



Proceedings of the Principal, Government Autonomous College, Rajamahendravaram

Present: Dr.R.David Kumar Swamy, M.Sc, M.Phil., Ph.D

Rc. No: Spl./Acad.Cell-GC[A]-RJY/BOS/2018-1, Dated: 17 April 2018

Sub:- Government Autonomous College, Rajamahendravaram– **Boards of Studies (BoS) –**
Nomination of Members - Orders Issued.

Ref:- UGC Guidelines for Autonomous Colleges - 2018.

ORDER:

The Principal, Government Autonomous College, Rajamahendravaram is pleased to constitute **Board of studies in GEOLOGY** for framing the syllabi in Geology subject for all semesters duly following the norms of the UGC Autonomous guidelines.

S. No	Name	Designation
1	Lt. D. Rudra, Lecturer In- Charge/HoD, Department of Geology, GC[A], Rajamahendravaram	Chairman
2	All Faculty members in the department	Member
3	Dr. C. Ravi, Lecturer in Geology, CRR College, Eluru	Subject Expert
4	Dr. P. Srinivasulu, O/o Commissioner of Collegiate Education, Vijayawada	Subject Expert
5	Dr.K.V. Swamy Adikavi Nannaya University, Rajamahendravaram	University Nominee
6	P.R. Bhavana, DGM, ONGC, Rajamahendravaram	Expert from Industry/Corporate Sector
7		Student Nominee

The above members are requested to attend the BOS meetings and share their valuable views, suggestions on the following functionalities:

- Prepare syllabi for the subject keeping in view the objectives of the college, interest of the stake holders and national requirement for consideration and approval of the Academic Council
- Suggest methodologies for innovate teaching and evaluation techniques
- Suggest panel of names to the Academic council for appointment of examiners
- Coordinate research, teaching, extension and other activities in the department of the college.

The term of the members will be Three years from the date of the nomination. The Chairman of the BoS (HoD/lecturer In-Charge of the department) is directed to coordinate with the Principal of the College and conduct BoS meetings as and when necessary, but at least twice a year.


PRINCIPAL
GOVERNMENT COLLEGE [A]
RAJAHMUNDRY

Copy to:

- The above individuals
- File



**Composition of Board of Studies in Geology
Government College [Autonomous]
(Affiliated to Adikavi Nannaya University)
Rajamahendravaram**

S. No	Name	Designation
1	Lt. D. Rudra, Lecturer In- Charge/HoD, Department of Geology, GC[A], Rajamahendravaram	Chairman
2	Dr. M.R. Goutham Department of Geology, GC[A], Rajamahendravaram	Faculty Member
	Mr. B. Sai Krishna	Faculty Member
	Ms. S. Durga Bhavani	Faculty Member
3	Dr. C. Ravi, Reader in Geology, Sir CRR College, Eluru	Subject Expert
4	Dr. P. Srinivasulu, O/o Commissioner of Collegiate Education, Vijayawada	Subject Expert
5	Dr. K.V. Swamy, Dean, CDC, Adikavi Nannaya University, Rajamahendravaram	University Nominee
6	P.R. Bhavana, DGM, ONGC, Rajamahendravaram	Expert from Industry/Corporate Sector
7	Ms. K. Maneesha	Student Nominee



Department of Geology
Government College (A), Rajamahendravaram

Allocation of Credits

Course: B.Sc.

Subject: Geology

S. No	Semester	Title of the Paper	Hrs./week	Max. Marks	Mid Sem. Exam	Credits
1	Semester-I	Paper-I- Physical Geology & Crystallography	4	60	40	3
2	Lab-I	Physical Geology & Crystallography	2	50	--	2
3	Semester-III	Paper -III- Petrology (Igneous, Sedimentary and Metamorphic)	4	60	40	3
4	Lab-III	Petrology (Igneous, Sedimentary and Metamorphic)	2	50	--	2
5	Semester V	Paper-V- Palaeontology & Indian Geology	4	75	25	3
6	Lab -V	Palaeontology & Indian Geology	2	50	--	2
7	Semester V	Paper VI – Economic Geology	3	75	25	3
8	Lab VI	Economic Geology	2	50	--	2

Chairman, BOS
(D. RUDRA)



The Board of Studies of **GEOLOGY** met on **30 April 2018** at 11:00 A.M in the department of Geology under the chairmanship of Lt.(Smt) D. Rudra and the following resolutions were adopted.

