



Manoharbai Shikshan Prasarak Mandal Armori's

**MAHATMA GANDHI ARTS, SCIENCE &
LATE NASARUDDINBHAI PANJWANI COMMERCE
COLLEGE, ARMORI**

Dist. Gadchiroli (Maharashtra) 441 208

Affiliated to Gondwana University, Gadchiroli.

Re-accredited by NAAC 'A' with 3.24 CGPA

ANNUAL QUALITY ASSURANCE REPORT

AQAR : 2022~2023

CRITERION – I

CURRICULAR ASPECTS

METRIC NO: ~ 1.3.2.

METRIC NAME: ~Number of courses that include experiential learning through project work/ fieldwork/ internship during the year.



**Web: - mgcollegearmori.ac.in
e-mail: - mgcollege.armori@gmail.com
Phone: - 07137-266558**

**Highlighted Project Work/ Field Work / Internship in
the Syllabus**

B.A.III Year Geography

THEORY PAPER SEMESTER VI

GEOGRAPHY OF HEALTH (Elective Paper III)

- UNIT – I -** Introduction to Human Health and Geography – Meaning and Definition in Geography of Health – Objectives – Nature, Scope of Geography of Health – Significance of Geography of Health – Approaches of Study of Geography of Health, Factors Influencing on Human Health.
- UNIT –II -** Nutrition and Food: Meaning of Nutrition and Food – Nutrition Elements of Food – Purpose of Balance Diet – Significance of Nutrition in Food; Epidemiology of Communicable Disease; Meaning – Classification – Types Causes and Distribution – Prevention and Eradication Programmes in India.
- UNIT –III -** Epidemiology of Non-Communicable disease: Meaning – classification of disease (Congenital and Acquired Disease), Malnutrition: Types of Malnutrition – Classification of Malnutrition – Causes and Symptoms of Malnutrition – Effect of, Malnutrition, Distribution of malnutrition – Prevention and Eradication Programare in India.
- UNIT – IV –** Health care System; Meaning of Health care, different types of Health care system; Health care Planning & Management; Meaning and Objectives of Health care Planning, Health Education, and National Health Policy in India. Health Management, Health Organization. (WHO)




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PRACTICAL

SEMESTER-VI

Unit – I :

Introduction to modern techniques (on theoretical base): Remote sensing as a tool for data generation and mapping, GIS and Computer.

Unit – II :

Leveling – use of Dumpy level in the field problem on leveling:-

- a) Preparation of field Book (Collimation and Rise & Fall Methods)
- b) Drawing of Profile.

Unit – III :

Meaning and Computation of correlation coefficient by Pearson's and Spearman's method (Atleast two exercise of each)

Unit - IV: Field work and Field Report

A Short field study – a socio-economic survey of a small village.

Unit – V : Viva-voce & Practical Record.

Plan of Marks of Practical Examination:

Unit I : Introduction to Modern Techniques (Any Two) two marks each	4 marks
a) Computer b) Remote Sensing c) GIS	
Unit II: Problem of leveling.	
a. Calculation of Reduced level	3 marks
b. Drawing of Profile	2 marks
Unit III : Computation of correlation	4 marks
Unit IV : Socio Economics Survey report	4 marks
Unit V : Preparation of Maps	
Representation of population & economics data	3 marks
Choropleth maps & dot methods	
Unit VI : Viva-voce	3 marks
Practical record	2 marks

Total 25 marks




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B.A.III Year Economics, Political Science, Sociology, Economics, and History

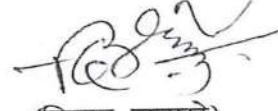
गोंडवाना विद्यापीठ, गडचिरोली

महाराष्ट्र शासन अधिसूचना क्रमांक २००७/(३२२/०७) विशि-४ महाराष्ट्र अधिनियम, १९९४ (१९९४ चा महा. ३५) या कलम ३ च्या पोटकलम (२) अन्वये दिनांक २७ सप्टेंबर, २०११ रोजी स्थापीत राज्य विद्यापीठ (विद्या विभाग)

एम.आय.डी.सी. रोडकॉम्प्लेक्सगडचिरोली- ४४२६०५ फोन:०७१३२ - २१६५५४, २२३१०४,२२३३२३
जा.क्र./गोविग/विद्या/२७१/२०१९ दिनांक: २१/०८/२०१९

अधिसूचना

गोंडवाना विद्यापीठाशी संलग्नित महाविद्यालयांना कळविण्यात येते की, बी.ए. भाग III सेमिस्टर V व VI करिता **Generic (Inter-disciplinary) Elective course (GEC)** या अंतर्गत **Generic Research Methodology** या विषयाचा समावेश करण्यात आलेला आहे. विद्यापीठाच्या अध्यादेश क्र. ११९ ऑफ २०१७ नुसार बी.ए. भाग III सेमिस्टर VI करिता **Project** देण्याचे ठरविण्यात आले. सदर विषयाचा अभ्यासक्रम व परिक्षा पध्दती सोबत संलग्नित केलेली आहे. कृपया संबंधित महाविद्यालयांनी नोंद घेवून कार्यवाही करावी.



(दिपक जुनघरे)

उपकुलसचिव

गोंडवाना विद्यापीठ, गडचिरोली



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"RIGHT PLACE FOR BRIGHT FUTURE"

MANOHARBAI SHIKSHAN PRASARAK MANDAL ARMORI'S

**MAHATMA GANDHI ARTS, SCIENCE &
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PRINCIPAL

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Letter No. MGC/

Date

Translation

The colleges affiliated with Gondwana University are informed that the subject of Generic Research Methodology has been included in the Generic (Interdisciplinary) Elective Course (GEC) for BA Part III, Semesters V and VI. As per University Ordinance No. 139 of 2017, it has been decided to **give a project for BA Part III, Semester VI**. The subject is attached to the syllabus and examination method. Please take note and act accordingly.




