SRI KRISHNADEVARAY UNIVERSITY:: ANANTAPURAMU

UG CBCS SYLLABUS
VI Semester
(2017-2018)

B.Sc., GEOLOGY

VI SEMESTER- SYLLABUS

(AS PER CBCS AND SEMESTER SYSTEM)

III YEARS

w.e.f. 2017-2018

AP STATE COUNCIL OF HIGHER EDUCATION
CBCS - PATTERN FOR GEOLOGY

SEMESTER-VI

Paper- VII- Mineral Exploration and Mineral Economics

Unit-I

Definition and scope of mineral prospecting and exploration, Prospecting criteria and guides. structural, lithological and staratigryphycal guides. Geochemical prospecting – primary and secondary dispersion – Geochemical association and path finders.

(12 hrs)

Unit-II

Geophysical Exploration - brief description and application of gravity methods - instruments in gravity method: gravimeters.

Brief description and application of magnetic methods – instruments in magnetic method: magnetometers.

Brief description and application of seismic methods - instruments in seismic method: geophones.

(12 hrs)

Unit-III

Brief description and application of electrical methods - instruments in electrical method: Resistivity meter.

Brief description and application of radioactive methods - instruments in radioactive method: G-M Counter, Scintillometer, lionisation chamber.

Photogeology – Aerial photographs, aerial photographic techniques in menial exploration. Remote sensing techniques in mineral exploration. Study of satellite imageries.

(12 hrs)

Unit-IV

Sampling Technique: Definition of sampling, Methods of sampling – Channel, Chip, Grab, Car, groove, Wagon, Pitting and trenching and drill hole samp0ling. Coning and quartering. Estimation of are reserves- Calculation of ore reserves (Extended and Included are methods)

(12 hrs)

Unit-V

Principles of mineral Economics. Classification of mineral deposits. National Mineral policy. Mineral concession Rules. Mineral conservation and substitution. Status of mineral production in India.

(12 hrs)

Text Books:

1. Geological Prospecting & Exploration - V. M. Kneiter
2. Mineral Economics - R.K.Sinha & N.L.Sarma.
3. Mining Geology - McKinnstry

SEMESTER-VI
Elective Paper-VIII
Paper-VIII- (A): Mining Geology and ore Dressing

Unit-I

Mining methods- Classification of mining methods; criteria for selection of mining method.

(12 hrs)

Unit-II

Brief description of quarrying, open cast mining and underground mining methods- Stepping and Bench forms, Transport, Earth movers- Dragline instruments, Power shovels, Scrappers etc. Mine explosives. Brief description of alluvial mining- panning, Long tome, Rockers and Ground sluicing.

(12 hrs)

Unit-III

Underground mining methods- Shafts, Cross-cuts, Tunnels, mine ventilation, Mine supports, Drainage Pumping, Mine Haulage. Stopping methods in mining. Mining hazards and Safety measures.

(12 hrs)

Unit-IV

Mineral Processing- necessity and advantages of concentration. Ore dressing techniques- crossing, Grinding, Jigging, froth flotation method, gravity separation, Heavy fluid separation, magnetic separation method, Sieve analysis.

(12 hrs)

Unit-V

Drilling methods- Rotary drilling, Percussion drilling, diamond drilling, Churn drilling, Cable tool drilling and auger drilling.

(12 hrs)

Text Books:

1. Courses in mining geology - R.N.P.Arogyaswamy
2. Geological prospecting and exploration - V.M.Kneiter
3. Mineral economics - R.K.Sinha& N.L.Sarma
4. Mining geology - McKinnstry

SEMESTER-VI
Elective Paper-VIII
Paper-VIII- (B): Environmental Geology

Unit-I

Concept of environmental - Historical perspective - environmental awareness - Role of Geologist in environmental Protection and Planning.

(12 hrs)

Unit-II

Land **and** use planning: Soils, Types of soils, Classification of soils - Site selections -Constructions and urbanization.

Waste disposal - environmental effects Waste recycling - recycling of resources.

Land cover: Application of remote sensing: mapping soil cover, forest cover, degraded land, surface water reservoirs.

(12 hrs)

Unit-III

Mining impact on the environment - Health Hazards - Mineral resource depletion. Environmental considerations in location and construction of dams, reservoirs and tunnels

(12 hrs)

Unit - IV

Geological Hazards - floods, shifting of river courses - land slides - earthquakes - Prediction and Protection. Man - made Hazards.

(12 hrs)

Unit - V

Beach erosion sedimentation - coastal zone protection & Management – coastal engineering constructions - their effects remedial measures.

Mass Wasting - land scarification

Migration of dunes – stabilization

(12 hrs)

Text Books:

1. Environmental Geology - Strainer & Strahier
2. Environmental Geology - Landgreen
3. Environmental Geology - Keller

SEMESTER-VI
Elective Paper-VIII

Paper-VIII- (C): Disaster Management

Unit-I

Fundamental Concepts of Disaster Management – Hazard, Disaster, Risk, Disaster Management Policy. National Disaster Framework.

(12 hrs)

Unit-II

Floods, Cyclones and Tsunamis, causes of Floods, Floods hazard in India, Cyclones and their genesis.

Unit III

Volcanic hazards, volcanic belt firdiling in India sub-continent, origin and types of volcanic activity, nature of volcanic hazards, prediction of volcanic eruptions

(12 hrs)

Unit-IV

Classification and causes of landslides. Controls of landslides subsidence and its importance, site selection for ghat roads. Soil conservative measures.

(12 hrs)

Unit-V

Application of Remote Sensing and GIS in seismic hazards, landslides, ghat roads, bridges, culverts and canal alignment.

(12 hrs)

Tex Books

1. Principles of Engineering Geology - K V G K Gokhele.
2. Environmental Geology - E.A Keller.
3. Remote Sensing Principles & Interpretations - F.F. Sabins.

LAB-VI (Practicals) **100 Marks**

At the end of Sixth semester

Practical- VI- Mineral Exploration & Field work

Practical

1) Estimation of Ore reserves: Bedded type and vein type (Extended area and included area methods problems)

2) Sieve analysis Problems

3) Sampling Techniques – Preparation of composite sample of sediment by coning and quartering methods

4) Field work: Submission of Dissertation / Field Report.

Note: Field training camp: Ten days during vacation/ Working Days (Compulsory)

Study of toposheets and field work in the neighbouring areas and also other places of geological importance.