60)	**4**	**0**	**0**	**4**

Learning Outcomes:

After the completion of this course, students will be able to:

- Describe higher education, its function and purpose.
- Learn about the different functions of regulatory bodies.
- Elucidate the prerequisites and methods of teaching.
- Learn about the evaluation process in teaching.

Course Content:

Overview of Higher Education in India: Purpose and Functions of Higher Education. Functions of Regulatory Bodies - UGC, AISHE, NCTE, NAAC; Role of Teacher in Higher Education: Teacher's Role - Curriculum development, Instructional, Institutional, Research related and Social; Professional Development of Teachers - Role of Academic Staff College; Pre-requisites of Teacher in Higher Education: Teaching Competencies - Introduction, Questioning, Board Work, Explanation, Use of Supporting Materials, Methods for teaching - Lecture, Discussion, Laboratory work, Field Survey, Project, Workshop and Seminar; Media for effective teaching; Designing of Instructions and Evaluation: Instructional Planning; Modes of Evaluation in Higher Education.

Recommended Books:

1. Aggarwal, J. C. (2012). *Principles, Methods & Techniques of Teaching*. (2nd Rev.ed.). New Delhi, India: Vikas.
2. Bawa, M.S., &Nagpal, B. M., (Ed.).(2011). *Developing Teaching Competencies*. New Delhi, India: Viva Books.

3. Dhar, B. B. (2009). *Higher Education System*. New Delhi, India: A.P.H.

4. Kamalkar, G. (2014). *Higher Education in Indian-Emerging Challenges*. New Delhi, India: Commonwealth.

5. Kidwani, A. R. (Ed.). (2014). *New Directions in Higher Education*. New Delhi, India: Viva.

6. Mangal, S. K., & Manga. U., (2014). *Essentials of Educational Technology*. New Delhi, India: P.H.I.

7. Manoharan, P. K. (2009). *Higher Education.* New Delhi, India: A.P.H.

8. Patnaik, J. (2001). *Higher Education in Information Age.* New Delhi, India: Authors Press.

9. Shafi, Z. S. (2008). *Reforms and Innovations in Higher Education*. New Delhi, India: Association of Indian Universities.

10. Sharma, S. R., (2000). *Effective Classroom Teaching-Modern Methods, Tools & Techniques.* Jaipur, India: Mangal Deep.

11. Thamarasseri, I. (2012). *Essentials of Educational Evaluation*. New Delhi, India: Kanishka.

12. गोयल, एम. (2007). *भूगोल शिक्षण.* नई दिल्ली, भारत : वन्दना.

13. दुबे, एस. के. (2014). *भूगोल शिक्षण विधियाँ.* जयपुर, भारतः याकिंग बुक्स.

14. प्रसाद, जी. (2007). *भूगोल शिक्षण.* नई दिल्ली, भारत : डिस्कवरी.

Suggested e-Learning materials:

1. Functions of Regulatory Bodies
   https://mhrd.gov.in/regulatory-bodies

2. Field survey
   http://ncert.nic.in/textbook/pdf/legy305.pdf

GEOG 607 Research Methodology and Statistical Analysis in Geography

Max. Marks : 100	**L**	**T**	**P**	**C**
(CA: 40 + ESA: 60)	**4**	**0**	**0**	**4**

Learning Outcomes:

After the completion of this course, students will be able to:

- Formulate research proposals, hypothesis, data analysis and referencing.
- Develop skill in data collection and sampling techniques.
- Develop skill in multi-variate analysis for the applications of statistical methods in research.
- Write abstract, report, articles and thesis.

Course Content:

Research: Meaning and types of Research; Literature Review, Research Methodology; Hypothesis: Meaning and Basic concept of hypothesis testing; Research Design: Meaning, need and Importance; Data Collection: Types and sources of data, Methods of Data collection, classification of data; designing of a Questionnaire; Data Interpretation Analysis; Sampling: Meaning and Types of Sampling; Chapter scheme, References and bibliography.

