।। सा विद्या या विमुक्तये ।।

स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठ, नांदेड

"ज्ञानतीर्थ" परिसर, विष्णुपूरी, नांदेड - ४३१६०६ (महाराष्ट्र)

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY NANDED

"Dnyanteerth", Vishnupuri, Nanded - 431606 Maharashtra State (INDIA)

Established on 17th September 1994 – Recognized by the UGC U/s 2(f) and 12(B), NAAC Re-accredited with 'A' Grade

ACADEMIC (1-BOARD OF STUDIES) SECTION

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प्रस्तुत विद्यापीठीय संकुलातील विज्ञान व तंत्रज्ञान विद्याशाखेतील पदव्युत्तर स्तरावरील M. Phil. अभ्यासक्रमाचे CBCS Pattern नुसारचे अभ्यासक्रम शैक्षणिक वर्ष २०२०–२१ पासून लागू करण्याबाबत.

प रि प त्र क

या परिपत्रकान्वये सर्व संबंधितांना कळविण्यात येते की, **दिनांक २० जून २०२० रोजी संपन्न झालेल्या ४७व्या मा. विद्या परिषद बैठकीतील विषय क्र.११/४७–२०२० च्या ठरावानुसार प्रस्तुत विद्यापीठीय संकुलातील विज्ञान व तंत्रज्ञान विद्याशाखेतील पदव्युत्तर स्तरावरील M. Phil. अभ्यासक्रमाचे** खालील विषयांचे **C.B.C.S. (Choice Based Credit System) Pattern** नुसारचे अभ्यासक्रम शैक्षणिक वर्ष २०२०–२१ पासून लागू करण्यात येत आहेत.

01. M.Phil. - Geology
02. M.Phil. - Geography
03. M.Phil. – Environmental Science
04. M.Phil. – Computer Sceicne (Common To Camus & Sub Campus)
05. M.Phil. – Chemistry
06. M.Phil. – Physics

सदरील परिपत्रक व अभ्यासक्रम प्रस्तुत विद्यापीठाच्या **www.srtmun.ac.in** या संकेतस्थळावर उपलब्ध आहेत. तरी सदरील बाब ही सर्व संबंधितांच्या निदर्शनास आणून द्यावी.

'ज्ञानतीर्थ' परिसर,
विष्णुपुरी, नांदेड – ४३१ ६०६.
जा.क्र.: शैक्षणिक–१/परिपत्रक/पदव्युत्तर(संकुल)–सीबीसीएस अभ्यासक्रम/२०२०–२१/५९१

दिनांक : २४.०८.२०२०.

स्वाक्षरित/–
उपकुलसचिव
शैक्षणिक (१–अभ्यासमंडळ) विभाग

प्रत माहिती व पुढील कार्यवाहीस्तव :

१) मा. मा. अधिष्ठाता, विज्ञान व तंत्रज्ञान विद्याशाखा, प्रस्तुत विद्यापीठ.
२) मा. संचालक, परीक्षा व मूल्यमापन मंडळ यांचे कार्यालय, प्रस्तुत विद्यापीठ.
३) मा. संचालक, सर्व संबंधित संकुले, प्रस्तुत विद्यापीठ.
४) साहाय्यक कुलसचिव, पदव्युत्तर विभाग, प्रस्तुत विद्यापीठ.
५) उपकुलसचिव, पात्रता विभाग, प्रस्तुत विद्यापीठ.
६) सिस्टम एक्सपर्ट, शैक्षणिक विभाग, प्रस्तुत विद्यापीठ.

स्वामी रामानंद तीर्थ
मराठवाडा विद्यापीठ,नांदेड.

Master of Philosophy (M. Phil)
in
Geography

Syllabus
With effective from 2020 – 2021

School of Earth Sciences
SWAMI RAMANAND TEERTH
MARATHWADA UNIVERSITY, NANDED

Master of Philosophy (M. Phil)

Geography

School of Earth Sciences
SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

Course Code	Title of Paper	Marks	Credits
MGG-101	Compulsory Paper **Research Methodology in Geography**	100	4
MGG-102	Compulsory Paper **Information Technology in Geographical Research**	100	4
MGG-103	Optional (Any one paper) **A) Research Techniques in Agricultural Geography** **B) Research Techniques in Urban Geography** **C) Research Techniques in Geomorphology** **D) Research Techniques in Population Geography** **E) Research Techniques in Geography of Crime** **F) Research Techniques in Climatology**	100	4
MGG-104	Compulsory Paper **Tools and Techniques in Geography**	100	4
MGG-105	Dissertation	100	4
MGG-106	Viva Voce	100	4
MGG-107	Seminar	25	1
	TOTAL	**625**	**25**

