

# **SHIVAJI UNIVERSITY, KOLHAPUR.**



**B**  
**Accredited By NAAC**

Revised Syllabus For  
**Bachelor of Science in**  
**Geology**

**(B. Sc. Part II)**

(Subject to the modifications to be made from time to time)

**Syllabus to be implemented from June -2014 onwards.**

**Shivaji University, Kolhapur**  
Revised Syllabus For  
**Bachelor of Science in Geology**  
(B. Sc. II)

**1. TITLE : Subject** **Geology**  
**Optional under the Faculty of Science**

**2. YEAR OF IMPLEMENTATION:-** Revised Syllabus will be implemented from June 2014 onwards.

**3. PREAMBLE:-**

This syllabus of degree course includes foundation, core and applied components of the geology course. The student should get into the prime objectives and expected level of study with required outcome in terms of basic and advance knowledge at examination level.

**4. GENERAL OBJECTIVES OF THE COURSE/ PAPER/:**

(as applicable to the Degree /Subject- Paper concerned)

- 1) To impart basic knowledge in geology
- 2) To develop awareness in the fields of mineral resources, ground water, petroleum
- 3) Introduction to the concepts of Geotectonics
- 4) Fundamental concepts of Origin and age of Earth
- 5) Understanding the concept of Geological time and geological history of the earth
- 6) To impart basic field training in geology.

**5. DURATION**

- The course shall be a full time course based on Semester pattern. There will be two semesters per Academic year.

**6. PATTERN:-**

Pattern of Examination will be Semester pattern.

- a. Theory Examination will be conducted at the end of each semester. There will be two theory examinations per academic year.
- b. Pattern of the Practical Examination will be Annual.

**7. ELIGIBILITY FOR ADMISSION :-**

As per eligibility criteria prescribed for each course and the merit list in the qualifying examination.

**8. MEDIUM OF INSTRUCTION :**

The medium of instruction shall be English.

## 9. STRUCTURE OF COURSE

### B.Sc II Geology ( Semester pattern)

#### A. Semester III

<b>Sr.No.</b>	<b>Subjects</b>	<b>Marks</b>
<b>1.</b>	<b>Paper V : Mineralogy and Optics</b>	<b>50</b>
<b>2.</b>	<b>Paper VI : Igneous Petrology</b>	<b>50</b>
	<b>Total Theory papers - Two</b>	<b>100</b>
	<b>Total</b>	<b>100 marks</b>

#### B. Semester IV

<b>Sr. No.</b>	<b>Subjects</b>	<b>Marks</b>
<b>1.</b>	<b>Paper VII : Structural Geology, Photogeology and Hydrology</b>	<b>50</b>
<b>2.</b>	<b>Paper VIII : Sedimentary and Metamorphic Petrology</b>	<b>50</b>
	<b>Total Theory papers - Two</b>	<b>100</b>
	<b>Total</b>	<b>100 marks</b>

### C. Practical ( Annual)

Practical based on papers V, VI, VII and VIII

Total marks : 100 marks

#### 10. SCHEME OF TEACHING:-

##### Semester III :

Sr.No	Paper	Teaching Scheme ( lectures/ week )
1	Paper V : Mineralogy and Optics	3 Lectures/ week
2	Paper VI : Igneous Petrology	3 Lectures/week
	Total	6 Lectures/week
3	Practicals based on Papers V and VI	8 Lectures /week

##### Semester IV :

Sr. No.	Paper	Teaching Scheme ( Lectures/week )
1	Paper VII : Structural Geology, Photogeology and Hydrogeology	3 Lectures/week
2	Paper VIII : Sedimentary and Metamorphic Petrology	3 Lectures/week
	Total	6 Lectures/week
3	Practicals based on Papers VII and VIII	8 Lectures/week

#### 11. SCHEME OF EXAMINATION :-

- Question Paper will be set in the view of the /in accordance with the entire syllabus and preferably covering each unit of syllabi.

#### 12. STANDARD OF PASSING:-

As Prescribed under rules & regulation for each degree/programme of Shivaji University, Kolhapur.