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<https://www.facebook.com/mgcollegearmori/>



<https://www.youtube.com/channel/UCdoZvKXO73InRcKeI.8OHDZw>

B.Sc. III Year Chemistry

Skill Enhancement Course (SEC)

B.Sc. III Semester VI

(Choose one)

SEC-III

PESTICIDE CHEMISTRY

General introduction to pesticides (natural and synthetic), benefits and adverse



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effects, changing concepts of pesticides, structure activity relationship, purpose of formulations of pesticides, different types of formulations synthesis and technical manufacture and uses of representative pesticides in the following classes:

Organochlorines (DDT, Gammexene,); Organophosphates (Malathion, Parathion);

Carbamates (Carbofuran and carbaryl); Quinones (Chloranil), Anilides (Alachlor and Butachlor).

Practicals

1 To calculate acidity/alkalinity in given sample of pesticide formulations as per BIS specifications.

2 Preparation of simple organophosphates, phosphonates and thiophosphates

Reference Book:

1 R. Cremllyn: Pesticides, John Wiley.

SEC-IV


ANALYTICAL CLINICAL BIOCHEMISTRY

Basic understanding of the structures, properties and functions of carbohydrates, lipids and proteins:

Review of concepts studied in the core course

Carbohydrates: Biological importance of carbohydrates, Metabolism, Cellular currency of energy (ATP), Glycolysis, Alcoholic and Lactic acid fermentations, Krebs cycle.




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Isolation and characterization of polysachharides.

Proteins: Classification, biological importance; Primary and secondary and tertiary structures of proteins: α -helix and β -pleated sheets, Isolation, characterization, denaturation of proteins.

Enzymes: Nomenclature, Characteristics (mention of Ribozymes), Classification; Active site, Mechanism of enzyme action, Stereospecificity of enzymes, Coenzymes and cofactors, Enzyme inhibitors, Introduction to Biocatalysis: Importance in "Green Chemistry" and Chemical Industry.

Lipids: Classification. Biological importance of triglycerides and phosphoglycerides and cholesterol; Lipid membrane, Liposomes and their biological functions and underlying applications.

Lipoproteins.

Properties, functions and biochemical functions of steroid hormones.

Biochemistry of peptide hormones.

Structure of DNA (Watson-Crick model) and RNA, Genetic Code, Biological roles of DNA and RNA: Replication, Transcription and Translation, Introduction to Gene therapy.

Enzymes: Nomenclature, classification, effect of pH, temperature on enzyme activity, enzyme inhibition.

Biochemistry of disease: A diagnostic approach by blood/ urine analysis.

Blood: Composition and functions of blood, blood coagulation. Blood collection and preservation of samples. Anaemia, Regulation, estimation and interpretation of data for blood sugar, urea, creatinine, cholesterol and bilirubin.

Urine: Collection and preservation of samples. 6. Formation of urine. Composition and estimation of constituents of normal and pathological urine.

Practicals




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Identification and estimation of the following:

1. Carbohydrates – qualitative and quantitative.
2. Lipids – qualitative.
3. Determination of the iodine number of oil.
4. Determination of the saponification number of oil.
5. Determination of cholesterol using Liebermann- Burchard reaction.
6. Proteins – qualitative.
7. Isolation of protein.
8. Determination of protein by the Biuret reaction.
9. Determination of nucleic acids

Reference Books:

1. T.G. Cooper: Tool of Biochemistry.
2. Keith Wilson and John Walker: Practical Biochemistry.
3. Alan H Gowenlock: Varley's Practical Clinical Biochemistry.
4. Thomas M. Devlin: Textbook of Biochemistry.
5. Jeremy M. Berg, John L Tymoczko, Lubert Stryer: Biochemistry.
6. G. P. Talwar and M Srivastava: Textbook of Biochemistry and Human Biology.
7. A.L. Lehninger: Biochemistry.
5. Dean, J. A. Analytical Chemistry Notebook, McGraw Hill.
6. Day, R. A. & Underwood, A. L. Quantitative Analysis, Prentice Hall of India.
7. Freifelder, D. Physical Biochemistry 2nd Ed., W.H. Freeman and Co., N.Y. USA (1982).
8. Cooper, T.G. The Tools of Biochemistry, John Wiley and Sons, N.Y. USA.16 (1977).
9. Vogel, A. I. Vogel's Qualitative Inorganic Analysis 7th Ed., Prentice Hall.




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10. Vogel, A. I. Vogel's Quantitative Chemical Analysis 6th Ed., Prentice Hall.
11. Robinson, J.W. Undergraduate Instrumental Analysis 5th Ed., Marcel Dekker, Inc., New York (1995).

Distribution Of Marks

Skill Enhancement course

Theory -15Marks

Practical -35 Marks

For theory examination



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15 marks multiple choice question paper is to be set by the college and evaluation is done by college.

For practical Examination:

- 1) One practical of 10 marks
- 2) One survey based project report 20 marks
- 3) Viva 5 marks

Total marks =15+35=50



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B.Sc. III Year Botany

**B.Sc. BOTANY
SEMESTER – III
PRACTICAL**

Based on Theory Paper - I & II of Semester – III

[Time 5 Hours]

[Max. Marks – 30]

- | | |
|--|----------|
| Que. 1: One experiment [A] from Reproductive Biology of Angiosperms | 05 Marks |
| Que. 2: One experiment [B] from Plant Growth and Development | 05 Marks |
| Que. 3: One experiment [C] from Plant Biochemistry | 05 Marks |
| Que. 4: One experiment [D] from Plant Physiology | 05 Marks |
| Que. 5: Identify and comment on given spots: | 04 Marks |

SPOT-E: (Reproductive Biology of Angiosperms)

SPOT-F: (Plant Growth and Development)


SPOT-G: (Plant Biochemistry)

SPOT-H: (Plant Physiology)

- Que. 6: Practical Record (2 Marks) Excursion Report (2 Marks) Viva-voce (2 Marks) 06 Marks

NOTE: Well labeled diagrams are expected wherever necessary.




