DEPARTMENT OF GEOGRAPHY

Aditi Mahavidyalaya
University of Delhi
Bachelor of Arts (Hons) Geography – LOCF

OUTCOME-BASED EDUCATION ANALYSIS

DEPARTMENT: GEOGRAPHY

COURSE/NAME OF THE PAPER: GEOMORPHOLOGY, CARTOGRAPHIC TECHNIQUES, FIELD TECHNIQUES AND RESEARCH METHODOLOGY, REMOTE SENSING AND GIS

COURSE CODE:

CREDITS- 6, 12, 12, 12

SEMESTER: I, II, IV, V

NO. OF TOTAL STUDENTS:

PERCENTAGE OF STUDENTS PASSED: 100%

INTRODUCTION

The Choice Based Credit System (CBCS) offers a uniform structure to the undergraduate curriculum. The B. A. Honours programme in Geography offers a choice of varied papers covering theoretical, practical and applied aspects of the discipline. It is designed to cover both traditional and contemporary framework of study, thus giving wide scope to the learners to apply their knowledge and skills in real scenarios. Teaching-learning methods have also evolved from purely lecture mode to demonstrative techniques of knowledge enabling process. The main objective is to develop an aptitude towards erudition that is rich in its content as well as it delivers the requirement of the present-day society and industry. The curriculum has been carefully designed to include conceptual, practical, experiential and skill building component

SYLLABUS

PAPER NAME: GEOMORPHOLOGY

1. Geomorphology: Nature and Scope.
2. Earth: Interior Structure and Isostasy.
3. Earth Movements: Plate Tectonics, Types of Folds and Faults, Earthquakes and Volcanoes.
4. Geomorphic Processes: Weathering, Mass Wasting, Cycle of Erosion (Davis and Penck).
2. Evolution of Landforms (Erosional and Depositional): Fluvial, Karst, Aeolian, Glacial, and Coastal.

PAPER NAME: CARTOGRAPHIC TECHNIQUES

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1. Cartography – Nature and Scope.
2. Scales – Concept and application; Graphical Construction of Plain, Comparative and Diagonal Scales.
3. Map Projections – Classification, Properties and Uses; Graphical Construction of Polar Zenithal Stereographic, Bonne's and Mercator's Projections, and reference to Universal Transverse Mercator (UTM) Projection.
4. Topographical Map – Interpretation of a Mountain area with the help of Cross and Longitudinal Profiles. 5. Slope Analysis – Wentworth's method.

PAPER NAME: FIELD TECHNIQUES AND RESEARCH METHODOLOGY

1. Field Work In Geographical Studies – Role, Value, Data and Ethics of Field-Work
2. Defining the Field and Identifying the Case Study – Rural / Urban / Physical / Human / Environmental. 3. Field Techniques – Merits, Demerits and Selection of the Appropriate Technique; Observation (Participant / Non Participant), Questionnaires (Open/ Closed / Structured / Non-Structured); Interview with Special Focus on Focused Group Discussions; Space Survey (Transects and Quadrants, Constructing a Sketch)
4. Use of Field Tools – Collection of Material for Physical and Socio-Economic Surveys.
5. Designing the Field Report – Aims and Objectives, Methodology, Analysis, Interpretation and Writing the Report.

PAPER NAME: REMOTE SENSING ANF GIS

1. Remote Sensing and GIS: Definition and Components, Development, Platforms and Types,
2. Aerial Photography and Satellite Remote Sensing: Principles, Types and Geometry of Aerial Photograph; Principles of Remote Sensing, EMR Interaction with Atmosphere and Earth Surface; Satellites (Landsat and IRS) and Sensors.
3. GIS Data Structures: Types (spatial and Non-spatial), Raster and Vector Data Structure
4. Image Processing (Digital and Manual) and Data Analysis: Pre-processing (Radiometric and Geometric Correction), Enhancement (Filtering); Classification (Supervised and Un-supervised), Geo-Referencing; Editing and Output; Overlays 5. Interpretation and Application of Remote Sensing and GIS: Land use/ Land Cover, Urban Sprawl Analysis; Forests Monitoring

LEARNING OBJECTIVES

1. To orient the students towards identification and analysis of various facets of geographical features and processes. 2. To develop students' aptitude for acquiring basic skills of carrying out field work.
3. To facilitate the students to learn skills of map making.
4. To guide students to learn the science and art of collecting, processing and interpreting the data.
5. To expose the students to the use of the updated technologies of remote sensing, IRNSS, GNSS, Geographical Information System (GIS) and GI Science.

LEARNING OUTCOME

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The learning outcome is to prepare the students of B.A. Honours degree in Geography, to understand the development of the subject and delve around issues suited to the needs of the contemporary world. It covers a wide range of papers covering various themes and also maintains uniformity of structure across universities in the country. Geography being interdisciplinary in nature integrates learning derived from all basic andapplied sciences/social sciences.

Nature and Extent of Programme: The Learning Outcomes-based Curriculum Framework (LOCF) for the B.A. (Honours) degree in Geography is intended to develop as per the requirements of the subject with emerging new domains of Geography. The framework allows for flexibility in programme design and course content along with maintaining a basic uniformity in structure in comparison with other universities across the country. The B.A. (Honours) Geography programme covers a wide range of fundamental and applied courses as well as courses of interdisciplinary nature. The core courses are designed to develop strong subject knowledge base in the student and apprise them with the applied aspects of this dynamic global discipline. The programme offers a wide range of elective courses to the student to choose from. The syllabi include skill enhancement courses that prepare the student for a career in academia or industry.

Aims of Bachelor degree programme in Geography: The student is equipped to pursue higher studies in an institution of her/his choice, and to apply the skills learnt in the programme to solving practical societal problems. The student will also be ready to join the industry as trained workforce.

PROGRAM DEVELOPMENT OUTCOME FOR STUDENTS LEARNING

1. Disciplinary Knowledge: Students gain in-depth knowledge of basic and applied areas of geography. Core and discipline courses train them in fundamental branches of the subject. Technical and skill courses help them to learn tools and technics. Geography student gets a unique opportunity to experiment and observe on the field.
2. Communication Skills: Students develops effective communication skills through oral presentations, and group discussions on the subject content. Besides interviewing people, field surveys and public dealing with a different cadre of people makes him/her confident in communication. The compiling, processing and analysing the information from the field; and presenting in the form of reports enhances written communication skills.
3. Critical Thinking: Geography subject creates scientific logic aptitude and approaches a problem through critical reasoning. The course content is enabled to stimulate the questioning capacity for what, where, who, when and how. The papers like Environmental Geography, Disaster Management, Global Economic System, Resource Management to name a few.

