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

Of

GANDHI VIDYA MANDIR, SARDARSHAHR
(CHURU) RAJASTHAN – 331403
Phone – 01564 – 220025, 223642, 223054
Web: www.iaseuniversity.org.in

SYLLABUS
SCHEME OF EXAMINATION AND COURSEOF STUDY
DEPARMENT OF GEOGRAPHY
FACULTY OF HUMANITIES AND SOCIAL SCIENCES
Certificate in LiDAR (3Months)
Geographical information system(GIS) Examination 2020

Course Objectives:
To give the Exposure though Practical Learning in LiDAR Technologies, practical understanding of LiDAR 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 LiDAR data.

Learning Out comes: After completion of this course candidate will be hands on LiDAR 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 atleast 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 University, Sardarshahar, Churu

DEPARMENT OF GEOGRAPHY
FACULTY OF HUMANITIES AND SOCIAL SCIENCES
Certification in LiDAR

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

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
- Mendatory 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 no 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 Certification in LiDAR Examination

Paper No.	Nomenclature of the Paper	Paper Code	INTERNAL SESSIONAL	THEORY (WRITTEN EXAM)	Max. Marks
Unit I	Fundamental of LiDAR	LIDAR	4	16	20
Unit II	Principle of LiDAR technology	LIDAR	4	16	20
Unit III	Data Acquisition and Calibration	LIDAR	4	16	20
Unit IV	LiDAR data processing	LIDAR	4	16	20
Unit V	Application of LiDAR technology	LIDAR	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.

Light Detection and Ranging (LIDAR)

Core Course 04   **LIDAR**
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

Fundamental of LiDAR
Electromagnetic Spectrum and Radiation, Introduction and objectives of LiDAR, Basic Concept of LiDARtechnology,LiDARTechnology,Historical development of LiDAR technology,LiDAR platforms (terrestrial, aerial and Space,Terrestrial,Aerial (ALS),Space borne

Unit 2

Principle of LiDAR technology
Principle of LiDAR Technology, Types of LiDAR data, Basic architecture of LiDAR technology, Transmitter
Receiver andControl system, Latest laser scanners and specification.

Unit 3

Data Acquisition and Calibration
LiDAR System, System Specification, Data Storage, Data Acquisition consideration, Software for Quality Assessment, Lidar data acquision techniques and its density.

Unit 4

LiDAR data processing
Introduction and objectives of LiDAR data processing, Preprocessing, Post processing, Products of LiDAR application, DEM, DTM, DSM, Source of Errors in LiDAR data.

Unit 5

Application of LiDAR technology
Application of LiDAR for mapping and planning,LiDAR for volumetric analysis,LiDAR application for power sector, Application of LiDAR for smart city,LiDAR application for Topographical study

Lidar Practical's: software interaction with LiDAR tools
Vectorization on raster, Add elevation to vector, Merging of dgn files, Terra solid family, tools interaction, Opening, saving .las , .laz file ,Making function key, Making , editing. ptc file ,Work on Mobile Lidar data
Work on Airborne Lidar data Building classification, Power line classification, Make vector of power line wires and center line, Ground data correction (DEM),Contour generation, Ground and above ground data extraction, Data products- DEM,DTM,   and DSM, Making topographic (DTM) Maps with Lidar data. Ground and above and Above ground feature extraction from Point cloud data (Point Cloud Classification)

Reference

1. CP LO &Yeung A.K, (2004), Concepts and Techniques of GISs Prentice-Hall of Indian, New Delhi.
2. Heywood I, Cornelius S, Carver S. (2000), Introduction to GIS. Addison Wesley Longman, New York.
3. Burrough P.A, and Rachael A. McDonnell (2010) Principles of Geographical Information Systems,
4. Pazal S. &Rahman A. (2007), GIS Terminology, New Age International Publishers, New Delhi.
5. Leick A. (1995) GPS Satellite Surveying, 2nd Edition, John Wiley andSonsLeicka. A.: GPS Satellite Surveying,
6. John Wiley & Sons, Terry-Karen Steede, (2002), Integratin GIS and the Global Positioning
7. System, ESRI Press New York.

Evaluation scheme:

Evaluation of This Diploma IS based on five internal assessments, Two quarter exams and final examination marks. Overall performance will be calculated different parameter like: Attendance, Attitude, presentation and overall performance in the whole year.

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ERROR: syntaxerror
OFFENDING COMMAND: --nostringval--

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/ModDate
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/Keywords
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/Creator
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/CreationDate
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