Applications for admission of M.Sc. Remote Sensing and GIS in the University of Jammu, Jammu for the academic session 2009-2010 are invited for the candidates who have passed/appeared in Bachelor Degree in Science/Agriculture/Forestry/Engineering from any recognized Indian University with not less than 50% marks. The schedule of admission process is as follows:

- **Date of Notification**: 26th May, 2009
- **Date of Issuing of Application Forms**: 2nd June, 2009
- **Date of close of Issuing of Forms By Post**: 18th June, 2009
  
  **By Hand**: 22nd June, 2009
- **Last date for Receiving of Application forms**: 22nd June, 2009
- **Date of Entrance Test**: 29th June, 2009
- **Entrance Test result, Counseling and viva voce, Notification of selected candidates**: To be notified later

The information brochure shall be available from the office of Remote Sensing and GIS / Department of Geology, University of Jammu, Jammu. The cost of brochure/application form is Rs. 500/- which shall be sent in the form of Bank Draft favouring **Course Coordinator, M.Sc. Remote Sensing and GIS, University of Jammu, Jammu and send to the below mention address. Outstation candidates can send their request for forms with bank draft and self addressed envelope duly fixed with stamp of Rs. 50/-**. The admit card for entrance test is to be collected personally or authorized person from course coordinator.

---

**Dr. A. S. Jasrotia**  
**Associate Professor & Course Coordinator, M.Sc. Remote Sensing & GIS Department of Geology, University of Jammu, Jammu-180 006**  
Tel. No. 0191-2435166  
Fax. No. 0191-2452987, 2459383  
e-mail: ajasrotia@yahoo.co.uk
1. Message 01
2. About University of Jammu 05
3. About M.Sc. Remote Sensing and GIS 06
4. Growth of Remote Sensing and GIS 07
5. Remote Sensing and GIS Lab. 07
6. Objective of the Course 08
7. Applications of Remote Sensing and GIS 08
8. Job Opportunities in the Field of Remote Sensing and GIS 09
9. Organization 09
10. Course 10
11. Eligibility 10
12. Admission 10
13. Entrance Test 10
14. Fee Structure 10
15. Course Content and Other Details 10
16. Course Structure 12
17. Hostel 13
18. Library 13
19. Academic Calendar 14
20. Affidavit 22
21. Syllabus 23
I am pleased to learn that Master of Science in the Remote Sensing and GIS is bringing out the Information Brochure-cum-Prospectus for admission to the second batch of two years Post Graduate Course in Remote Sensing and GIS.

I am happy to know that this post graduate course is multidisciplinary in nature and will give the opportunity to the students to gain knowledge in this emerging technology and its application in different field like hydrogeology, natural Hazards, mineral and oil exploration, bio-diversity, soil and agriculture, earthquake engineering, disaster management, environmental studies, telecom, tourism, defence, transport and navigation system.

The University of Jammu is one of the few Universities in North India to have Master Level Course in Remote Sensing and GIS. I am sure that Remote Sensing and GIS will provide rigorous academic training, technical skills and competence in data and information acquisition, extraction, management and analysis, spatial and statistical modelling, mapping and visualization to the students who are aspiring to take the admission from the academic session 2009-2010.

I send my greeting and good wishes on this occasion.

Prof. Varun Sahni
It gives me immense pleasure to know that Remote Sensing and GIS course is bringing out the Information Brochure-cum-Prospectus for admission to Second batch of two years Post Graduate Course in Remote Sensing and GIS to the students for the academic session 2009-2010. I extend a very warm welcome to the talented, dynamic and bright students who are aspiring to pursue this course. It will provide all necessary information to the students regarding this course including job opportunities in government and private sectors. This Master's Level program will help the learners to understand advanced techniques in Remote Sensing and GIS and develop knowledge and ideas in relevant areas of its application. The Master level course is multidisciplinary in nature and will give the opportunity to the students to gain knowledge in the area of emerging technology having great scope in the job market. The University of Jammu is one of the few Universities in Northern India to have Master Level Course in Remote Sensing and GIS.

I convey my best wishes to the course coordinator, faculty member and the students who are entering the University to pursue the Master Level Course in Remote Sensing and GIS.

Prof. B.P. Singh Sehgal
It is a matter of great pleasure to know that Remote Sensing and GIS course bringing out the Information Brochure-cum-Prospectus for admission to the students for the academic session 2009-2010. I extend a very warm welcome to the talented, bright, young and dynamic students who wish to join the second batch of two years Post Graduate Course in Remote Sensing and GIS. The application of Remote Sensing and GIS is different fields like agriculture, forest, environment, urban, landuse, soil, geology, terrain, water resources, digital elevation model, disaster management, defence sector, telecom and transport and its job opportunity in State Government, Central Government, Academic Institution, Overseas, Private sector and self employment.

I take this opportunity to congratulate the students, course coordinator and the faculty who are always in search of professional excellence. I am quite confident that the course coordinator, faculty member and the students would be able to meet the challenge ahead with utmost zeal, fervour and enthusiasm.

I extend my best wishes on this occasion.

Prof. Ramji Tiwari
The Master of Science in Remote Sensing and GIS course, University of Jammu has successfully completed one year. The Remote Sensing and GIS is a relatively young Scientific discipline and is an area of emerging technology which has witnessed phenomenal growth over the last two or three decades and has dramatically enhanced human capability for exploration of resources, mapping and monitoring on local and global scale. The Remote Sensing and GIS technique is of great significance in different fields like assessment of geological Hazards, mineral and oil exploration, hydrogeology, watershed management, earthquake engineering, telecom, tourism, defence, transport and navigation system, landuse analysis, modelling urban environment, crop monitoring, disaster management, environmental studies, bio-diversity etc. This course will provide the foundation for awakening the student's understanding of Remote Sensing and GIS as well as strengthening their software knowledge and problem solving skills. Students will be introduced to advanced topics, such as GIS database building, geocoding, image analysis, Global Positioning Systems, spatial analysis, and surface analysis. Hands-on lab assignments and project work will be carried out with latest image processing and GIS software.