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4. Problem Solving: The understanding about surroundings, the issues that concerns life, climate or to that matter water crisis etc makes students yearn to look for solutions. Geography discipline has the flair which connects to everyday living and survival thus generates problem solving aptitude.
5. Analytical Reasoning: The geography course teaches variety of tools, techniques and data handling which develop analytical reasoning to solve the issues. In fact the training in all these courses is meant to develop the analytical reasoning, mining the data from satellite images, aerial photographs and observations to arrive at interpretations and inferences.
6. Research Related Skills: The course content trains students to learn basic research design, data collection process, and ethics to conduct research work through fieldwork. The specially developed course on research methodology and fieldwork acquaint them to prepare questionnaires, selecting sample plans, identifying right kind of objectives, data collections methods, field exposure, mental mapping, reproducing the observations, analysis and finally to prepare reports.
7. Cooperation/ Teamwork: The course enables to develop skill to work with students ofdiverse backgrounds and cooperation on same topic will increase better understanding. The group assignments and presentations are essential elements in the course design that will inculcate the team spirits. The field excursions help develop great bonding; working and executing the plans on ground .They also learn to work as team in case any emergency with group member away from institution/home/or city.
8. Scientific Reasoning: Course will develop critical analysis of theories and models, raising critical questions about the theories and models, developing hypothesis and learning their testing. Many of the courses in geography are truly scientific in nature which will generate scientific reasoning aptitude and also skills to look towards new approaches.
9. Reflective Thinking: A graduate who successfully completes his/her course should be able to reflect on the assimilated knowledge so as to apply these skills at different levels. Whether they go for masters in pure or applied disciplines, it will inculcate a sense of understanding of the world to manage real world problems. Any teaching learning process is incomplete without clear refection of the theoretical, practical and applied knowledge of the subject. A degree in geography has ample

   scope in other field of studies too as the subject with its interdisciplinary approach helps the learners to think in a more comprehensive manner.
10. Information and Digital Library: The student of geography is always encouraged to explore beyond the basic textbooks. Besides availability of all types of reading material, a student needs to invest in learning and consulting from various open source library to expand the

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vista of their knowledge acquiring capability. Since it is a subject that does not completely rely on traditional text book oriented studies but has to delve deeper and research enough to keep pace with the ever-changing world. Thus the World Wide Web has proved to be very useful in keeping oneself apprised and continuously update ones knowledge base. The usage of open source software, tools and open access reading material are part of the curriculum which will train them for digital world.

11. Self Directed Learning: A graduate in the discipline of geography has to engage continuously in a learning process that can give a sense of direction to him/her. Different types of project work and field oriented papers encourages the pupil to take up self directed task so as to widen their research horizon and ultimately look beyond the basic course book. Anyone with a mindset to move beyond the curriculum has to go for self-learning as the teaching content is fixed and defined. Under the supervision of the teacher one can easily involve themselves in fruitful learning. This will enable the students to take up task that is well understood and adapting themselves to the changing curriculum needs.
12. Multicultural Competence: Geography is a discipline which is not limited to any specific place or space. Its identity is based on multi-plural, multi-cultural and multi sited ethnography. As a subject, it emphasizes on regional and cultural studies which involves detailed understanding of places and perceptions. Also as a disciplinarian, it allows the learner to learn about both their own culture as well as those of their distant counterparts. This diversified knowledge also helps them to respect all fellows following varied community norms, traditions and practices. Field studies have been much helpful in introducing multicultural competencies to students of geography.
13. Moral and ethical awareness: In the age of fast technological changes and in the attempt to obtain an increased level of comforts. Today is the age in which the social order of the national state, class, ethnicity and traditional family needs more attention. In this scenario, Geography curriculum attempts to explain rights and duties not only towards working and fellow citizens but also towards nature and resources. The student will appreciate the balanced interactions, personal space, and common/community space. Geography will play its part in nurturing values and ethics in future citizens of the world.
14. Leadership Readiness/ Quality: A good leader needs to have the knowledge, rational thinking and ready to act at the time of need. Geography encourages to have descriptive and explanatory knowledge of one's surroundings and the globe as a whole, it develops rational thinking and prepares the students to think about alternative social, economic and environmental futures. So a geography student will be a good leader and will contribute in different capacities. Lifelong learning: Lifelong learning is a seamless process of learning

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from primary education to higher levels and even during one's profession through formal or informal modes. The core of the Geography is the man-environment interaction, which remains relevant for all at all stages of human life. So the basic knowledge and the tools Geographer learns help them in their future life and the process of learning will continue throughout life.

PROGRAMME LEARNING OUTCOMES IN THE COURSE

1. The learning outcome is to prepare the students of BA Honours degree in Geography, to understand the development of the subject and delve around issues suited to the needs of the contemporary world. It covers a wide range of papers covering various themes and also maintains uniformity of structure across universities in the country. Geography being interdisciplinary in nature integrates learning derived from all basic and applied sciences/social sciences.
2. Students of the program will learn to use geographic understanding of various sub-fields such as physiography, resources, global economic systems, socio- cultural aspects, rural and urban milieu, environmental and disaster studies and mapping methods.
3. They are trained to read and interpret maps, prepare transect charts and thematic atlas.
4. They are also able to read and analyse weather phenomenon through weather maps and charts.
5. Students will acquire scientific methodology of data handling, hypothesis generation, testing and analysis. 6. After the completion of the course, students will also gain knowledge of various technological applications through study of Remote Sensing and Geographic Information Science.
7. The curriculum also provides an opportunity to digitally produce maps and modelling applications. • The students also learn hand on skills to prepare building disaster plans, community disaster preparedness and also awareness creation. 8. They will also develop an understanding of global issues from economic, social, environmental and political perspectives, which has relevance in further studies all across the globe.
9. They also develop effective communication skills, team work, travel exposure and zeal of investigation and exploration. 10. The learners can greatly contribute to the subject through teaching, research and field-oriented studies. \The students will also be able to pursue a career in spatial planning, sustainable practices, environmental and resource management. 11. The geography graduates will be well informed citizens who can play immense role in the civil society too. They will be able to pursue wide range of careers as planners, administrators, academicians, and managers.