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Skill Enhancement Courses (SEC-IV)

Theory Examination Pattern

Theory Question Paper Pattern
For
B.Sc. BOTANY CBCS
SEMESTER – VI
Skill Enhancement Courses (SEC-IV)

Time: 02 Hours]

[Max. Marks- 30

Q.1. Long question10 Marks

Q.2. Short question

a)5 Marks

b)5 Marks

Q.3. MCQ10 Marks

(Ten MCQ each of ONE mark)

Practical Examination Assessment Pattern

Assessment of practical Examination is based on the following fulfillment by the student.

6.	Project Submission	20 Marks
7.	Project Presentation	20 Marks
8.	Assignments	10 Marks
9.	Field Visit	10 Marks
10.	Overall Performance	10 Marks
Total Marks		70 Marks




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B.Sc. III Year Zoology

GONDWANA UNIVERSITY, GADCHIROLI
CHOICE BASED CREDIT SYSTEM (CBCS) SYLLABUS
PROGRAMME – BACHLOR OF SCIENCE (B.Sc.), SEMESTER – VI
SUBJECT – ZOOLOGY PRACTICAL (CREDIT 2)
SKILL ENHANCEMENT COURSE (SEC)
PRACTICAL

Max. Marks: 35

1. Study of TB, Polio, Malaria, Filariasis, Measles, Chickenpox, Rabies, Leprosy through ICT/charts
2. Preparation of charts or posters related to health
3. Visit to community water purification and treatment plant/ industry to study occupational health hazard and safety of industrial workers/ agricultural fields to study occupational health of farmers and agricultural laborers.

Practical Question Paper and Distribution of Marks

Time: 4 Hrs.

Max. Marks: 35

Practical

Distribution of Marks

1. To study of TB, Polio, Malaria, Filariasis, Measles, Chickenpox, Rabies, Leprosy through ICT/charts10
2. To prepare the charts or posters related to health10
3. Visit tour report 15



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B.Sc. III Year Mathematics

B.SC. (MATHEMATICS)

SEMESTER WISE DISTRIBUTION OF MARKS AND CREDITS

There are two Types of Courses for B.Sc. Sem V and Sem VI

(A) Skill Enhancement Course (SEC)

(B) Discipline Specific Elective (DSE)

SKILL ENHANCEMENT COURSE (SEC)

Sr. No.	Class	Semester	Theory paper Marks	Internal Assessment Marks	Total Marks	Marks for passing out of 50
1	B.Sc.	V	15	35	50	20(minimum 06 marks in theory examination)
2	B.Sc.	VI	15	35	50	20(minimum 06 marks in theory examination)
			30	70	100	40

Semester	Papers	College Examination	College Internal Assessment	Total
		Paper-Marks	Paper-Marks	Marks-Credits
Sem -V	1 (SEC)	1 - 15	1 - 35	50 - 2
Sem -VI	1 (SEC)	1 - 15	1 - 35	50 - 2

DISTRIBUTION OF MARKS FOR SEC INTERNAL ASSESSMENT

Sr. No.	Activities	Max Marks
1	Attendance	05
2	Seminar on the respective paper	15
3	Project on any topics in Mathematics	15


Skill Enhancement Course (SEC)

- Note: i) For Skill Enhancement Course (SEC), College will conduct the examination.
ii) For each semester V & VI, SEC Examination is of 50 Marks with 2 credits.
iii) Theory examination is of 15 marks and internal assessment is of 35 marks.
iv) Minimum passing marks is 20 (Including minimum 06 marks in theory + internal Assessment marks).
v) Examination Time period for SEC theory examination is of 01 hour.

Discipline Specific Elective (DSE)

For Discipline Specific Elective (DSE), University will conduct the examination.




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B.Sc. III Year Geology

B. Sc. Geology Semester VI

SKILL ENHANCMENT COURSE

Paper II: (EARTH RESOURCES)

Unit 1:

Earth Resources reserve definitions; mineral, energy and water resources in industries Historical perspective and present A brief overview of classification of mineral deposits with respect to processes of formation in relation to exploration strategies

Unit 2:

Definition of Energy: Primary and Skill Enhancement Course secondary Energy Difference between Energy, Power and Electricity Renewable and Non-Renewable Sources of Energy The concept and significance of Renewability: Social, Economic, Political and Environmental Dimension of Energy

Unit 3:

Major Types and Sources of Energy Resources of Natural Oil and Gas Coal and Nuclear Minerals Potential of Hydroelectric Power, Solar Energy, Wind, Wave and Biomass Based power and Energy

Unit 4:

Energy Sources and Power Generation: Nuclear, Hydroelectric, Solar, Wind and Wave- General Principles. Ground water resources and its role in economic development of a country Current Scenario and Future Prospects of Solar Power, Hydrogen Power and Fuel Cells.



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Practical:

Sedimentary facies; Bio facies; Depth biotopes and estimation of paleodepth of the ocean using benthic foraminiferal assemblages; Identification of modern and ancient surface water mass with the help of planktic foraminiferal assemblages; Identification of benthic foraminifera characteristic of Low oxygen environment; Identification of planktic foraminifera characteristic of warm and mixed layer.

Books Recommended:

Kennett, J.P. (1982) Laboratory Exercises in Oceanography Marine Geology, Prentice Hall.
Seibold, E. and Berger, W.H. (1982) The Sea Floor, Springer-Verlag.