Multi-variate Analysis: Multiple correlation; Regression Analysis; Composite Indices; Principal Component Analysis; Time Series Analysis (Temporal Analysis); Writing of Abstract, Articles, Report,Thesis and Plagiarism.

Recommended Books:

1. Ahuja, R. (2014). *Research Methods.* Jaipur, India: Rawat.
2. Alvi, Z. (2005). *Statistical Geography Methods and Applications.* Jaipur and New Delhi, India: Rawat.
3. Dadson, S. J. (2017). *Statistical Analysis of Geographical Data An Introduction.* New Jersey, NJ : John Wiley & Sons.

4. Gupta, S.P. (2012). *Statistical methods*. New Delhi, India: Sultan Chand and sons.

5. Jackson, L.S. (2009). *Research Methods and Statistics*. New Delhi, India: Cengage Learning.

6. Kothari, C. R., & Garg, G. (2014). *Research Methodology Methods and Techniques* (3rd ed.). New Delhi, India: New age International.

7. Kumar, R. (2016). *Research Methods A step-by-step Guide for Beginners* (2nd ed.). Sydny, Australia: Pearson Education and Dorling Kindersley.

8. Mahmood, A. (2017). *Statistical Methods in Geographical studies* (6th ed.). New Delhi, India: Rajesh.

9. Mishra, H. N., & Singh, V. P. (Eds.). (1998).*Research Methodology: Social, spatial and policy dimensions*. Jaipur, India: Rawat.

10. Rao, G.N. (2012). *Research Methodology and quantitative Methods.* Hyderabad, India: B.S.

11. Sarkar, A. (2013). *Quantitative Geography- Techniques and Presentations.* New Delhi, India: Orient Black Swan.

12. नागर, के. एन. (2018). *सांख्यिकीय के मूलतत्व.* मेरठ, भारतः मीनाक्षी.

Suggested e-learning materials:

1. Research design
   http://libguides.usc.edu/writingguide/researchdesigns

2. Hypothesis testing
   http://www.j-pcs.org/article.asp?issn=2395-5414;year=2015;volume=1;issue=1;spage=69;epage=71;aulast= Rana

GEOG 613L Digital Cartography and Geo informatics Lab

Max. Marks : 100	**L**	**T**	**P**	**C**
(CA: 40 + ESA: 60)	**0**	**0**	**8**	**4**

Learning Outcomes-

After the completion of this course, students will be able to:

- Develop skill related to digital cartography – diagrammatic representation of data
- Develop skills in data generation, mapping for the implementation in planning.
- Develop skill of surveying using Global Positioning System.
- Enrich students about applications of geospatial technologies in various fields.

Course Content:

Digital Cartography - Meaning, Scope and Significance; Impact of geo-information technology on cartography; Comparison between digital and manual cartography; Cartographic methods and techniques: Graphs and Diagrams - Line diagram, Bar diagram, Pie diagram, Pyramid diagram; Mapping techniques - Dot, Choropleth, Isopleth; Thematic mapping – types and methods, Map Compilation: base data, thematic data; Remote Sensing: Platforms and Sensors; Resolution of Remote Sensing data: spatial, spectral, radiometric and temporal; Procurement of Satellite Imagery; Geographic Information Systems (GIS): Definition and Components, Spatial data in GIS- Raster and Vector; Image Classification – Supervised and Unsupervised, accuracy assessment; GPS- Introduction and Basic Components; Applications of Geospatial Technology in Agriculture mapping, Landuse/Landcover analysis, Urban change and Watershed management; Surveying with Global Positioning System(GPS)- Rapid static positioning technique and Stop & Go technique.

