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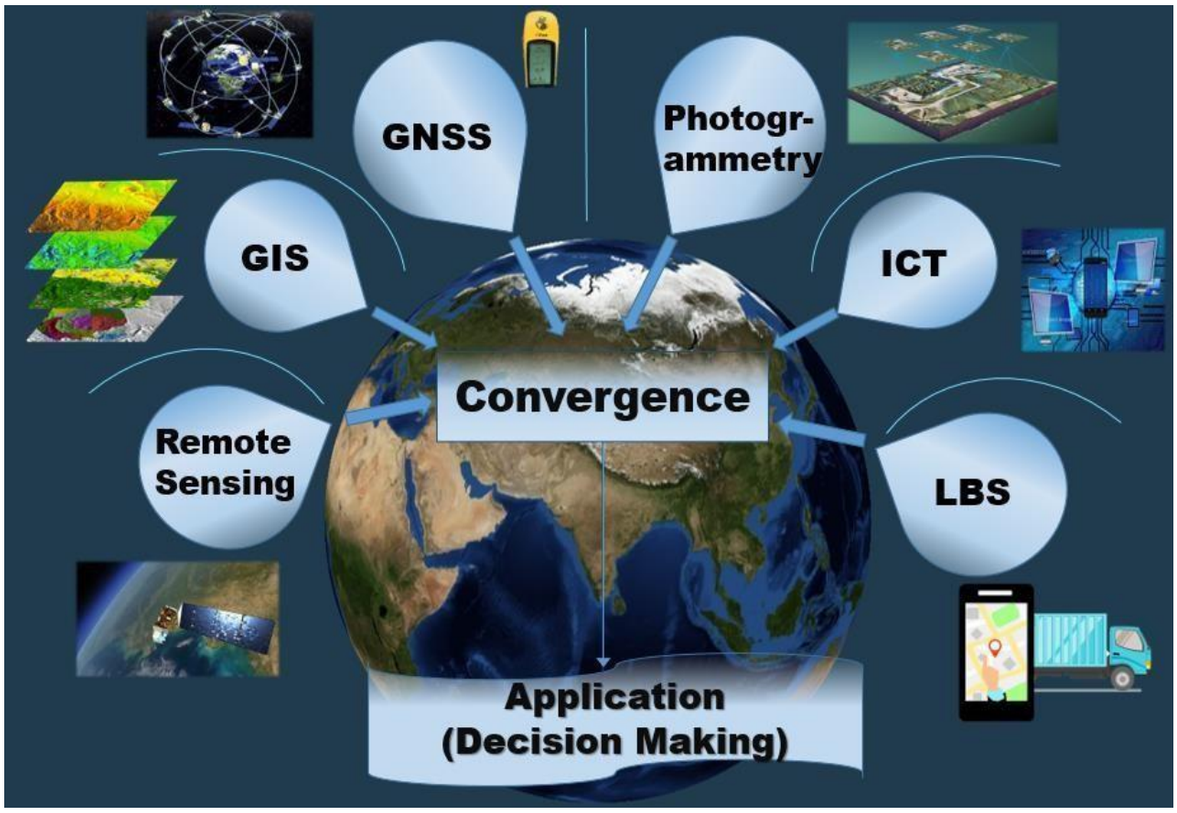
DEPARTMENT OF REMOTE SENSING AND GIS

University of Jammu

SESSION (2026–2028)



DEPARTMENT OF REMOTE SENSING AND GIS
University of Jammu, Baba Saheb Ambedkar Road, Jammu Tawi
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For more info, scan

INTRODUCTION

Remote Sensing and GIS are rapidly evolving scientific disciplines that have witnessed remarkable growth over the past three decades. Advances in satellite data acquisition, digital image processing, and information extraction have transformed remote sensing from simple map-making into a powerful information technology that converts raw data into knowledge for informed decision-making. The widespread availability of affordable computing and image-processing tools has facilitated the development of GIS, followed by the integration of GPS technologies. The combined use of Remote Sensing, GIS, and GPS has significantly enhanced capabilities for resource exploration, mapping, monitoring, and environmental assessment at local to global scales. Their applications in resource evaluation, land-use/land-cover mapping, and environmental monitoring have expanded substantially, leading to an increasing use of remote sensing data in planning and management. Consequently, there is a growing demand for skilled manpower, and this course aims to build indigenous capacity through multidisciplinary teaching and research while creating strong career opportunities and institutional linkages in the field.