Resolutions

1. It is resolved to initiate a new B.Sc. programme with Mathematics, Geology and Computer Science (M.G.Cs.) combinations with an initial intake of 30 seats from the academic year 2018-19.
2. It is resolved to approve the syllabi for I, III and V Semesters presented in the following pages (Page Nos 7, 12 and 18 respectively).
3. It is resolved to approve the model question papers for the odd semesters with 60 marks for Semester End Examination (SEE) and 40 marks for Continual Internal Assessment (CIA) as approved by the Staff Council of the College during previous academic year. The split up of the marks is shown below.
4. It is resolved to follow the existing examination pattern.
5. It is also resolved to continue the pedagogical strategies followed in the last academic year for Teaching- Learning Evaluation which were prescribed by the O/o Commissioner of Collegiate Education, Government of Andhra Pradesh.

Semester End Exam (60 Marks)		Internal assessment (40 Marks)
PART	Allotted Marks	
PART A: This Part contains 4 Essay type internal choice questions numbering 1 to 4 will be asked from Unit 1 to 5. Student has to answer all the 4 questions. Each question carries 8 marks.	4 x 8 = 32 Marks Question 1 A or B from Unit I Question 2 A or B from Unit II Question 3 A or B from Unit III Question 4 A from Unit IV and or B from Unit V	Written Test : 25 Marks Assignments: 5 Marks Seminar: 5 Marks Viva-Voce: 5 Marks (For the students admitted during 2018-19, new pedagogical strategies will be implemented for Internal assessment)
PART B: This Part contains 8 Short answer questions numbering 5 to 12 will be asked covering all the units. Student has to answer any 5 out of 8 questions. Each question carries 4 marks.	5 x 4 = 20 Marks Questions 5, 6,7,8,9 are from Units I, II, III, IV and V respectively. Questions 10,11, 12 are from all 5 units depending on the weightage of the unit	
PART C: This Part carries 8 marks. 4 very short answer questions numbering 13 to 16 will be asked covering all the units. Student has to answer all the questions Each question carries 2 marks	4 x 2 = 8 Marks	
Total Marks	60	40

6. It is resolved to approve the list of examiners & paper setters for 3 semesters



7. It is resolved to make Geological Field Trips compulsory for I, II and III B.Sc. Students as per the norms in vogue as the Geology is the field based science.
8. It is resolved to strictly follow the Annual Curricular Plan being submitted to the College in the beginning of the academic year.
9. It is resolved to continue the in house news letter “GeoNews” which was started during academic year (2014-15).
10. It is resolved to put forth before BOS the proposal of starting a Certificate/Diploma course in “Groundwater Exploration” depending on the collaboration with A.P. State Groundwater Board.

The following members were present.

S. No	Name	Designation	Signature
1	Lt. D. Rudra, Lecturer In- Charge/HoD, Department of Geology, GC[A], Rajamahendravaram	Chairman	
2	Dr. M.R. Goutham	Faculty Member	
3	B. Sai Krishna	Faculty Member	
4	S. Durga Bhavani	Faculty Member	
3	Dr. C. Ravi, Lecturer in Geology, CRR College, Eluru	Subject Expert	
4	Dr. P. Srinivasulu, O/o Commissioner of Collegiate Education, Vijayawada	Subject Expert	
5	Dr. K.V. Swamy, HoD, Dept. of Geology Adikavi Nannaya University, Rajamahendravaram	University Nominee	
6	P.R. Bhavana, DGM, ONGC, Rajamahendravaram	Expert from Industry/Corporate Sector	
7	K. Maneesha	Student Nominee	

Chairman, BOS
(D. RUDRA)



List of Examiners & Paper Setters

S No	Name of the Examiner/Paper Setter	College	Experience	Paper Taught
1	Dr. C. Ravi	Sir CRR College, Eluru	36 Yrs	Economic Geology, Structural Geology, Petrology
2	Sri P.C. Swaroop	Sir CRR College, Eluru	33 Yrs	Physical Geol., Mineralogy, Palaeontology, Groundwater Geology
3	Dr. S.S.K. Chaitanya	Sir CRR College, Eluru	8 Yrs	Crystallography, Indian Geology
4	Sri A. Surendra	DNR College, Bhimavaram	33 Yrs	All branches of Geology
5	Sri P.A.N. Raju	Maharaja College, Vizianagaram		
6	Sri U. Padmanabha Raju	Maharaja College, Vizianagaram		

University Nominee:

(K.V.SWAMY)

Industrial Nominee:

(P.R. BHAVANA)

