

Course Code	Course Name	L	T	P	C
VAP	ALGAL TECHNOLOGY AND APPLICATIONS				2

### 1. Preamble

This course enables the students to

- Know about different types of algae and their diversification.
- Know about cultivation of micro and macro algae.
- Learn the application of algae in various biotechnological perspectives

### 2. Course Outcomes

After successful completion of the course,

CO.No.	Course Outcome	Knowledge Level
CO1	Explain the basics of algae, their importance, classification and diversity.	K2
CO2	Describe the algal characteristic features and their isolation.	K2
CO3	Summarize the micro algal cultivation methods and biomass production.	K2
CO4	Identify the macro algal distribution and biomass collections.	K3
CO5	Apply the algal systems in biotechnological product development.	K3

### 3. Course Syllabus

**Total: 30 Hours**


- UNIT I INTRODUCTION TO ALGAE 06**  
Algal diversity, seaweed rearing techniques, raft technology, reared seaweed, seaweed morphology and identification, seaweed seed preparation and development methods.
- UNIT II CULTIVATION OF ALGAE 06**  
Brown and red algae, hydrocolloids from seaweed, alginate extraction from brown algae, application of alginates, agar extraction from red algae and its application, down stream methods in hydrocolloid extraction. Hands-on session: Extraction of alginates from brown algae, Extraction of agar from red algae.
- UNIT III VALUE ADDITION USING ALGAE 06**  
Need of value addition, value addition of seaweeds, demand based approach on value addition, certification associated with value addition. Hands-on session: Value addition of seaweeds and extracted hydrocolloids.
- UNIT IV COMMERCIALIZATION OF ALGAL PRODUCTS 06**  
Certifications and quality management. Commercialization of value added products. Promotion and marketing strategies. Industrial visit to Fisheries Department at Ramanathapuram and AK Seaweeds Industry.
- UNIT V INDUSTRIAL SCALE UP 06**  
Government subsidies on seaweed farming and value addition, industrial scale up SOPs, seaweed park in Ramanathapuram. Hands-on session: Commercialization of value added products.


#### TEXT BOOKS:

1. Konur Ozcan, *Handbook of Algal Science, Technology and Medicine*, Academic Press, 2020.
2. Muthuarumugam Nagaraj, Shanmugam Kathiresan, S., *Applied Algal Biotechnology*, Nova Science Publishers, 2021.
3. Chojnacka Katarzyna, et al., *Algae Biomass: Characteristics and Applications: Towards algae-based products*, Vol. 8, Springer, 2018.

#### REFERENCES:

1. Becker, E. Wolfgang, *Microalgae: Biotechnology and Microbiology*, Vol. 10, Cambridge University Press, 1994.
2. Jayabalan Sangeetha, Devarajan Thangadurai, Sanyasi Elumalai and Shivasarana Chandrbanda Thimmappa, *Phycobiotechnology Biodiversity and Biotechnology of Algae and Algal Products for Food, Feed and Fuel*, CRC Press, 2021.
3. Trivedi, P.C., *Algal Biotechnology*, Pointer publishers, Jaipur, India, 2001

  
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