ABOUT THE COURSE

The M.Sc. in Remote Sensing and GIS at the University of Jammu is a two-year (four-semester) full-time postgraduate program designed to build advanced skills in remote sensing, geographical information systems (GIS), and GPS technologies**.** The course focuses on both theoretical understanding and practical applications of geospatial technologies for resource evaluation, environmental monitoring, land use/land cover mapping, and decision-making

SOFTWARE & TECHNICAL SKILLS COVERED

Software & Tools Covered

- ArcGIS / QGIS
- ERDAS Imagine / ENVI
- Google Earth Engine
- AI/ML, Python for GIS & Remote Sensing
- GPS / GNSS data processing tools
- DEM, LiDAR & Microwave data handling

CAREER OPPORTUNITIES

Graduates of the programme can pursue careers as:

- GIS Analyst / Remote Sensing Analyst
- Geospatial Data Scientist
- Urban & Regional Planner
- Environmental & Climate Analyst
- Disaster Management Professional
- Research Assistant / Ph.D Scholar
- Positions in ISRO, NRSC, GSI, IMD, NGOs & Planning Departments
- Opportunities in private GIS & geospatial companies

AIM OF THE COURSE

To understand the principles, applications, trends, and pertinent issues of geographical information systems and sciences, including Remote Sensing (RS), Photogrammetry, Cartography and Global Positioning Systems (GPS). To know about the characteristics of different satellites and sensors, and the latest developments in space mission programs.

To develop technical skills and competence in satellite data acquisition, extraction, management

and analysis; spatial and statistical modelling; mapping and visualisation.

Practical courses assist students in developing a higher level of professional skills to tackle multidisciplinary and complex problems related to “Remote Sensing and GIS”. To integrate Remote Sensing knowledge with GIS and to work with GIS software in various application fields. Apply principles of Remote Sensing and GIS to collect data, maps and retrieve spatial information. Monitoring and management of natural and manmade resources using geospatial models and methods.

Each student in the fourth semester is assigned a dissertation that allows them to develop professional and intellectual integrity. They learn practically to implement the knowledge of Remote Sensing & GIS in various fields such as forestry, agriculture, water resources, snow/glaciers, geology, geomorphology, environmental science, pollution monitoring, water quality monitoring, urban sprawl, urban planning, disaster management and planning.

Development of communication skills, ethics of research and scholarship, consideration of the impact of research outcomes on professional practices and an understanding of responsibility to contribute to the community for sustainable development of society.

LABORATORY & FIELD FACILITIES

- Well-equipped GIS & Remote Sensing laboratories
- High-performance computing systems
- GNSS instruments and field survey equipment
- Access to satellite and geospatial datasets
- Support for research and funded projects

INTERNSHIP & TRAINING OPPORTUNITIES

- Field-based GNSS & Remote Sensing surveys
- Dissertation-oriented research training
- Internship opportunities with government agencies, research institutes & NGOs
- Exposure to real-world geospatial projects

TARGET PARTICIPANTS

This course is targeted for those who are interested to learn Remote Sensing, GIS, GPS/ Geoinformatics/ Geomatics engineering and its applications in various domains. The fresh graduates (including candidates in the final semester/year of the qualifying degree) and post-graduates can apply for the course.

ELIGIBILITY, APPLICATION & ADMISSION PROCESS

A candidate seeking admission to the programme must have passed/appeared in the final year of a bachelor’s degree in any subject of science as a major/core subject/BCA/Engineering/ Agriculture/ Forestry or a bachelor’s degree in Arts with Geography as a major/core subject from any recognised Indian University with a minimum 50% marks. OR have earned 50% of Credits in any subject of science as a major/core subject / BCA/ Engineering/ Agriculture/ Forestry or a bachelor’s degree in Arts with Geography as a major/core subject in the UG program under NEP-2020.

NUMBER OF SEATS

Total **10+2** seats are available in this course.

COURSE FEE

@25000 per semester

ACCOMODATION

The hostel facilities are available both for male and female students at different University Hostels located on the University campus.

