5 – YEAR INTEGRATED M.S. GEOLOGY COURSE
Scheme of Instruction and Examinations
(W.e.f. 2009 – 2010 Admitted Batch)

SEMESTER – IV

Serial No.	Course	Teaching Lab. Hours per week	Duration of Examination hours	Allotment of marks		Total Marks	Subject Credits
				External	Internal (Sessionals)		
01.	FIG.41: Advanced English Paper – IV	4	3	85	15	100	4
02.	FIG.42: Second Language (Telugu/Hindi)-Paper – IV	4	3	85	15	100	4
03.	FIG.43: Computer Programming – Paper – IV	4	3	85	15	100	4
04.	FIG.44: Mathematics – Paper – IV	4	3	85	15	100	4
05.	GIG.45: Physics – Paper – IV	4	3	85	15	100	4
06.	FIG.46: Geology – Paper – IV	4	3	85	15	100	4
07.	FIG.47: General Course – Paper – IV Introduction to Indian Economy	4	3	85	15	100	4
08.	FIG.48: Computer Lab	4	3	35	15	50	2
09.	FIG.49: Physics Lab	4	3	35	15	50	2
10.	FIG.50: Geology Lab.	4	3	35	15	50	2
11.	FIG. 51: English Lab	4	3	35	15	50	2
12.	FIG.52: Maths Lab	4	3	35	15	50	2
					TOTAL	950	38

5 year Integrated M. S. Geology
English Theory Syllabus (FIG.41)
<u>SEMESTER IV</u>
(w.e.f. 2009 – 2010 Admitted Batch)

PART – A

A marriage Proposal -   Anton Chekhov
The Monkey Paw-   W.W.Jacobs
Villa for Sale-   Sacha Guitry
Day of Atonement-   Margaret Wood

The above one-act plays are from Six One-Act play edited by Maurice Stanford. Orient Longman

PART – B

1. Stages of Communication

    Channels of Communication Skills.
    Nature of Technical Communication Skills.
    Barriers of effective Communication.
    Organization in Technical Communication.
    Style in Technical Communication.

2. Listening comprehension.
3. Speaking Strategies.
4. Professional Speaking.
5. Group Discussion.
6. Presentation Skills.
7. Reading and Language Comprehension.
8. Study Skills.
9. Writing Strategies.
10. Professional Writing (Resume's, job application, e-mail, Report, E-Correspondence)
11. Telephonic Conversation.

Recommended Text: M. Ashraf Rizwe
                  <u>Effective Technical Communication</u>
                  Tata Mac Grawhill, New Delhi.

                  Prof. S. P. Dhanvel,
                  Text Book on "English and Communication skills for student of Science and
                  Engineering.

5 year Integrated M. S. Geology
English Practical Syllabus (FIG.51)
<u>SEMESTER IV</u>
(w.e.f. 2009-2010 Admitted Batch)

Communication skills

1. Understanding Communication Skills.

2. Verbal and Non-Verbal Communication.

3. Negotiating Skills.

4. Speech Type – Group Discussions.

5. Speech Type – Debates.

6. Presentation Skills – The Structure of a Presentation.

7. Facing an Interview.

8. Listening Skills

9. Telephonic Skills.

10. Business Writing – CV & Drafting a Covering Letter.

Time: 3 Hours   Max.Marks:85.

PART – A

I Answer Two essay type questions from the following: 2x10=20 Marks

1. Consider the play "A marriage Proposal" a comedy of Manners?
2. Summarize W.W.Jacob's the Monkey paw?
3. What are Sacha Guitry's impressions on "Villa for Sale"?
4. In what way is the theme of the play. "A Day of Atonement" relevant to the present society?

II Write a Short notes on any Two of the following: 2x5=10 Marks.

1. What emotions are involved in the play Villa for Sale?
2. The role of Volovyi Meadows in the play "A Marriage Proposal".
3. How would you describe the character of Lomov in the play "A Marriage Proposal".
4. Write a brief note on the play "Day of Atonement".

PART – B

III Write an essay on any Two of the following: 2x10=20 Marks.

1. What is Communication, What are the Channels of Communication?
2. Explain the nature of Technical Communication Skills?
3. What are the Barriers of Effective Communication?
4. Organization in Technical Communication?

IV Answer any Two of the following: 2x10=20 Marks.

1. What is the purpose and process of Listening?
2. What is Presentation? How to make an effective Presentation?
3. Methodology of conducting a group discussion?
4. Fundamental of Professional Speaking Skills?

V (A) Answer any Two of the following: 2x5=10 Marks.

a) Verbal Communication   b) Non-Verbal Communication.
c) Types of Group discussion   d) Telephonic Conversation.