MGG-101: Research Methodology in Geography

Credits 4: Theory Paper

Pre-requisite

The candidate should know the basic concepts from both Physical and Human Geography. He / She should aware about the research lines and trend in Geography. It should be beneficial for the candidates that they have studied and completed some village reports, village surveys, small UG level projects and or PG dissertation.

Course Objectives

The objectives of this paper are, to understand the basic concepts of research in overall manner and specifically with the perspective of Geography and to study the principles of methodology and techniques, choice of topic, new trends in research and applications of digital/ computerized tools in the subject. Its prime aim is to understand and be capable to observe, note, analyze the data and handle it properly for interpreting the facts with scientific and research line.

Course Outcomes

After completion of the paper / course, the students will get capabilities and skills to correlate the natural cycles and manmade activities at primary level and tried to complete cause-n-effect relationship in geographical aspects.

Mode of Assessment

1. Tutorial examinations
2. Home assignments
3. Seminars / Oral Presentation
4. Online / Offline Quizzes
5. Field studies and its presentation
6. Mid-term Theory Examination
7. End-term Theory Examination
8. PPT presentation on selected topic(s)

MGG-101: Research Methodology in Geography (Credits 4 Theory Paper)

Course Contents

Unit	Teaching and Learning points
I	**A) Introduction** • Meaning, concept, nature steps types and their characteristics • Approaches and theories of paradigm and theirs implications in research • Philosophical and sociological foundations of research • Interdisciplinary approach and its implications in various research area **B) Methods of Research** • Qualitative and quantitative methods of research like Historical, case study, ethnography, documentary and content analysis, survey (Normative, descriptive, evaluative etc), field and laboratory experimental studies • Characteristics of methods and their implications in research area
II	**Development of Research Proposal** • Research proposal and its elements • Formulation of research problem-criteria of sources and definition • Development of objectives and characteristics of objectives • Derivation and operationalization of variables • Developing assumptions and applications
III	**A) Methods of Data Collection** • Concept of sampling and other concepts related to sampling • Probability and non-probability samples, their characteristics and implications • Tools of data collections, their types, attributes and uses • Redesigning, research tools: questionnaire, observation, interviews, scales and tests **B) Methods of Data Analysis** • Analysis of qualitative data based on various tools • Analysis of quantitative data and it presentation with tables, graphs etc • Statistical tools of data analysis – measures of central tendency, dispersion, relative position etc • Decision making with hypothesis testing through parametric and non parametric tests • Validity and delimitations of research findings
IV	**Report Writing and Presentation** • Principles of report writing and guide lines according to style manuals • Writing and presentation of preliminary, main body and reference section of report • Presentation of research report

Reference Books:

1. Mishra SB and Alok Shahsi, Handbook of Research Methodology: A Compendium for Scholars & Researchers, Educreation Publishing, New Delhi ISBN: 978-1-5457-0340-3
2. Pagadala Suganda Devi, 2017, Research Methodology: A Handbook for Beginners, Notion Press, Chennai
3. C. R. Kothari, Research Methodology: Methods and Techniques, New Age International
4. H. N. MISHRA, 2017, RESEARCH METHODOLOGY IN GEOGRAPHY, Rawat Publication, ISBN 817033425X, 9788170334255
5. Basil Gomez, John Paul Jones, III, 2010, Research Methods in Geography: A Critical Introduction, Pages displayed by permission of John Wiley & Sons
6. Robin Flowerdew, David M. Martin, Methods in Human Geography: A guide for students doing a research project, Publication Routledge
7. Uwe Flick, Introducing Research Methodology: A Beginner's Guide to Doing a Research Project SAGE
8. Chaudhari Dr SR and Gavit (2015): Geomorphology (in Marathi), Prashant Publications, Jalgaon

MGG-102: Information Technology in Geographical Research

Credits 4: Theory Paper

Pre-requisite

The candidate should know the basic concepts from both Physical and Human Geography. He / She should aware about the computer tools and techniques, it is better to handle computer and its basics.