**13. EQUIVALENCE IN ACCORDANCE WITH TITLES AND CONTENTS OF PAPERS- (FOR REVISED SYLLABUS)**

**Pre-revised pattern :**

**Paper V : Mineralogy and Optics**

**Paper VI : Igneous Petrology**

**Paper VII : Structural geology, Photogeology and Hydrogeology**

**Paper VIII : Sedimentary and Metamorphic Petrology**

**Revised Pattern :**

**Paper V : Mineralogy and Optics**

**Paper VI : Igneous Petrology**

**Paper VII : Structural geology, Photogeology and Hydrogeology**

**Paper VIII : Sedimentary and Metamorphic Petrology**

**Equivalence is given to pre-revised pattern and revised pattern**

**B. Sc. Part II - GEOLOGY Syllabus**

**SEMESTER III**

**Paper V : Mineralogy and Optics**

**Paper VI: Igneous Petrology**

**SEMESTER IV**

**Paper VII : Structural Geology, Photogeology and Hydrogeology**

**Paper VIII : Sedimentary and Metamorphic Petrology**

**Practical : Based on papers V, VI, VII and VIII**

Unit I - Mineralogy

Unit II - Igneous Petrology

Unit III – Structural Geology

Unit IV - Photogeology

Unit V - Sedimentary Petrology

Unit VI – Metamorphic Petrology

\*Practical record for all units

## B. Sc. Part II - GEOLOGY SEMESTER III

### Paper V: Mineralogy and Optics

**Unit I:** Silicate structures with examples, Isomorphism, Polymorphism, Pseudomorphism. Imperfections in growth of crystals, Twinning in crystals, Types of Twinning.

(10 Lectures)

**Unit II:** Study of following mineral groups - involving chemistry, physical properties, optical properties and mode of occurrence.

1. Silica Group - Crystalline - Quartz and its varieties ( Crystalline, Cryptocrystalline and amorphous.

2. Pyroxene Group - Orthorhombic and Monoclinic Pyroxenes.

3. Amphibole Group - Orthorhombic and Monoclinic Amphiboles.

4. Mica Group - Muscovite, Biotite, Phlogopite, Lepidolite and Paragonite

5. Alumino-silicates – Kyanite, Sillimanite, Andalusite

(10 Lectures)

### Unit III

1. Feldspar Group- Alkali feldspars, Calc alkali feldspars and Barium feldspars.

2. Feldspathoid Group – Nepheline, Leucite and Analcime

3. Olivine Group- Forsterite, Olivine, Fayalite

4. Zeolite Group- Analcite, Natrolite, Scolecite, Mesolite, Stilbite , Heulandite, Chabazite, Apophyllite.

5. Garnet Group - Pyrope, Almandine, Spessartine, Grossular, Andradite, Uvarovite, Hydrogrossular

(10 Lectures)

**Unit IV:** Petrological Microscope, Behaviour of light in petrological microscope.

Study of optical properties of minerals as listed below.

**Properties in polarised light-** Form, Colour, Pleochroism and Absorption, Cleavage, Fracture, Relief, Twinkling, Inclusions, Alteration.

**Properties between crossed nicols-** Isotropism and Anisotropism, Extinction, types of extinction and extinction angle, Birefringence and Interference

Colours, Zoning and Twinning.

(10 Lectures)

Reference Books:

1. Rutley's Elements of Mineralogy - By H. H. Read, CBS Publishers, Delhi.

2. Dana's Text Book of Mineralogy - By W. E. Ford, CBS Publishers, Delhi.

3. Optical Mineralogy - By Paul Kerr, Mc Graw Hill Book Co. Inc.

4. An introduction to the Rock Forming Minerals. -W. A. Deer, R. A. Howie & J. Zussman

5. Mineralogy ( 2<sup>nd</sup> Edition ) – Dexter Perkins, Pearson Education, Delhi

## Paper VI

### Igneous Petrology

**Unit I:** Classification of Igneous Rocks based on Mode of Occurrence, Silica Percentage, Colour index, Feldspar Content, Silica Saturation, and Alumina saturation; Reaction relations, Crystallisation process of Unicomponent magma – Augite, Formation of glass and crystals.

(10 Lectures)

**Unit II :** Crystallisation of Binary magma

- a. Two independent constituents – Diopside – Anorthite system, Forsterite – Silica system
- b. Mixed system – Albite – Anorthite system, Forsterite – Fayalite system

Crystallisation of Ternary magma compositions – Diopside-Albite-Anorthite System.

