

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

Of

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SYLLABUS

SCHEME OF EXAMINATION AND COURSE OF STUDY

DEPARTMENT OF GEOGRAPHY

FACULTY OF HUMANITIES AND SOCIAL SCIENCES

Skill Course (6Months)

Certificate in Geographical Information System (GIS)



Course Objectives:

To give the Exposure though Practical Learning in Geographical Information System, practical understanding of GIS 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 Geospatial Spatial data set.

Learning Outcomes:

After completion of this course candidate will be hands on Geospatial technology as per industry requirements. Candidates would able to perform from the day first.

SCHEME OF EXAMINATION

Each theory paper	Marks 80
Internal Marks	Marks 20
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.

DEPARTMENT OF GEOGRAPHY
FACULTY OF HUMANITIES AND SOCIAL SCIENCES
Geographical Information System

Important points to be noted:

- The theory question paper will consist of Five Sections.
- Theory (External) – 80
- Internal Sessional Marks (Internal) – 20

(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 – 500 (Five 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 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 Geographical information system. 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 Geographical Information System Examination

Paper No.	Nomenclature of the Paper	Paper Code	INTERNAL SESSIONAL	THEORY (WRITTEN EXAM)	Max. Marks
Unit I	Fundamental of Geographical information system	GIS	4	16	20
Unit II	GIS Data model and Structure	GIS	4	16	20
Unit III	Spatial data Inputs	GIS	4	16	20
Unit IV	GIS data storage	GIS	4	16	20
Unit V	GIS data manipulation Techniques	GIS	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 a practical separately.

Geographical Information System

Core Course 03

Max. Marks – 100

Internal Max. Marks – 20

Theory Marks – 80 Marks

GIS

Min. Pass Marks – 36

Min. Pass Marks – 7

Min. Pass Marks – 29

Unit 1

Fundamental of Geographical information system, Introduction and objectives of GIS, Basic concept of Spatial Information, Concept of GEO-Informatics, Historical development of GIS Components of GIS, Software and hardware requirements for GIS, GIS data formats

Unit 2

GIS Data model and Structure, Introduction and objectives of GIS data model and structure GIS data types, GIS data model, Raster data model and types, Vector data models and types Database management, Database Structure, Types of database model, Object oriented data model

Unit 3

Spatial data Inputs, Objectives of GIS data input, Methods of GIS data inputs (scanning Digitization, Surveying and integration, Shape of the earth, Datum, Map Projection, Introduction and objectives, Coordinate system and their Types, Map Projections, Classification of Map Projection, Universal Transverse Mercator Projection, The Lambert Conformal Conic Projection, Polyconic Projection, GIS data attribution, Introduction and objectives, Attributes generation data types and Error in GIS data, Spatial and non-spatial data linking.

Unit 4

GIS data storage, Introduction and objectives, Digital data storage (Bits and bytes) Storage format and their types, Storage Media and their consideration, Platforms of Storing the GIS data, Data compression techniques.

Unit 5

GIS data manipulation techniques, Introduction and objectives of data manipulation Boolean logics AND, XOR, OR, AND, Overlay analysis, Overlay operations, Proximity analysis/ Buffer analysis, Interpolation analysis (IDW and kriging), Impact assessment Water shade analysis, GIS data mining, Map Designing/Composition, Introduction and objectives Map elements and Map composition.

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 and Sons Leicka. A.: GPS Satellite Surveying,
6. John Wiley & Sons, Terry-Karen Steede, (2002), Integratin GIS and the Global Positioning
7. System, ESRI Press New York.

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