Course Objectives

The objectives of this paper are, to understand the basics of Computer and allied tools and techniques, to study the basics of computer and its new applications related to the geographical presentation, and its prime aim is to understand and be capable to use of computer, as a skilled beginners.

Course Outcomes

After completion of the paper / course, the students will get capabilities and skills to handle computer and related things for the study and research.

Mode of Assessment

1. Tutorial examinations
2. Home assignments
3. Seminars / Oral Presentation
4. Online / Offline Quizzes
5. Field studies and its presentation
6. Mid-term Theory Examination
7. End-term Theory Examination
8. PPT presentation on selected topic(s)

MGG-102: Information Technology in Geographical Research
(Credits 4 Theory Paper)

Course Contents

Unit	Teaching and Learning points
I	**A) Basics of Computer** • Knowing basics of computers for research applications **B) Introduction to Operating Systems** • MS Windows • Linux
II	**A) Introduction to software** • Application software • Software related to research **B) Using Internet for research** • Internet ethics and information reliability • Finding authenticated information on www • Finding research related resources on www • Knowing research journals on www
III	**A) Introduction to research related software** • Statistical data analysis software: SPSS, MS-Excel • Core calculations software: Mata-lab **B) Utility Programmes** • Developing utility programs for research Programming languages C, Fortran
IV	**A) Research related tools and utilities** • Research publishing tools: MS-Word, Adobe Acrobat, LaTex etc. • Graphic tools: MS-Excel (Graphs), Hayward Graphics • Presentation tools: MS-PowerPoint • Subject/field specific research tools on WWW (Freeware) **B) Introduction to advance research IT related technologies** • Simulation • Modeling • Cluster Computing

Reference Books:

9. Michael Miller, Absolute Beginner's Guide to Computer Basics, Que Publishing
10. Gary B. Shelly, Steven M. Freund, Misty E. Vermaat, 2010, Introduction to Computers, Published by Cengage Learning.
11. Subrata Dasgupta Computer Science: A Very Short Introduction, Oxford University Press.
12. Kenneth C. Laudon, Carol Guercio Traver, Jane Price Laudon, 1997, Information Technology: Concepts and Issues, Course Technology, 1997, ISBN : 0760049173, 9780760049174.
13. Ramesh Bangia, Computer Fundamentals and Information Technology, Publication : n of Firewall Media.
14. Larry E. Long, Nancy Long, 2001, Computers: Information Technology in Perspective, Edition 9, Publisher Prentice Hall, ISBN 0130929891 & 9780130929891.
15. A. Jaiswal, 2003, Fundamentals of Computer and Information Technology, Publisher: Dreamtech Press, ISBN: 8177223267, 9788177223262.

MGG-103(A): Research Techniques in Agricultural Geography

Credits 4: Theory Paper

Pre-requisite

The candidate should know the basic concepts from both Physical and Human Geography. He / She should aware about the research lines and trend in Agricultural Geography. It should be beneficial for the candidates that they have studied and completed some village reports, village surveys, small UG level projects and or PG dissertation related to agrarian fields.

Course Objectives

The objectives of this paper are, to understand the basic concepts of research in overall manner and specifically with the perspective of Agricultural Geography and to study the principles of methodology and techniques of agricultural studies. Its prime aim is to understand and be capable to observe, note, analyze the agricultural data and handle it properly for interpreting the facts with scientific and research line.

Course Outcomes

After completion of the paper / course, the students will get capabilities and skills to correlate the natural cycles and manmade activities at primary level and tried to complete cause-n-effect relationship in agricultural aspects of the region.

Mode of Assessment

1. Tutorial examinations
2. Home assignments
3. Seminars / Oral Presentation
4. Online / Offline Quizzes
5. Field studies and its presentation
6. Mid-term Theory Examination
7. End-term Theory Examination
8. PPT presentation on selected topic(s)

MGG-103(A): Research Techniques in Agricultural Geography
(Credits 4: Theory Paper)
Course Contents