(10 Lectures)

**Unit III:** Texture – Definition and Description with respect to crystallinity, granularity, shapes of crystals and mutual relations between crystals and glass; types of textures - Porphyritic, Poikilitic, Ophitic and Graphic, Trachytic, Xenolithic, Spherulitic, Perthitic and Reaction Rims Structures.

(10 Lectures)

**Unit IV: Differentiation** – Liquid Immiscibility, Gravitational Differentiation, Filtration Differentiation, Role of volatiles in differentiation

**Assimilation-** Reactions between Basaltic Magma and Acidic Igneous rocks, Basaltic Magma and Sedimentary rocks, Granitic Magma and Basic Igneous rocks, Granitic Magma and Sedimentary rocks.

(10 Lectures)

Reference Books :-

1. Principles of Petrology - By G. W. Tyrrell, B.I.Publications Pvt. Ltd. Mumbai.
2. Igneous and Metamorphic Petrology - By Turner and Verhoogen,
3. Igneous and Metamorphic Petrology - By Best M.G., CBS Publishers, Delhi
4. Igneous Petrology - By Mihir K. Bose,
5. Igneous Petrology - By Anthony Hall
6. Igneous Petrology – By Carmichael, Turner and Veerhogan
7. Principles of Igneous and Metamorphic Petrology – By Anthony Philpotts and Jay Ague

## SEMESTER IV

### Paper VII

### Structural Geology, Photogeology and Hydrogeology

**Unit I:** Structural Geology-Dip and Strike; Outcrop, Width of outcrop, Inlier and outlier, Definition and description of lineation and foliation.

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**Folds-** Definition, parts of fold, Types and Recognition in field.

**Joints-** Definition, Description, Genetic and Geometric Classification

(10 Lectures)

#### Unit II

**Faults-** Definition, parts of fault, Classification and Recognition in the field. Effects of faulting on the outcrops

**Unconformities-** Definition, Development of unconformity, Types of unconformity, and Recognition in field.

(10 Lectures)

#### Unit III: Photogeology-

Introduction to Aerial Photography, Types of aerial photographs on the basis of camera axis orientation, Overlap-Forward and Lateral, Errors in aerial photographs. Stereoscopic Vision.

Geometrical properties of aerial photographs- Scale, Parallax and Difference in Parallax, Relief Displacement, Vertical Exaggeration.

Elements of photo-recognition - Tone, Texture, Pattern, Shape, Size, Shadow Pattern.

(10 Lectures)

#### Unit IV: Hydrogeology -

Hydrological Cycle, sources of Groundwater. Rock Properties affecting Groundwater like Porosity, Permeability and transmissivity. Vertical Distribution of Groundwater. Aquifers and their types, Springs, Erosional and Depositional features of groundwater,

Investigation of groundwater - Geological, Geobotanical and Electric Resistivity method.

(10 Lectures)

#### Reference Books:

1. Structural Geology - By M. P. Billings, Prentice-Hall of India Pvt.Ltd.
2. Fundamentals of Structural Geology - By N. W. Gokhale, CBS Publishers, Delhi
3. Photogeology and Regional Mapping - By J. A. E. Allum, Pergamon Press.
4. Principles and Applications of Photogeology - By S. N. Pandey, Wiley Eastern Ltd.
5. Photogeology - By Victor C. Miller, Mc Graw Hill Book Co.Inc.
6. Remote Sensing-Principles and Interpretation - By F. F. Sabins, -----
7. Groundwater - By Todd D. K., John Wiley and Sons.
8. Groundwater - By K. V. Karanth, -----
9. Groundwater and Tubewells - By S.P. Garg, Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.
10. Hydrogeology - By Stanley N. Davis, Roger J. M. De Wiest, John Wiley and Sons.



## **Paper VIII**

### **Sedimentary and metamorphic Petrology**

**Unit I:** Sedimentary (Secondary) Petrology - Study of Residual Deposits- Laterite, Bauxite, Study of Sedimentary deposits - Rudaceous, Arenaceous, Argillaceous  
Study of chemical deposits - siliceous deposits, calcareous deposits, ferruginous deposits, salts ( Chloride, sulphates, carbonates, borates and nitrates  
Organic Deposits or Biogenic deposits – Calcareous deposits,  
Phosphatic deposits, ferruginous deposits, siliceous deposits , carbonaceous deposits(10 Lectures)