Field work:

Field work shall be treated as a part of practical examination of semester VI and Marks are assigned on it. Every student should attend field work for a short duration and submit field diary, geological specimen and a report. Field report shall be assessed by teacher and Head of the Department

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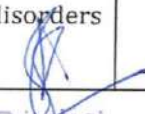
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B.Sc. III Year Microbiology

B.Sc. SEM VI Microbiology Discipline Elective Course (DSE)

Course CodeDSE-2		Marks: 50
Credits: 2		Total Hours :48
Immunology		
Objective: To make the students to understand the fundamental knowledge of Immunology.		
UnitNo.	Content	Hrs
1	Structure and functions of Immune system A) General concept and short history of immunology B) Primary Lymphoid organs- Thymus and Bone marrow C) Secondary Lymphoid organs- Spleen and Lymph node D) Lymphoid tissues- MALT / GALT E) Cells of immune system- B Lymphocytes, T Lymphocytes, Comparison, Types of T lymphocytes, F) Other immune-competent cells- Monocytes, macrophages, Dendritic cells, Killer cells, Antigen presenting cells, Neutrophil, Eosinophil, basophil, Mast cell	12
2	Resistance/ Immunity of the host A) Types of immunity. B) Non-specific resistance (Natural/ Innate immunity- Species, racial and individual resistance. C) Factors influencing Innate immunity- Age, Sex, hormonal and nutritional. D) Mechanism of Innate immunity – anatomic and physiologic barriers, phagocytosis, inflammatory response, fever. E) Specific/Adoptive resistance(Acquired immunity)- Active and passive immunity, comparison, types, F) Humoral immune response, primary and secondary immune response G) Cell mediated immunity, mechanism, MHC complex and MHC molecules.	12
3	Antigens, Antibodies and Antigen-Antibody reactions. A) Definition of antigen, epitope, Hapten, Types of antigen, Factors determining Antigenicity. B) Definition of Antibody, general structure, Classes of immunoglobulins, Structure and their functions C) Antigen-Antibody reactions. i) Precipitation reaction- precipitation in liquid, immuno-diffusion. ii) Agglutination reaction- Slide and Tube agglutination, Coomb's test. iii) Complement fixation reaction- Wasserman test. D) Tagged Antibody test- ELISA, Radioimmunoassay (RIA), Immunofluorescence.	12
4	Centrifugation and Radioactivity A) Definition of Hypersensitivity, Gell and Coomb's classification-Immediate (Type I, Type II & Type III), Delayed hypersensitivity (Type IV), examples. B) Mechanism of hypersensitivity – Type I (Anaphylaxis), Type II (erythroblastosis fetalis), Type III (Arthus reaction, serum sickness), Type IV (Contact dermatitis, Mantoux test). C) Immunological tolerance D) Autoimmunity, mechanism, causes of autoimmunity, autoimmune disorders (Rheumatic arthritis and Myasthenia gravis)	12




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Practical Course for Semester VI (Paper II) Marks: 30

1. *Blood group and Rh factor
2. *Total Leucocyte count
3. Differential Leucocyte count
4. *Haemoglobin % in Blood.
- 5 *Detection of Typhoid and Paratyphoid fever by slide/tube agglutination test (WIDAL)
6. *Detection of Syphilis by TRUST antigen test.
7. *Detection of Pregnancy in women by strip method
8. Demonstration of HBsAg by Hepacard test
9. *Estimation of Antigen by Single Radial Immune Diffusion(RIA).
10. Detection of AIDS by ELISA test.
11. Test for Rheumatoid arthritis (RA)

Note:

1. Underlined experiments are treated as major experiments.
2. Students should perform at least 4 major and 6 minor experiments
3. Practicals with asteric mark are compulsory.
4. An educational tour (visit to Pharmaceutical, Dairy industry, Research institute) is compulsory in V or VI semester
5. For project a suitable microbial investigation involving laboratory work or survey work may be given to 1-3 students at the beginning of semester
6. Report on project / review work preferably printed should be submitted duly certified by incharge teacher and head of the department

Distribution of marks of practical examinations of B.Sc. Sem. -VI

1. One major experiment-	08
2. Two minor experiment-	2 X 4= 08
3. Project (lab or review work)	06
4. Viva voce-	04
5. Practical record-	04

Total 30

Duration of Practical examination will be 10hrs., 5 hrs. each for two consecutive days




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B.Sc. II Year Botany

**B.Sc. BOTANY
SEMESTER – III
PRACTICAL**

Based on Theory Paper - I & II of Semester – III

[Time 5 Hours]

[Max. Marks – 30]

- | | |
|--|----------|
| Que. 1: One experiment [A] from Reproductive Biology of Angiosperms | 05 Marks |
| Que. 2: One experiment [B] from Plant Growth and Development | 05 Marks |
| Que. 3: One experiment [C] from Plant Biochemistry | 05 Marks |
| Que. 4: One experiment [D] from Plant Physiology | 05 Marks |
| Que. 5: Identify and comment on given spots: | 04 Marks |

SPOT-E: (Reproductive Biology of Angiosperms)

SPOT-F: (Plant Growth and Development)

SPOT-G: (Plant Biochemistry)

SPOT-H: (Plant Physiology)

Que. 6: Practical Record (2 Marks) **Excursion Report (2 Marks)** Viva-voce (2 Marks) 06 Marks

NOTE: Well labeled diagrams are expected wherever necessary.