Recommended Books:

1. Bhatta, B. (2011). *Remote Sensing and GIS (2nd ed.)*. New Delhi, India: Oxford University Press.

2. Campbell, J. B., & Wynne, R. H. (2011). Introduction to Remote Sensing (5th ed.). New york, NY: Guilford

3. Cracknell, A. P., & Hayer, L. (2009). *Introduction to Remote Sensing*. New York, NY: Taylor and Francis.

4. Cromley, G. R. (1992). *Digital Cartography*. New Jersey, NJ: Prentice Hall.

5. Ganesh, A., & Narayanakumar, R. (2006). *GPS Principles and Applications.* Delhi, India: Satish Serial.

6. George, J., & Jeganathan (2018). *Fundamentals of Remote Sensing* (3rd ed.). Hyderabad, India: Universities Press.

7. Gopi, S. (2013). *Global Positioning System- Principles and Applications.* New Delhi, India: McGraw Hill.

8. Kumar, S. (2014). *Basics of Remote Sensing and GIS*, New Delhi, India: University Science Press Laxmi.

9. Lillesand T. M., Kiefer, R. W., & Chipman, J. W. (2008). *Remote Sensing and Image Interpretation* (6th ed.). New York, NY: Wiley & Sons.

10. Lo, C. P., & Albert, K. W. Y. (2002). *Concepts and Techniques of Geographic Information System* (2nd ed.). New Delhi, India: Prentice-Hall.

11. Michael, N. D. (2000). *Fundamentals of Geographic Information Systems*. New York, NY: John Wiley & Sons.

12. Nag, P., & Kudrat, M. (1998). *Digital Remote Sensing.* New Delhi, India: Concept

13. Paine, D. P., & Kisher, J. D. (2012). *Aerial Photography and Image Interpretation* (3rd ed.). Sydney Australia: John Wiley & Sons.

14. Palet, A. N. (1992). *Remote Sensing Principles & Application*. Jodhpur, India: Scientific.

15. चौनियाल, डी. डी. (2010). *सुदूर सवेंदन एवं भौगोलिक सूचना प्रणाली.* इलाहबाद, भारतः शारदा पुस्तक भवन.

Suggested e-learning materials:

1. Principles and applications of GIS

   https://www.environmentalscience.org/principles-applications-gis

2. GPS and Applications

   https://www.cfa.harvard.edu/space_geodesy/ATLAS/applications. html

GEOG 619P Term paper

Max. Marks : 100	**L**	**T**	**P**	**C**
(CA: 40 + ESA: 60)	**0**	**0**	**24**	**12**

Learning Outcomes:

After the completion of this course, students will be able to:

- Understand the aspects of research area and formulate research problem.
- Develop analytical skill.
- Analyze the data and write research articles.
- Develop presentation skill.

Second Semester

GEOG 614D Dissertation

Max. Marks : 100	L	T	P	C
(CA: 40 + ESA: 60)	0	0	36	18

Learning Outcomes:

After the completion of this course, students will be able to:

- Formulate research proposals, hypothesis and collection of data.
- Develop skill in analysis of data and testing of hypothesis.
- Extract results and conclusions.
- Provide suggestions for the development of research area.

GEOG 702S Seminar

Max. Marks : 100	L	T	P	C
(CA: 40 + ESA: 60)	0	0	8	4

Learning Outcomes:

After the completion of this course, students will be able to:

- Identify and formulate research problem.
- Develop skills in data analysis.
- Develop presentation skills.
- Provide suggestions of related research problem.

Reading Electives

GEOG 611R Climate Change and Future Crisis

Max. Marks : 100

L	T	P	C
0	0	0	2

Learning Outcomes:

After the completion of this course, students will be able to:

- Explain and analyze climate change.
- Predict consequences of climate change over several sectors of economy.
- Analyze effects of climate variability on domestic livestock.
- Describe current and past climate change policies in India.

Course Content:

Climate Change; Global warming and regional effect; Projected impact of climatic change in Asia over fisheries, human settlement, food supply, farming systems, health; Climate change and diseases; Climate Change and El-Nino; Impact of climate change on agriculture, soil, desertification (special reference to Rajasthan); Effects of climate variability on domestic livestock; Economics of climate change; Climate change policies of India.