**Unit II** Depositional environments – Continental, Transitional, marine , Provenance (10 Lectures)

**Unit III:** Metamorphic Petrology - Study of Cataclastic, Thermal, Dynamothermal and Plutonic Metamorphism of different kinds of rocks viz. Quartzofeldspathic, Argillaceous, Calcareous, Carbonaceous, Basic and Ultrabasic rocks. (10 Lectures)

**Unit IV:** Outline of Facies and Grades of Metamorphism, Polymetamorphism, Metasomatism, Anatexis and Migmatites. (10 Lectures)

#### Reference Books:

1. The Principles of Petrology - By G. W. Tyrrell, B.I.Publications Pvt. Ltd. Mumbai.
2. Igneous and Metamorphic Petrology - By Turner and Verhoogen,
3. Igneous and Metamorphic Petrology - By Best M.G., CBS Publishers, Delhi
5. Metamorphic Petrology - By Turner, CBS Publishers, Delhi
6. Petrogenesis of Metamorphic Rocks - By Winkler H.G.F., Springer Verlag, / Narosa Publishing House, New Delhi.
7. Petrology of Metamorphic Rocks - By Mason Roger, CBS Publishers, Delhi
8. Sedimentary Rocks - By Petijohn, Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.
9. Introduction to Sedimentology - By Sengupta, S.,
10. Depositional sedimentary Environments: Reineck and Singh

## Practical Course

### Unit I: Mineralogy

#### a) Megascopic study of minerals:

Study of Physical Properties, Uses and Occurrences of the following minerals-  
Silica Group- Quartz, Rock Crystal, Amethyst, Chalcedony, Agate, Flint, Jasper, Chert, Opal. Feldspar Group- Orthoclase, Microcline, Plagioclase. Feldspathoid Group- Nepheline, Leucite, Sodalite. Mica Group- Muscovite, Biotite, Lepidolite, Phlogopite. Amphibole Group- Hornblende, Actinolite, Tremolite, Asbestos. Pyroxene Group- Augite, Diopside, Hypersthene. Olivine Group- Olivine. Epidote Group- Epidote. Chlorite Group- Chlorite. Garnet Group- Garnet. Alumino-silicate Group- Andalusite, Kyanite, Sillimanite. Carbonate Group- Calcite, Dolomite, Magnesite. Zeolite Group- Natrolite, Stilbite. Apophyllite.

**b) Microscopic study of minerals:** Study of Optical Properties of following minerals In Polarised Light, and Between Crossed Nicols- Quartz, Orthoclase, Microcline, Plagioclase, Muscovite, Biotite, Hornblende, Actinolite, Tremolite, Augite, Hypersthene, Olivine, Garnet, Staurolite, Calcite, Chlorite.

### Unit II: Igneous Petrology

#### a) Megascopic study of Textures and Structures in Igneous Rocks:

Granitic, Porphyritic, Graphic, and Glassy textures; Flow, Vescicular, Amygdaloidal, Ropy, Pillow, Columnar, and Xenolithic structure.

#### b) Microscopic study of Textures and Structures in Igneous Rocks :

Granitic, Porphyritic, Ophitic, Graphic, Intergranular and Intersertal textures. Flow and Reaction Rim structures.

**c) Megascopic study of Igneous Rocks:** Study of Colour, Texture / Structure, Mineral Composition, and Classification of following rocks- Granite, Hornblende granite, Graphic granite, Syenite, Diorite, Gabbro, Dunite, Porphyritic granite, Pegmatite, Dolerite, Rhyolite, Pitchstone, Obsidian, Pumice, Trachyte, Andesite and Basalt.

**d) Microscopic study of Igneous Rocks:** Study of Texture / Structure, Mineral Composition, and Classification of following rocks- Granite, Hornblende granite, Graphic granite, Syenite, Diorite, Gabbro, Dunite, Dolerite, Rhyolite, Trachyte and Basalt

### Unit III Structural Geology

**a) Study of Geological Maps:** Description of Topography, Geology and Geological History and Drawing Geological Section of the area shown in the maps, having

1. Horizontal Series
2. Inclined Series
3. Inclined Series with sill, vertical dyke, two vertical intersecting dykes
4. Inclined Series with vertical fault
5. Inclined Series and horizontal series separated by an Unconformity
6. Two inclined Series separated by an Unconformity.

**b) Study of Structural Problems:** Graphical solution of problems involving Strike, True Dip, Apparent Dip, Slope of ground and Width of Outcrop.