Last year, University of Jammu started a new vision to open the M.Sc. Remote Sensing and GIS course. This Master Level programme will help to master advanced techniques in Remote Sensing and GIS, strengthen problem solving skills in Remote Sensing and GIS and develop knowledge and ideas in relevant areas of application. The Master Level Course in Remote Sensing and GIS is multidisciplinary in nature and will give the opportunity to the students to gain knowledge in this emerging area having great scope in the job market. The Jammu University is only University in Northern India to have Master Level Course in Remote Sensing and GIS.

I heartily welcome the students of the second batch of Master Level Course in Remote Sensing and GIS for the academic session 2009-2010.
ABOUT THE UNIVERSITY

The University of Jammu, situated on the bank of river tawi was established in 1969 at an altitude of 329 m above sea level and located in the city of temples. The University of Jammu is India's first ISO 9001:2000 certified University and accredited as a Four Star University by the National Assessment & Accreditation Council of India (NAAC). It is on the verge of discovering exciting intellectual frontiers in the 21st century. The University of Jammu is one of the few Universities in northern India to have Master Degree Course in Remote Sensing and GIS.

The University of Jammu provides instructions in over forty branches of learning and makes provision for research and the advancement and dissemination of scientific knowledge. The University stands for spiritual and material elements in life, thirst for knowledge and virtue under the backdrop of holy peaks of Trikuta Hills.

The University of Jammu has recently conferred the Degree of Doctor of Letters, Honoris Causa on Dr. Manmohan Singh, the Hon’ble Prime Minister, at a Special Convocation at the General Zorawar Singh Auditorium on 15th July, 2007. It is rare honour to the University of Jammu to honour the Hon’ble Prime Minister, Dr. Manmohan Singh, who is the epitome of integrity, intellect and inspiration in public life.

The General Zorawar Singh Auditorium is a unique piece of architecture, it consist of the state of Art Auditorium with Heritage Museum, Art Gallery, Photo Gallery and Exhibition-Hall and showcases the rich cultural heritage and diversity of our state.

The Central Library is hub of the academic activity throughout the year. The library is four story building centrally located and is constructed on modular plan. It is equipped with more than four lakh books on different subjects. It is also equipped with modern facilities photo copiers, LCD projectors, INFLIBNET, CD-ROM database and interconnected computer terminal. In addition to this, University acquired EDUSAT faculty from Consortium Education Communication (CEC), International Resources Cell (IRC) in collaboration with British Council.

The University of Jammu has acquired 2 Mbps lease line from ERNET India, an Autonomous Scientific Society of Department of Information Technology, Govt. of India and 10 Mbps fiber optics lease line from Reliance. The said facility is being provided to all the departments of the University through University Internet established on fiber backbone. In addition to this, whole campus is on roaming wireless (JU Wi-fi) Internet facility covering all the teaching, administrative, auditorium and hostels of the University with Hot Spots.
ABOUT M.Sc. REMOTE SENSING AND GIS

INTRODUCTION
Remote Sensing and GIS is a relatively young scientific discipline and is an area of emerging technology which has witnessed phenomenal growth over last three decades. In the recent past, there has been tremendous development in the field of Remote Sensing data collection, analysis and utilization. The science of Remote Sensing is no more an art of Map making from satellite image. It is the new form of information technology where raw digital data is converted to information which in turn aid to the knowledge base for sound decision making. Image processing facilities which were earlier restricted to selected major research establishments have now become widely available with the advent of microcomputer and low cost image processing equipments. The digital data handling led to the development of GIS (Geographical Information System) followed by another innovation of GPS (Global Positioning System). Remote Sensing coupled with GIS and GPS techniques has dramatically enhanced human capability for resources exploration, mapping and monitoring on local and global scale. The course is not only going to provide job opportunity for the young students but shall also open an avenue of effective and viable interaction with national establishments related to various aspects of remote sensing. The course aims at developing multidimensional programmes of teaching and research in the field of Remote Sensing and GIS as this is the first University in north India to impart such degree course.

The application of Remote Sensing techniques, Geographical Information System (GIS) and Global Positioning System (GPS) in various activities including resources evaluation, environmental monitoring and Landuse/Landcover mapping etc. have grown considerably during the last three decades and Remote Sensing data products are being increasingly used for plan information at all levels. An essentials pre-requisite to partaking in these opportunities is the building of various indigenous capacities for the development and utilization of space science and technology. This has led to a spurt in the demand for qualified manpower.

JUSTIFICATION
Given the wider applications of the Remote Sensing and GIS and the scarcity of human resource with the knowledge of this technology, it is appropriate to offer this course to the students so that their employability is enhanced. The fact that job opportunities for people having knowledge of Remote Sensing are available in organizations like Space Application Centre (SAC) Ahmedabad, National Remote Sensing Agency (NRSA) Hyderabad, Indian Space Research Organization (ISRO) Bangalore, Indian Institute of Remote Sensing (IIRS), Dehradun, Parliamentary House New Delhi, Oil natural Gas corporation Ltd (ONGC), Agricultural Research Institute (IARI) New Delhi, Indian Council of Agricultural Research (ICAR), Ministry of Agriculture (GOI), Academic Institutions, Regional Remote Sensing Centers (RRSC) and Remote Sensing Centers (RSC) in various states of India. Besides, huge employment opportunities are available in private sector and overseas which further highlights the importance of the course. The demand for Remote Sensing and GIS is increasing day by day in Government and Private sector. Remote Sensing and GIS professional can start his/her career as Project Manager, Sr. System Executive, System analyst, GIS Engineer, Image analyst, GIS Programmer etc.