Recommended Books:

1. Singh.A.(2015). *Climate Change and Agriculture*. Jaipur, India: Oxford Book Company.
2. Sharma, H.S.(2018). *Climate Change and Natural resource: A study of Indian Deserts*. New Delhi, India: Global.
3. Baros, V., & Field, C.B.(2014). *Climate Change, Impacts Adaptation and Vulnerability Part B Regional Aspect.*, New York, NY : Cambridge University Press.
4. Cowie, J.(2007). *Climate change and Biological Impacts*. Cambridge, UK : Cambridge University Press.

5. Agarwal, S.K. (2013). *Global Warming and Climate change*. New Delhi, India: A.P.H.

6. Romm, J. (2018). *Climate change what everyone needs to know*. New Delhi, India: Oxford University Press.

Suggested e-learning materials:

1. El-Nino and climate Change https://blogs.ei.columbia.edu/2016/02/02/el-nino-and-global-warming- whats-the-connection/
2. Economics of climate change https://bfi.uchicago.edu/events/CC-climate
3. Climate change policies in India http://envfor.nic.in/division/india-taking-climate-change-24-recent-initiatives

GEOG 612R Contemporary Social Challenges in India

Max. Marks : 100

L	T	P	C
0	0	0	2

Learning Outcomes:

After the completion of this course, students will be able to:

- Analyze the socio cultural environment in India with respect to parameters like sex ratio, fertility and mortality.
- Understand about the causes and consequences of Gender discrimination in Indian society.
- Status of women and domestic violence in Indian society and need of women empowerment.
- Aware about the government policies concerning them.

Course Content:

Socio-cultural transformation and its relation with environment; Social diversity, Social well-being and Quality of life in India with reference

to major religion; Gender inequality in sex ratio, fertility, mortality and child marriage in India; Causes and consequences of Gender discrimination in Indian society with special reference to Literacy and occupational structure; Status of women and domestic violence in Indian society and need of women empowerment in modern India; Government Laws,Policies/schemes and International commitments to women empowerment.

Recommended Books:

1. Ahmad, A. (2006). *Social Geography* (Reprint). Jaipur, India: Rawat.
2. Chandana, R. C. (2014). *A Geography of population (11th ed.).* New Delhi, India: Kalyani.
3. Jetli, K. N. (2010). *Human and Natural Resource of India.* New Delhi India: New Century.
4. Khullar, D. R. (2014). *India, A Comprehensive Geography.(3rd ed.).* Ludhiyana, India: Kalyani.
5. Mehtani, S., & Sinha, A. (2010). *Social Geography*. New Delhi, India: Commonwealth.
6. Ranade, P. S. (1990). *Population Dynamics in India*. New Delhi, India: Ashish.
7. Singh, G. (2010). *Geography of India.*(9th ed.). Delhi, India: Atma Ram.
8. Syed, M. H. (2010). *Social and Cultural Transformation in India*. New Delhi, India: Anmol.

Suggested e-learning materials:

1. Women Empowerment
   https://www.indiacelebrating.com/social-issues/women-empowerment/
2. Socio-culture Transformation
   http://www.yourarticlelibrary.com/society/essay-on-socio-cultural-dynamics-in-indian-society/4022

3. Social Diversity
   http://egyankosh.ac.in/bitstream/123456789/8326/1/Unit-16.pdf
4. Gender Inequality
   https://www.indiacelebrating.com/social-issues/gender-inequality-in-india/
5. Gender Discrimination
   http://www.dailyexcelsior.com/gender-discrimination-india/
6. Occupational Pattern
   https://www.ijmra.us/project%20doc/2018/IJRSS_JANUARY2018/IJMRA-13135.pdf
7. Domestic Violence
   https://www.youthkiawaaz.com/2010/02/domestic-violence-in-india-causes-consequences-and-remedies-2/

GEOG 615R Industrialization and Regional Development

Max. Marks : 100

L	T	P	C
0	0	0	2

Learning Outcomes:

After the completion of this course, students will be able to:

- To describe and ascertain the concepts and theories to industrial location, industrial decentralization and agglomeration.
- To map and explain world industrial regions and associated factors of growth and problems.
- To assess the impact of growth of industries over environment.
- Suggests measures for the improvement of industrial growth.