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B.Sc. II Year Zoology

GONDWANA UNIVERSITY, GADCHIROLI
CHOICE BASED CREDIT SYSTEM (CBCS) SYLLABUS
PROGRAMME- BACHELOR OF SCIENCE (B.Sc.), SEMESTER - IV
SUBJECT- ZOOLOGY, PRACTICAL (CREDITS 2)
CORE COURSE-VII & VIII

USZOP04

PRACTICAL

B.Sc. II (Zoology), Semester-IV

DEVELOPMENTAL BIOLOGY & PHYSIOLOGY AND BIOCHEMISTRY-II

Section A: Developmental Biology

Study of the following slides-

1. Frog embryology: T.S. of Tadpole through internal and external gills, V.S. of Blastula, Gastrula and Neurula,
2. Study of permanent slide of Chick embryology : Whole mount of 18 hrs, 24 hrs, 30 hrs, 36 hrs and 72 hrs.

Section B: Physiology experiment

1. Detection of urea, albumin, sugar and creatin in urine
2. Sperm count of any domestic animal (Source of semen: Government artificial insemination centre).
3. Study of histological slides of Mammal– T.S. of Kidney, Pituitary, Thyroid and Adrenal glands, Testis, Ovary, Uterus, Placenta, Medulated and Non medulated nerve fibres, Smooth and Striated muscle, Spinal cord.

Section C: Biochemistry experiment


1. Preparation of haemin and haemochromogen crystal
2. Quantitative estimation of amino acids using ninhydrin reaction
3. Estimation of glycine by Sorenson formal titration

Section D : Permanent stained micro preparation

1. Examination of gametes of Frog – Sperm and Ova through permanent slide or microphotograph

Section E : Submission of slides and study tour report




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B.Sc. II Year Geology

USGEOT08
GEOLOGY
SEMESTER IV
Paper II
Indian Stratigraphy

Unit I

Geological time Scale. Methods of collecting stratigraphic data. Principles of Stratigraphy. Stratigraphic Classification: Lithostratigraphic, Chronostratigraphic and biostratigraphic Units, Stratigraphic Correlation. Physical and structural subdivisions of Indian subcontinent and their characteristics. Classification, Geographic distribution, lithological characteristics and economic importance of Dharwar Supergroup of Peninsular India and associated granitic rocks.

Unit II

Classification, geographic distribution, lithological Characteristic, and economic importance of the following :-
Sausar Group, Sakoli Group, Dongargarh Supergroup, Aravalli Supergroup and associated gneissic rocks, Iron Ore Group. Cuddapah Supergroup of Cuddapah basin, Kaladgis, Pakhals, Penganga Formation, Delhi Supergroup, Shimla Formation. Vindhyan Supergroup of Vindhyan basin, Kurnool Supergroup, Chattisgarh Supergroup.

Unit III

Classification, geographic distribution, lithological characteristics, fossil content and economic importance of the following:
Palaeozoic succession of Spiti valley, Gondwana Supergroup. Triassic of Spiti, Jurassic of Kutch, Rajasthan and Spiti.

Unit IV

Classification, geographic distribution, lithological characteristics, fossil content and economic importance of the following.
Cretaceous of Narmada valley, Trichinopoly, Spiti and Lameta Formation. Deccan Traps. Tertiary of Assam and coastal areas of India. Siwalik Group. Karewa Formation of Kashmir. Stratigraphy of Maharashtra




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**USGEOP04
PRACTICALS**

PETROLOGY:

Microscopic study of the following rock types:

Igneous Rocks:

Granite, Granodiorite, Diorite, Anorthosite, Lamprophyre, Porphyries, Gabbro, Norite
Dolerite, Diabase, Peridotite, Dunite, Pyroxenite, Obsidian, Pitchstone, Pumice, Trachyte
Andesite, Phonolite, Tuff, Basalt, Rhyolite, Charnockite

Megascopic and microscopic Study of the following rock types:

Sedimentary Rocks:

Conglomerate, Breccia, Grit, Arkose, Graywacke, Arenite, Sandstone, Shale, Clay, Marl,
Limestone, Bauxite, laterite, Agglomerate, Tufa, Chert, Coal.


Metamorphic Rocks :

Hornfels, slate, phyllite, Schist, Gneiss, Granulite, Amphibolite, Quartzite, Marble,
Khondalite, Gondite, Kodurite, Mylonite, Eclogite.

FIELD WORK:

Every Student should attend field work for one week duration and submit field notes, geological specimens and a report. The field work shall be treated as a part of practical examination of Semester IV and is Compulsory and shall be assessed by teacher and Head of the Department. Marks are assigned on field work.




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B.Sc. I Year Botany

GONDWANA UNIVERSITY, GADCHIROLI
CBCS Semester Pattern Syllabus
SEMESTER - I
PRACTICAL
Based on Theory Paper - I & II of Semester - I

[Time 5 Hours]


[Max. Marks - 30]

- Que. 1: To stain given Bacterial strain/Cyanobacterial material [A] and identify. [Writing not necessary] 02 M
- Que. 2: To prepare temporary mount of given Algal material [B] and identify and classify with diagnostic characters. [Slide preparation 2 marks, writing 1 mark]. 03 M
- Que. 3: To prepare temporary mount of given Fungal material [C] and identify and classify with diagnostic characters. [Slide preparation 2 marks, writing 1 mark]. 03 M
- Que. 4: To prepare temporary mount of given Bryophytic material [D] and identify and classify with diagnostic characters. [Slide preparation 2 marks, writing 1 mark]. 03 M
- Que. 5: To prepare temporary mount of given Pteridophytic material [E] and identify and classify with diagnostic characters. [Slide preparation 2 marks, writing 1 mark]. 03 M
- Que. 6: To prepare temporary mount of given Gymnospermic material [F] and identify and classify with diagnostic characters. [Slide preparation 2 marks, writing 1 mark]. 03 M
- Que. 7: SPOTTING: 07 M
- SPOT-G: Algae
 - SPOT-H: Fungi/ Lichens
 - SPOT I: Plant Pathology
 - SPOT-J: Bryophyta
 - SPOT-K: Pteridophyta
 - SPOT-L: Gymnosperms
 - SPOT-M: Fossils
- Que. 8:
- Viva-voce. 02 M
 - Practical Record. 02 M
 - Excursion Report & diseased plant parts submission. 02 M

NOTE: Well labeled diagrams are expected wherever necessary.