The course at Master Level is of immense value to Researchers/ Administrators/ Defence Forces for tracking information from inaccessible area due to difficult geographical terrain in the state of J&K. The state has lot of area where seeking information through human resources becomes almost impracticable in view of insurgency, climate and geographical constraints. In view of this, it is a useful course for exposing, sensitizing and preparing the educated youth for seeking information, wherever required with expertise & competence.
GROWTH OF REMOTE SENSING AND GIS

The growth of remote sensing and GIS in industry saw its inception around two decades ago. A broad chronology of the movement of this emerging science field may be visualized in four phases. At all phases the movement remained development in academia as well as industry anyone following the other.

The first is introduction and application of GIS in few researches in multiple academic disciplines/professional courses as Forestry (green cover estimation), Geology (mineral maps), Agriculture (crop disease estimation). Civil engineering, etc.

The second stage is the utilization of Remote Sensing and GIS techniques in various projects on disaster management, urban planning, etc. of which digital spatial database development was a part.

The third stage, roughly six years old, is the one when Indian ITES/BPO industry came up on strong footing. This was together with the growth of the country’s IT industry.

The fourth phase, the contemporary phase, as we call it, is the one when companies entered in the business of customization and development.

REMOTE SENSING AND GIS LAB

The Remote Sensing and GIS lab has been established with all the basic facilities required for Remote sensing and GIS work. The Remote Sensing and GIS lab. to provide hands-on training to its postgraduate students in Digital Image processing, GIS, GPS, Satellite Navigation and Image Interpretation. This lab is equipped with server, workstation and Pentium IV computers with Geospatial Positioning System (GPS), A0 Scanner, Mirror Stereoscopes.

The department has installed various latest software for GIS and Digital Images processing such as Arc GIS, ERDAS Imagine ERDAS Virtual GIS, ERDAS IM3, ILWIS 3.3 ROCK WORKS 2006 etc. The department also conducts certificates programs in RS & GIS through EDUSAT which has been transmitted through hub at IIRS, DOS Dehradun. The department is also engaged in various R&D projects funded from ISRO, DST, NRSC such as Evaluation of Groundwater potential zones using Remote Sensing and GIS Techniques in the Hill Terrain of Devak and Rui Watershed, Jammu District, J&K State funded by the Dept. of Space, Govt. of India, Bangalore. Establishing the Natural Resources Digital Database District Centre at Jammu and Creation of an integrated database for Development Planning funded by Ministry of Science and Technology, Department of Science and Technology, Govt. of India. Groundwater Prospect Mapping Work of Rajiv Gandhi Drinking Water Mission (RGDWAM) Phase III of J&K State coordinated by National Remote Sensing Agency, Hyderabad funded by Ministry of Rural Development.

The NRDMS, a multi-disciplinary programme of the Department of Science and Technology, Govt. of India aims at technological and institutional capacity building of the Line Departments in Spatial Technology-Remote Sensing and GIS operationalise the Decentralized Planning for economic development. The NRDMS DST District centre Lab. has generated maps in GIS environment on various aspects such as natural resources, socio-economic and various infrastructure facilities available at the village level in Jammu district. Such maps will go a long way in facilitating the concerned departments to undertake the micro-level planning in a more effective manner to ensure balanced development of various blocks of the district. The spatial technology being promoted under this project will aid application in areas such as infrastructure planning.

The layout of University of Jammu has been also prepared in the GIS environment. In addition to that a lot of Research and Development (R&D) activities are ongoing in different Remote Sensing and GIS areas. The various maps of Jammu District have been prepared with the help of satellite images, top sheets and ground truth information. Information created under this helps various line departments of Jammu District for effective presentation of data like socio-economic, horticulture and agriculture data, etc. at village level, block level, constituency level or tehsil level. The aims of NRDMS DST centre to train various line departments to access and update this data through GIS software.
OBJECTIVE 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 provide learning and teaching experiences with real world problems.
- To develop technical skills and competence in data and information acquisition, extraction, management and analysis; spatial and statistical modelling; mapping and visualization.
- To increase awareness of GIS and modelling tools for improving competition and business potential.
- To describe how geographical information is used, managed, and marketed globally.
- To gain an understanding of how to manipulate and apply vector and raster spatial data, particularly with regard to local/state/national issues, emphasizing lands in and near it.
- To develop applications of environmental remote sensing and GIS which can directly enhance service delivery on land use management, ground water management/conservation, agriculture, forestry, food and water security, disaster management, etc.

APPLICATION IN REMOTE SENSING AND GIS:

<table>
<thead>
<tr>
<th>Applications</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>Mixed-crop discrimination and inventory</td>
</tr>
<tr>
<td></td>
<td>Large area crop inventory</td>
</tr>
<tr>
<td></td>
<td>Crop stress detection monitoring</td>
</tr>
<tr>
<td>Forest</td>
<td>Types and species discrimination</td>
</tr>
<tr>
<td></td>
<td>Forest stock mapping</td>
</tr>
<tr>
<td></td>
<td>Biomass estimation</td>
</tr>
<tr>
<td>Environment</td>
<td>Environmental Impact Assessment (EIA)</td>
</tr>
<tr>
<td></td>
<td>Monitoring silting</td>
</tr>
<tr>
<td>Urban</td>
<td>Town and city mapping</td>
</tr>
<tr>
<td></td>
<td>Facility mapping</td>
</tr>
<tr>
<td>Landuse</td>
<td>Landuse/Landcover mapping</td>
</tr>
<tr>
<td></td>
<td>Change detection</td>
</tr>
<tr>
<td>Soil</td>
<td>Soil mapping</td>
</tr>
<tr>
<td></td>
<td>Erosion prone mapping</td>
</tr>
<tr>
<td>Geology</td>
<td>Geological mapping</td>
</tr>
<tr>
<td></td>
<td>Geomorphological mapping</td>
</tr>
<tr>
<td></td>
<td>Tectonic map of India</td>
</tr>
<tr>
<td></td>
<td>Watershed management</td>
</tr>
<tr>
<td>Terrain</td>
<td>Cadastral mapping</td>
</tr>
<tr>
<td>Water Resources</td>
<td>Surface water monitoring</td>
</tr>
<tr>
<td></td>
<td>Ground water targeting</td>
</tr>
<tr>
<td></td>
<td>Command area management</td>
</tr>
<tr>
<td>Digital elevation</td>
<td>Contours</td>
</tr>
<tr>
<td>Models</td>
<td>Slope/Aspect</td>
</tr>
<tr>
<td></td>
<td>Visualization perspective</td>
</tr>
<tr>
<td>Disaster</td>
<td>Flood damage assessment</td>
</tr>
<tr>
<td></td>
<td>Flood relief measures</td>
</tr>
<tr>
<td>Defence Sector</td>
<td>Survivellance, operations, intelligence, and resource planning, with the provision for on-demand access to mission critical information, Terrain evaluation</td>
</tr>
<tr>
<td>Telecom</td>
<td>Communication networks and planning</td>
</tr>
<tr>
<td>Transport</td>
<td>Navigation system</td>
</tr>
</tbody>
</table>
JOB OPPORTUNITIES IN THE FIELD OF REMOTE SENSING AND GIS

