

Govt Naveen College Risali, Dist-Durg (C.G.)
FOUR YEAR UNDERGRADUATE PROGRAM (2024-28)

DEPARTMENT OF BOTANY

COURSE CURRICULUM

VAC CERTIFICATE COURSE	CLASS TIME:-30 hrs
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Lab and instrumentation

COURSE LEARNING OUTCOME:-

1. To make the students well versed with all the equipments of laboratory
2. To enable them safe handling of instruments /equipments.
3. Correct handling & use of instruments.
4. Proper laboratory techniques and instruments handling lead to accurate, reliable results and safe working environment.
5. Safety protocol and proper handling minimizes the risk of accidents, injuries, chemical exposure.
6. Knowledge and effective use of equipments will enable us in maintaining an organized well managed lab, saves time, prevents delay in research projects.
7. Hands on experience with correct technique help students and researchers acquire problem solving skills, fostering confidence and competence.
8. 8. Regular maintenance, proper cleaning and correct operation extend the life span of expensive, sophisticated instruments.

COURSE CONTENT:-

THEORY CONTENTS:

1. General introduction of Laboratory
2. Study of common laboratory equipments
3. Common laboratory reagents
4. Principle, working and applications of laboratory equipments.
5. Biochemical techniques.
6. Technique of proper & safe handling of instruments.
7. Safety measures and precautions
8. Implementations in research

Practical work:

1. Project writing
2. Preparation of working models
3. Preparation of static models
4. PowerPoint presentations

REFERENCES:

1. Botany lab essentials, Somnathkar *etal*, SAGA Publications.
2. Practicals in Plant physiology and Biochemistry, Bala *etal*.
3. Practical Botany Navbodh publications
4. Plant anatomy, Experiments and critical thinking, E.G. Cutter.
5. Modern practical botany, B.P Pandey.
6. Advanced practical Physical chemistry, Yadav, J.B.
7. Unified practical chemistry, Sahu, D.P & Bapat, K.N.
8. Basic principles of Practical chemistry, Venkteswaran et al.
9. Essentials of Analytical chemistry, Shobha & Banani.
10. S.S.Lal, Practical Zoology, Invertebrate. 12th edition.
11. A Manual of practical Zoology. Dr. P.S Verma, S.Chand Publication, New Delhi.
12. A Laboratory manual, Practical Handbook of Cell biology.
13. A manual of Practical Zoology. Dr.P.S Verma, S.Chand Publication.
14. Advanced Practical Physics for students, B.L.Flint & H.T.Worsnop.
15. Engineering Practical Physics, S. Panigrahi & B. Mallick.
16. A text Book of Practical Physics, Indu Prakash
17. Practical Physics, R.P Goyal, Shival Publication.

Suggested Continuous Evaluation Methods:

Maximum Marks: 50 Marks

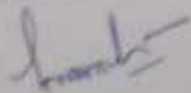
Test : 30 Marks

Project : 10 Marks

Model /PPT/Seminar : 10

Name & Signature of Convener & Member

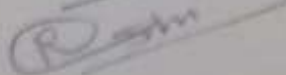
Dr. Mamta



Mr. Shambhu P. Nirmalkar



Dr. Ritu Shrivastava



Mr. Satish K. Gota



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