Unit	Teaching and Learning points
I	**Introduction:** • Research in Agricultural Geography: Nature, Scope and Significance • Research Approaches • General and Agricultural Land use: Concepts and Data • Land use surveys and Classification: Uses in Research
II	**Determinants of Agricultural and Research Views:** • Physical Determinants: Relief, Climate, Water, Soil, Biodiversity etc • Socio-economical Determinants: Land holding, marketing, transport, Irrigation, Mechanization • Crop Combination Techniques: Weaver and Thomas Method • Agricultural Efficiency: Kendall's Ranking Coefficient and Bhatia's Method
III	**Problems & Prospects of Agriculture: Local Studies** • Agricultural regions: Climate and Cropping Patterns • Droughts and Famines • Role of Irrigation and Dry Farming • Market and Agro-Industries • Agro-based Small to Large Scaled Industrial Units
IV	**Research Methods / Techniques: Concepts** • Crop Intensity • Agricultural Density • Caloric Density • Nutritional Density • Economic Density • Marginal Resource Density

Reference Books:

1) Aiyer, A.K.Y.N.(1949) – Agricultural and Allied Arts in Vedic India.
2) Grigg. D.G. (1974) – The Agricultural Systems of the world An Evolutionary Approach.
3) Grigg. D.G.(1964) – An Introduction to Agricultural Geography Hutchinson & Co.Ltd.,
4) Illbery, B.W. (1985) – Agricultural Geography, Social & Economic Analysis, Oxford University Press.
5) Morgan. W.B. & S.C. Monton (1971) – Agricultural Geography Methuen, London.
6) Randhawa, M.S. (1980) – An History of Agriculture in India Vols. I, II, III,IV ICAR, New Delhi.
7) Singh. J. and Dhillon S.S. (1994) – Agricultural Geography. Tata McGraw Hill, Publishing Co. Ltd.
8) Symons, Leslie (1970) – Agricultural Geography, G. Belt and Sons Ltd., London.
9) Tarrent, J.R. (1970) – Agricultural Geography, David and Charles, Newton Abbot.

MGG-103(B) : Research Techniques in Urban Geography

Credits- 4 Theory Paper

Pre-requisite: Basic knowledge about elements of urbanisation and physical, culture and social geographical factors with statistical data handling.

Course Objectives: The objectives of this course is to understand urban growth, urban distribution, urban theories and models, urban problems and town planning with their calculation and application in research

Course Outcomes: After completion of the course, the students get capabilities and skills on urban growth, urban distribution, urban theories and models, urban problems and town planning. Also understand the various factor are affected of the urban growth and urban problems, and application of data of urbanization in research.

Mode of Assessment

1. Tutorial examination
2. Home assignments
3. Seminar
4. Field studies
5. Quizzes
6. Oral presentation
7. Mid-term examination
8. End-term examination
9. Dissertation thesis

MGG 103(B): Research Techniques in Urban Geography
(4 Credits Theory Paper)

Course Contents

Unit	Teaching / Learning Points
I	**Urban Geography** – Definition, Nature, Scope & Significance. Origin and Growth of Towns, Difference between Rural & Urban settlements. Urban Settlements-Site and Situation, Types and Pattern, Functional Classification of Towns, Morphology of Towns
II	**Concepts of Urbanization**,Urban growth, City Region, Umland of Town, Spacing of Towns, Rural-Urban Fringe, Rural Urban Linkages, Urban Sprawl, Ribbon corridor. Rank Size Rule, Nearest Neighbour Techniques, Primate City, Nodality Centrality, Range, Threshold & Hierarchy, Central Business District (CBD) and its Characteristics
III	**Theories and Models in Urban Geography** i) Concentric Zone Model by E.W. Burgess, ii) Sector Model by Homer Hoyt. iii) Multiple Nuclei Model by Harris and Ullman. iv) Central Place Theory by Walter Christaller
IV	**Urban Planning:** Town Planning, Elements Of Town Planning , Impotence of Town Planning, Application of Geoinformatics In Town Planning, Master Plans for Towns in India, National Commission On Urbanization And Urban Development, Smart Cities in India, Policies for Urban Developments in India, Problems of Indian Cities

Reference Books:

