INSTITUTE OF ADVANCED STUDIES IN EDUCATION
(DEEMED TO BE UNIVERSITY)

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SYLLABUS

SCHEME OF EXAMINATION AND COURSEOF STUDY

DEPARMENT OF GEOGRAPHY

FACULTY OF HUMANITIES AND SOCIAL SCIENCES

Certificate in GIS and Remote sensing (6Months)

Course Objectives:
To give the Exposure though Practical Learning in Remote sensing Technologies, practical understanding of Remote sensing on applications of Real world. Our practical assignments and mapping projects are designed by industry experts to get the industry orientated exposure for developing the ability to perform basic analysis on Remote sensing data.

Learning Out comes: After completion of this course candidate will be hands on Remote sensing technology as per industry requirements. Candidates would able to perform from the day first.

SCHEME OF EXAMINATION

Each theory paper	3Hrs.duration	Marks 50
Internal Marks		Marks50
Dissertation/Thesis/Survey Report/Field Work, if any		100 Marks

1. The number of paper and the maximum marks for each paper practical shall be shown in the syllabus for the subject concerned. It will be necessary for a candidate to pass in the theory part as well as in the practical part (Whenever prescribed) of a subject /paper separately.
2. A candidate for a pass at each of the Previous and the Final Examination shall be required to obtain (i) at least 36% marks in the aggregate of all the paper prescribed for the examination and (ii) at least 40% marks in practical (s) whenever prescribed in the examination provided that a candidate fails to obtain at least 36% marks in each individual paper work. Whenever prescribed, he shall be deemed to have failed at the examination notwithstanding his having obtained the minimum percentage of marks required in the aggregate for the examination. No division shall be awarded at the previous examination. Division shall be awarded at the end of the Final Examination on the basis of combined marks obtained at the Previous and the Final Examination, as noted below:

    - First Division 60% of the aggregate marks taken together
    - Second Division 48% of the Previous and the Final Examination

    All the rest shall be declared to have passed the examination.

3. If a candidate clears any .paper(s)-Practical(s)/Dissertation prescribed at the Previous and or/final Examination after a continues period of .three years, then for the purpose of working out his division the minimum pass marks only viz 36% (40% in the case of practical) shall be taken into account in respect of such paper(s) Practicle(s)/ Dissertation are cleared after the expiry of the aforesaid period of 06 Month, provided that in case where a candidate requires more than 36% marks in order to reach the minimum aggregate as many marks out of those actually secured by him will be taken into account as would enable him to make the deficiency in the requisite minimum aggregate.

4. The Thesis/Dissertation/Survey Report/Field Work shall be written & typed and submitted in triplicate so as to reach the office of the Registrar at least 3 weeks before the Commencement of the theory examination. Only such candidate shall be permitted to offer Dissertation/Field Work/Survey Report/Thesis (if provided in the scheme of examination) In lieu of a paper as have secured at least 55% marks in the aggregate of all scheme and I and II semester examination taken in the case of semester scheme, irrespective of the number of paper in which a candidate actually appeared at the examination.
5. The list of text books/ recommended books/ Reference Books as approved by the Various BoS, are Printed along with the English Version only.

IASE Deemed to be University, Sardarshahar, Churu
DEPARMENT OF GEOGRAPHY
FACULTY OF HUMANITIES AND SOCIAL SCIENCES
Certification in GIS and Remote sensing

There will be one Papers Theory in 3 months and each paper will be of 3 hours duration and will carry 100 marks.

Important points to be noted:

- The theory question paper will consist of Five Sections.
- Theory (External) – 50
- Internal Sessional Marks (Internal) – 50

  (Division of Sessional: Assignments – 10, 2 Terminal Test- 05, Attendance- 03, Co-curricular Activity- 02)

  (a) Every subject paper has five (5) units, and every unit covers two (2) marks. A sessional work is to be done on every unit - **(2X5= 10 marks)**

  (b) Two terminal Tests - **(2½X2 = 05 marks)**

  (c) Attendance of Theory/Practical Classes - **03 marks**
  (76%-84% - 01 mark)
  (85%-93% - 02 marks)
  (93%-100% - 03 marks)

  (d) Co-curricular Activities - **02 marks**
  Cultural &Literary (01 mark)
  Games &Sharmdaan (01 mark)

- Total Marks – 100 (Papers : 100 Marks Each)
- Pass Marks – 36 percent.
- Please note that the Practical subject requires 40 % of marks to pass the examination separately
- Mandatory to pass the Internal and External (Written Exam) separately, Obtaining 36 Percent Marks.
- Duration of Examination: 3 Hours for Each Paper.

Note: Each theory paper must be allotted minimum six hours per week for teaching.