M.Sc. Remote Sensing and GIS Course Structure as Per NEP 2020

Course No.	Title of the course	Credit Level	Credits	Credit point	Major Exam (Mark)	Minor Exam (Marks)	Total Credits
	SEMESTER – I						
P2RSTC101	Information Technology	**6.5**	**4**	**26**	**60**	**40**	**24**
P2RSTC102	Fundamentals of Remote Sensing and Image Interpretation	**6.5**	**4**	**26**	**60**	**40**	
P2RSTC103	Aerial photography, Aerial and Digital Photogrammetry	**6.5**	**4**	**26**	**60**	**40**	
P2RSTC104	Cartography and Global Navigation Satellite System	**6.5**	**4**	**26**	**60**	**40**	
P2RSPC105	Information Technology, RS and Image Interpretation	**6.5**	**4**	**26**	**Mid Term appraisal -25 marks <u>External Exams</u> (Project Report-50 marks Viva Voce -25 marks (Total: 100 marks)**		
P2RSPC106	Photogrammetry, Cartography and GNSS	**6.5**	**4**	**26**	**Mid Term appraisal -25 marks <u>External Exams</u> (Project Report-50 marks Viva Voce -25 marks (Total: 100 marks)**		
	Field work: GNSS Survey, Remote Sensing data with Field Verification						
	SEMESTER – II						
P2RSTC201	Applied Statistics	**6.5**	**4**	**26**	**60**	**40**	**24**
P2RSTC202	Digital Image Processing	**6.5**	**4**	**26**	**60**	**40**	
P2RSTC203	Geographical Information System	**6.5**	**4**	**26**	**60**	**40**	
P2RSTC204	Thermal, Microwave and LiDAR Remote Sensing	**6.5**	**4**	**26**	**60**	**40**	
P2RSPC205	Statistics and Digital Image Processing	**6.5**	**4**	**26**	**Mid Term appraisal -25 marks <u>External Exams</u> Project Report-50 marks Viva Voce -25 marks (Total: 100 marks)**		
P2RSPC206	Geographical Information System and Microwave Remote Sensing	**6.5**	**4**	**26**	**Mid Term appraisal -25 marks <u>External Exams</u> (Project Report-50 marks Viva Voce -25 marks (Total: 100 marks)**		
P2RSVC251	Vocational Course	**6.5**	**4**	**26**	**100**		
	SEMESTER – III						
P2RSTC301	Remote Sensing and GIS in Geosciences	**6.5**	**4**	**26**	**60**	**40**	**28**
P2RSTC302	Remote Sensing and GIS in Water Resources	**6.5**	**4**	**26**	**60**	**40**	
P2RSTC303	Remote Sensing and GIS in Agriculture: Soil and Land Evaluation Studies	**6.5**	**4**	**26**	**60**	**40**	
P2RSTC304	Remote Sensing and GIS in Forestry	**6.5**	**4**	**26**	**60**	**40**	
P2RSPC305	Remote Sensing and GIS in Geosciences and Water Resources	**6.5**	**4**	**26**	**Mid Term appraisal -25 marks <u>External Exams</u> Project Report-50 marks Viva Voce -25 marks (Total: 100 marks)**		
P2RSPC306	Remote Sensing and GIS in Agriculture, Soil and Land Evaluation Studies and Forestry	**6.5**	**4**	**26**	**Mid Term appraisal -25 marks <u>External Exams</u> (Project Report-50 marks Viva Voce -25 marks (Total: 100 marks)**		
P2RSMO351	MOOC/SWAYAM Course	**6.5**	**4**	**26**	**As per MOOC guidelines (100 Marks)**		
	Field Work: Field Work for Ground Truth Verification						
	SEMESTER – IV						
P2RSTE401	Remote Sensing and GIS in Urban Studies	**6.5**	**4**	**26**	**60**	**40**	**Choose any two elective courses 8**
P2RSTE402	Remote Sensing and GIS in Environmental Sciences	**6.5**	**4**	**26**	**60**	**40**	
P2RSTE403	Cryospheric Systems and Climate Change Science	**6.5**	**4**	**26**	**60**	**40**	
P2RSTE404	Disaster, Risk Reduction and Hazard Assessment	**6.5**	**4**	**26**	**60**	**40**	
P2RSRC405	Project/ Dissertation Work	**6.5**	**16**	**104**	**Mid Term appraisal -100 marks <u>External Exams</u> Project Report-200 marks Viva Voce -100 marks (Total: 400 marks)**		**16**
	Total Credit						**100**

ABOUT UNIVERSITY OF JAMMU

The University of Jammu strives for Achieving world-class excellence in teaching, research and knowledge transfer and make valuable contributions to the socioeconomic development of the region and country. Imparting quality education to the students, promoting their all-round development by participation in sports, extracurricular and other socially relevant activities and including the skill of decision making and democratic values. Providing state-of-the-art facilities and opportunities for academic growth, and to carry out research in the modern areas, particularly of an applied nature and technology. Promoting preservation and integration of the cultural diversity of the region, state and country. Cradled in the lap of mountains at the foothills of auspicious Trikuta, besides the river Tawi at an altitude of 1030 ft. is Jammu. This 'city of temples' has many places that are flocked by people from every nook and corner. Among all these, also comes the famed University of Jammu. A place where imparting education is not considered just as a mere duty, but as a commitment towards the advancement of society. A university with a vision and a single-minded mission. To make Jammu University a name to reckon with. A saga that has been continuing from the time of its inception.

The University of Jammu, accredited as 'A++' Grade University by the National Assessment & Accreditation Council of India, came into existence in 1969 vide Kashmir and Jammu Universities Act 1969, following bifurcation of the erstwhile University of Jammu and Kashmir. The University provides instructions in such branches of learning as it deems fit and makes provision for research and the advancement and dissemination of knowledge. The University stands for spiritual and material elements in life, thirst for knowledge and virtue, under the backdrop of the holy peaks of the Trikuta Hills. University of Jammu holds examinations, grants degrees, generates knowledge and confers diverse academic distinctions on persons who pursue approved courses of study in the University or in constituent colleges/institutions approved for the purpose also for those who appear as external/private candidates. It also confers honorary degrees or other distinctions on persons of exceptional calibre. The University also admits, maintains, recognises, and affiliates with colleges and other institutions. It is primarily a research, teaching, affiliating, and examining body involved in the promotion of arts, science and other branches of learning. The University is open to all classes and creeds with the sole objective to carry people from darkness to light.

CONTACT US

For general & academic queries related to the course

Please write

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Department website link:https://www.jammuuniversity.ac.in/remote-sensing-gis/introduction

Prof. Avtar Singh Jasrotia

Head

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University of Jammu