COURSE-LEVEL LEARNING OUTCOME MATRIX FOR SELECTED SUBJECTS

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OUTCOMES	SUB -1	SUB-2	SUB-3	SUB-4
Basic concept	✓	✓	✓	✓
Identification of critical problem and issues	✓	✓	✓	✓
Field based knowledge				✓
Spatial tools and techniques		✓	✓	✓
Statistical techniques		✓	✓	✓
Case study-based analysis				
Applied dimension				

Communication skills				

TEACHING-LEARNING PROCESS TECHNIQUES FOR LEARNING OBJECTIVES

- Classroom discussions and interactive learning.
- Audio-visual presentation/ teaching methods.
- Presentation by students.
- Individuals/group training to work with software.
- Developing research skills through assignments/projects.
- Conduct theme-basedgroup activities.
- Developing Effective communication skills through group discussion.
- Beyond classroom teaching/learning through field excursions.
- Writing of reports/project

CLASSROOM LEARNING PRACTICAL LEARNING

LECTURES FIELDWORK

ORIENTATION PROGRAM CAMPING

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GROUP DISCUSSION WORKSHOP

ROLEPLAY CAREER COUNSELLING

FILM SCREENING SOCIETY EVENTS

CONFERENCES/SEMINAR PEER COUNSELLING

REPORT PREPARATION

SKILL DEVELOPMENT WORKSHOP

MENTORSHIP

PAPER OBJECTIVES AND LEARNING OUTCOMES

Paper Name: Geomorphology

Paper Code: 12291101

Course Objectives:

1. To understand the associations between geomorphologic landforms, concepts and processes.
2. To critically evaluate and connect information about geomorphic processes.
3. To provide a theoretical and empirical framework for understanding landscape evolution and the characteristics of individual types of geomorphic landscapes

Learning Outcomes:

After completion of this course, students will be able to

1. understand the functioning of Earth systems in real time and analyze how the natural and anthropogenic operating factors affects the development of landforms
2. distinguish between the mechanisms that control these processes
3. assess the roles of structure, stage and time in shaping the landforms, interpret geomorphological maps and apply the knowledge in geographical research.

Name of the Paper: Cartographic Techniques

Paper Code: 12201202

Paper Objectives:

1. To understand various mapping techniques and data analysis

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2. To prepare practical record file using case study

Learning Outcomes:

1. Read and prepare maps.
2. Comprehend locational and spatial aspects of the earth surface.
3. Use and importance of maps for regional development and decision making.

Name of paper: Field Work and Research Methodology (Practical)

Paper Code: 12291403

Course Objectives:

1. Various dimensions of fieldwork and its role in geographical studies.
2. Detailed analysis of different field techniques.
3. Understanding of report writing and field tools.

Learning Outcome:

1. Detailed exposure of new geographical landscape as a study area.
2. In-depth knowledge of different field techniques.
3. Understanding the field ethics and different tools of field study.

Name of paper: Remote Sensing and GIS (Practical)

PAPER CODE: 12291502

Course Objectives:

1. The course aim is to give basic technical knowledge and practical experience in digital remote sensing. 2. Knowledge and practical experience in handling satellite images focusing on hands-on experience of image pre-processing, enhancement and classification;
3. Better understand the techniques for the study of land use land cover and urban study.

Learning Outcome:

This is a practical, hands-on course; when you have completed it, you will be able to:

1. Explain principles of remote sensing, different satellite systems and sensors;
2. Perform image pre-processing, enhancement and classification and interpretation of satellite images; 3. Apply Image pre-processing for land use land cover and urban studies.

How paper in the course help to become technologically updated and made aware?

- The program demonstrate the skills in using geographical research tools including spatial statistics, cartography, remote sensing, GIS, IRNSS and GI Science.
- The course enable students to learn various mapping softwares, mapping techniques, satellite imagery interpretation, GPS and map making.

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- Based on the field knowledge and advanced technologies, the students should be able to understand the on-going geographical problems in different regions and levels with appropriate pragmatic solutions.
- Research-related and Analytical Reasoning Skills
- Digital Literacy

Program Outcome according to Bloom's Taxonomy

Course		PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
B.A. (HONS) GEOGRAPHY	CO1						
	CO2						
	CO3						
	CO4						

Average attendance of students in the Course?

Different pedagogical and Peer Learning used for Course Outcome

- Three courses on Statistical Techniques in Spatial Analysis; Remote Sensing and

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Geographical Information System, GIScience and Research Methods and Fieldwork in Geography will strengthen the methodological and practical foundations of geography. Study Tours/ Field trips provide opportunities to the learners to test their in-class learning in real life situations as well as to understand the functional diversity in the learning spaces. These may include visits to sites of knowledge creation, preservation, dissemination and application. Institutions may devise their own methods to substitute/modify this aspect. digital satellite data using software.

 Prepare the maps based with satellite data to compare with the ground realities.

 Group discussion, assignments, projects, PPT presentation, role play, practical record file

Skill, Knowledge and value-added after the Course

Analytical Competency				
Problem-solving competence				
Leadership				
Time management				
Team Work/ Collaboration Skills				
Communication Competence				
IT Skill				
Critical Thinking				

Entrepreneurial/ Job				
Any Other, Specify				
Overall Development after Course				

JOB OPPORTUNITIES

 Teacher/Assistant Professor

 Cartographic Assistant/Cartographer

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- Project Fellow
- Urban Planner/ Environmentalistor Regional Planner
- Disaster Management fellow and Counsellors
- GIS Analyst
- Satellite Mapping Analyst

COMMUNITY OUTREACH PROGRAM AND WORKSHOP

Number of Seminars/conferences/workshops conducted by the Department for learning outcome