  (B) Answer any One of the following: 1x5=5 Marks.
a) Résumé   b) Application for a Job
c) Report writing   d) e. correspondence

Department of Geology
Andhra University, Visakhapatnam
5 Year Integrated M. S. Geology
SEMESTER – IV
COMPUTER PAPER – IV
(Object Oriented Programming with C++)
FIG.43 Syllabus
(w.e.f.2009-2010 Admitted Batch)

Sessional Marks: 15
Univ-Exam-Marks: 85

UNIT – I
Basics of Object Oriented Programming: Object Oriented Programming Overview, Object-Oriented Paradigm, Concept of Data Abstractions, Encapsulations, Inheritance and Polymorphism.
Introduction to U. M. L: U.M.L Diagrams with examples.

UNIT – II
Classes, Objects, private, public specifies, Constructors, Destructors, Operator Overloading function overloading, Type conversions, Static member functions

UNIT – III
Inheritance: Derived classes, Syntax of derived classes, Public, private, protected, single, multilevel, multiple, hierarchical, hybrid inheritance with examples in c++ Polymorphism, Runtime Polymorphism.

UNIT - IV
Streams & files: C++ Streams, Stream Classes, Unformatted and Formatted I/O Operations – Managing Output with Manipulators. Defining Strings, String Objects, Manipulating String Objects, Comparing and Swapping Strings
Functions: friend function, virtual and pure virtual functions.

UNIT – V
Templates, Exception handling console I/O and File I/O: class templates, function templates, member function templates, Exception handling, managing console I/O operations, working with files.

Text Books:

Object Oriented Programming with C++, E. Balagurusam 2nd Edition
Object Oriented Programming in C++, N. Barkakati, PHI.

ANDHRA UNIVERSITY
DEPARTMENT OF GEOLOGY
5 YEAR INTEGRATED M.S.GEOLOGY
SEMESTER – IV
OBJECT ORIENTED PROGRAMMING WITH C++
FIG.48
(w.e.f. 2009-2010 Admitted Batch)
PRACTICAL SYLLABUS

1. Student class Implementing class, object, access specifies
2. Implementing single inheritance
3. Implementing. Multiple inheritances
4. Implementing Multi-level inheritance
5. Implementing Hierarchical inheritance
6. Implementing Function Over loading
7. Implementing Operator Overloading
8. Implementing Templates (class)
9. Implementing Function templates
10. Implementing Call by value
11. Implementing Call by reference
12. Implementing Array of objects
13. Program to implement structures and classes
14. To calculate the perfect member
15. To implementing the bubble sort.

ANDHRA UNIVERSITY
DEPARTMENT OF GEOLOGY
5 YEAR INTEGRATED M.S.GEOLOGY
SEMESTER – IV
OBJECT ORIENTED PROGRAMMING WITH C++ PAPER IV

MODEL QUESTION PAPER
(w.e.f. 2009-2010 Admitted Batch)

ANSWER TO ALL QUESTIONS CARRY EQUAL MARKS
5X17=85

1. A. Explain the concept of Object Oriented Programming in C++
   B. Explain Object Oriented Paradigm
                            Or
   C. Explain U.M.L. diagrams with an example.

2. A. Explain different types of functions and give examples
   B. Describe call by value, call by reference and function polymorphism
                            Or
   C. Explain about classes and objects with examples
   D. Explain constant and static member functions in classes

3. A. What is inheritance and explain the types of inheritance
                            Or
   B. Explain rules of operator over loading and give examples for unary and binary operator
      overloading
   C. What is destructor explain different types and defining the constructors

4. A. Explain pointers to objects, and give example pointers to derived classes
   B. Handling of input and output streams in C++ and formatted and unformatted I/O
   operations
                            Or
   C. Explains about the string handling functions. Implement swapping of two strings without
   using string library.

5. A. Explain file stream classes and modes in file operation
   B. Implementation of opening and manipulating the file pointer
                            Or
   C. What is template, describe class template and function template
   D. Describe Exception handling in C++

ANDHRA UNIVERSITY
DEPARTMENT OF GEOLOGY
5 YEAR INTEGRATED M.S.GEOLOGY
SEMESTER – IV
MATHEMATICS - PAPER IV
FIG. 44 SYLLABUS
(w.e.f. 2009-2010 Admitted Batch)

UNIT – I VECTORS

Introduction – representation of a vector quantity-Vectors as arrows-Addition and subtraction of vectors-Rectangular Cartesian coordinates in three dimensions-Distance in Cartesian coordinates-Direction cosines and ratios – Angle between two lines through the origin – Basis vectors – Properties of vectors – The scalar product of two vectors – The vector product of two vectors – Vector functions – Differentiation of vector functions.

