

**PRACTICAL COURSES**  
**BSP 554 BIOTECHNOLOGY LAB**

**Course Outcomes:**

*After successful completion of the course, students will be able to:*

- CO 1. Develop laboratory skills in biotechnology
- CO 2. Use solid surface fermentation technique for production of antibiotics.
- CO 3. Carry out PCR and do the analysis
- CO 4. Do vermicomposting and mushroom cultivation.
- CO 5. Perform plant tissue culture techniques and check the nutritional and anti-nutritional qualities of edible seeds.

1. Production and analysis of vermicompost
2. Identification, collection and cultivation of mushrooms
3. Submerged and solid-substrate fermentation.
4. Production and assessment of enzymes, mycotoxins, organic acids and antibiotics.
5. Isolation and induction of root nodules by rhizobia
6. Isolation and mass production of arbuscular mycorrhizal spores.
7. Plant tissue culture
8. Evaluation of nutritional and antinutritional qualities of edible seeds.
9. Evaluation of soil qualities (e.g. texture, bulk density and water holding capacity)
10. Evaluation of soil components (e.g. nitrogen, phosphorus, organic carbon)
11. Pattern of decomposition of organic matter (e.g. leaf and woody litter)
12. Biogas production
13. Functional properties of food (e.g. water absorption capacity, gelation, foaming and emulsion)
14. DNA extraction methods and PCR /RT PCR confirmation
15. Analysis of RT PCR data in terms of copy number or quantification.
16. Analysis of DNA and protein sequences.