2019-20	Conducted an Orientation program		20/Jul/2019
2019-20	Organized one-day workshop on GIS and Roundtable discussion on GIS Resource Person: Ms.Bratati Dey		30/Jan/2020
2019-20	Organized local survey to a Sewage Treatment Plant of Rithala, Delhi Resource Person: Mr. Neeraj Kumar	8	30/Jan/2020
2019-20	Organized Annual extravaganza GEO-FEST with the focal theme inspired by SDG 6 "Clean Water and Sanitation"		19-20-Feb-2020
2019-20	Organized a talk on "Watershed Management as a Tool for Sustainable Water Resource Conservation and Management" Resource Person: Dr. B.W. Pandey		20/Feb/2020
2019-20	Organized a talk on "Integrated Solid Waste Management for Sustainable Future Earth" Resource Person: Dr. Subash Anand		20/Feb/2020

Year	Name of the workshop/ seminar/ conferences	No. of participants	Date
2020-21	Webinar on "GIS Application and Career Opportunities" in collaboration with NIGMT foundation	89	11/May/2020

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2020-21	Webinar on "GPS and it's applications" in collaboration with Swastik Edustart, Institute of GIS and Remote Sensing, New Delhi Resource Person: Dr Bratati Dey	120	29/Jun/2021
2020-21	Special virtual talk session in collaboration with Art of Living on the topic MIND TALK Resource Person: Mr. Neeraj Gera	100	12/Jul/2021
2020-21	Webinar on "GIS Application and Career opportunities" in collaboration with NIGMT Foundation (Netra Institution of Geo-informatics Management and Technology Foundation), Institute of GIS, New Delhi Resource Person: Mr. Ravindra Nath Tiwari	89	22/Jul/2021
2019-20	Organized one-day workshop on GIS and Roundtable discussion on GIS Resource Person: Ms.Bratati Dey	35	30/Jan/2020
2019-20	Organized local survey to a Sewage Treatment Plant of Rithala, Delhi One Teacher	8	30/Jan/2020

STUDENTS LIST

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Swarna Kapil	21002513051
Thanmai Kumaram	21002513054
Khushi Mann	21002513013
Nidhi Kumari	21002513022
Suhani Sharma	21002513050
Tanvi Aggarwal	21002513053
Monali Gupta	21002513018
Shalini Patel	
Vanhishikha vyas	21002513056
Jyoti	21002513011
Premlata	21002513025
Shiva Rathaur	21002513040
Komal Kumari	21002513015

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Shakshi Gupta	21002513037
Sarita Yadav	21002513036
Aditi Pal Gupta	21002513001
Amrapali	21002513002
Simran Shail	21002513044
Priti Kumari	21002513026
sweta Rathor	21002513052
Sakshi Priya	21002513032
Reena Sudarshan	21002513028
Deepanshi Simar	21002513005
Dikshi Das	21002513007
Muskan	21002513019
Neilakhonuo Mere	21002513021

PAPER NAME: FIELDWORK AND RESEARCH METHODOLOGY

NAME	ROLL NO.
Srishti Mehta	2002001
Ishita Sharma	2002002
Shivani Chaudhari	2002003
Antara Pal	2002004
Tanya Chadha	2002005
Sumedha chatterjee	2002006
Lucky Sindhu	2002007
Ishika Singh	2002008
Kritika Arora	2002012
Priyanshi Sharma	2002013
Rachna Kumari	2002014

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Nitya Rao	2002015

Neha	2002016
Hemangi Sen	2002017
Kritika Kumari	2002018
Simran Sahu	2002021
Preeti Kumari	2002022
Shalini Singh	2002023
Diya Jalal	2002025
Aastha Bhardwaj	2002026
Ruchi	2002027
Suchana Maity	2002032
Simran	2002033
Sakshi Kumari	2002037
Anchal	2002038
Bhavna	2002039
Muskan	2002040
Bhumika Atri	2002041
Ipsita Singh	2002042
Priyanshi	2002043
Aastha kumari	2002044
Vandana	2002049
Shweta Singh	2002050
Hadia Shaheen	2002052
Aditi Bharti	2002053
Sakshi	2002055
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Anju Maurya	2002060

PAPER NAME: REMOTE SENSING AND GIS

Name of the Student	College Roll No.
Mehak	1902001
Swaliha	1902002
Sugandha	1902004
Sneha	1902005
Asha	1902008
Simran	1902010
Heena	1902012
Nikita	1902013
Paridhi	1902014
Meha	1902015
Monu	1902019
Ravina	1902020

Ankita	1902021
Shatakshi	1902022
Nidhi	1902023
Firdous	1902024
Sandhya	1902025
Rubina	1902027
Suman Kushwaha	1902030
Mousumi Majumdar	1902031
Hemlata Singh	1902032
Jyoti Kumari	1902033
Kirti	1902034
Swati	1902035

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Preeti Parjapati	1902038
Vidya Gupta	1902039
Sweety Roy	1902040
Salma	1902041
Roshan	1902042
Inderpreet Kaur	1902043
Harshita	1902044
Varsha Banarji	1902045
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DEPARTMENT OF GEOGRAPHY

Aditi Mahavidyalaya
University of Delhi
Bachelor of Arts (Hons) Geography – LOCF

OUTCOME-BASED EDUCATION ANALYSIS

DEPARTMENT: GEOGRAPHY

COURSE/NAME OF THE PAPER: GEOMORPHOLOGY, CARTOGRAPHIC TECHNIQUES, FIELD TECHNIQUES AND RESEARCH METHODOLOGY, REMOTE SENSING AND GIS

COURSE CODE:

CREDITS- 6, 12, 12, 12

SEMESTER: I, II, IV, V

NO. OF TOTAL STUDENTS:

PERCENTAGE OF STUDENTS PASSED: 100%

INTRODUCTION

The Choice Based Credit System (CBCS) offers a uniform structure to the undergraduate curriculum. The B. A. Honours programme in Geography offers a choice of varied papers covering theoretical, practical and applied aspects of the discipline. It is designed to cover both traditional and contemporary framework of study, thus giving wide scope to the learners to apply their knowledge and skills in real scenarios. Teaching-learning methods have also evolved from purely lecture mode to demonstrative techniques of knowledge enabling process. The main objective is to develop an aptitude towards erudition that is rich in its content as well as it delivers the requirement of the present-day society and industry. The curriculum has been carefully designed to include conceptual, practical, experiential and skill building component

SYLLABUS

PAPER NAME: GEOMORPHOLOGY

1. Geomorphology: Nature and Scope.
2. Earth: Interior Structure and Isostasy.
3. Earth Movements: Plate Tectonics, Types of Folds and Faults, Earthquakes and Volcanoes.
4. Geomorphic Processes: Weathering, Mass Wasting, Cycle of Erosion (Davis and Penck).
2. Evolution of Landforms (Erosional and Depositional): Fluvial, Karst, Aeolian, Glacial, and Coastal.