#### **Unit IV: Photogeology**

Photogeology: Study of Aerial Photographs for recognition of Tone, Texture, Pattern, Shape, Size, Shadow, Pattern in Aerial Photographs. Recognition of Geological, Geomorphological features, Drainage pattern etc. in Aerial Photographs.

Determination of Scale of Photograph by comparison with toposheet.

#### **Unit V: Sedimentary (Secondary) Petrology**

##### **a) Megascopic study of Structures in Secondary Rocks:**

Stratification, Lamination, Current Bedding, Graded Bedding, Ripple Marks, Mud Cracks, Clastic Structure, Oolitic and Pisolitic structures.

##### **b) Microscopic study of Structures in Secondary Rocks:**

Clastic, Oolitic and Pisolitic structures.

##### **c) Megascopic study of Secondary Rocks:** Study of Colour, Texture /

Structure, Composition, and Classification of following rocks- Sandstone, Ferruginous sandstone, Grit, Arkose, Breccia, Conglomerate, Limestone, Oolitic Limestone, Fossiliferous Limestone, Shale, Laterite and Bauxite.

**d) Microscopic study of Secondary Rocks:** Study of Texture / Structure, Composition, and Classification of following rocks- Sandstone, Ferruginous sandstone, Arkose, Limestone, Oolitic Limestone, Fossiliferous Limestone.

#### **Unit VI: Metamorphic Petrology**

##### **a) Megascopic study of Structures in Metamorphic Rocks:** Slaty

Cleavage, Schistose, Granulose, Gneissose, Augen, Banded structures.

##### **b) Microscopic study of Structures in Metamorphic Rocks:** Slaty

Cleavage, Schistose, Granulose, Gneissose structures.

##### **c) Megascopic study of Metamorphic Rocks:** Study of Texture / Structure,

Mineral Composition, and Classification of following rocks Slate, Phyllite, Hornblende Schist, Mica Schist, Mica Garnet Schist, Chlorite Schist, Tremolite Schist, Granite Gneiss, Biotite Gneiss, Hornblende Gneiss, Augen Gneiss, Amphibolite, Banded Haematite Quartzite, Charnockite, Marble, Quartzite.

**d) Microscopic study of Metamorphic Rocks:** Study of Texture / Structure, Composition, and Classification of following rocks- Hornblende Schist, Mica Schist, Mica Garnet Schist, Chlorite Schist, Tremolite Schist, Granite Gneiss, Biotite Gneiss, Hornblende Gneiss, Charnockite, Marble, Quartzite.

**NOTE : 1. A practical Record book is to be maintained through out the academic year compulsorily for all the Units above with a separate record book for Unit III**

#### **2. Field Work and Field report is compulsory:**

Field Work in the area of geological interest for seven days for studying rocks and minerals in field, their mutual relations and structures etc. Submission of the Report on the Field Work and Specimens collected in field is necessary at the time of annual Practical Examination.

#### **. Nature of Theory and Practical Examination**

##### **A) Theory Examination:**

Common Nature of Question paper as per Science Faculty.

**B) Practical Examination**

The Practical Examination will be for 100 marks and conducted for two days.  
One day prior to the practical days will be Inspection and Preparation day.

**Day 1- Practical I****Session I**

<b>Unit I: Mineralogy</b>	Microscopic	6 Marks
	Megascopic	9 Marks

**Session II****Unit II: Igneous Petrology**

Microscopic Rocks	4 Marks
Microscopic Textures/Structures	2 Marks
Megascopic Rocks	6 Marks
Megascopic Textures/Structures	3 Marks

**Unit III Photogeology**

Aerial Photographs	5 Marks
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**Day 2- Practical II****Session I****Unit IV: Sedimentary (Secondary) Petrology**

Microscopic Rocks	4 Marks
Microscopic Textures/Structures	2 Marks
Megascopic Rocks	6 Marks
Megascopic Textures/Structures	3 Marks

**Unit V: Metamorphic Petrology**

Microscopic Rocks	4 Marks
Microscopic Textures/Structures	2 Marks
Megascopic Rocks	6 Marks
Megascopic Textures/Structures	3 Marks

**Unit VI : Structural Geology**

Geological Maps	10 Marks
Structural Problem	5 Marks
Field Work with field report	8 Marks
Practical Record (Journal)	7 Marks
Viva	5 Marks

