

INTERNSHIP PROGRAMME FOR UG DEGREE (SEMESTER-V)

(For the students admitted under New Curriculum and Credit Framework from the academic session 2023-24)



Course Title: Lab Maintenance Skill	
Internship Providing Organization (IPO):	Department of Zoology, Bankura Sammilani College
Category of Course:	For UG DEGREE (SEM-V)
Duration:	60 Hours
Course Coordinator and Contact Details:	Dr. Mukti Pada Bag Mobile No: 9433241261
Mentors:	Dr. Rajendra Prasad Mondal Dr. Tapas Kumar Dutta Dr. Surajit Majumdar Dr. Ananya Nayak
Intake Capacity:	60 Students
Course Fees:	Rs. 100/- (Students from Host Institution) Rs. 400/- (Students from Other Institution)

SYLLABUS

Course Title: Lab Maintenance Skill [50 Marks/2 Credits/60 Hours]

Learning Outcomes (LO)

- Students are expected to learn the fundamental concepts, principles and processes underlying the understanding of responsibilities of managing a lab with special reference to the glass goods handling, chemical preparation staining preparation as well as handling and maintenance of various instruments used in biological laboratory.
- Professional skills in the field of lab maintenance in relation to academia and industry require sound knowledge and well strained skill person. Therefore, there must be the sincerity from both the teachers and learners to extend curiosity and grasp knowledge.
- Biological Sciences today extend great opportunity towards sincere learners for healthy jobs in different fields beside academia such as Pathological lab, medicines, research lab, biotechnological industry and such many. Therefore, if students know lab maintenance very well, then they may able to face these competitive fields easily.

Unit 1: Laboratory Techniques and Instrumentation (Theory)

12 Hours

1. Basics of Light Microscopy
2. Principles and Application of Ph Meter
3. Application of balance machine in chemical and stain preparation
4. Principles and Application of Sphygmomanometer
5. Principles and Application of Spectrophotometer

Unit 2: Basic Idea about Laboratory reagents (Theory)

8 Hours

1. Stain and dye (Eosin, Haematoxyline, Acetocarmine, Acetoorcein- composition and uses)
2. Fixatives used Biological lab (Boins, Carnoys, Ethanol, Formalin)

Unit 3: Animal Physiology: Life Sustaining System (Theory)

10 Hours

1. Blood groups; ABO and Rh factor
2. Blood pressure and its regulation
3. Body Mass Index (BMI)

Unit 4: List of Practical

30 Hours

1. Commonly used Glassware and cleaning of Glassware
2. Preparation of Chromic acid wash solution
3. Types and use of pipettes
4. Balance types and uses
5. Preparation of percent solution / volume / volume components (V/V)
6. Preparation of percent solution weight by volume (W/V) solution

7. Indicators pH, determination of unknown solutions
8. Titration – (Acid Base) Preparation of Primary Standards
9. Spectrophotometer components and use demonstration
10. Determination of ABO Blood group
11. Recording of blood pressure using a sphygmomanometer
12. Determination of Body Mass Index

Suggested Readings:

- Randall, D. and Warren Burggren (2001) Eckert Animal Physiology 5th edition. W.H. Freeman
- Bajpai, P.K. (2006). Biological Instrumentation and Methodology. 1st Ed. S. Chand & Company Ltd.
- Ghoshal & Shrivastava (2009). Fundamentals of Bioanalytical Techniques and Instrumentation. PHI
- Ghosh, K.C. and Manna, B. (2015): Practical Zoology, New Central Book Agency, Kolkata
- Poddar T. K., S. Mukherjee & S. K. Das (2002) An Advanced Laboratory Manual of Zoology, Laxmi Publications
- Sinha, J. K., Chatterjee, A.K. and P. Chattopadhyay (2015) Advanced Practical Zoology, Books & Allied (P) Ltd
- Guyton, A.C. & Hall, J.E. (2006). Textbook of Medical Physiology. XI Edition. Hercourt Asia PTE Ltd. W.B. Saunders Company
- Pal GK, Pal P (2016) Textbook of Practical Physiology. 4th Edition, University Press