to 11.13 in Chapter 11 of Prescribed Text book 1

UNIT – II: VECTOR DIFFERENTIATION AND VECTOR OPERATORS

Introduction-Gradiant of Scalar function-Prorperties-Directional Derivative-Divergence of Vector-Solenoidal Vectors-Curl of a vector-Physical Interpretation of Curl-Irrotational motion, Irrotational Vector- Vector Differential operator ▼-Scalar differential operator a. ▼-Vector differential operator a x ▼-Scalar differential operator ▼- Vector differential operator ▼x – Laplacian operator ∇^2 – Vector Identities.

Chapter 11 of Prescribed Text book 2

UNIT – III: VECTOR INTEGRATION

Indefinite integral – Definite integral-Line Integral-Surface Integrals-Volume integrals.

Chapter 12 of Prescribed Text book 2

UNIT – IV: INTEGRAL THEOREMS

Statements and Proofs of Stokes, Greens and Gauss Divergence Theorems-Simple Problems on these three theorems.

Chapter 12 of Prescribed Text book 2.

PRESCRIBED BOOKS:

1. Understanding Engineering Mathematics by Bill Cox-newnes – First published 2001- Linacre House, Jordan Hill, Oxford.
2. A text book of Engineering Mathematics, Vollume-1, First Edition 2001 (Fifth Revised edition 2006) by T.K.V. lyengar, B. Krishna Gandhi-S. Ranganatham-M. V. S. S. N. Prasad-S. Chand & Company Ltd. – New Delhi-110555.

ANDHRA UNIVERSITY
DEPARTMENT OF GEOLOGY
5-years Integrated Course
Fourth Semester
Physics Syllabus (FIG.45)
(w.e.f. 2009-2010 Admitted Batch)

Electromagnetics

UNIT – I: Electrostatics (12)

Gauss law and its applications, electric field due to uniformly charged sphere and charged cylindrical conductors, mechanical force on a charged conductor, Electric potential, and Electric potential due to charged spherical conductor, Electric dipole, potential energy of a dipole in an electric field, capacity of parallel plate condenser with and without dielectric. Energy stored by a charged condenser, Problems.

UNIT – II: Magnetostatics (12)

Definition of B, Biot-Savart's law, magnetic force on a current carrying wire, Torque, on a current loop. The magnetic dipole moment, force between two parallel current carrying wires, Ampere's law, magnetic field die to solenoid and toroids, Energy in the magnetic fields, problems.

UNIT – III: Magnetic Fields in Matter (10)

Dia, para and ferro magnetic substances, Magnetisation. Relation between B,M and H. Definition of H, Magnetic susceptibility, Hysterisis, B-H curve.

UNIT – IV: Induction and Inductance (10)

Faraday's law of induction, Lenz's law, induced electric fields, Self-induction, energy stored in a magnetic field, energy density of a magnetic field, mutual induction.

UNIT – V: Maxwell's Equations and Electromagnetic Waves (10)

Basic laws of electricity and magnetism – differential form, Displacement current, Maxwell's equation, Electromagnetic waves in free space, pointing vector-energy density in electromagnetic waves.

Text books:
  1. Electricity and Electronics. Dr. S. L. Gupta, Sanjeev Gupta, Unified Physics, Vol-3.
  2. Fundamentals of physics. Halliday, Resnick and walker wiley India Edition 2007.

Reference Books:

  1. Fundamentals of physics by Alan Giambattista et al Tata-McGraw Hill Company Edition, 2008.
  2. University physics by Young and Freeman, Pearson Education, Edition 2005.
  3. Sears and Zemansky's University physics by Hugh D. Young, Roger A. Freedman pearson Education Eleventh Edition.

1. Determination of Radius of curvature of a given convex lens-Newton's rings.
2. Resolving power of grating.
3. Study of optical rotation-polarimeter.
4. Dispersive power of a prism
5. Determination of wavelength of light using diffraction grating minimum deviation Method.
6. Wavelength of light using diffraction grating – normal incidence method.
7. Resolving power of a telescope.
8. Refractive index of a liquid and glass (Boys Method).
9. Pulfrich refractometer – determination of refractive index of

ANDHRA UNIVERSITY
DEPARTMENT OF GEOLOGY
5-years Integrated M.S Geology
Fourth Semester
Physics Model Paper
(with effect from the admitted batch of 2009 – 2010)

Time: 3 hours.   Max.Marks:85

Answer all questions.

