



# AMITY UNIVERSITY

— UTTAR PRADESH —

L	T	P/S	SW/ FW	TOTAL CREDIT UNITS
4	-	-	-	04

**Course Title: ADVANCED FOOD SCIENCE**

**Course Code:**

**Credit Units: 04**

**Course Objectives:**

To enable students to have in-depth knowledge of the major components of food, their proportions, functionality as well as role in sensory properties. To impart in depth knowledge of the novel food processing techniques and analytical equipments.

**Pre-requisites:**

Fundamental understanding and knowledge of food composition.

**Student Learning Outcomes:**

On completion of the course the student will be able to:

1. Understand the chemistry underlying the properties and interactions between various food components.
2. To provide the overview of sensory evaluation techniques and their applications.
3. Understand the applications of functional and nutraceutical properties of various food components in the development of new products.

**Pedagogy for Course Delivery:**

The course pedagogy will include lectures, discussion on applications of the topics covered.

**Course Contents/Syllabus:**

	Weightage (%)
<b>Module I: Novel techniques in Food Science</b>	20%
Dielectric heating, Ohmic heating, Infrared heating, Pulsed electric field, High pressure processing, hurdle technology, Irradiation	
<b>Module II: Water, Vitamins and Minerals</b>	20%

<ul style="list-style-type: none"> <li>• Water activity, reaction rates and storage life of food.</li> <li>• Interactions of water with food components.</li> <li>• Functional properties of vitamin and minerals and interaction in food matrix.</li> </ul>	
<b>Module III Sugars and polysaccharides - physiochemical properties and functional properties</b>	<b>20%</b>
<ul style="list-style-type: none"> <li>• The functional role of sugars in foods</li> <li>• Artificial and natural sweeteners</li> <li>• Food polysaccharides and their applications</li> <li>• Characteristics and functional properties of native and modified starches, uses of modified starches in food and confectionary industries</li> <li>• Sugar substitutes</li> <li>• Food Hydrocolloids.</li> </ul>	
<b>Module IV Proteins - physiochemical properties and functional properties and Fats and Oils</b>	<b>20%</b>
<ul style="list-style-type: none"> <li>• Protein concentrates, isolates and hydrolyates and their applications</li> <li>• Role of enzymes in food industry.</li> <li>• Identification of natural fats and oils</li> <li>• Functional properties of food lipids</li> <li>• Fat substitutes</li> </ul>	
<b>Module V Sensory Science</b>	<b>20%</b>
<ul style="list-style-type: none"> <li>• Principles of sensory evaluation</li> <li>• design of sensory facilities</li> <li>• panel recruitment</li> <li>• difference test, ranking and scaling, descriptive analysis, acceptance and preference testing, consumer field test</li> <li>• sensory evaluation in quality control and evaluation</li> </ul>	

**Assessment/ Examination Scheme:**

	Continuous Assessment/ Internal Assessment				End Examination	Term	Total
	CT	S/V/Q	HA	A			
<b>Theory Assessment</b>	CT	S/V/Q	HA	A	EE		TT
Weightage (%)	10	07	08	05	70		100

*Abbreviations: CT – Class Test, S- Seminar, V- Viva, Q- Quiz, HA- Home Assignment, TT- Total Theory*

**Text & References:**

- Paul, P.c. and Palmer, H.H., Food Theory and applications, John Wiley and Sons, New York, 992.
- Srilakshmi, B., "Food Science", New Age International Private Ltd., New Delhi, 203.
- Charley, H and Weanee, C.M. — Foods — A scientific Approach, Turd Edition, Practice Hall, 1995. A guide for Primary School Teachers, WHO, Geneva
- Swaminathan, M –Food science chemistry and experimental foods –Bappco Publishers
- Manay, S.M and Shadaksharaswamy –Food, facts and Principles, Wiley Eastern Ltd, 1987
- Norman. N. Potter –Food Science, CBS Publishers
- Fennema, OR. Principles of Food Science – Part I Food Chemistry. Mercel Dekker, New York, USA
- Meyer, LH. Food Chemistry
- Mody, N.I. Experimental food chemistry, Avi publishing company, INC, Westport, connetional.
- Sathe, A.V.(1999) A first course in food analysis, New age International (p)
- A manual of laboratory techinques, National Institute of Nutrition. 1983.
- Sethi M, Rao, E S., Food Science Experiments and applications ,Second edition, CBS Publishers & Distributors Pvt. Ltd, 2011