

P.B.SIDDHARTHA COLLEGE OF ARTS & SCIENCE:: VIJAYAWADA

Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code: **BOTSEP01**

Offered to B.Sc. (BZC)

Domain Subject: BOTANY

Semester – V

Max. Marks: 40

Practical Hrs./Week : 3

Course 6C: PLANT TISSUE CULTURE

Type of the Course: Skill Enhancement Course (Elective: Practical),

Credits: 01

I. Course Outcomes: Students at the successful completion of the course will be able to:

CO1: Demonstrate the applications of autoclave, laminar airflow, hot air oven.

CO2: Sterilize the glassware and tools used for tissue culturing.

CO3: Prepare different stock solutions, media.

CO4: Measure the growth of callus formed.

CO5: Demonstrate the hardening and acclimatization in green house.

CO-PO MATRIX							
CO-PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1						H	
CO2						H	
CO3						H	
CO4						H	
CO5						H	

II: Practical (Laboratory) Syllabus: (30 Periods): Atleast 8 Practicals

1. Principles and applications of- Autoclave, Laminar Airflow, Hot Air Oven.
2. Sterilization techniques for glass ware, tools, explant etc.,
3. MS medium - Preparation of different stock solutions; media preparation
4. Explant preparation, inoculation and initiation of callus from carrot.
5. Callus formation.
6. Induction of somatic embryos, preparation of synthetic seeds.
7. Multiplication of callus and organogenesis.
8. Hardening and acclimatization in green house.

III. Lab References:

1. Reinert, J. and M.M. Yeoman, 1982. Plant Cell and Tissue Culture - A Laboratory
2. Manual, Springer-Verlag Berlin Heidelberg
3. Robert N. Trigiano and Dennis J. Gray, 1999. Plant Tissue Culture Concepts and Laboratory Exercises. CRC Press, Florida
4. Ashok Kumar, 2018. Practical Manual for Biotechnology, College of Horticulture & Forestry, Jhalawar, AU, Kota
5. Chawla, H.S., 2003. Plant Biotechnology: A Practical Approach, Nova Science Publishers, New York
6. Web sources suggested by the teacher concerned.

Sample Suggested Question Paper Pattern: Practicals

Time Allowed: Three hours**Max. Marks: 40**

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| 1. Demonstration of a sterilization technique | 'A' | 7 M |
| 2. Preparation of MS medium | 'B' | 8 M |
| 3. Demonstration of callus culture technique/synthetic seeds 'C' | | 5 M |
| 4. Scientific observation and data analysis | | 4 x 3 = 12 M |
| D. Tissue culture equipment /photograph | | |
| E. Morphogenesis or organogenesis - photograph | | |
| F. Direct gene transfer methods/Secondary metabolite | | |
| G. Transgenic plant/photograph | | |
| 5. Record | | 5M |
| 6. Viva voce | | 3M |

Evaluation Scheme	Marks
One Major Experiment (Experiment No :)	15
One Minor Experiment (Experiment No :)	10
Slide Preparation, if any	5
Practical Record + Viva Voce	10
Total	40