1. Carter H.(1975):The study of urban geography. Edward Arnold ,London.
2. David Peter & Hopkinson M.(1983): the geography of settlements, Oliver &Boyot,Edinburph.
3. Haggett Peter (1991): Geography a modern synthesis, Harper & Row, New York.
4. Johnston J.H.(1974): Urban Geography, Pergoman Press, Oxford.
5. Johnston R,.J.(1984): City & Society. Unwin hyman, London.
6. King L.J.&Golledge R.G.(1978): Cities, space & Behavior, Prentice Hall, engle wood cliff, New Jersey.
7. Mandal R.B.(2000): Urban Geography, Concept Publishing Co., New Delhi.
8. Mayer H.M. & Cohen (1967): Readings in Urban Geography, Central Book Depot. Allahabad.
9. Northam ray M.(1975): Urban Geography, John Willey & Sons, New York.
10. Ramachandran R.(1991): Urbanization and Urban Systems in India, Oxford Uty. Press. Delhi.
11. Robinson, Brian T.(1973): Urban growth, Mathuen& Company, London.
12.Singh R. L. – Readings in Settlement Geography. The National Geographical Society of India.
13.Sidhartha K. and Mukherjee. S.(2000): cities-Urbanizations & Urban Systems. Kisalaya pub. Pvt.Ltd.,New Delhi.
14. Yeates& Garner (1971): Readings in Urban Geography. The North American City. Harper & Row. New York.

MGG-103(C): Research Techniques in Geomorphology

Credits 4: Theory Paper

Pre-requisite

The candidate should know the basic concepts from Physical Geography. He / She should aware about the research lines and trend in Physical Geography, especially about the Geomorphology. It should be beneficial for the candidates that they have studied and completed some village reports, village surveys, small UG level projects and or PG dissertation related to physical aspects of the field.

Course Objectives

The objectives of this paper are, to understand the basic concepts of research in geomorphology, to study the principles of methodology and techniques, choice of topic, new trends in research and applications of digital/ computerized tools from the physical geography, especially Geomorphology.

Course Outcomes

After completion of the paper / course, the students will get capabilities and skills to correlate the natural cycles and manmade activities at primary level and tried to complete cause-n-effect relationship in geographical aspects.

Mode of Assessment

1. Tutorial examinations
2. Home assignments
3. Seminars / Oral Presentation
4. Online / Offline Quizzes
5. Field studies and its presentation
6. Mid-term Theory Examination
7. End-term Theory Examination
8. PPT presentation on selected topic(s)

MGG-103(C): Research Techniques in Geomorphology
(Credits 4: Theory Paper)

Course Contents

Unit	Teaching and Learning points
I	**Research in Endogenic Forces and Processes:** - Slow Movements (Compression/ Fold , Tension/ Faults) - Sudden Movements (Volcanism and Earthquakes)
II	**Research in Exogenic Forces and Processes:** - Weathering - Mass Movement - Erosion - Deposition
III	**Land Forms:** - Associated with Fluvial and Coastal processes - Landforms associated with Local Region
IV	**Slope Morphology and Soil:** - Types of Slopes - Soil

Reference Books:

In English

10) Thornbury, W. D. (I960): Principles of Geomorphology, John Wiley and Sons, New York.
11) Chorley, R. J., Schumm, S. A. and Sugden, D. E. (1984): Geomorphology, Methuen, London.
12) Savindra Singh (2002): Geomorphology, Prayag Pustak Bhawan, Allahabad
13) Spark B. W. (1972): Geomorphology, Longman, New York
14) Ollier, C. D. (1981) Tectonics and Landforms, Longman, London
15) Strahler A. H and Strahler, A. N. (1992): Modern Physical Geography, John Wiley, New York
16) Fairbridge, R. W. (1968): Encyclopedia of Geomorphology, Reinholdts, New York.

In Marathi

17) Dhoble Shital and others (2017): Geomorphology (in Marathi), Nirali Prakashan, Pune
18) Chaudhari Dr SR and Gavit (2015): Geomorphology (in Marathi), Prashant Publications, Jalgaon
19) Karlekar Shrikant (2015): Physical Geography and Geomorphology, (in Marathi), Daimand, Pune.
20) Pathare and Gajhans (2015): Physical Geography (in Marathi), Vidya Books, Aurangabad.

MGG-103(D): Research Techniques in Population Geography

Credits- 4 Theory Paper

Pre-requisite: Basic knowledge about elements of population and physical, culture and social geographical factors with statistical data handling.

Course Objectives: The objectives of this course is to understand population growth, birth rate, death rate, crude birth rate, crude death rate, infant mortality rate, fertility, mortality, migration, age, sex ratio, age and sex pyramid, population density, their calculation and application in research

Course Outcomes: After completion of the course, the students get capabilities and skills on population geographical techniques, concepts, model and theories related to population geography. Also understand the various factor are affected of the population growth and population problems, and application of population data in research.