SYLLABUS FOR B. SC. BOTANY SEMESTER I & II Under (CBCS) 2020-21




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B.Sc. I Year Geology

F.Y. B.Sc. - I (Geology)

SEMESTER – II

Practical

Paper Code: USGEOP02

Credits-2

Practical

1. Study of elements of symmetry and description of various forms of crystals from normal classes of six crystal systems.
2. Study of the optical characters of minerals listed for theory course using polarizing microscope.

Geological field work:

Student will be required to carry out field work of a short duration in an area of geological interest to study the elementary aspects of field Geology (study of Topographic Features, reading of Topographical maps, use of compass clinometer, making location on Toposheet) and submit a report thereon.




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B. Com III Year Commerce

B.Com - III (SEMESTER – VI) CBCS

Paper–VI

Project

[Max. Marks: 50]

Guidelines for Project

Instruction:

Towards the end of the Sixth semester of study, a student will be examined in the Course “Project Work”.

- Project Work may be done individually or in groups (Maximum 5 students) in case of bigger projects. However if project is done in groups, each student must be given a responsibility for a distinct module and care should be taken to monitor the progress of individual student.
- The Project Work should be done using the tools covered in B.Com
- The Project Work should be of such a nature that it could prove useful or be relevant from the System-oriented/Application/commercial / management angle.
- The project work will carry 50 marks.
- The external viva-voce examination for Project Work would be held as per the Examination Time Table of the second year of study, by a panel of one external and one Internal examiner.
- Head/Co-ordinator of Computer Dept. must reject any project title which was already carried out in any computer course in the college. He must maintain a Record that lists the projects along with other detail (like Guide, Session, and Number of students working on project etc) that was carried out so far and must be shown to external examiner at the time of examination.

Types of Project

As majority of the students are expected to work out a project in some industry/research and development laboratories/educational institutions/software export companies, it is suggested that the project is to be chosen which should have some direct relevance in day-to-day activities of the candidates in his/her institution. The Applications Areas of project – Financial / Marketing / Database Management System/ Relational Database Management System / E-Commerce / Internet / Manufacturing / web Designing /Hardware and Software interaction based etc.

Project Proposal (Synopsis)

The project proposal should be prepared in consultation with the guide. The Project Guide May alter the sequence as given below depending upon the nature of project.

Guide : The project guide must be a person having minimum Qualification M.C.M / M.Sc. (Computer Science) / MCA. The project proposal should clearly state the objectives and environment of the proposed project to be undertaken. It should have full details in the following form:

- Title of the Project
- Objectives and Hypothesis of the Project
- Project Category (DBMS/RDBMS/OOPS/Web Designing/Internet etc.)
- Tools/Platform, Languages to be used
-

Project Report Formulation.



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1. TitlePage.
2. CertificatePage.
3. DeclarationPage.
4. AcknowledgmentPage.
5. Index or ContentPage.
6. Documentation.
 - a) Introduction/Objectives.
 - b) ProjectCategory.
 - c) Software RequirementSpecification.
 - d) SystemDesign.
 - SourceCode.
 - Input screen & OutputScreen.
7. Future Scope of theproject.
8. Bibliography
9. Appendix *(if any)



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M.Sc. Zoology II Year

Semester –IV

Paper XIV, Special Group-Aquaculture-III

Aquaculture and Management

Unit-I

- 1.1 Preparation of pond: Liming and manuring.
- 1.2 Prestocking management of Nursery, Rearing and stocking ponds.
- 1.3 Control of aquatic weeds, predatory fishes, weed fishes and insects.
- 1.4 Post stocking management – stocking density, carrying capacity, enhancement of carrying capacity.

Unit-II

- 2.1 Nutritional requirements of culturable carps. Supplementary feeding. Artificial feed. Use of growth promoting hormones.
- 2.2 Transport of live fish seed, Brood fish and food fish.
- 2.3 Effect of dams on fisheries.
- 2.4 Development of reservoir fisheries in India.

Unit-III

- 3.1 Different systems of aquaculture, Monosex culture, cage culture and pen culture.
- 3.2 Polyculture of Indian and Exotic carps.
- 3.3 Culture of air breathing fishes.
- 3.4 Integrated aquaculture: fish-cum-poultry and fish-cum-paddy.

Unit-IV

- 4.1 Integrated fish farming: fish-cum-duck and fish-cum-pig
- 4.2 Sewage fed fish culture.
- 4.3 Cold water fish culture in India.
- 4.4 Extensive, Intensive, Semi-intensive and super- intensive culture.

Semester-IV

Paper XV, Special Group-Aquaculture-IV

Fish Pathology and Fish Genetics

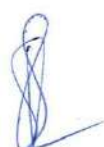
Unit-I

- 1.1 Biochemical composition of raw fish.
- 1.2 Nutritional value of raw and preserved fish.
- 1.3 Fish preservation objective and principles..
- 1.4 Methods of fish preservation.

Unit-II

- 2.1 Fish decomposition, rigor mortis and fish spoilage.
- 2.2 Poisoning, Toxicity and allergies from fish as food.
- 2.3 Effect of water pollution on fishes.
- 2.4 Fish products and byproducts.




