



Proceedings of the Principal, Government College [A], Rajamahendravaram

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

Re. No: Spl./Acad.Cell-GC[A]-RJY/2017-23, Dated: 4 January 2017

Sub:- Government College [A], Rajahmundry – **Boards of Studies (BoS)** – Nomination of Members - Orders Issued.

Ref:- UGC Autonomous Guidelines 2012 -17.

ORDER:

The Principal, Government College [A], 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. Y. Srinivasa Rao, Dean, CDC, Adikavi Nannaya Univrsity, Rajamahendravaram | University Nominee |
| 6 | P.R. Bhavana, DGM, ONGC, Rajamahendravaram | Expert from Industry/Corporate Sector |
| 7 | G. Achyuta Varalakshmi | Student Nominee |

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

- 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 two 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 once a year.


PRINCIPAL.

**GOVERNMENT COLLEGE [A]
RAJAHMUNDRY**

Copy to:

- The above individuals
- File



**Composition of Board of Studies in Geology
Government College [Autonomous]
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 | 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 |
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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-II | Paper- II- Mineralogy& Optical Mineralogy | 4 | 60 | 40 | 3 |
| 4 | Lab-II | Mineralogy & Optical mineralogy | 2 | 50 | -- | 2 |
| 5 | Semester-III | Paper -III- Petrology (Igneous, Sedimentary and Metamorphic) | 4 | 60 | 40 | 3 |
| 6 | Lab-III | Petrology (Igneous, Sedimentary and Metamorphic) | 2 | 50 | -- | 2 |
| 7 | Semester-IV | Paper-IV- Structural Geology & Stratigraphy | 4 | 60 | 40 | 3 |
| 8 | Lab-IV | Structural Geology | 2 | 50 | -- | 2 |
| 9 | Semester V | Paper-V- Palaeontology & Indian Geology | 4 | 75 | 25 | 3 |
| 10 | Lab -V | Palaeontology & Indian Geology | 2 | 50 | -- | 2 |
| 11 | Semester V | Paper VI – Economic Geology | 3 | 75 | 25 | 3 |
| 12 | Lab VI | Economic Geology | 2 | 50 | -- | 2 |
| 13 | Semester VI | Paper VII- Groundwater : Geology & Exploration (<i>Elective</i>) (OR) Field Geology (<i>Elective</i>) | 3 | 75 | 25 | 3 |
| 14 | Lab VII | Groundwater Geology & Exploration (OR) Field Geology | 2 | 75 | 25 | 2 |
| 15 | Semester VI (Cluster 1) | Paper VIII- <i>Cluster Electives*</i> | | | | |
| | | VIIIA -1: Introduction to Mineral Exploration | 3 | 75 | 25 | 3 |
| | | VIIIA-2: Environmental | 3 | 75 | 25 | 3 |
| 16 | Cluster 1 Lab | VIIIA-3: Introduction to Remote Sensing & GIS | 3 | 75 | 25 | 3 |
| | | VIIIA -1: Mineral Exploration | 2 | 50 | -- | 2 |
| | | VIIIA-2: Environmental Geology | 2 | 50 | -- | 2 |
| 17 | Semester VI (Cluster 2) | VIIIA-3: Project Work | 2 | 50 | -- | 2 |
| | | VIIIB-1: Elements of Geochemistry | 3 | 75 | 25 | 3 |
| | | VIIIB-2: Introduction to Mining Geology | 3 | 75 | 25 | 3 |
| 18 | Cluster 2 Lab | VIIIB-3: Introduction to Remote Sensing & GIS | 3 | 75 | 25 | 3 |
| | | VIIIB-1: Geochemistry | 2 | 50 | -- | 2 |
| | | VIIIB-2: Field Report | 2 | 50 | -- | 2 |
| | | VIIIB-3: Project work | 2 | 50 | -- | 2 |

Chairman, BOS



(D. RUDRA)

The Board of Studies of **GEOLOGY** met on 10 April 2017 at 11-00 A.M in the department of Geology on under the chairmanship of Lt.(Smt) D. Rudra and the following resolutions were adopted.