PAPER NAME: CARTOGRAPHIC TECHNIQUES

1. Cartography – Nature and Scope.
2. Scales – Concept and application; Graphical Construction of Plain, Comparative and Diagonal Scales.
3. Map Projections – Classification, Properties and Uses; Graphical Construction of Polar Zenithal Stereographic, Bonne's and Mercator's Projections, and reference to Universal Transverse Mercator (UTM) Projection.

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4. Topographical Map – Interpretation of a Mountain area with the help of Cross and Longitudinal Profiles.
5. Slope Analysis – Wentworth's method.

PAPER NAME: FIELD TECHNIQUES AND RESEARCH METHODOLOGY

1. Field Work In Geographical Studies – Role, Value, Data and Ethics of Field-Work
2. Defining the Field and Identifying the Case Study – Rural / Urban / Physical / Human / Environmental.
3. Field Techniques – Merits, Demerits and Selection of the Appropriate Technique; Observation (Participant / Non Participant), Questionnaires (Open/ Closed / Structured / Non-Structured); Interview with Special Focus on Focused Group Discussions; Space Survey (Transects and Quadrants, Constructing a Sketch)
4. Use of Field Tools – Collection of Material for Physical and Socio-Economic Surveys.
5. Designing the Field Report – Aims and Objectives, Methodology, Analysis, Interpretation and Writing the Report.

PAPER NAME: REMOTE SENSING ANF GIS

1. Remote Sensing and GIS: Definition and Components, Development, Platforms and Types,
2. Aerial Photography and Satellite Remote Sensing: Principles, Types and Geometry of Aerial Photograph; Principles of Remote Sensing, EMR Interaction with Atmosphere and Earth Surface; Satellites (Landsat and IRS) and Sensors.
3. GIS Data Structures: Types (spatial and Non-spatial), Raster and Vector Data Structure
4. Image Processing (Digital and Manual) and Data Analysis: Pre-processing (Radiometric and Geometric Correction), Enhancement (Filtering); Classification (Supervised and Un-supervised), Geo-Referencing; Editing and Output; Overlays
5. Interpretation and Application of Remote Sensing and GIS: Land use/ Land Cover, Urban Sprawl Analysis; Forests Monitoring

LEARNING OBJECTIVES

1. To orient the students towards identification and analysis of various facets of geographical features and processes.
2. To develop students' aptitude for acquiring basic skills of carrying out field work.
3. To facilitate the students to learn skills of map making.
4. To guide students to learn the science and art of collecting, processing and interpreting the data.
5. To expose the students to the use of the updated technologies of remote sensing, IRNSS, GNSS, Geographical Information System (GIS) and GI Science.

LEARNING OUTCOME

The learning outcome is to prepare the students of B.A. Honours degree in Geography, to understand the development of the subject and delve around issues suited to the needs of the contemporary world. It covers a wide range of papers covering various themes and also maintains uniformity of structure across universities in the country. Geography being interdisciplinary in nature integrates learning derived from all basic and applied sciences/social sciences.

Nature and Extent of Programme: The Learning Outcomes-based Curriculum Framework (LOCF) for the B.A. (Honours) degree in Geography is intended to develop as per the requirements of the subject with emerging new domains of Geography. The framework allows for flexibility in programme design and course content along with maintaining a basic uniformity in structure in comparison with other universities across the country. The B.A. (Honours) Geography programme covers a wide range of fundamental and applied courses as well as courses of interdisciplinary nature. The core courses are designed to develop strong subject knowledge base in the student and apprise them with the applied aspects of this dynamic global discipline. The programme offers a wide range of elective courses to the student to choose from. The syllabi include skill enhancement courses that prepare the student for a career in academia or industry.

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Aims of Bachelor degree programme in Geography: The student is equipped to pursue higher studies in an institution of her/his choice, and to apply the skills learnt in the programme to solving practical societal problems. The student will also be ready to join the industry as trained workforce.

PROGRAM DEVELOPMENT OUTCOME FOR STUDENTS LEARNING

1. Disciplinary Knowledge: Students gain in-depth knowledge of basic and applied areas of geography. Core and discipline courses train them in fundamental branches of the subject. Technical and skill courses help them to learn tools and technics. Geography student gets a unique opportunity to experiment and observe on the field.
2. Communication Skills: Students develops effective communication skills through oral presentations, and group discussions on the subject content. Besides interviewing people, field surveys and public dealing with a different cadre of people makes him/her confident in communication. The compiling, processing and analysing the information from the field; and presenting in the form of reports enhances written communication skills.
3. Critical Thinking: Geography subject creates scientific logic aptitude and approaches a problem through critical reasoning. The course content is enabled to stimulate the questioning capacity for what, where, who, when and how. The papers like Environmental Geography, Disaster Management, Global Economic System, Resource Management to name a few.
4. Problem Solving: The understanding about surroundings, the issues that concerns life, climate or to that matter water crisis etc makes students yearn to look for solutions. Geography discipline has the flair which connects to everyday living and survival thus generates problem solving aptitude.
5. Analytical Reasoning: The geography course teaches variety of tools, techniques and data handling which develop analytical reasoning to solve the issues. In fact the training in all these courses is meant to develop the analytical reasoning, mining the data from satellite images, aerial photographs and observations to arrive at interpretations and inferences.
6. Research Related Skills: The course content trains students to learn basic research design, data collection process, and ethics to conduct research work through fieldwork. The specially developed course on research methodology and fieldwork acquaint them to prepare questionnaires, selecting sample plans, identifying right kind of objectives, data collections methods, field exposure, mental mapping, reproducing the observations, analysis and finally to prepare reports.
7. Cooperation/ Teamwork: The course enables to develop skill to work with students ofdiverse backgrounds and cooperation on same topic will increase better understanding. The group assignments and presentations are essential elements in the course design that will inculcate the team spirits. The field excursions help develop great bonding; working and executing the plans on ground .They also learn to work as team in case any emergency with group member away from institution/home/or city.
8. Scientific Reasoning: Course will develop critical analysis of theories and models, raising critical questions about the theories and models, developing hypothesis and learning their testing. Many of the courses in geography are truly scientific in nature which will generate scientific reasoning aptitude and also skills to look towards new approaches.
9. Reflective Thinking: A graduate who successfully completes his/her course should be able to reflect on the assimilated knowledge so as to apply these skills at different levels. Whether they go for masters in pure or applied disciplines, it will inculcate a sense of understanding of the world to manage real world problems. Any teaching learning process is incomplete without clear reflection of the theoretical, practical and applied knowledge of the subject. A degree in geography has ample