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Unit-III

- 3.1 Fungal, bacterial, protozoan diseases of farm fish.
- 3.2 Nutritional diseases of fish.
- 3.3 Worm and crustacean diseases of farm fish.
- 3.4 Diseases caused by aquatic pollutants.

Unit-IV

- 4.1 Fish genetic resources and its application in fisheries management.
- 4.2 Hybridization, transgenic fish.
- 4.3 Gene banking and application of genetic engineering in aquaculture.
- 4.4 Cryopreservation of gametes.

Semester-IV Practical-VII, Special Group- Aquaculture

- 1 Study of feeding habits of herbivorous, carnivorous and omnivorous fish by gut content analysis with the help of ICT tools/ charts/ models / photographs etc.
- 2 Identification of egg, spawn, fry and fingerlings of Indian carps with the help of already available specimens, permanent slides/ ICT tools/ charts/ models/ photographs etc.
- 3 Preparation of artificial fish feed.
- 4 Anatomical observations, demonstration and detailed explanation of the reproductive system of carps with the help of ICT tools/ models/ charts/ photographs etc.
- 5 Identification and classification of palaemonoid prawns, crabs, bivalves, larvivorous and aquarium fishes using fishes available in the local fish market or with the help of already available specimens, permanent slides ICT tools/ charts/ models/ photographs etc.
- 6 Short term bioassay and determination of LC50 for fish exposed to pollutant using provided data.
- 7 Study of pathological changes in gills, liver, kidney and intestine of fish exposed to heavy metals or pesticides with the help of already available permanent slides ICT tools/ charts/ models/ photographs etc.
- 8 Biochemical estimation of proteins, lipids, glycogen, DNA and cholesterol (Source of Blood/ Tissue: Local recognized fish markets).
- 9 Preparation of bacteriological media and determination of bacterial plate count for skin and gut.
- 10 Gram staining of bacteria.
- 11 Visit to a fish market and collection of fish landing data.

Distribution of marks

	Marks
1. Analysis of gut content / preparation of artificial fish feed	10
2. Study of pathological changes in gills, liver, kidney and intestine	10
3. Biochemical estimation / determination of bacterial plate count.	10
4. Gram staining	05
5. Identification of spots (1 to10)	20
6. Anatomical observation	05
7. Practical record & submission	10



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8. Viva – voce	10

Internal Assessment	80
	20

Total marks	100
• Project work	100
(80 marks project evaluation including viva + 20 marks Internal assessment)	

• **Suggested Readings**

1. A textbook of fishery science and Indian fisheries- S. B. L. Srivastava
2. Fish and fisheries – Kamleshwar Pandey and J. P Shukala
3. A textbook of fish biology and fisheries – S.S. Khanna and H. R. Singh
4. A text book of fish biology and Indian fisheries- R.P. Parihar
5. General and Applied Ichthyology- S.K.Gupta and P.C.Gupta
6. An introduction to fishes- S. S. Khanna.
7. Fish processing technology – T. K. Govindon.
8. Hand book of breeding of major carps by pituitary hormones – S. L. Chonder.
9. Aquaculture – T. V. R. Pillay.
10. Diseases of cultivable freshwater fishes and their control – N. M. Chokraborty.
11. Fish and fisheries in India - V. G. Jhingran.
12. Indian fishes (Identification of Indian Teleosts) – T. A. Qureshi.
13. Introduction to tropical fish assessment per share, Erik Ursine and Siberian C. Verma.
14. Fish population dynamics – M. Devaraj.

Semester –IV

Paper-XIV, Special Group-Environmental Biology-III
Environmental Pollution and Aquaculture

Unit-I

- 1.1 Pollution Ecology: definition, sources of pollution, classification of pollutants, primary and secondary pollutants.
- 1.2 Air pollution: definition, sources, air pollutants and its effects on human health and atmosphere, control of air pollution.
- 1.3 Water Pollution: definition and sources, water pollutants and its effects, control of water pollution.
- 1.4 Noise pollution, sources, physiological and psychological effects of noise pollution, control measures of noise pollution.

Unit-II

- 2.1 Land pollution: definition, sources, effects and control of insecticide pollution.



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M.Sc. Geology II Year

SYLLABUS for M. Sc. GEOLOGY
Choice Based Credit System (Semester Pattern)
GONDWANA UNIVERSITY GADCHIROLI 2017-18

M.Sc. GEOLOGY (Semester IV)

Code	Theory / Practical	Teaching Scheme (Hrs/ week)			Credits	Examination Scheme					
		Th	Pr.	Total		Duration (Hrs)	Max. Marks		Total Marks	Min. Passing Marks	
							External	Internal		Th	Pr.
Core 11	PSCGEOT13 Ore Geology and Ore Microscopy (3+1)	4		4	4	3	80	20	100	40	
Core 12	PSCGEOT14 Indian Mineral Deposits and Mineral Economics (3+1)	4		4	4	3	80	20	100	40	
Core Elective 2	PSCGEOT15 (Any one) E2.1 Fuel Geology (Coal, Petroleum & Nuclear) E2.2 Exploration Geochemistry (4) E2.3 Basin analysis and Sequence Stratigraphy (2+2) E2.4 Marine Geology and Oceanography (2+2)	4		4	4	3	80	20	100	40	
Founda- tion Course 2	PSCGEOT16 Foundation Course 2 FC-2.1 Paleobiology (or) FC-2.2 Geodesy and Mapping	4		4	4	3	80	20	100	40	
Pract. Core 7	PSGEOPO7 Ore Geology, Ore Microscopy, based on Paper 15 and Geological Field Work (Marks: 55 Pract. + 05 Viva-voce + 20 Field Work + 20 Internal Assessment and Class Record)		8	8	4	3	80	20	100		40
Project	PSCGEOPO8 Project (Marks: 40 Project Evaluation + 20 Project Presentation + 20 Viva-voce + 20 Internal Assessment)		8	8	4	3	80	20	100		40
Seminar	Seminar 3	2		2	1	---		25	25	10	
Total		18	16	34	25		480	145	625	170	80



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FIELD WORK:

Candidate shall attend geological excursion organized by the Department for a period of 10 to 20 days. This will include field work, visit to geologically important places, mines, geological and scientific organisations. Candidates should submit the field report at the end of excursion along with the geological specimens collected during the programme. The field work is a part of Practical 7 of Semester IV and field report will be evaluated by the field excursion in-charge.