Course Content:

Industries and their linkage, Aspects for the location of Industries and optimum industrial location, characteristics and problems of Industrial centralization, decentralization and agglomeration; World industrial problems with special reference to developed and developing countries. Regional imbalances in industrialization and role of Industrialization for the regional development with special reference to India and USA. Government policies and efforts for the development of industrialization with special reference to India. Impact of industrialization on environment; Industrial Hazards and Health.

Recommended Books:

1. Gautam, A. (2010). *Advanced Economic Geography.* Allahabad, India: Sharda Pustak Bhawan.
2. Guha, J.L., & Chattoraj, P.R. (2009). *Economic geography – A Study of Resources.*(9th ed.). Kolkata, India: The World Press.
3. Hartshorn, T. A., & Alexander, J. W. (2009). *Economic Geography.* (8th ed.). New Delhi, India: Prentice Hall.
4. Leong, G. C., & Morgan, G. C. (2010). *Human and Economic Geography*. (2nd ed.). New Delhi, India: Saurabh.
5. Sharma, T.C. (2013). *Economic Geography of India*. Jaipur, India: Rawat.
6. Siddharth, K. (2018). *Economic Geography*. (3rd ed.). Allahabad, India: KitabMahal.
7. गौतम, ए. (2015). *आर्थिक भूगोल.* मेरठ, भारतः रस्तोगी.
8. प्रताप, आर. (2006). *औद्योगिक भूगोल.* नई दिल्ली, भारतः यूनिवर्सिटी.
9. मामोरिया, सी. (2012). *आर्थिक भूगोल* (द्वितीय सं.). आगरा, भारतः साहित्य भवन.
10. सिंह, के. एन., एवं सिंह, जे. (2010). *आर्थिक भूगोल के मूलतत्व* (11 वाँ सं.). गोरखपुर, भारतः ज्ञानोदय.

11. सिंह, के. (2009). *आर्थिक भूगोल के मूलतत्व : संसाधन उपयोग, संरक्षण एवं आर्थिक विकास का अध्ययन* (11 वाँ सं.). वाराणसी, भारतः ज्ञानोदय.

12. लोढ़ा, आर. (2009). *औद्योगिक भूगोल* (चतुर्थ सं.). जयपुर, भारतः हिन्दी ग्रन्थ अकादमी.

Suggested e-learning materials:

1. Industrial centralization and decentralization
   https://ebrary.net/7783/management/centralisation
2. Regional imbalances in industrialization
   http://www.yourarticlelibrary.com/india-2/top-9-causes-responsible-for-regional-imbalances-in-india/63001
3. Industry and Environment
   https://postconflict.unep.ch/publications/sudan/07_industry.pdf
4. Industrial Hazards
   https://www.slideshare.net/ShmmonAhmad/industrial-hazard-pdf

GEOG 617R Resource: Challenges and Management

Max. Marks : 100

L	T	P	C
0	0	0	2

Learning Outcomes:

After the completion of this course, students will be able to:

- Analyze the resources and their scarcity.
- Depict the problems arising from resource scarcity.
- Describe resource related problems.
- Suggest measures to conserve resources like water, forest, energy, biodiversity etc.

Course Content:

Resource and Technological Development Stages; Use and misuse of resources; Resource depletion and emerging issues: desertification, deforestation, Loss of Biodiversity, Energy crises, water scarcity and conflicts; Future prospects of energy resources with special reference to India; Resource disputes: river water sharing in India (Narmada, Krishna, Cauvery and Sutlej Yamuna Link-SYL); Conservation of resources (Water, Forest and Energy); Community participation and resource management; Watershed as a unit of resource management; Resource management in India with special reference to arid regions.