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scope in other field of studies too as the subject with its interdisciplinary approach helps the learners to think in a more comprehensive manner.

10. Information and Digital Library: The student of geography is always encouraged to explore beyond the basic textbooks. Besides availability of all types of reading material, a student needs to invest in learning and consulting from various open source library to expand the vista of their knowledge acquiring capability. Since it is a subject that does not completely rely on traditional text book oriented studies but has to delve deeper and research enough to keep pace with the ever-changing world. Thus the World Wide Web has proved to be very useful in keeping oneself apprised and continuously update ones knowledge base. The usage of open source software, tools and open access reading material are part of the curriculum which will train them for digital world.
11. Self Directed Learning: A graduate in the discipline of geography has to engage continuously in a learning process that can give a sense of direction to him/her. Different types of project work and field oriented papers encourages the pupil to take up self-directed task so as to widen their research horizon and ultimately look beyond the basic course book. Anyone with a mindset to move beyond the curriculum has to go for self-learning as the teaching content is fixed and defined. Under the supervision of the teacher one can easily involve themselves in fruitful learning. This will enable the students to take up task that is well understood and adapting themselves to the changing curriculum needs.
12. Multicultural Competence: Geography is a discipline which is not limited to any specific place or space. Its identity is based on multi-plural, multi-cultural and multi sited ethnography. As a subject, it emphasizes on regional and cultural studies which involves detailed understanding of places and perceptions. Also as a disciplinarian, it allows the learner to learn about both their own culture as well as those of their distant counterparts. This diversified knowledge also helps them to respect all fellows following varied community norms, traditions and practices. Field studies have been much helpful in introducing multicultural competencies to students of geography.
13. Moral and ethical awareness: In the age of fast technological changes and in the attempt to obtain an increased level of comforts. Today is the age in which the social order of the national state, class, ethnicity and traditional family needs more attention. In this scenario, Geography curriculum attempts to explain rights and duties not only towards working and fellow citizens but also towards nature and resources. The student will appreciate the balanced interactions, personal space, and common/community space. Geography will play its part in nurturing values and ethics in future citizens of the world.
14. Leadership Readiness/ Quality: A good leader needs to have the knowledge, rational thinking and ready to act at the time of need. Geography encourages to have descriptive and explanatory knowledge of one's surroundings and the globe as a whole, it develops rational thinking and prepares the students to think about alternative social, economic and environmental futures. So a geography student will be a good leader and will contribute in different capacities. Lifelong learning: Lifelong learning is a seamless process of learning from primary education to higher levels and even during one's profession through formal or informal modes. The core of the Geography is the man-environment interaction, which remains relevant for all at all stages of human life. So the basic knowledge and the tools Geographer learns help them in their future life and the process of learning will continue throughout life.

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PROGRAMME LEARNING OUTCOMES IN THE COURSE

1. The learning outcome is to prepare the students of BA Honours degree in Geography, to understand the development of the subject and delve around issues suited to the needs of the contemporary world. It covers a wide range of papers covering various themes and also maintains uniformity of structure across universities in the country. Geography being interdisciplinary in nature integrates learning derived from all basic and applied sciences/social sciences.
2. Students of the program will learn to use geographic understanding of various sub-fields such as physiography, resources, global economic systems, socio- cultural aspects, rural and urban milieu, environmental and disaster studies and mapping methods.
3. They are trained to read and interpret maps, prepare transect charts and thematic atlas.
4. They are also able to read and analyse weather phenomenon through weather maps and charts.
5. Students will acquire scientific methodology of data handling, hypothesis generation, testing and analysis.
6. After the completion of the course, students will also gain knowledge of various technological applications through study of Remote Sensing and Geographic Information Science.
7. The curriculum also provides an opportunity to digitally produce maps and modelling applications. • The students also learn hand on skills to prepare building disaster plans, community disaster preparedness and also awareness creation.
8. They will also develop an understanding of global issues from economic, social, environmental and political perspectives, which has relevance in further studies all across the globe.
9. They also develop effective communication skills, team work, travel exposure and zeal of investigation and exploration.
10. The learners can greatly contribute to the subject through teaching, research and field-oriented studies. \The students will also be able to pursue a career in spatial planning, sustainable practices, environmental and resource management.
11. The geography graduates will be well informed citizens who can play immense role in the civil society too. They will be able to pursue wide range of careers as planners, administrators, academicians, and managers.

COURSE-LEVEL LEARNING OUTCOME MATRIX FOR SELECTED SUBJECTS

OUTCOMES	SUB-1	SUB-2	SUB-3	SUB-4
Basic concept	✓	✓	✓	✓
Identification of critical problem and issues	✓	✓	✓	✓
Field based knowledge				✓
Spatial tools and techniques		✓	✓	✓
Statistical techniques		✓	✓	✓
Case study-based analysis		✓	✓	✓
Applied dimension	✓	✓	✓	✓

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Communication skills	✓	✓	✓	✓

TEACHING-LEARNING PROCESS TECHNIQUES FOR LEARNING OBJECTIVES

- Classroom discussions and interactive learning.
- Audio-visual presentation/ teaching methods.
- Presentation by students.
- Individuals/group training to work with software.
- Developing research skills through assignments/projects.
- Conduct theme-based group activities.
- Developing Effective communication skills through group discussion.
- Beyond classroom teaching/learning through field excursions.
- Writing of reports/project

