Academic Council Meeting No. and Date : 03 / February 14, 2022

Agenda Number : 6 Resolution Number : 12 / 5.2

Vidya Prasarak Mandal's
B. N. Bandodkar College of Science (Autonomous), Thane

Certificate Course

in

Techniques in Molecular Biology

(Level 1: Basic)

With effect from

Academic Year 2022-2023

PREAMBLE

The course is aimed at equipping the attendees with basic techniques of molecular biology. The course would be helpful for all the life science faculties and students. The approach towards designing the course has been to introduce and give hands-on experience of not only vital basic techniques like electrophoresis and PCR, but also to explore basic online tools with respect to molecular biology. The course will help to fine tune the techniques in accordance with practical know-hows.

Course Objectives:

- To construct a foundation of principle techniques in molecular biology in the minds of learners To make the students understand the basics of nucleic acids and how their characteristics are exploited in various techniques.

Course outcomes:

1. Knowing the critical intricacies required for various stock solution preparation.

2. Experimental command on genomic DNA, plasmid DNA extraction procedures and practical grip on agarose gel electrophoresis.

4. Having knowledge about basic PCR working, restriction enzyme digestion.

5. Unfolding basic dry lab techniques with respect to molecular biology techniques.

VPM's B.N.Bandodkar College of Science (Autonomous), Thane

Structure of Programme

CourseCode	Course Title	No. of lectures	Credits
BNBCCMB1T1	Techniques in Molecular Biology	**21**	**3**
BNBCCMB1P1	Practical	**24**	

Syllabus of

Course: Techniques in Molecular Biology (Level 1: Basic)

Course Code BNBCCMB1T1	Course Title Techniques in Molecular Biology	Credits 2	No. of lectures	Practical Duration
Unit I	Basics of nucleic acids		1	-
	Preparation of stock solutions: Tris buffers, EDTA, Tris equilibriated phenol		1	3
	Genomic DNA extraction from *E. coli*		3	4
	Plasmid DNA extraction		3	4
Unit II	Agarose gel electrophoresis		3	3
	Basics of PCR		3	4
Unit III	Restriction enzyme digestion		2	2
	Use of online tools in molecular biology techniques		1	4
Assignment	Assignment 1 and 2		4	-
	Total		**21**	**24**

Evaluation Scheme

THEORY EXAMINATION:
Suggested Format of Question paper
Duration: 2.5 hours **Total**
Marks: 60 All questions are compulsory

Q. 1	Based on Unit I	15
Q. 2	Based on Unit II	15
Q. 3	Based on Unit III	15
Q. 4	Based on all Units	15

Each question may have following subquestions

Short answer question	7/8 Marks
Short note questions	5 Marks
Objectives	1 Mark

INTERNAL ASSIGNMENTS have to be submitted in the soft copy/ hard copy format in the department

Total number of assignments: 02 each carrying 20 marks; Total marks: 40

PRACTICAL EXAMINATION: 50 marks (One major technique would be assessed)

Total of Internal Assignments	**40 Marks**
Total of Theory Examination	**60 Marks**
Total of Practical Examination	**50 Marks**
Grand Total	**150 Marks**

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