PROJECT WORK:

Every student is required to carry out **Experimental / Field Based Project Work** (this is in lieu of practical 8 of semester IV) on a related research topic of the subject /course. On the basis of this work, student must submit the Project Report (typed and properly bound) in two copies at least one month prior to commencement of the final Practical Examination of Semester IV.

After Semester-II the candidates are required to carry out geological investigation independently approved by the Head of the Department and Project Guide. The area/ topic of the project work shall be assigned to the students at the end of Semester - II depending upon the expertise available in the Department.

The Project report shall comprise of introduction, aims and objectives, short literature review, methodology/ materials and methods, experiments and results, discussion, conclusion and references along with the declaration by the candidate that the work is original and not submitted to any University or Organization for award of the degree, and certificate by the supervisor and forwarded through Head of the Department. The project report will be essentially evaluated by two referees, which includes **Project Guide** as internal referee and one **external referee**.

The Project Work will carry total 100 marks and will be evaluated by both external and internal examiner in the Department.

For written Project work	: 40 Marks (Evaluated jointly by External & Internal)
Project presentation	: 20 marks (Evaluated jointly by External & Internal)
For Viva-Voce	: 20 Marks (Evaluated by External examiner)
Internal Assessment	: 20 Marks (Evaluated by Internal examiner)
Total	: 100 Marks




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M.Sc. Chemistry II Year

GONDWANA UNIVERSITY, GADCHIROLI

M.Sc.-II Semester III, IV (Chemistry)

(Effective from 2017-18) (CBCS)

1. There will be four theory papers in every semester which will carry 80 marks each of 3 hrs. duration.
2. In semester III student will opt for special paper from four options available.
3. In semester IV student will opt for an elective paper out of the five options available.
4. There will be internal assessment of 20 marks per paper per semester.
5. Each paper per semester with total of 100 marks(80+20 i.e. theory+internal assessment) will carry 4 credits.
6. The internal assessment will be based on Attendance, Home assignment, Unit test Terminal test and participation in departmental activities.
7. There will be two practical examinations in semester III i.e. Pract I(special) and Pract II(Elective) of 6-8 hours duration of 80 marks with 4 credits each. Every practical will be having 20 internal practical marks.
8. In semester IV there will be one practical (Special) and another as Project of 80 marks each.
9. In each semester, the student will have to deliver a seminar on any topic relevant to the syllabus / subject encompassing the recent trends and development in that field / subject. This will carry 25 marks per seminar with one credit.
10. So, the total marks allotted to the Chemistry subject per semester is 625 marks:
Theory (320 marks) + Internal assessment (120 marks) + Practicals (160 Marks)+ Seminar (25Marks)= 625marks (total)
11. Each theory paper consists of four units of fifteen hours per unit.

The following syllabi are prescribed on the basis of four hours per week of each paper and nine practical periods per batch per week.

General scheme for distribution of marks in practical examination

Time : 6-8 h (One day Examination) Total Marks : 80)

Exercise-1 - 30 Marks

Exercise-2 - 20 Marks

Viva-Voce -15Marks

Record -15 Marks





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Scheme of Examination for M.Sc. (Chemistry) SEM III and IV

Semester III	Internal Assessment	Total Marks	Credits	
PSCHT09: Paper IX (Spectroscopy)		20 Marks	80 Marks	4 Credits
PSCHT10: Paper X Special I -Inorganic/ Organic Chemistry/Physical/Analytical		20 Marks	80 Marks	4 Credits
PSCHT11: Paper XI Special II -Inorganic/ Organic Chemistry/Physical/Analytical		20 Marks	80 Marks	4 Credits
PSCHT12: Paper XII Elective Applied Analytical /Nuclear/ Environmental /Polymer/Medicinal Chemistry)	20 Marks	80 Marks	4 Credits	
PSCHP07: Practical-VII Special Inorganic / Organic Chemistry/Physical/Analytical		20 Marks	80 Marks	4 Credits
PSCHP08: Practical-VIII Elective - Applied Analytical Nuclear/ Environmental /Polymer/Medicinal)		20 Marks	80 Marks	4 Credits
PSCHP09: Seminar-III ----		25 Marks		1 Credit
Total:		120 Marks	505 Marks	25 Credits
 Semester IV				
PSCHT13: Paper XIII (Spectroscopy)		20 Marks	80 Marks	4 Credits
PSCHT14: Paper XIV Special I -Inorganic/ Organic Chemistry/Physical/Analytical		20 Marks	80 Marks	4 Credits
PSCHT15 Paper XV Special II -Inorganic/ Organic Chemistry/Physical/Analytical		20 Marks	80 Marks	4 Credits
PSCHT16 Paper XVI Elective - Applied Analytical Nuclear/ Environmental / Polymer/Medicinal Chemistry)	20 Marks	80 Marks	4 Credits	
PSCHP10 Practical-X Special (Inorganic / Organic/Physical/Analytical)		20 Marks	80 Marks	4 Credits
PSCHP11 Practical-XI Project		20 Marks	80 Marks	4 Credits
PSCHP12 Seminar-IV ----		25 Marks		1 Credit
Total:		120 Marks	505 Marks	25 Credits




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