



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	
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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, Palaentology, 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

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GEOLOGY SYLLABUS - (2018-19)

III B.Sc., V-SEMESTER

Paper- V- Palaeontology & Indian Geology (60 Marks)

Palaeontology

Unit I: Definition of Palaeontology and fossils, conditions for preservation, mode of preservation, uses of fossils. Zone Fossil, Index Fossil

Study of taxonomy, classification, morphology, geological and geographical distribution of the following invertebrate fossils

Phylum Echinodermata
Phylum Brachiopoda

Study of the following fossils: Cidaris, Micraster, Holaster, Hemiaster, Spirifer, Productus, Terebratula,

Unit II: Study of taxonomy, classification, morphology, geological and geographical distribution of the following invertebrate fossils.

Phylum Hemichordata,
Phylum Coelenterata
Phylum Mollusca
Phylum Arthropoda

Study of the following fossils:

Monograptus, Diplograptus, Calceola, pecten, Gryphea, Nautilus, Belemnites, Calymene, Paradoxides, Glossipteris, Gangamopteris, Ptyllophyllum.

Indian Geology

Unit III

Brief study of type area, distribution in India, lithology, fossil content and economic importance of the following:

Dharwar Supergroup

Puranas:

Cuddapah Supergroup
Vindhyan Supergroup

Unit-IV

Brief study of type area, distribution in India, lithology, fossil content and economic importance of the following



Kurnool Group.
Gondwana Supergroup.
Triassic of Spiti,
Jurassic of Kutch,

Unit V

Brief study of type area, distribution in India, lithology, fossil content and economic importance of the following
Cretaceous of Trichinopoly,
Deccan Traps and their Age
Siwaliks with vertebrate fossils.

Geology of Andhra Pradesh

Additional Module: Eastern Ghats

Text books:

Palaeontology

1. Palaeontology _ Invertebrate by Henry Woods
2. Invertebrate palaeontology and Evolution by ENK Clark
3. Fossil Invertebrates by U Lemmann and G Millmer
4. An introduction to Palaeobotany by C A Arnold
5. Invertebrate Fossils by Moore Lalicket, Fischer
6. Principles of Invertebrate Palaeontology by Shrock De Twenhofel
7. Principles of Palaeontology by D M Rapu and S M Stenkey

Indian Geology

8. Geology of India and Burma – M S Krishnan
9. Fundamentals of Historical Geology and stratigraphy of India –Ravindra Kumar
10. Geology of India – D N Wadia
11. Stratigraphic principles and practice - Weller
12. Geology of India Vol 1 & 2 by R. Vaidyanadhan & M. Ramakrishnan.



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Practical Syllabus

LAB-V (Practicals)

50 Marks

At the end of Fifth semester

Practical V-Palaeontology

1. Drawing and description of invertebrate and plant fossils as per the list mentioned in the theory syllabus.
2. Classification, morphology and geological distribution of Fossils:

Phylum Arthropoda:

Calymene,
Paradoxide.

Phylum Brachiopoda:

Terebratula,
spirifer,
Rhynchonella,
Products,

Phylum Mollusca:

Class Pelecepoda

Pecten,
Gryphaea,

Class Gastropoda

Turritella,
Nautica,
Murex

Class Cephalopoda

Nautilus,
Bellemnites,

Phylum Echinodermata:

Cidaris,
Micraster,
Hemiaster.
Holaster



Phylum Hemichordata:

Monograptus

Diplograptus

Phylum Ceolenterata

Calceola

Zaphrentis

Plant fossils:

glossopeteris,

gangamopteris and

ptylophyllum.





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SEMESTER-V - Elective Paper-VI

Paper-VI : Economic Geology (60 Marks)

Unit-I

Definition of Economic geology, mineral resources and mineral deposits, importance of economic minerals and rocks, ore minerals, gangue minerals (gangue). Ore and industrial minerals.

Classification of mineral deposits - Bateman's classification modified by Jensen. Processes of formation of mineral deposits; endogenetic and exogenetic processes.

Unit-II

Study of ore deposits of gold, copper, lead, zinc, aluminium, with respect to their mineralogy, uses, mode of occurrence, origin and distribution in India.

Unit-III

Iron, manganese, chromium, uranium and thorium, with respect to their mineralogy, uses mode of occurrence, origin and distribution in India.

Unit-IV

Distribution of industrial minerals in India for the following industries: Abrasives, cement and Ceramic, insulators.

Fossil fuels: Coal - origin and types of coal - coal deposits of India, Petroleum

Unit-V

Atomic minerals: Uranite, Pitchblende, Beach sands: Monazite, limonite; Rutile and Zircon and their use.

Mineral resources of Andhra Pradesh.

Additional Module: Economic importance of Eastern Ghats

Text Books:

- | | | |
|--|---|------------------------|
| 1. Indian mineral resources | - | S. Krishnaswamy |
| 2. Introduction of India's economic Minerals | - | N.Lisharna, K.S.V. Ram |
| 3. Geology & mineral resources of Andhra Pradesh | - | N.V.B.S. Dutt |
| 4. Mineral Resources of Andhra Pradesh | - | Dr. P.K Ramam |

References:

- | | | |
|------------------------------------|---|------------------------|
| 1. Indian mineral year book (1997) | - | Indian Bureau of Mines |
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**Government College (Autonomous), Rajamahendravaram***(Affiliated to Adikavi Nannaya University)***Lab VI- Economic Geology (50 Marks)**

Megascope study, mode of occurrence, distribution in India and uses of the following economic minerals:

Iron Ores: Haematite, Magnetite, Pyrite,
Manganese Ores: Pyrolustie, Psilomelane,
Copper Ores: Chalcopyrite, malachite, Azurite,
Bauxite,
Chromite:
Galena, Sphalerite,
Magnesite,
Gypsum,
Asbestos,
Steatite,
Graphite,
Monazite, illmenite, Zircon,
Fluorite,
Barytes,
Corundum,
Topaz,
Calcite,
Kaolinite,
Kyanite,
Sillimanite,
Garnet and
Mica.