Recommended Books:

1. Gautam, A. (2010). *Advanced Economic Geography.* Allahabad, India: Sharda Pustak Bhawan.
2. Guha, J.L., & Chattoraj, P.R. (2009). *Economic geography – A Study of Resources.*(9th ed.). Kolkata, India: The World Press.
3. Hartshorn, T. A., & Alexander, J. W. (2009). *Economic Geography.* (8th ed.). New Delhi, India: Prentice Hall.
4. Jetli K Narindra (2010). *Human and Natural Resource of India*. New Delhi, India: New Century.
5. Khullar, D. R. (2014). *India, A Comprehensive Geography.(3rd ed.)*. Ludhiyana, India: Kalyani.
6. Leong, G. C., & Morgan, G. C. (2010). *Human and Economic Geography*. (2nd ed.). New Delhi, India: Saurabh
7. Pandey B.M (2005) (Ed.) (2005). *Natural Resource Management*. New Delhi, India: Mittal.
8. Qazi S.A. and Qazi N.S (2007). *Natural Resource Conservation.* New Delhi, India: APH.
9. Siddharth, K. (2018). *Economic Geography.*(3rd ed.). Allahabad, India: KitabMahal.
10. Singh, Gopal. (2010). *Geography of India.*(9th ed.). Delhi, India: Atma Ram.

11. Trivedi P.R. (2010). *Natural Resource Conservation*. New Delhi, India: APH.

12. बंसल, एस. सी. (2015). *भारत का भूगोल* (तृतीय संस्करण.). मेरठ, भारतः मीनाक्षी.

13. मामोरिया, सी. (2018). *भारत का वृहत भूगोल.* आगरा, भारतः साहित्य भवन.

14. सिंह, के. (2009). *आर्थिक भूगोल के मूलतत्व : संसाधन उपयोग, संरक्षण एवं आर्थिक विकास का अध्ययन* (11 वाँ सं). वाराणसी, भारतः ज्ञानोदय.

15. सिंह, जे. (2009). *संसाधन भूगोल.* नई दिल्ली, भारतः राधा.

Suggested e-learning materials:

1. Resource Scarcity
   https://www.ipinst.org/wp-content/uploads/2015/06/rscar0408.pdf
2. Resource Scarcity and adequacy
   http://www.yourarticlelibrary.com/economy/important-ideas-concepts-developed-in-economy/25276
3. Use and misuse of natural resource
   https://www.ugc.ac.in/oldpdf/modelcurriculum/Chapter2.pdf
4. Economic development and Resource
   https://helpsavenature.com/how-do-natural-resources-affect-economic-development.
5. Watershed and resource management
   http://kiran.nic.in/pdf/publications/Watershed_Development.pdf

GEOG 618R Solid Waste Management for a Smart City in India

Max. Marks : 100

L	T	P	C
0	0	0	2

Learning Outcomes:

After the completion of this course, students will be able to:

- Understand about the concept, characteristics, rules of solid waste management.

- Learn about biochemical processes and energy recovery from municipal solid waste.
- Learn about the collection, transportation, segregation, composting and disposal of Municipal solid Waste.
- Assess the issues and challenges of Solid Waste Management faced in India.

Course content:

Municipal Solid Waste Management: Characteristics and Quantities, Collection, Transportation, Segregation, Processing and Disposal of Municipal Solid Waste, Landfill; Biochemical Processes and Composting; Energy Recovery from Municipal Solid Waste; Current Issues in Solid Waste Management; Construction and Demolition (C&D) Waste Management – Overview; C&D Waste – Regulation, Beneficial Reuse of C&D Waste Materials; MSW Rules 2016, Electronic Waste (E-Waste) Management – Issues and Status in India; E-Waste Management Rules 2016 and Management Challenges, Swachh Bharat Mission so far.

Recommended Books:

1. Bhatia, S. C. (2007). *Solid &Hazardous Waste Management*. New Delhi, India: Atlantic.
2. Hosetti, B. B. (2016). *Prospects & Perspectives of Solid waste Management.* New Delhi, India: New Age International.
3. Mohd, S. (2011). *Waste Management in an Urban Area.* New Delhi, India: B. R.
4. Singh, J. & Ramanathan, A. L. (Ed.), (2015). *Solid waste Management Present & Future Challenges.* New Delhi, India: I.K. International.
5. Yasmin, S. (2013). *Solid waste Management.* New Delhi, India: Global Research.