All question carry equal marks.   (17 x 5 = 85)

1. Electric charge is uniformly distributed within an infinite cylinder of radius R. Use Gauss's theorem to calculate the electric field strength at any point distant r from the axis lying (i) inside, (ii) on the surface and (iii) outside the cylindrical charge distribution.

(OR)

Define electric potential. Derive an expression for the potential field due to charged spherical conductor. A spherical drop of water carrying a charge of 3×10^{-6}C has a potential of 500 V at its surface what is the radius of the drop?

2. State and explain Biot – Savart's law. Derive an expression an expression for magnetic induction at a point due to an infinitely long straight conductor carrying current. An infinitely long conductor carries a current of 10mA. Find the magnetic field at a point 10 cm away from it.

(OR)

State Ampere's law and derive an expression for magnetic induction die to a toroid. Show that the curl of magnetic induction vanishes only when there is no current density.

3. Assuming Distinguish between Dia, para and ferromagnetic substances. Obtain the relation between magnetic induction (B), magnetic intensity (H) and intensity of magnetization (I)

(OR)

Define magnetic susceptibility and permeability. Describe an experiment to determine the hysteresis loop of a magnetic material. Show that the area of the loop gives the loss of energy in a cycle of magnetiztion.

4. State Faraday's and Lenz's laws of electromagnetic induction. Derive an expression for the energy stored in a magnetic field and deduce an expression for energy density.

<div align="center">(OR)</div>

What is self induction? Define coefficient of self induction and obtain an expression for the self induction of a solenoid.
A solenoid of length o.50m wound with 5,000 turns/m of wire has a radius 4 cim. a coil of 700 turns is wound on the middle part of the solenoid. Calculate self inductance of the solenoid.

5. Sate and duscuss the fundamental laws of electromagnetism. Give their differential forms. Obtain the generalized Ampere's law using Maxwell's equations.

<div align="center">(OR)</div>

What is pointing vector? Derive an expression of pointing vector from Maxwell's equations.

Andhra University
College of Science & Technology
Department of Geology
5 – Year Integrated M. S. Geology Course
Fourth Semester (w.e.f.2009-2010 Admitted Batch)
FIG.46 – Geology – Paper – IV: Structural Geology & Paleontology

Syllabus

UNIT – I

Definition of Structural Geology – Aim and objectives of Structural Geology – Importance of the study of structures. Primary and Secondary structures; Outcrops, attitude of bed: Strike, Dip and Apparent Dip: Use of Clinometer. Primary Structures as markers.

UNIT – II

Folds – description, geometric classification of folds, recognition of folds in the field. Joints – geometrical and generic classification of joints. Faults – Geometrical and genetic classification of faults – Recognition of faults in the field – Effects of faults on the outcrops.

UNIT – III

Unconformity – Definition of Uncongormity – Unconformitites – Recognition of unconformities – Distinguishing the faults from unconformities. Definitions of overlap, offlap, outlier, inlier, schistosity, foliation and lineation.

UNIT – IV

Definition of palaeontology and fossilism. Conditions for preservation – medes of preservation – uses of fossils. Study of taxonomy – classification – morphology – geological and geographical distribution of the following invertebrate fossils: phylum Echinodornata, Phylum Brachiopoda, Phylum Mollusca, Phylum Arthropoda.

UNIT – V

Study of the following fossils: Monograptus, Calceora, Cidaris, Micraster, Spitiner, Product Terebratula, Turritella, Pecten, Gryphaea, Nautilus, Belemnites, Clymenia, Paradox Glossopteris, Gangamopteris, Ptyllophyllum.

Text Books:
1. Structural Geology by M. P. Billings.
2. An outline of Structural Geology by B. E. Hobbs and P. F. Williams.
3. Simple geological structures by J.I.Plant and Challiner.
4. Paleontology Invertebrate by Henry Woods.
5. Invertebrate Palaeontology and Evolution by ENK Clarkshon.
6. Fossil Invertebrates by U. Lemmann and G. Milner.
7. An Introduction to Palaeobotany by C. A. Arnold.
8. An Introduction to the Study of Fossils. By Shimmer, H. W.
9. A Text Book of Geology by P. K. Mukherjee.

Reference Books:

1. Structural Geology by L. U. De Gitter.
2. Elements of Structural Geology by E. S. Hills.
3. Invertebrate Fossils by Moore, Lalicket and Fisher.
4. Principles of Invertebrate Palaeontology by Shrock, R. R. and Twenhofel, W. H.
5. Principles of Palaeontology by D. M. Raupannand.