1) State Government: Every state has a Space Application Center in which Remote Sensing and GIS postgraduate as well as Ph.D. holder can apply for the post of Scientist, Jr. Scientist, Project Coordinator, Project Scientist, Scientific/Technical Assistant, GIS Programmer, Research Scholar, etc.

2) Central Government: Central government organizations/agencies such as Space Application Center (SAC), Ahmedabad, National remote Sensing Agency (NRSA), Hyderabad, North East Space Application center (NESAC), Shillong, Regional Remote Sensing Application Center (RRSAC), Kharagpur, Dehradun, Jodhpur, Nagpur and Bangalore, ISRO Bangalore, ADRIN, Hyderabad all are under Department of Space, Govt. of India which advertise for the post of Scientist, Research Associate and Sr. Research Fellow etc. Indian Agriculture Research Institute (IARI), New Delhi, Indian council of Agriculture Research (ICAR), Ministry of Agriculture, Govt. of India advertises for the post of Scientist and Research Scholar.

3) Academic Institutes: Candidate having M.Sc. degree in Remote Sensing and GIS can apply for the post of lecturer. Few academic institutes have a centre for Remote Sensing and GIS and take candidate for the post of scientific officer, Research Scientist and Research Scholar etc.

4) Overseas: There is scope for Professional/higher education in Remote Sensing/GIS in countries like USA, Canada, Netherlands, Switzerland, China, Malaysia, France, Germany, Austalia and there is a demand for Remote Sensing professional in various field. There are number of Remote Sensing professionals doing jobs as well as business in foreign countries.

5) Private Sector: The demand for Remote Sensing and GIS professional is increasing day by day in private sector. Remote Sensing and GIS professional can start his/her career as Project Manager, Sr. System executives, System Analyst, GIS Engineer, Image Analyst, GIS Programmer, etc.

6) Self Employment: As an entrepreneur, after obtaining the professional degree a candidate can start their own enterprise.

ORGANIZATION

The Master Level Course in Remote Sensing and GIS is running under the supervision of Course coordinator Dr. A.S. Jasrotia. The Academic supervision of the Master Level Course in Remote Sensing & GIS under Dean Faculty of Sciences. The faculties of the department of sciences are involved in teaching different course content as prescribed in various papers of Remote Sensing and GIS course. Visiting faculty/experts having specialization in Remote Sensing and GIS from different Institutions/Universities are invited from premier Institutions like Indian Institute of Remote Sensing (IIRS) Dehradun, Indian Institute Technology (IIT) Roorkee, Indian Institute Technology (IIT) Bombay, Birsa Institute of Technology (BIT) Ranchi, Department of Geography, Panjab University Chandigarh and Jawaharlal Nehru University (JNU) New Delhi.
COURSE:
It is a two years course leading to the degree of M.Sc. in Remote Sensing and GIS. The course is based on four semesters having 96 credits. The course is equivalent to other M.Sc. courses. This course has been formulated according to the guidelines which is taught in different Indian University Institution such as Jiwaji University, Gwalior (M.P); Maharishi Dayanand Saraswati University, Ajmer (Rajasthan); Mahatma Gandhi Chitrakoot Gramodaya Vishwavidayalaya Chitrakoot, Satna (M.P), University of Pune (Maharashtra), Indian Institute of Remote sensing (IIRS) Dehradun and Birla Institute of Technology (BIT) Ranchi. The proposed course content has been prepared keeping in view the course content taught in above said Universities and their scope in job market.

ELIGIBILITY:
The minimum qualification required for admission to the course shall be a Bachelor Degree in Science / Engineering/Agriculture and Forestry from any recognized Indian University. Admission through Entrance Test (50% of seats reserved for the J&K Permanent Residents). The Statutes governing Master's degree Programme in the Faculty of Sciences will be applicable to Master degree programme in Remote Sensing and GIS.

ADMISSION:
The maximum number of students proposed to be admitted annually for said course is ten (10). Admission to the course shall be based on merit and the selection of the candidate shall be made on the basis of their performance in a written Entrance Test plus academic second. It is technical course and is more or less self financing basis. So all seats will be filled on payment basis @ Rs. 1.50 lakh per student.

ENTRANCE TEST:
The test shall be conducted at University of Jammu at a date and time as notified. The syllabus of the written test for admission to Master Level Course in Remote Sensing & GIS consists of General Knowledge and Current Affairs, English, Comprehension, Numerical ability and Data Sufficiency. The syllabus along with a Model Question Paper for the examination is given in Annexure-II.