Mode of Assessment

1. Tutorial examination
2. Home assignments
3. Seminar
4. Field studies
5. Quizzes
6. Oral presentation
7. Mid-term examination
8. End-term examination
9. Dissertation thesis

MGG-103(D): Research Techniques in Population Geography
(4 Credits Theory Paper)

Course Contents

Unit	Teaching / Learning Points
I	**A. Population Geography:** Nature Scope, subject matter and recent trends, Approaches and Methodology **B. Basic Concepts:** Population Growth, Birth Rate, Death Rate, Crude Birth Rate, Crude Death Rate, Infant mortality Rate, Fertility, Mortality, Migration, Age, Sex Ratio, Age and Sex Pyramid, Density, Work Participation Ratio,
II	**A. Population Growth, Density and Distribution:** 1) **Influencing Factors:** 1) Physical 2) Economic 3) Social 4) Political 2) **World and India** **B. Population Data Collection-** Census of India, National Population Register, Importance of Population Data For Future Planning, Population Projection Methods
III	**A. Population Change:** Fertility, Mortality and Mobility **B. Composition of Population**- Sex Composition, Age Composition **C. Theory and Model:** Basic concept, Scope, Applications and relevance 1) Malthus Theory of Population Growth 2) Demographic Transition Model
IV	**A. Population as a Resource:** 1) Concepts: Over, Optimum and Under population 2) Population Resource Regions **B. Population problems and policies:** Population Policies for More Developed and Less Developed Countries, Population problems and policies in India , National Population Policy-2000

References Books:

1. Barrett H.R.(1992): Population Geography, Oliver and Boyd Longman House,Harlow.
2. Bhende Asha &Kanitkar Tara(1975): principles of population Studies,HimalayaPublishing House, Bombay.
3. Chandna,R.C. &Manjit s. Sidhu(1980): Introduction to Population Geography,Kalyani Publishers, New Delhi.
4. Chandana, R.C. (1984): Geography of Population, Kalyani publisher, Ludhiana.
5. Garnier, J.B. (1976): Geography of Population, Longman Group Ltd., London.
6. Hausier, Philip M & Duncan (Eds.) (1959): The Study of Population, University Press, hicago.
7. Hussein, Majid (1999): Human Geography (2Ed.), Rawat Publications, Jaipur.
8. Ravenstein,E(1889):The Laws of Migration,journal,Royal StatisticalSociety,49,pp241-305.
9. Sinha V.C(1979):Dynamics of India's Population Growth,National PublishingHouse,New Delhi.
10. Smith,T.L)1960): Fundamental of Population Studies, Lipineott, London.
11. Zelinsky, W (1966): A Prologue of Population Geography, Prentice Hall Inc, M.J.
12. Sawant&Athawale A. S: Population Geography, Mehta Kolhapur.

MGG-103(E): Research Techniques in Geography of Crime

Credits- 4 Theory Paper

Pre-requisite: Basic knowledge about elements of crime, criminal laws, population and physical, culture and social geographical factors.

Course Objectives: The objectives of this course are to understand concept of crime and criminology, social change and crime relation, crime mapping with advance techniques.

Course Outcomes: After completion of the course, the students get capabilities and skills on techniques, concepts, model and theories related to geography of crime. Also understand the various geographical factor are affected of the crime nature and rate also, will be develop skills in crime mapping using GIS, RS and GPS

Mode of Assessment

1. Tutorial examination
2. Home assignments
3. Seminar
4. Field studies
5. Quizzes
6. Oral presentation
7. Mid-term examination
8. End-term examination
9. Dissertation thesis

MGG 103(E): Research Techniques in Geography of Crime (4 Credits Theory Paper)

Course Contents

Unit	Teaching / Learning Points
I	**Geography of Crime** – **1**. Definition, Nature, Scope and Significance. **2**. Development of Geography of Crime **3**. Geographical factors affecting on crime rate **4**. Geography of Crime and introduction to Social Geography, Population Geography, Human Geography, **5**. Geography of Urban Crimes
II	**Introduction to Criminology** **1**. Social and Legal concept of Criminology **2**. Criminology and Criminal justice system **3**. Crime and Social Problem **General Principles of Criminology** **1**. School of Criminology **2**. Theories of Criminology **3**. Approaches to Criminology
III	**Contemporary Crimes** **1.** Conventional and New forms of Crime **2.** Crime against women and children **3.** White Collar and Organized Crime **4**. Terrorism and Cyber Crimes **Crime In India** **1.** Extent of Crime in India **2**. National crime record bureau **3**. Prevention of crime **4.** Efforts of UN Crime Congress
IV	**Tools and techniques in Geography of Crime** **1**. Locational relevance in crime analysis **2**.Crime Mapping, **3**.GIS and Remote Sensing application in crime analysis, **4.** GPS for crime analysis **5.** Statistical application in crime analysis