PRACTICAL WORK (FIG.50)

I.   Interpretation of simple geological maps with horizontal and inclined beds, unconformities, folds, faults with reference to topography, structure, geological succession and history and sections drawings (at least 8 maps)

II.   Problems dealing with true dip and apparent dip data, thickness and width of outcrop and dip of the outcrop (at least 7 problems)

III.   Drawing and description of invertebrate and plant fossils as per the list mentioned in the above theory syllabus.

FIG. 46 GEOLOGY – PAPER – IV
Andhra University
DEPARTMENT OF GEOLOGY
5 – year integrated M. S. Geology Course
Fourth Semester (w.e.f. 2009-2010 Admitted Batch)
Semester – end Examination
Model Question Paper
Geology – Paper IV – (Structural Geology & Paleontology)

Max.Marks:85   Time: 3 HRS.

Answer the following
All questions carry equal marks

UNIT – I

1. (A) Describe a Clinometer and enumerate the use of clinometer in the delineation of structures in the field.

(OR)

(B) Answer the following short note questions:
i)   Primary structures.
ii)   Strike and dip.
iii)   Outcrops.

2. (A) Describe various folds and their geometric classification.

(OR)

(B) Answer the following short note questions:
i)   Fault.
ii)   Joint.
iii)   Recumbent fold.

3. (A) Write an account of unconformities. How do you distinguish between an unconformity and a fault?

(OR)

(B) Answer the following short note questions:
i)   Overlap.
ii)   Inlier.
   iii)   Lineation.

4. (A) What is a fossil? What are the uses of fossils/ How can they be preserved in the nature?

(OR)

(B) Answer the following short note questions:
i)   P. Echinodermata.
ii)   P. Brachiopoda.
iii)   P. Arthropoda.

5. (A) Answer the following short note questions:
    i)   Cidaris.
    ii)   Productus
    iii)   Pecten.

(OR)

(B) Answer the following short note questions:
i)   Nautilus.
ii)   Belemnitis.
iii)   Glossopteris.

FIG.41: GENERAL COURSE (SYLLABUS)
PAPER: INTRODUCTION TO INDIAN ECONOMY
(w.e.f. 2009-2010 Admitted Batch)

MODULE 1 : CONCEPTS OF DEVELOPMENT

Meaning of Economic growth and development – Measures of Economic Development – GNP, PCI, PQLI and HDI. Factors influencing Economic development – Sustainable development – Balanced and unbalanced growth. – Inclusive growth.

MODULE 2; STRUCTURE OF THE INDIAN ECONOMY

Basic features – Natural Resources – Land, Water and Forest resources; Basic demographic features – Size and growth of the population – Demographic dividend – population policy. Eleventh Five Year Plan – Objectives, Mobiization and Allocation of Resources – New Economic Reforms – Liberalization, Privatization and Globalization in India.

MODULE 3: INDUSTRIAL LOCATION

Location. Localization and Planned Location of Industries – Factors Influencing Location – Balanced Regional Development of Industries – Need for Balanced Regional Development in India – Essential Requisites – Dispersal Criteria – The Pande Committee – Wanchoo Committee.

MODULE 4; INDIAN INDUSTRY AND SERVICES

Structure and Growth of Indian Industry – Industrial policy of 1991. Growth and problems of small scale Industry. Principal Large Scale Industries and related problems. Growing importance of Services Sector in India – Banking, Insurance, Information Technology – Education and Health.

MODULE 5: SCIENTIFIC MANAGEMENT

Phases of Scientific Management – Mental Revolution – Determination of Task – Improvement in the Methods of work – Modification of Organisation – Distinction between Traditional Management and Scientific Management – Opposition of Labour.

MODEL QUESTION PAPER
INTRODUCTION TO INDIAN ECONOMY

PART – A

Time: 3 Hours   Max.Marks: 85

ANSWER ANY THREE OF THE FOLLOWING (3X20=60)

1. Analyse the factors influencing economic development?
2. State basic features of Indian Economy?
3. Critically review the Industrial Policy of 1991?
4. Briefly explain the growing importance of service sector in India?
5. Write a note on the factors influencing industrial location?
6. Distinguish between traditional management and scientific management?

PART – B

ANSWER THE FOLLOWING 95X5=25)

7. a) PQLI

    (OR)

    b) Sustainable Development

8. a) Demographic Dividend

    (OR)

    b) Privatization

9. a) Main Problems of SSI's in India

    (OR)

    b) Concept of Universal Education

10. a) Concept of balanced regional development in India.

    (OR)

    b) Pande Committee

11. a) Mental Revolution

    (OR)

    b) Opposition of Labour