Suggested e-learning materials:

1. MSW Management Rules 2016, Govt. of India
   http://cpcb.nic.in/
2. Electronic Waste Management Rules 2016, Govt. of India
   http://cpcb.nic.in/

3. Biochemical Processes and Composting
   http://ecochem.com/t_compost_faq2.html
4. Energy Recovery from Municipal Solid Waste
   https://www.epa.gov/smm/energy-recovery-combustion
   municipal-solid-waste-msw

GEOG 620R Tourism and Heritage

Max. Marks : 100

L	T	P	C
0	0	0	2

Learning Outcomes:

After the completion of this course, students will be able to:

- Describe tourism, its major concepts, development and trends associated with it.
- Able to identify major tourist sites, heritage sites.
- Understand policies and challenges of tourism in India and Rajasthan.
- Explain the role of tourist organizations, foreign capital and globalization on tourism.

Course Content:

Geographical Basis of Tourism and Infrastructure for the development of Tourism; Types of tourism; Identification of tourism sites for regional development; Heritage sites and their significance in tourism; Impacts of Tourism: Physical, Economic & Socio- Cultural; New trends in Tourism: creation & development of tourists spots; Growth, Policies and challenges of Tourism in India and Rajasthan; Tourism organizations and their role for the development of Tourism and employment; Role of foreign capital and impact of Globalization on tourism; Physical and Social barriers of Tourism and solutions.

Recommended Books:

1. Bhatia, A. K. (2002). *Tourism Development: Principles and Practices*. New Delhi, India: Sterling pub.
2. Chen, A. (2015). *The Principles of Geotourism.* Beijing, China: Springer-Verlag.
3. Cooper, C., & Cooper, R. (2012). *Worldwide Destinations: The Geography of Trevel and Tourism.* New York, NY: Routledge.
4. Dowling, R., & Newsome, D. (Eds.). (2005). *Geotourism*. Oxford, UK: Elsevier.
5. Garg, D. (2009). *Geography of Tourism*. New Delhi, India: Mohit.
6. Jayapalan, N. (2013). *An Introduction to Tourism.* New Delhi, India: Atlantic.
7. Kamra, K. K. (2104). *Tourism An Overview*, New Delhi, India: Kanishka.
8. Kaushal, P., & Sharma, S. P. (2011). *Ecological and Environmental Impact of Tourism*. New Delhi, India: Kanishka.
9. Micheal, H. C., & Page, J. S. (2014). *Geography of Tourism and Receration*, New York, NY: Routledge.
10. Nelson, V. (2013). *An Introduction to the Geography of Tourism*. Jaipur, India: Rawat.
11. Pathania, K. S., & Kumar, A. (2008). *Tourism in India*, New Delhi, India: Regal.
12. Sharma, S. P. (2011) :*Tourism Education Principales,Theories and Practices.* (2nd ed.). New Delhi, India: Kanishka.
13. नेगी,जे. (2007). *पर्यटन एवं यात्रा के सिद्धान्त.* नई दिल्ली, भारतः तक्षशिला.
14. शुक्ला, आर. एवं शुक्ला, आर. (2009). *पर्यटन भूगोल.* नई दिल्ली, भारतः अर्जुन.
15. सारण, बी. आर. (2008). *पर्यटन उत्पाद एवं प्रबन्ध.* नई दिल्ली, भारतः कनिष्क.

Suggested e-learning materials:

1. Concept of Tourism
   https://unstats.un.org/unsd/tradeserv/Workshops/Madrid/IWTS_Item09(Philippines).pdf
2. Concept and types of Tourism
   http://oer.nios.ac.in/wiki/index.php/Forms_of_Tourism
3. Impact of Tourism
   http://trcollege.edu.in/articles/74-development-and-impact-of-tourism-industry-in-india
4. Growth of Tourism in India
   http://www.yourarticlelibrary.com/tourism/growth-of-tourism-in-india-its-impact-on-employment-and-economic-development/14110
5. Impact of Globalization on tourism
   https://www.asianentrepreneur.org/globalization-tourism/

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