Reference Books:

1. Ahuja Ram (2007), Crime against women. Rawat Publication. Jaipur
2. Ahuja,R. (1996),Sociological Criminology, New Age International Publishers, New Delhi.
3. Alexander F. and Staub H.(1962), The Criminal, The Judge and The Public: A Psychological
4. Annual Reports, National Crime Records Bureau, New Delhi.
5. Cahil M.E. (2005), Geographies of Urban Crime: Introduction Study of Crime in Nashville, TN, Portland.
6. Chang, D.H. (1976), Criminology: A Cross Cultural Perspective, Carolina Academic Press, U.S.A.Crime, University of North Carolina Press, Ohio.
7. Criminology, Sage Publication, Beverly Hills.
8. Das S. and Chattopadha B. (1991), Rural Crime in Police Perception: study of Village Crime Notebooks, Economic and Political Weekly.
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MGG-103(F): Research Techniques in Climatology

Credits- 4 Theory Paper

Pre-requisite: Basic knowledge about weather and climate elements, handling of statistical data, geographical factors and their relationship with climatic activities

Course Objectives: After completion of the course the student gets knowledge about the climatic activities are their relation to geographical factors. On successful completion of the module, students should be capable of explaining the climate change and their effect on human activities. Students are able to explain the research techniques in climatology

Course Outcomes: This course is useful in understanding about basics of weather and climate. This will be useful for application in their daily activates related to climate. Knowledge of this course will used for climate change and classification of world climate understanding, and research in climatology.

Mode of Assessment:

1. Tutorial examination
2. Home assignments
3. Seminar
4. Field studies
5. Quizzes
6. Oral presentation
7. Mid-term examination
8. End-term examination
9. Dissertation thesis

MGG-103(F): Research Techniques in Climatology (4 Credits Theory Paper)

Course Contents

Unit	Teaching / Learning Points
I	**A) Basic Concepts:** Weather and Climate, Nature and Scope of Climatology, Development of Modern Climatology **B) Climatic Data:** Nature and sources of climatic data, Weather Instruments **B) Earth's Atmosphere:** Composition and Vertical Structure, Heat Balance and Budget of Earth
II	**A) Temperature and Air Pressure:** Distribution of Temperature: Vertical and Horizontal, Distribution of Pressure, Atmospheric pressure & general circulation of winds **B) Humidity:** Evaporation, Humidity, Condensation, Formation of Clouds and their types Precipitation – types and characteristics.
III	**A) Air Masses and Fronts:** Source Regions, Classification, Frontogenesis and Frontolysis, Types of Fronts. **B) Atmospheric Disturbances:** Cyclones, Anticyclones, Storms, Water spouts, thunderstorms and tornadoes. **C) Classification of Climate:** Bases of Classification, Koppen's Classification of Climate
IV	**Introduction to Climatic Graphs, Maps and Diagram:** Construction and Interpretations of Climatic Graphs Preparation and Interpretation of the Climatic diagram and Maps Indian Daily Weather Report
Grand Total	

Reference Books:

1. Frederick K. Lutgen, Edward Tar buck: "The Atmosphere An Introduction to Meteorology" Prentice Hall, Englewood Cliffs, New Jersey 0762 ,1998
2. Pettersons : "Introduction to Meteorology " ---------,,---------- 1969
3. RichlH : "Introduction to Atmosphere"---------,,---------- 1972
4. Sellers W.D : "Physical Climatology"University of Chicago Press. 1965
5. Trewartha G.T: An Introduction to climate "McGraw Hill BK Co. New York, 1968.
6. Das P. K. : The Mansoon, PrayagpustakBhavan, Allahabad.
7. Shastri Rama: Weather and Weather Forecasting, Ministry & Information NBT Delhi.
8. Lal D. S.: Climatology. PrayagpustakBhavan, Allahabad.
9. Ramashatri: Weather & Weather forecasting, Ministry of Information & Broadcasting.
10. Savindra Sing (2000) : Climatology, PrayagPustakBhavan, Allahabad.
11. Mather JR (1975): Climatology : Fundamentals & Applications. Mc Gray Hills Book, New York.
12. Hobbs J.E. (1980) : Applied Climatology, Butterworth, London
13. Crist Field : Principles of Climatology; Prentice Hall, London.
14. Oliver J. E. (1973) : Climate & Mans Environment, John Wiley & Sons; New York.
15. Byers R.H. : "General Meteorology "McGraw Hill BKCo New York 1974