Subject Expert:

(C.RAVI)

Subject Expert:

(P. SRINIVASULU)

Staff Member:

(M.R. GOUTHAM)

Chairman, BOS:

(D.RUDRA)

Government College (Autonomous), Rajamahendravaram

(Affiliated to Adikavi Nannaya University)



CBCS -B. Sc. GEOLOGY Syllabus 2018-19

SEMESTER- I

Paper- I - Physical Geology & Crystallography (60 Marks)

Unit -I

General aspects. Definition of geology - Basic assumptions of Geology - Its relationship with other sciences - Branches of geology - Aim and applications of geology. Earth as a planet: its shape, size, and density - movement and then effects. Origin and age of the earth. Different Spheres of the earth.

Geological process - exogenic and endogenic. Definition of weathering - types of weathering of rocks - Physical and chemical; Definition of erosion and denudation, cycle of erosion; erosion, transportation and deposition; agents of erosion.

Unit-II

Rivers: Erosion, transportation and deposition of river (fluvial) cycle in different stages -Development of typical land forms by river erosion and deposition. V or V-Shaped valley. U-shaped valley. Waterfall alluvial form, meander, ox-bow lake-flood plane, natural plane, peneplain and deltas. Types of rivers.

Groundwater: Storage of ground water - porosity, permeability, aquifer, water table, zone of saturation, artesian well, spring, geysers - development of typical land form by erosion and deposition by groundwater [Karst topography] sinkhole, cavern, Stalactites and stalagmites.

Glaciers: Definition of a glacier - types of glaciers - development of typical land forms by glacial erosion and deposition – cirque, hanging valley, Rocks-monadnocks. Morains, drum-line, kames, eskers and varves. Characteristic features of glaciated regions

Unit-III

Seas: offshore profile - land forms of sea - marine deposits and coral reefs. Lacustrine deposits. Atmospheric circulation, weather and climatic changes, land air, sea interaction. Earth's heat budget and global climatic changes.



Wind: Development of characteristic features by wind (arid cycle), erosion and deposition - pedestal rock - mushroom topography - Incelberg - Ventifacts - sand dunes.

Earthquakes: Cause, kinds of earthquake waves, and mode of propagation, intensity of earthquakes, Richters scale - seismograph and seismogram. Effects of earthquakes, earthquake zones - Interior of the earth based on seismic theory - Volcanoes: origin, products of Volcanoes.

Continental Drift & Plate tectonics: Theory of Plate tectonics – nature and origin of ocean floor.

Unit-IV

Definition of a crystal - amorphous and crystalline states. Morphology of Crystals - face, edge, solid angle, interfacial angle. Forms: Simple, combination, closed and open forms. Symmetry: Plane, axis, center. Crystallographic axes. Parameters, indices; crystallographic notation - parameter system of Weiss, index system of Miller.

Classification of crystals into systems.

Morphological study of the following classes of symmetry

- I. Cubic system – Galena type
- II. Tetragonal system - Zircon type

Unit-V

Morphological study of the following classes of symmetry

- III. Hexagonal system - Beryl type
- IV. Trigonal system - Calcite type.
- V. Orthorhombic system - Barites type
- VI. Monoclinic system - Gypsum type -
- VII. Triclinic system - Axinite type

Twinning: Definition of twinning, Laws of twinning and Types of twinning

Text books:

1. Holmes Principles of Physical Geology - D.L. Holmes
2. Physical Geology - A.N. Stracher



3. A book of Physical Geology - A K Datta
4. An Introduction to Crystallography - R.C. Phillips
5. Essential of Crystallography - E. Flint.

References:

1. Basic Physical Geology - E.S. Robinsion
2. The evolving Earth: A text in Physical Geology - E.S. Sawkins. et al.
3. Physical Geology - B.F. Mallory and D.N. Gargo
4. A textbook of mineralogy - E.S. Dana and W.E. Ford

LAB-I (Practicals)

50 Marks

At the end of First semester

Practical-I- Physical Geology & Crystallography

Interpretation of morphometric data/drainage systems, Identification of geomorphological features in topographical maps.

Study of symmetry, and form of the Normal classes of seven crystal systems of the following:

- I. Cubic system – Normal (Galena)
- II. Tetragonal system – Zircon type
- III. Hexagonal system – Beryl type
- IV. Trigonal system – Calcite type
- V. Orthorhombic system – Barites type
- VI. Monoclinic system – Gypsum type
- VII. Triclinic system – Axinite type