Practical : Distribution of marks will be as follows:

1. Laboratory and Map work test (4 hours duration) 40 marks
2. Record Work 25 marks
3. Viva-voce 10 marks
4. Field Survey Report & Viva-voce (15+10) 25 marks

Total Marks 100

N.B. 12 hours of teaching practical be provided per batch of 15 students per week.

Note: A weekly seminar is to be arranged for M.A. Previous students.

INSTRUCTION FOR GEOGRAPHY PRACTICAL EXAMINATION:

1. The record work should have 50 sheets (1/4th of 20"x30") and they should cover the total syllabus proportionately. The teacher should give fresh exercise every time so that the students may not undertake tracing of old exercises. The work must be done in the class room and signed on the same date. This would discourage completing the whole work at the nice of the examination. Emphasis should be laid on ink work.
2. 2 Viva-voce examination be held to judge the real knowledge of the students and to examine the authenticity of the record work, the marking on record word and its viva-voce be based on the original work of the candidate and not merely producing the record work get done by any other agency. Marks be deducted for the part of the syllabus not covered.
3. On an average about 20 students be examined in one day in Certification in LiDAR. As far as possible one practical exercise, to set to judge the practical skill.

Not A copy of the instructions be sent to the examiners for their information.

Scheme of Examination of Certificate in GIS & Remote sensing Examination

Paper No.	Nomenclature of the Paper	Paper Code	INTERNAL SESSIONAL	THEORY (WRITTEN EXAM)	Max. Marks
Unit I	Basics of Remote Sensing	RS	4	16	20
Unit II	Physics of Remote Sensing and EMR Interactions	RS	4	16	20
Unit III	Platforms and Sensors and Resolutions	RS	4	16	20
Unit IV	Earth resource satellites	RS	4	16	20
Unit V	Application of Remote sensing data	RS	4	16	20
		Total Marks	20	80	100

Process of Evaluation

- ✓ Theory Exams
- ✓ Practical's Exams
- ✓ Presentations
- ✓ Tree plantations (Geotagged)

There will be four theory papers and a practical in previous examination. Each of the theory papers will be of 80 marks. Each of the theory paper will be three hours duration. Candidates will be required to pass of both in theory an practical separately.

GIS & Remote Sensing

Core Course 06 **RS**

Max. Marks – 100 **Min. Pass Marks – 36**

Internal Max. Marks – 20 **Min. Pass Marks – 7**

Theory Marks – 80 Marks **Min. Pass Marks – 29**

Unit 1

Basics of Remote Sensing

Definition and scope; satellite remote sensing vs aerial photography; data acquisition; stages of remote sensing; historical development of remote sensing, Remote sensing data.IRS programs.

Unit 2

Physics of Remote Sensing and EMR Interactions

Electromagnetic radiation (EMR); electromagnetic spectrum Image Processing Pre and post processing with atmosphere: atmospheric haze, scattering and contrast reduction; interaction with earth surface; spectral signature, hemispheric reflectance, transmittance and a

Unit 3

Platforms and Sensors and Resolutions

Platforms: ground base, air borne, space borne; sensors: definitions and CCDs; types of sensors: optical, thermal and microwave; sensor systems: whiskbroom and push broom sensors used in IRS; Landsat; SPOT satellites; resolutions: spatial, spectral, temporal and radiometric

Unit 4

Earth resource satellites

Definitions and characteristics, Sun-synchronous and geostationary satellites, Indian Remote Sensing Satellites (IRS) series, LANDSAT series, SPOT series, IKONOS and Quick bird etc.; satellite data types: FCC and PAN image.

Unit 5

Application of Remote sensing data

Image classification scheme, Image classification Techniques, Land use land cover mapping, NDVI and its uses. Change detection and its uses.

Remote sensing Practical's:

Interpretation of remote sensing data, Study of PAN and FCC satellite imagery; study of thermal satellite data and interpretation of different objects; study of RADAR & SAR (Microwave)imagery interpretation of physical and cultural details from different satellite imageries: (IRS,LANDSAT& SPOT), Resolution merging, Temperature mapping with satellite Images, Working with Low and High resolution Satellite Images. Study of Multispectral, Super spectral and Hyperspectral Images.

References:

1. American Society of Photogrammetry (1992), Manual of Remote Sensing, 2nd ed., Falls Publisher, New York.
2. American Society of Photogrammetry, 1996 Multilingual Dictionary of Remote H.M., Wilson, Topographic Surveying.
3. John Wiley and Sons (1983) Sensing and Photogrammetry, New York.
4. VA Wolf, P.R. (1983), Elements of Photogrammetry, 2nd ed., McGraw-Hill, New York
5. Rampal KK. (1996), Handbook of Aerial photography and Interpretation. Concept Publishing Company, New Delhi

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