## II) GENERAL SAFETY RULES FOR LABORATORY WORK

### There Is No Substitute For Safety

1. Any injury no matter how small, it must be reported to teacher immediately.
2. a) In case any chemical enters your eyes go immediately to eye- wash facility and flush your eyes and face with large amount of water.  
b) For acid or phenol spill, do not use water instead put some bicarbonate.
3. In case of fire, immediately switch off all gas connections in the laboratory and pour sand on the source of fire or cover it with asbestos or cement sheet.
4. While leaving laboratory, make sure that gas, water taps and electricity are switched off.
5. Remove your lab coat. Gloves and clean your hands before leaving laboratory.
6. Make your workplace clean before leaving the laboratory.
7. Keep your hands away from your face, while working in laboratory.
8. Each laboratory must have a first aid box.
9. Know what to do in case of emergency - e.g.
  - (a) Know the place of fire extinguisher and first aid box.
10. Don't use cell phones in the laboratory.
  - (a) Remember important phone numbers

## III) DO's

1. Always wear lab coat, shoes in the laboratory.
2. Maintain separate record book for each subject.
3. Keep your belongings at the place allotted for the same.
4. Maintain silence, order, cleanliness and discipline in the laboratory.
5. Work at the place allotted to you or specially used for certain operations.
6. Keep the working table clean.
7. Handle the laboratory equipments, glassware and chemical with great care.
8. Use only required quantities of material and apparatus of essential size.
9. Perform the test in their proper order.
10. Know the location of eye wash fountain and water shower.
11. Minimize your exposure to organic solvents.
12. The Metal like sodium should be kept under kerosene or liquid paraffin layer in a vessel with a cork stopper.
13. Sodium metal should be cut on dry filter paper. The cut off pieces of sodium should be immediately collected in a vessel containing kerosene or liquid paraffin.
14. Always pour acid into water when diluting and stir slightly.
15. All operations involving poisonous flammable gases and vapours should be carried out in the flame chamber (with exhaust facility)
16. Ladies should avoid wearing saree. If it is there, apron is essential.

## IV) DON'Ts

1. Don't work alone in the laboratory

2. Don't leave the glasswares unwashed.
3. Don't take apparatus, chemicals out of lab.
4. Don't leave any substance in a vessel or bottle without label.
5. Don't weigh the reagent directly on the balance pan.
6. Don't throw the cut off pieces of sodium metal in sink or water. Transfer it immediately in its container.
7. Don't take sodium metal with hands. Use forceps.
8. Don't panic and run in case of fire. Use the fire extinguishers or sand buckets.
9. Don't breathe the vapours of organic solvents.
10. Don't pour any unused reagent back in its stock bottle.
11. Don't eat or drink any food in laboratory.
12. Don't distill to dryness.
13. Don't exchange stoppers of flasks and bottles containing different reagents.
14. Don't leave reagent bottle lying on the table.
15. Don't disturb the order of reagent bottles in which they are placed.
16. Don't bring reagent on your working table from the general shelf.
17. Don't throw burning matchstick into dustbin.
18. Don't leave the laboratory without permission.

## **V) LAB SAFETY PRECAUTIONS / MEASURES IN GEOCHEMISTRY LABORATORY**

### **Part I : Personal Precautions**

1. All personnel must wear safety Goggles at all times
2. Must wear the Lab Aprons/Lab Jacket and proper shoes.
3. Except in emergency, over-hurried activities is forbidden.
4. Fume cupboard must be used whenever necessary.
5. Eating, Drinking and Smoking in the laboratories strictly forbidden.

### **Part II : Use of Safety and Emergency Equipments**

1. First aid kits
2. Sand bucket
3. Fire extinguishers (dry chemical and carbon dioxide extinguishers)
4. Chemical Storage cabinet with proper ventilation
5. Material Safety Data sheets.
6. Management of Local exhaust systems and Fume hoods.
7. Sign in register if using instruments.

## **VI) FIELDWORK CARE AND SAFETY FOR GEOLOGY STUDENTS**

1. Students should always follow the tour schedule and instructions as per guidance of teachers.
2. Students should carry the necessary field equipments.
3. During fieldwork students should wear field shoes and cap.
4. Students should not enter into unknown areas / risk zones / restricted areas alone or without field guide.
5. Proper care should be taken during collection of samples.

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