Resolutions

1. It is resolved to continue with the Modular & Choice Based Credit System (CBCS) for the Academic Year 2017-18 by adopting syllabus prescribed by Adikavi Nannaya University, Rajamahendravaram for I and II semesters (I year) and approve the syllabus and model question papers for the same.
2. It is also resolved to approve and follow the syllabi for II & III year B.Sc. (III, IV, V & VI semesters) in the earlier pattern, i.e. approved in BOS meeting held on 1 April 2016.
3. It is resolved to approve the model question papers for the I semester with 60 marks for Semester end examination and 40 marks for internal assessment as approved by the Staff Council of the College. The split up of the marks is shown below. The existing examination pattern will be followed for I and II year students (i.e. for I, II, III and IV Semesters).

| 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 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 |
| 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 |

4. It is resolved to approve the list of examiners & paper setters for 3 years
5. It is resolved to make Geological Field Trips compulsory for III B.Sc. Students as per the norms given by the affiliating university.



6. It is resolved to strictly follow the Annual Curricular Plan submitted to the College
7. It is resolved to continue the in house news letter “*GeoNews*” which was started during last academic year (2014-15).
8. It is resolved to dispense with the *Environmental Geology*’ which is ‘Inter-disciplinary elective’ for the second year non geology students, which was initiated from the academic year 2015-16.
9. 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 |
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| 1 | Lt. D. Rudra, Lecturer In- Charge/HoD, Department of Geology, GC[A], Rajahendravaram | Chairman | |
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| 7 | G. Achyuta Varalakshmi | 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 | Sri N. Ravi Kumar | Sir CRR College, Eluru | 30 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:

(Y. SRINIVASA RAO)

Industrial Nominee:

(P.R. BHAVANA)

Local Nominee:

(C.RAVI)

Staff Member:

(M.R. GOUTHAM)

Chairman, BOS:

(D.RUDRA)

GOVERNMENT COLLEGE (AUTONOMOUS), RAJAMAHENDRAVARAM.

II B.Sc., GEOLOGY SYLLABUS – (2017-18)



Module IV: Structural Geology and Metamorphic Petrology

Structural geology

Unit I

- Chapter 1:** Definition of structural Geology , Aim and objectives of the structural geology.
Importance of study of the structures primary and secondary; out crop, attitude of beds- Strike, Dip and Apparent dip, use of clinometers/compass.
- Chapter 2: Folds:** Description, nomenclature of folds, recognition of folds in the field.
- Chapter 3: Joints:** Geometrical and genetic classification of joints.

Unit II

- Chapter 4: Faults:** Geometrical and genetic classification of faults, recognition of faults in the field, effects of faults on the Out- crops.
- Chapter 5: Unconformities:** Definition of unconformity-types of unconformities, recognition of unconformities in the field, distinguishing the faults from unconformities. Definitions of overlap, outlier, cleavage, schistosity, foliation and lineation.

Metamorphic Petrology

Unit III

- Chapter 6:** Definition of Metamorphism, Agents of metamorphism, Types of metamorphism, Metamorphic minerals - Stress and Anti-stress minerals.
- Chapter 7:** Structures of Metamorphic rocks : Cataclastic, maculose, schistose granulose and gniessose.
- Chapter 8:** Textures of Metamorphic rocks: Crystalloblastic, palimpsest, xenoblastic, Idioblastic.

Unit IV

- Chapter 9:** Classification of Metamorphic rocks: Concept of Metamorphic facies, Cataclastic metamorphism of Argillaceous, Arenaceous and Calcareous rocks. Dynamothermal metamorphism of Argillaceous, Arenaceous and Igneous rocks. Thermal metamorphism of Argillaceous, Arenaceous and Calcareous rocks. Plutonic Metamorphism, Metasomatism , and additive process. Definition of anatexis and palingenesis.
- Chapter 10:** Descriptive study of the following metamorphic rocks: Gneiss, Schist, Slate , phyllite Quartzite, Marble, Granulite, Eclogite, Amphibolite, Migmatite.
Indian Rocks: Gondite, Charnockite and Khonadalite.

20% Additional Curriculum:

- Chapter 11:** Principal types of metasomatism, metasomatism in Acid , Alkali , Lime , Rich , Silicate rocks and Fluorine rich metasomatism

TEXT BOOKS

- 1) Structural Geology by - Marland P. Billings



- 2) An outline of Structural Geology - E.S Hills
- 3) The Principles of Petrology by G.W. Tyrrell.
- 4) Petrology by W.T. Huang
- 5) Igneous and Metamorphic Petrology by F.J. Turner & John Verhoogen

