

K. J. SOMAIYA COLLEGE OF SCIENCE AND COMMERCE , AUTONOMOUS

Diploma in *in vitro* propagation and processing of medicinal plants

Course Details

**Department of Botany
2019-2020**

This document contains the structure of course, details of syllabus and evaluation pattern.

Course Details

- ❖ **Course type** : Diploma
- ❖ **Course Title** : Diploma in *in vitro* propagation and processing of medicinal plants
- ❖ **Preamble** : The syllabus will be effective from academic year 2018-19. Autonomy has given us the opportunity to frame the syllabus with a blend of Classical and Applied Botany which will open an array of opportunities in Higher Studies. Autonomy also helped to develop the Entrepreneurship skill, Research and Consultancy. The content reflects the current advances in tissue culture and various plants which are aromatic and medicinally important will be taken into account while teaching learning process. The course contains new practical exercises so that the students get the hands on experiences on the latest techniques that are currently in use. To develop scientific attitude to make students critical and curious.

- ❖ **Objectives of course :**

1. Basic understanding of concepts and principles related to applied science.
2. Knowledge of various materials used in biochemical processes, properties and specifications.
3. Learners will be trained hands-on for techniques of tissue culture.
4. Learner would develop entrepreneurial skills.

- ❖ **Learning Outcomes :**

1. Conservation of natural flora.
2. Generate employment
3. Need based modifications in the propagation and processing is possible
4. Revival of Ayurveda concepts

- ❖ **Intake Capacity** : 15

- ❖ **Duration** : 1 Year

- ❖ **Course Coordinator** : Name : Dr. Ketan Thatte
Email: ketan.thatte@somaiya.edu

❖ **Career opportunities:**

- ❖ Learner would work as expertise in tissue culture laboratories.
- ❖ It would also join as junior or senior research fellow on various projects funded by various government authorities.
- ❖ He/ She can set up own tissue culture laboratory and become self-entrepreneur.
- ❖ Collaborative research projects can be undertaken in own laboratories.
- ❖ Farmers can be provided with seedlings produced by micropropagation technique.

❖ **Syllabus :**

Paper /Module I: Basic Concepts in Chemistry			
	Content	No of Lectures	Credits
1	Mathematical calculations on solution preparation	3	1
2	Nature of chemical bonds	2	1
3	Adsorption and colloids	4	1
4	Ionic Equilibrium	3	1
Paper/Module II: Basic Concepts in Biology			
	Content	No of Lectures	Credits
1	Anatomy and Physiology of plants	4	1
2	Plant Tissue Culture and Economic Importance	4	1
3	Laboratory Organization	2	1
4	Plant metabolism and Nutritional requirement (media formulation)	2	1
Paper /Module III: Techniques of Plant Tissue Culture			
	Content	No of Lectures	Credits

1	Organogenesis and Organ Culture	4	1
2	Somatic Embryogenesis	3	1
3	Suspension Culture	3	1
4	Green House Technology	2	1
	Paper /Module IV: Applied branch of plant tissue culture		
	Content	No of Lectures	Credits
1	Concept of Secondary metabolites	1	1
2	Production, estimation and purification of secondary metabolites	3	1
3	Ayurveda- concept, Principles and formulations	4	1
4	Herbal Cosmetics	4	1

❖ **Evaluation Pattern** :No Course end examination. Participants will be evaluated continuously during practicals. Rubric will be applicable for continuous assessment.

❖ **Reference Books** :

- ❖ **Kalyan Kumar De** Plant tissue culture- laboratory manual
- ❖ **Razdan** Plant Tissue Culture
- ❖ **K G Ramawat** Plant Biotechnology
- ❖ **B D Singh** Biotechnology
- ❖ **Research papers from reputed peer reviewed journals.**