FEE STRUCTURE:
Those students enrolled for the Master Level Course in Remote Sensing shall have to pay course fee of Rs 1.50 lakh in addition to the fee prescribed by the University for Master Degree Programme in Sciences.

COURSE CONTENT AND OTHER DETAILS:
i) The duration of course for the Master degree in Remote Sensing and GIS is divided into Four semesters covering two academic sessions. The first academic session will comprise of first and second semesters and the second academic session of third and fourth semesters. Each semester normally comprises of 96 working days.

ii) The minimum attendance required by a candidate will be as per University rules.

iii) Each of Ist, II and IIIrd Semester are consist of four theory courses and two laboratory courses. Fourth semester shall have two theory courses, one laboratory course and a Project Work. Further, First and Third semesters shall have Remote Sensing Field Work (GPS Survey) and Remote Sensing Field Work (Ground Truth) respectively.
Each theory examination shall be of three hours duration whereas each practical examination shall be of four hours. Each theory and laboratory course shall consist of 100 marks. For theory papers 80 marks shall be for University examination and 20 marks for internal assessment, while for practicals 50% marks shall be for University Examination and 50% marks for Internal Assessment. Besides this, the Remote Sensing field work of respective First and Third semesters shall consist of 30 marks included in the practicals. The evaluation of Remote Sensing Field Work shall be done internally and the marks awarded included in the practicals shall be sent to the University by the Head/Course Coordinator. The Project Work of IVth semester shall be of 300 marks out of which 250 marks shall be for project report, and 50 marks for the viva-voce. The evaluation of the Project Report will be done by the External and Internal (Supervisor) examiners including the Viva-voce before a committee consisting of Head/Course Coordinator and external as well as internal examiners. The marks of the Project Work shall be sent to the university by the Head/Course Coordinator.

A candidate shall be DECLARED passed at each semester Examination if he/she obtains:

a. At least 36% marks in the aggregate of the paper prescribed for the examination.

b. At least 36% marks in the practical.

v) Internal Assessment:-

a) **Theory**

Three tests of 10 marks each for each theory course shall be held on the dates and time specified in the Academic Calendar and/or by the Head/Course Coordinator. The sum total of the marks secured in two tests excluding the test in which the student secures the lowest marks shall be counted for the award out of 20 marks for the internal assessment in the course.

b) **Laboratory**

Internal assessment of 25 marks in each laboratory course work will be done on the basis of regularity and proper maintenance of records, tests and viva-voce.

**Remote Sensing Field Work:-**

Remote sensing Field work / training is an integral part of this course. As such, the students of M.Sc. 1st and IIIrd Semester are required to undergo for Field Work (2-3 weeks duration) separately in each academic session to acquire comprehensive and detailed field training in various aspects, such as GPS survey, field checking, ground truth studies and visit to various national Remote Sensing laboratories. At the end of the above field work, each student will be required to submit a field report covering all aspects for evaluation. The evaluation based on field work report, and viva-voce shall be done by the Teacher In-Charge of the Field Work and/or Course Coordinator.

**Project Work:-**

The subject/topic of the Project Work, related to the problems of Remote Sensing and GIS will be allotted to each student in the beginning of the M.Sc. IVth Semester. The students, in consultation with their respective supervisors, may give their choice of preference of problem/topic/area. However, the decision of the Head/Course Coordinator shall be final. Each student will be required to work independently on the problem assigned including literature consultation, data collection, fieldwork and/or training, laboratory investigations, report writing etc., under the guidance of his/her supervisor. The students will have to submit to the department three typed (bound) copies of his/her work, in the form of Project Report. After the evaluation, a copy of which will be returned to the concerned supervisor and the student separately.
### COURSE STRUCTURE:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title of the Course</th>
<th>Maximum Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>University Exam</td>
</tr>
<tr>
<td>1st Semester</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RSGT - 101</td>
<td>Fundamentals of Information Technology and GIS</td>
<td>80</td>
</tr>
<tr>
<td>RSGT - 102</td>
<td>Fundamentals of Remote Sensing and Image interpretation</td>
<td>80</td>
</tr>
<tr>
<td>RSGT - 103</td>
<td>Aerial Photography and Photogrammetry</td>
<td>80</td>
</tr>
<tr>
<td>RSGT - 104</td>
<td>Cartography and Global Positioning System</td>
<td>80</td>
</tr>
<tr>
<td>RSGL - 105</td>
<td>Information technology, RS and Image interpretation</td>
<td>50</td>
</tr>
<tr>
<td>RSGL - 106</td>
<td>Photogrammetry, Cartography and GPS</td>
<td>50</td>
</tr>
<tr>
<td><strong>Field work:</strong></td>
<td>GPS Survey, Remote sensing Field Work with</td>
<td></td>
</tr>
<tr>
<td></td>
<td>field verification</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd Semester</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RSGT 201</td>
<td>Applied Statistics and Programming Concept</td>
<td>80</td>
</tr>
<tr>
<td>RSGT 202</td>
<td>Digital Image Processing (DIP)</td>
<td>80</td>
</tr>
<tr>
<td>RSGT 203</td>
<td>Geographical Information System (GIS)</td>
<td>80</td>
</tr>
<tr>
<td>RSGT 204</td>
<td>Thermal and Microwave Remote Sensing</td>
<td>80</td>
</tr>
<tr>
<td>RSGL 205</td>
<td>Statistics, programming and Digital Image Processing</td>
<td>50</td>
</tr>
<tr>
<td>RSGL 206</td>
<td>Microwave Remote Sensing and GIS</td>
<td>50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd Semester</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RSGT 301</td>
<td>Remote Sensing in Geosciences</td>
<td>80</td>
</tr>
<tr>
<td>RSGT 302</td>
<td>Remote Sensing in Water resources</td>
<td>80</td>
</tr>
<tr>
<td>RSGT 303</td>
<td>Remote Sensing in Agriculture Soil and Land Evaluation studies</td>
<td>80</td>
</tr>
<tr>
<td>RSGT 304</td>
<td>Remote Sensing in Forestry</td>
<td>80</td>
</tr>
<tr>
<td>RSGL 305</td>
<td>Remote Sensing in Geosciences, and Water Resources</td>
<td>50</td>
</tr>
<tr>
<td>RSGL 306</td>
<td>Remote sensing Agriculture Soil and Land Evaluation and Forestry</td>
<td>50</td>
</tr>
<tr>
<td><strong>Field Work:</strong></td>
<td>Different type of Field Work for ground truth verification</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4th Semester</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RSGT 401</td>
<td>Remote Sensing in Human Settlement Analysis</td>
<td>80</td>
</tr>
<tr>
<td>RSGT 402</td>
<td>Remote Sensing in Environmental Science</td>
<td>80</td>
</tr>
<tr>
<td>RSGL 403</td>
<td>Remote Sensing in Human Settlement and Environmental Science</td>
<td>50</td>
</tr>
<tr>
<td>Project Work</td>
<td>Project Report 250, Viva Voce 50</td>
<td>300</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
FACILITIES:

HOSTEL:
The University of Jammu has three boy’s hostels and three girl’s hostels to meet the needs of students who seek hostel accommodation. Depending upon the availability of hostel seats, limited number of candidates shall be accommodated in the hostel according to the merit which shall be determined by the University.

LIBRARY:
University has Central Library having over 3 lakh titles and over 300 serial subscriptions. In the central Library EDUSAT facility through Consortium for Education Communication (CEC) is one of the node of UGC sponsored information display hub at IIRS Dehradun and Library Network (NFLIBNET) programme also. Beside that the Remote Sensing and GIS Library has rich collection of books and journals which can provide a window to look into the course details and its applications.
<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>The University reopens after Summer Break</td>
<td>August 3rd, 2009</td>
</tr>
<tr>
<td>Commencement of Admission process (assuming that the results of B.A. / B.Com. III Year are declared by the 2nd week of July.)</td>
<td>August 3rd, 2009</td>
</tr>
<tr>
<td>Termination of semester examinations II, IV &amp; VI.</td>
<td>Latest by 20th August, 2009</td>
</tr>
<tr>
<td>Commencement of Teaching of I, III &amp; V Semester Courses.</td>
<td>Immediately after the termination of II, IV &amp; VI Semester Examinations (Not later by 20th August, 2009).</td>
</tr>
<tr>
<td>Admission Process (Including Transfers and Appellate Cases)</td>
<td>4th September, 2009</td>
</tr>
<tr>
<td>Assessment tests / Assignments (1st Internal)</td>
<td>Latest by 30th October, 2009</td>
</tr>
<tr>
<td>Diwali Break</td>
<td>October 15th – 19th, 2009</td>
</tr>
<tr>
<td>2nd Internal Assessment Tests / Assignments</td>
<td>Latest by 27th November, 2009</td>
</tr>
<tr>
<td>Submission of Internal Assessment Record of I, III &amp; V Semesters to the Controller of Examinations</td>
<td>Latest By 18th December, 2009</td>
</tr>
<tr>
<td>Termination of Teaching of I, III &amp; V semester Courses</td>
<td>December 18th, 2009</td>
</tr>
<tr>
<td>Winter Vacations (Preparatory Holidays for students)</td>
<td>21st December, 2009 to 2nd January, 2010</td>
</tr>
<tr>
<td>Termination of I, III &amp; V Semester Examinations.</td>
<td>Latest by January, 2010</td>
</tr>
<tr>
<td>Commencement of Teaching of II, IV &amp; VI Semester Courses</td>
<td>Immediately after the termination of I, III &amp; V Semester Examinations (Not later then 29th Jan., 2010)</td>
</tr>
<tr>
<td>Assessment Test / Assignment (1st Internal)</td>
<td>Latest by 30th March, 2010</td>
</tr>
<tr>
<td>Holi Break</td>
<td>March 2010 (one week) starting two days before Holi</td>
</tr>
<tr>
<td>Assessment tests / Assignment (2nd Internal)</td>
<td>Latest by 30th April, 2010</td>
</tr>
<tr>
<td>Termination of Teaching of II, IV &amp; VI semester.</td>
<td>Latest by 28th May, 2010</td>
</tr>
<tr>
<td>Submission of Internal assessment Record of II, IV &amp; V1 semesters to the Controller of Examinations.</td>
<td>Latest by 4th June, 2010</td>
</tr>
<tr>
<td>Summer Vacations</td>
<td>14th June to 30th July, 2010</td>
</tr>
<tr>
<td>Commencement of Exams. of II, IV &amp; VI semester</td>
<td>15th July, 2009 onwards</td>
</tr>
</tbody>
</table>
Eight Week EDUSAT Distance Learning Programme on Remote Sensing, GIS GPS and its application was conducted at Central Library University of Jammu.

Remote Sensing data and GIS software have been used to carry out the work in the Various R&D Projects.

Drainage and Road map of Jammu District in Vector analysis (GRAM++ software)
Finding shortest route through Gram Net (GRAM++ software)

Exploring village wise information through Vector analysis (GRAM++ software)
Geomorphology map through Satellite data IRS-P6 (LISS-IV) MS using ERDAS 9.3 Imagine processing software

Constituency map of Jammu district prepared in ARC GIS 9.3 software
Groundwater prospect map prepared in the ARC VIEW software

Capturing Devak-Rai watershed from satellite imagery in ILWIS 3.3 software
GPS based layout map of University of Jammu composed in ARC GIS 9.3 software

Plotting location map of seismic data over Jammu Municipal area in MapInfo software
ANNEXURE - I

Candidates who have qualified B.Sc. in previous year's must submit affidavit as per specimen given in Annexure..... duly attested by Magistrate/Oath Commissioner/Notary.