CLASSROOM LEARNING	PRACTICAL LEARNING
LECTURES	FIELDWORK
ORIENTATION PROGRAM	CAMPING
GROUP DISCUSSION	WORKSHOP
ROLEPLAY	CAREER COUNSELLING
FILM SCREENING	SOCIETY EVENTS
CONFERENCES/SEMINAR	PEER COUNSELLING
	REPORT PREPARATION
	SKILL DEVELOPMENT WORKSHOP
	MENTORSHIP

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PAPER OBJECTIVES AND LEARNING OUTCOMES

Paper Name: Geomorphology

Paper Code: 12291101

Course Objectives:

1. To understand the associations between geomorphologic landforms, concepts and processes.
2. To critically evaluate and connect information about geomorphic processes.
3. To provide a theoretical and empirical framework for understanding landscape evolution and the characteristics of individual types of geomorphic landscapes

Learning Outcomes:

After completion of this course, students will be able to

1. understand the functioning of Earth systems in real time and analyze how the natural and anthropogenic operating factors affects the development of landforms
2. distinguish between the mechanisms that control these processes
3. assess the roles of structure, stage and time in shaping the landforms, interpret geomorphological maps and apply the knowledge in geographical research.

Name of the Paper: Cartographic Techniques

Paper Code: 12201202

Paper Objectives:

1. To understand various mapping techniques and data analysis
2. To prepare practical record file using case study

Learning Outcomes:

1. Read and prepare maps.
2. Comprehend locational and spatial aspects of the earth surface.
3. Use and importance of maps for regional development and decision making.

Name of paper: Field Work and Research Methodology (Practical)

Paper Code: 12291403

Course Objectives:

1. Various dimensions of fieldwork and its role in geographical studies.
2. Detailed analysis of different field techniques.
3. Understanding of report writing and field tools.

Learning Outcome:

1. Detailed exposure of new geographical landscape as a study area.
2. In-depth knowledge of different field techniques.
3. Understanding the field ethics and different tools of field study.

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Name of paper: Remote Sensing and GIS (Practical)

PAPER CODE: 12291502

Course Objectives:

1. The course aim is to give basic technical knowledge and practical experience in digital remote sensing.

2. Knowledge and practical experience in handling satellite images focusing on hands-on experience of image pre-processing, enhancement and classification;

3. Better understand the techniques for the study of land use land cover and urban study.

Learning Outcome:

This is a practical, hands-on course; when you have completed it, you will be able to:

1. Explain principles of remote sensing, different satellite systems and sensors;

2. Perform image pre-processing, enhancement and classification and interpretation of satellite images;

3. Apply Image pre-processing for land use land cover and urban studies.

How paper in the course help to become technologically updated and made aware?

- The program demonstrate the skills in using geographical research tools including spatial statistics, cartography, remote sensing, GIS, IRNSS and GI Science.
- The course enable students to learn various mapping softwares, mapping techniques, satellite imagery interpretation, GPS and map making.
- Based on the field knowledge and advanced technologies, the students should be able to understand the on-going geographical problems in different regions and levels with appropriate pragmatic solutions.
- Research-related and Analytical Reasoning Skills
- Digital Literacy

Program Outcome according to Bloom's Taxonomy

Course		PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
B.A. (HONS) GEOGRAPHY	CO1	✓		✓			✓
	CO2		✓			✓	
	CO3		✓		✓		✓

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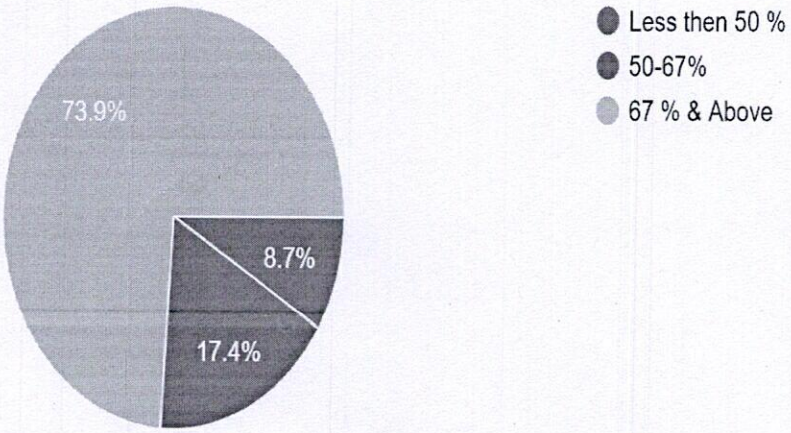
	CO4	✓		✓			✓

Average attendance of students in the Course?



Different pedagogical and Peer Learning used for Course Outcome

- Three courses on Statistical Techniques in Spatial Analysis; Remote Sensing and Geographical Information System, GIScience and Research Methods and Fieldwork in Geography will strengthen the methodological and practical foundations of geography.
- Study Tours/ Field trips provide opportunities to the learners to test their in-class learning in real life situations as well as to understand the functional diversity in the learning spaces. These may include visits to sites of knowledge creation, preservation, dissemination and application. Institutions may devise their own methods to substitute/modify this aspect.
- digital satellite data using software.
- Prepare the maps based with satellite data to compare with the ground realities.
- Group discussion, assignments, projects, PPT presentation, role play, practical record file

Skill, Knowledge and value-added after the Course

Analytical Competency	✓			
Problem-solving competence		✓		
Leadership			✓	
Time management	✓	✓	✓	
Team Work/ Collaboration Skills	✓	✓	✓	
Communication Competence				
IT Skill	✓	✓	✓	
Critical Thinking		✓		

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Entrepreneurial/ Job				
Any Other, Specify	✓			
Overall Development after Course		✓	✓	

JOB OPPORTUNITIES

- Teacher/Assistant Professor
- Cartographic Assistant/Cartographer
- Project Fellow
- Urban Planner/ Environmentalist or Regional Planner
- Disaster Management fellow and Counsellors
- GIS Analyst
- Satellite Mapping Analyst

COMMUNITY OUTREACH PROGRAM AND WORKSHOP

Number of Seminars/conferences/workshops conducted by the Department for learning outcome