MGG-104: Tools and Techniques in Geography

Credits- 4 Theory Paper

Pre-requisite: Basic knowledge about elements of maps, Remote Sensing and GIS with statistical data handling.

Course Objectives: The objectives of this course is to understand Maps, Graphs and Diagrams, Statistical Methods, Remote Sensing, Global Positioning System, Geographical Information System with their calculation, analysis and application in research

Course Outcomes: After completion of the course, the students get capabilities and skills on Maps, Graphs and Diagrams, Statistical Methods, Remote Sensing, Global Positioning System, Geographical Information System with their calculation, analysis and application in research.

Mode of Assessment

1. Tutorial examination
2. Home assignments
3. Seminar
4. Field studies
5. Quizzes
6. Oral presentation
7. Mid-term examination
8. End-term examination
9. Dissertation thesis

MGG-104 Tools and Techniques in Geography (4 Credits Theory Paper)

Course Contents

Unit	Teaching / Learning Points
I	**Maps, Graphs and Diagrams** Basic elements of maps, types of maps, use of map in geographical research, cartographic techniques – Choropleth maps, Dot maps, Isopleth maps, types of graphs and diagrams, graphs and diagrams construction and visualization, use of graphs and diagrams in geographic data representation.
II	**Statistical Methods** What is the Data, data collection methods, data analysis, data tabulation, field survey, sample survey, questionnaire, , preparation of questionnaire, application of statistical method in Geography-mean, mode, median, standard deviation, lorenz curve , correlation, hypothesis testing,
III	**Remote Sensing** Basic concept of Remote Sensing, types of remote sensing, types of satellite image and their characteristics, sensor and types of sensor, image classification – supervised and unsupervised, recent developments of Indian Remote Sensing Satellite Programme, environmental, meteorological and communication satellite remote sensing, satellite data download from Google Earth, Bhuvan and USGS website, application of remote sensing in Geographical research.
IV	**Geographical Information System** History and development of GIS, components of GIS, hardware and software for GIS, Grid system, , raster and vector data, data base management system, spatial data input: digitization and conversion, future of GIS, application of GIS in Geographical research.
V	**Global Positioning System** Introduction to GPS; types of GPS; GPS satellite; data receiver and control points; Differential GPS; sources of GPS errors;, mapping and navigation. application of GPS in Geographical research
Grand Total	

Reference Books:

1. Monkhouse F.X.J. and Wilkinson H. R.(1971), Maps and Diagrams, London.
2. Ramamurthy, K. (1982): Map interpretation, Madras
3. Chang Kang-tsung. (2002): Introduction to GIS, TataMcGraw Hill, New Delhi.
4. N.K.Agarwal.(2004) , Essentials of GPS, Spatial Network Pvt. Ltd.
5. Lo, C.P.and Yeung AKW.(2004), Concepts and Techniques of GIS, Prentice – Hall of India, New Delhi.
6. Leicka. A : GPS Satellite Surveying, John Wiley and Sons, New York.
7. Floyd, F. Sabins, Jr. (1986): Remote Sensing: Principles and Interpretation, W.H. Freeman, N.Y.
8. Jensen, John R. 2000. Remote Sensing of the Environment – An Earth Resource Perspective. Pearson Education (First Indian Edition, 2003).
9. Peuquet, D.J. & Marble, D.F. : Introductory Readings in Geographic information Systems Taylor & Francis, Washington, 1990
10. S.C Gupta (2012) Fundamentals of Statistics, Himalaya Publishing House.
11. R.L Sing (2003) Elements of Practical Geography, Kalyani Publishers, New Delhi
12. Gopal Sing (2004) Map work and practical Geography. Vikas Publication House pvt.ltd
13. Gupta ,K.K. and Tyagi V.C (1992) Working with Maps, Survey of India Publication.