AFFIDAVIT

I................................................Son/Daughter of...............................................................Resident of ............................................................ Hereby solemnly declare that I have passed my qualifying examination, in the year ................................ from the University of ......................................... I further declare that I have neither been admitted to any course/programme of study of this University/any other University nor have passed any post graduate examination as a private candidate, after passing my graduation examination in the previous year. The above statement made by me is true to the best of my knowledge and belief and if the event of this having been proved otherwise, my admission shall stand automatically cancelled besides any other action that may be taken against me under law.

DEPONENT
Annexure-II

SYLLABUS

1. General Knowledge and Current Affairs 25%
2. English Comprehension 25%
3. Numerical ability 25%
4. Data Sufficiency 25%

SAMPLE QUESTIONS

GENERAL KNOWLEDGE AND CURRENT AFFAIRS

(1) Which of the following is not a wind instrument?
   (A) Flute  (B) Nadaswaram
   (C) Rabab  (D) Shehnai

(2) Geophysics deals with
   (A) history of the earth.  (B) physics of the earth.
   (C) Searching the causes of physical calamity on the  (D) all of the above.

(3) Dollar is not the currency of
   (A) Belgium  (B) Hong Kong
   (C) Bermuda  (D) Liberia

(4) “Modvat” is
   (A) a book  (B) the tax imposed upon final products
   (C) a satellite  (D) a tribal group

ENGLISH

Directions for questions 5-7:

In each of the following questions, a word is given followed by four other words marked as A, B, C and D, one of which is nearest in meaning with the given word. Your task is to choose that word and indicate that on the answer sheet. If you do not find any correct answer then indicate "E" as your answer.

(5) INSIPID
   (A) Ominous  (B) Chink
   (C) Prosy  (D) Avocation

(6) CONTRITION
   (A) Indemnity  (B) Compunction
   (C) Resusciation  (D) Garniture

(7) SAGACIOUS
   (A) Multigenerous  (B) Shackle
   (C) Secession  (D) Exude
Direction from questions 8 and 9:
This is an underlined portion in each sentence. Your task is to find out the correct answer from the given alternatives.

8. He was born with a silver spoon in his mouth.
   (A) born in a rich family  (B) born in a family which deals with silver
   (C) born as a talented child  (D) None of the above

9. I hope you will hear the palm in the context.
   (A) fail  (B) win
   (C) perplexed  (D) get lost

Direction for questions 10-11:
Each of the following questions consists of a sentence where some portion is underlined. There are four alternatives for the underlined portion marked as A, B, C, and D. Your task is to find out which of these alternatives is the most correct and effective for the portion underlined. If you feel that the original sentence is the best, indicate “E” on the answer sheet.

10. A big advantage of this set up is the speed which we can now operate.
    (A) new we can operate the speed.
    (B) speed with which we can now operate.
    (C) speed could now be operated.
    (D) operation is now possible through controlling the speed.

11. I was referred to as the witness, but that is a misnomer.
    (A) I was the witness
    (B) As witness I was referred
    (C) I was referred to the witness
    (D) My reference was there as witness

COMPREHENSION

Directions for questions 12 to 15:
Read the following passage carefully and answer the related questions. Four alternative answers are given for each Question (marked as A, B, C, D). Your task is to find out the correct one and indicate that on the answer sheet. If you do not find out any correct answer then indicate “E” as your answer.

PASSAGE
It was an English language class. The teacher came in a bit late, his umbrella dripping. He put the brolly aside and wiped his glasses. "It is raining cats and dogs, sir," said a boy looking out of the window, "cats and dogs!" snorted the teacher. "It is raining cows and buffaloes." Cows and buffaloes are certainly heavier. But they do not make weightier phrase. In fact, their phrasal use means nothing. For cow and buffalo do not stand for what cat and dog do.

Brewer's Dictionary explains the phrase briefly but clearly. It is rooted in the mythology of Northern Europe. The cat, it was believed, had a great influence on weather. And the dog signified wind. Witches, it was supposed, could ride upon the storm. They took the form of cats at such times. In Harz district the stormy north-west wind is called the cat's nose.

The dog, like the wolf, was an attendant of Odin, the storm god of Norsemen. Old German pictures show the wind with the head of a dog or a wolf. When we say dog days, however, we mean days of great heat. The Romans, believed that rising with the sun, Sirius, or the dog star, added to its heat (July 3 to August 11).
While Ulysses was on his way home after the Trojan War, Aeneas, the god of winds, gave him a bag (it had all the country winds tied up in it). This was meant to make his a smooth sailing to Ithaca. But his man opened the bag. Out flew the winds and blew his ship off course. This was one of the big mishaps that delayed the hero's return.

In Urdu we have a cat phrase, "bhigi bili batana," It is about rain, but has nothing to do with cats and dogs. The story behind it is that one monsoon night a man expected rain and decided to sleep, not in the open, but in a room. His servant lay down on a mat near the door. Around midnight the man asked the servant to see if the sky was clear. Without going out, the lazy chapsaid that it was cloudy yet.

"But it is not raining", said the master. Again, without going out, the servant said that it was drizzling.

"How can you say that?", asked the master. The servant said a cat had just come in. He had touched her back and found it wet. The phrase thus means to make excuses or put off a person.

To come back to cats and dogs, more than in England, the phrase is now used in India. Some people wrongly substitute bigger beasts for the original animals. But humour sometimes gives the stale phrase a new sheen. Heard this before? "It's raining cats and dogs outside",

"Yes, I know, I just stepped into a puddle!"

Questions:

12. Cat's wind indicates
   (A) the stormy north-west wind   (B) the form of witches
   (C) heavy snow fall               (D) the wind with the head of a dog or a wolf.