2019-20	Conducted an Orientation program	40	20/Jul/2019
2019-20	Organized one-day workshop on GIS and Roundtable discussion on GIS Resource Person: Ms.Bratati Dey	35	30/Jan/2020
2019-20	Organized local survey to a Sewage Treatment Plant of Rithala, Delhi Resource Person: Mr. Neeraj Kumar	8	30/Jan/2020
2019-20	Organized Annual extravaganza GEO-FEST with the focal theme inspired by SDG-6 "Clean Water and Sanitation"	80	19-20-Feb-2020
2019-20	Organized a talk on "Watershed Management as a Tool for Sustainable Water Resource Conservation and Management" Resource Person: Dr. B.W. Pandey	70	20/Feb/2020
2019-20	Organized a talk on "Integrated Solid Waste Management for Sustainable Future Earth" Resource Person: Dr. Subash Anand	70	20/Feb/2020

Year	Name of the workshop/ seminar/ conferences	No. of participants	Date
2020-21	Webinar on "GIS Application and Career Opportunities" in collaboration with NIGMT foundation	89	11/May/2020

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2020-21	Webinar on "GPS and it's applications" in collaboration with Swastik Edustart, Institute of GIS and Remote Sensing, New Delhi Resource Person: Dr Bratati Dey	120	29/Jun/2021
2020-21	Special virtual talk session in collaboration with Art of Living on the topic- MIND TALK Resource Person: Mr. Neeraj Gera	100	12/Jul/2021
2020-21	Webinar on "GIS Application and Career opportunities" in collaboration with NIGMT Foundation (Netra Institution of Geo-informatics Management and Technology Foundation), Institute of GIS, New Delhi Resource Person: Mr. Ravindra Nath Tiwari	89	22/Jul/2021
2019-20	Organized one-day workshop on GIS and Roundtable discussion on GIS Resource Person: Ms.Bratati Dey	35	30/Jan/2020
2019-20	Organized local survey to a Sewage Treatment Plant of Rithala, Delhi One Teacher	8	30/Jan/2020

STUDENTS LIST

PAPER NAME: GEOMORPHOLOGY AND CARTOGRAPHIC TECHNIQUES

Student's Names	University Roll No
Deepti Choudhary	21002513006
Nikita Rani	21002513023
Charu Arora	21002513004
Avantika Dubey	21002513003
Krishma	21002513016
Shreya Chaudhary	21002513041
Varsha	21002513057
Riya Pundir	21002513031
Stuti	21002513048
Saloni Singh	21002513034
Shipra Pandey	21002513039
Nandini Singh	21002513020
Khushi Parashar	21002513012
Shweta Joshi	21002513043
Manisha Dwivedi	21002513017
Sangam Parashar	21002513035
Rishita Gautam	21002513029
Aashi	21002513058
Koj Sumpa	21002513014
Smriti Pandey	21002513046
Shrishti	21002513042
Sneha	21002513047

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Divya Sehrawat	21002513008
Ishika Kajla	21002513010
Swarna Kapil	21002513051
Thanmai Kumaram	21002513054
Khushi Mann	21002513013
Nidhi Kumari	21002513022
Suhani Sharma	21002513050
Tanvi Aggarwal	21002513053
Monali Gupta	21002513018
Shalini Patel	
Vanhishikha vyas	21002513056
Jyoti	21002513011
Premlata	21002513025
Shiva Rathaur	21002513040
Komal Kumari	21002513015
Divya Pal	21002513009
Saloni Anand	21002513033
Suhani Kumari	21002513049
Shakshi Gupta	21002513037
Sarita Yadav	21002513036
Aditi Pal Gupta	21002513001
Amrapali	21002513002
Simran Shail	21002513044
Priti Kumari	21002513026
sweta Rathor	21002513052
Sakshi Priya	21002513032
Reena Sudarshan	21002513028
Deepanshi Simar	21002513005
Dikshi Das	21002513007
Muskan	21002513019
Neilakhonuo Mere	21002513021

PAPER NAME: FIELDWORK AND RESEARCH METHODOLOGY

NAME	ROLL NO.
Srishti Mehta	2002001
Ishita Sharma	2002002
Shivani Chaudhari	2002003
Antara Pal	2002004
Tanya Chadha	2002005
Sumedha chatterjee	2002006
Lucky Sindhu	2002007
Ishika Singh	2002008
Kritika Arora	2002012
Priyanshi Sharma	2002013
Rachna Kumari	2002014
Nitya Rao	2002015

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Neha	2002016
Hemangi Sen	2002017
Kritika Kumari	2002018
Simran Sahu	2002021
Preeti Kumari	2002022
Shalini Singh	2002023
Diya Jalal	2002025
Aastha Bhardwaj	2002026
Ruchi	2002027
Suchana Maity	2002032
Simran	2002033
Sakshi Kumari	2002037
Anchal	2002038
Bhavna	2002039
Muskan	2002040
Bhumika Atri	2002041
Ipsita Singh	2002042
Priyanshi	2002043
Aastha kumari	2002044
Vandana	2002049
Shweta Singh	2002050
Hadia Shaheen	2002052
Aditi Bharti	2002053
Sakshi	2002055
Sangeeta Mandal	2002056
Kritika Ratawal	2002057
Soni Kumari	2002059
Anju Maurya	2002060

PAPER NAME: REMOTE SENSING AND GIS

Name of the Student	College Roll No.
Mehak	1902001
Swaliha	1902002
Sugandha	1902004
Sneha	1902005
Asha	1902008
Simran	1902010
Heena	1902012
Nikita	1902013
Paridhi	1902014
Meha	1902015
Monu	1902019
Ravina	1902020

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Ankita	1902021
Shatakshi	1902022
Nidhi	1902023
Firdous	1902024
Sandhya	1902025
Rubina	1902027
Suman Kushwaha	1902030
Mousumi Majumdar	1902031
Hemlata Singh	1902032
Jyoti Kumari	1902033
Kirti	1902034
Swati	1902035
Amisha	1902037
Preeti Parjapati	1902038
Vidya Gupta	1902039
Sweety Roy	1902040
Salma	1902041
Roshan	1902042
Inderpreet Kaur	1902043
Harshita	1902044
Varsha Banarji	1902045
Pooja Kumari	1902046

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