

CERTIFICATE COURSE

IN

FERMENTATION TECHNOLOGY

**Department of Microbiology and
Bioinformatics**

Atal Bihari Vajpayee Vishwavidyalaya

Bilaspur (C.G.)

**(A State University, Established by the Government of
Chhattisgarh)**

1. About the University

Atal Bihari Vajpayee Vishwavidyalaya (ABVV), a State University, established under the Chhattisgarh Act No. 7, 2012, is in existence since June, 2012. The University has affiliation of around 180 government and private colleges covering 5 major districts of the state. The University is catering the education needs of both graduation and post graduation courses of the various streams mainly covering Science, Commerce, Law, Education, and Research Centers.

2. About the Course

Fermentation is used for a variety of commercial purposes. Using the process of fermentation to produce consumer goods is very popular. A lot of foods such as yogurt, pickled vegetables such as pickled cucumber and carrots, alcoholic beverages like beer all rely on fermentation for their creation. Certain antibiotics and drugs also rely on fermentation for their making. For example, an important drug cortisone can be prepared by the fermentation of a plant steroid called Diosgenin, Cortisone is used to treat many different conditions such as allergic disorders, skin conditions, ulcerative colitis, arthritis, lupus, psoriasis, or breathing disorders.

Already run as an e-certificate course on e-atal gyansangum portal.

3. Scope:

Excellent scope for students pursuing their career in fermentation based industries, Research field, for updating of midterm scientists from Basic biology field, added knowledge pack for PG students.

4. Outcome of the Course:

- To impart comprehensive overview of the scientific and technical aspects of Fermentation.
- Understanding of metabolism behind fermentation products.
- Processes involved in downstream processing.
- Understand the basic metabolism behind fermentation.
- Know techniques of isolation of industrially important organisms.
- Learn technique Preliminary and Secondary screening.
- Downstream processing of fermented product.

5. Eligibility Criteria

Senior School Certificate Examination (Class XII) with Biology.

6. Fees Structure

One time registration/tuition fees of Rs. 5000/-

7. Intake Capacity – 20 seats

8. Course Duration – 3 months/ 36 weeks.

9. Attendance

Minimum attendance of 75 % is required in the classes for appearing in the examination.

10. Examination & Scheme and Concise Course Content

S. No.	Papers	Maximum Marks	Minimum Marks	Credits
1.	Paper I- Theory (Fermentation Technology)	100	40	4
2.	Paper II- Practical (Fermentation Technology Lab)	100	40	2
Total marks		200	80	6

Syllabus

Theory

Title: Fermentation Technology

- Module 1 Introduction to fermentation process
- Module 2 Media for fermentation
- Module 3 Bioreactors
- Module 4 Sterilization process
- Module 5 Inoculum build up
- Module 6 Preservation of microorganisms
- Module 7 Primary Screening
- Module 8 Secondary Screening
- Module 9 Production of metabolites by microbes
- Module 10 Improvement of industrial microorganism
- Module 11 Downstream processing
- Module 12 Economics of fermentation

Laboratory

Title: Fermentation Technology lab

1. Isolation of microorganisms producing bioactive molecules.
2. Screening of potent microbes.
3. Evaluation of production potential of the isolate.
4. Optimization of production of the product.
5. Downstream processing of the product.

BUDGET PLAN FOR THE CERTIFICATE COURSE

S.No.	Income /course	Amount (in Rupees)
a)	Intake- 20 candidates with course fee 5000	1,00,000/-
S.No.	Expenditure Detail	Amount (in Rupees)
1.	Instruments and glasswares	Currently have to run at basic level.
2.	Contingencies	10,000/-
3.	Stationary and printing	10,000/-
4.	Chemicals	20,000/-
5.	Total expenditure	40,000 /-

Year wise plan

S.No.	Expenditure Detail	Amount (in Rupees)
1.	For first year	40,000 /-
2.	From second year	40,000 /-