13. Dog's day means
   (A) heavy rain fall              (B) great shea
   (C) bad weather                  (D) stormy weather

14. "It is raining cows and buffaloes" by saying this the teacher
   (A) corrected the phrase "cats and dogs"
   (B) indicated that it was raining so heavily that even cows and buffaloes became wet
   (C) meant that cows and buffaloes are symbols of rain and storm
   (D) tried to emphasize that it was raining more heavily than what is indicated by cats and dogs

15. "bhigi bili batana" the Urdu phrase means
   (A) that it is drizzling         (B) that it is raining suddenly
   (C) that it is raining as expected (D) to make excuse

NUMERICAL ABILITY

Directions:
Each of the following questions has four or five alternative answers. For each of these questions, select the best of the answers choose given.

16. Successive discounts of 10%, 12% and 15% amount to a single discount of
   (A) 35.28%                (B) 37%
   (C) 36.68%                (D) none of these

Directions for questions 17-18:
Each of the following questions consists of two quantities denoted by (i) and (ii). Your task is to indicate
   (A) If (i) and (ii) are equal
   (B) If (i) is greater than (ii)
   (C) If (ii) is greater than (i)
   (D) If it cannot be decided and further information is required.
17. (i) 27/5  (ii) 25/85
18. (i) Area of a circle with diameter 6 cm  (ii) Area of a rectangle with length 5 cm. and breadth 0cm.

DATA SUFFICIENCY

Directions:
Each of the following questions is followed by two statements labelled by (a) and (b). Use the data/information given in (a) and (b) to decide whether the data are sufficient to answer the question. Record your answer as:
(A) if only 'a' is required  (B) if only 'b' is required
(C) either 'a' or 'b' will do  (D) both 'a' and 'b' are required  (E) more information needed

19. Is Ram younger than Shyam?
(a) 15 years ago Shyam was 20 years old.  (b) after 10 years Ram will be 30 years old.
20. Was day before yesterday cloudy?
(a) there was no rain for last 7 days.  (b) after three continuous cloudy days, rain started only yesterday.
21. Is $x'$ larger than $y'$? ($x'$ and $y'$ are integers)
(a) $x - 15$ is larger than $y + 7$  (b) $(x + 1)^2 - (y + 2)^2$ is positive

Directions for questions 22 and 23:
In each of the following sentences a word is printed in capital letter your task is to find out a word from among the four alternatives marked as A, B, C, D given below which has similar meaning to the word printed.

22. That person was present as the organisation's special EMISSARY to the meeting.
(A) Guest  (B) Attraction  (C) Messenger  (D) Performer  (E) None
23. President ENTREATED the guest to stay out till the discussion continued.
(A) Pledged  (B) Advised  (C) Charged  (D) Insisted

Directions for questions 24 and 25:
The following questions contain a problem followed by two statements marked as (i) and (ii). Your task is to find out whether the statements are sufficient to solve the problem. Indicate your answer as:
(A) if you can get the answer on the basis of (i) alone but not from (ii) alone
(B) if you can get the answer on the basis of (ii) alone but not from (i) alone
(C) if you can get the answer from (i) and (ii) together, but neither statement by itself suffices
(D) if statements (i) alone and statement (ii) alone suffices
(E) if you can not get the answer from statements (i) and (ii) some extra information required

24. Is $p > q$ ?
(I) $p^2 + 3q = 80$  (ii) $p^2 + 2q = 9$
25. What is $A + B + C$?
(I) $A + B = 4$  (ii) $B + C = 3$
JU launches...

are available in organizations like Space Application Centre (SAC) Ahmedabad, National Remote Sensing Agency (NRSA) Hyderabad, Indian Space Research Organization (ISRO) Bangalore, Indian Institute of Remote Sensing (IIRS), Dehradun, Academic Institutions, Regional Remote Sensing Centres and Remote Sensing Centres in various states of India. Beside, huge employment opportunities are available in private sector and overseas which further highlights the importance of the course. The demand of Remote Sensing and GIS is increasing day by day in Government and Private sector. Remote Sensing and GIS professional can start his/her career as Project Manager, Sr. System Executive, System Analyst, GIS Engineer, Image Analyst, GIS Programmer etc. He said that the course shall be made open to Ten students at the initial stage in view of technical nature Fifty per cent of seats shall be reserved for the J&K Permanent Residents, he said. Dr. Jasrota said that selection of the candidate shall be made on the basis of their performance in written Entrance Test.
Remote Sensing and GIS new initiative by JU

JU first Varsity in Northern India to introduce M. Sc Remote Sensing, GIS

Remote Sensing and GIS A New initiative by University of Jammu

Remote Sensing and GIS: A new initiative by University of Jammu

JU to start MSc. in Remote Sensing and GIS

Remote Sensing and GIS: A new initiative by University of Jammu

Remote Sensing and GIS: A new initiative by University of Jammu

Remote Sensing and GIS: A new initiative by University of Jammu

Remote Sensing and GIS: A new initiative by University of Jammu

Remote Sensing and GIS: A new initiative by University of Jammu

Remote Sensing and GIS: A new initiative by University of Jammu

Remote Sensing and GIS: A new initiative by University of Jammu

Remote Sensing and GIS: A new initiative by University of Jammu

Remote Sensing and GIS: A new initiative by University of Jammu

Remote Sensing and GIS: A new initiative by University of Jammu

Remote Sensing and GIS: A new initiative by University of Jammu

Remote Sensing and GIS: A new initiative by University of Jammu

Remote Sensing and GIS: A new initiative by University of Jammu

Remote Sensing and GIS: A new initiative by University of Jammu

Remote Sensing and GIS: A new initiative by University of Jammu

Remote Sensing and GIS: A new initiative by University of Jammu

Remote Sensing and GIS: A new initiative by University of Jammu

Remote Sensing and GIS: A new initiative by University of Jammu

Remote Sensing and GIS: A new initiative by University of Jammu

Remote Sensing and GIS: A new initiative by University of Jammu

Remote Sensing and GIS: A new initiative by University of Jammu