

**RIMT UNIVERSITY, MANDI GOBINDGARH
PUNJAB**



RIMT

UNIVERSITY

**Pattern of Course Work & Detailed Syllabus
For
Ph.D (Food Science and Technology)**

Syllabi Applicable For Admissions in 2018 Onwards

Pattern of Course Work for Ph.D Programme(Food Science & Technology)

Name of Course		Contact Hours/Week			Credit	Evaluation Scheme (% of Total Marks)					Exam Duration (Hours)
Code	Title	L	T	P		CWA	LWA	MTE	ETE	Total	
PHDRM 1101	Research Methodology & Statistical Technique	5	0	0	5	16	---	24	60	100	
PHDCA 1102	Computer Applications in Research	3	0	0	3	16	---	24	60	100	
PHD 1103 A	Food Science & Technology	5	0	0	5	16	---	24	60	100	3
PHD 1104	Mini Project/Term Paper	-	-	-	2	---	---	---	100	100	
Total											

*This course is to be suggested by guide/supervisor in specific domain area of research undertaken by the research candidate. Concerned Department/Faculty will provide a list of core subjects offered by the department. The candidate will select any one from them.

Note: 1. Research Methodology is common to all faculties except faculty of languages (Punjabi, Hindi, English, History)

2. Computer Application is common to all faculties

L	T	P	CWA	LWA	MTE	ETE
Lecture	Tutorial	Practical	Class Work Assessment	Lab Work Assessment	Mid Term Exam	End Term Exam

SUBJECT TITLE: Food Science & Technology

SUBJECT CODE: PHD 1103 A

SEMESTER: I

CONTACT HOURS/WEEK:

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
5	0	0	5

Internal Assessment: 40

End Term Exam: 60

Duration of Exam; 3 Hrs

Instruction to Question Paper setter: The question paper will comprise 12 multiple choice questions, each of one mark; six short answer type questions, each of four marks and three explanatory questions each of eight marks.

Objective and outcome of course: The course entails make the student well verse will the food science and technology aspect

Contents of Syllabus:

Food Chemistry: Definition and importance; major food constituents and their Physico- chemical properties; role of water in food. Carbohydrates, proteins, lipids, vitamins and minerals: classification, physical, chemical, nutritional, and functional properties and their structural correlations; auto-oxidation of lipids and rancidity. **Food Processing & Preservation:** Physico-chemical properties of Foods, Nutritive aspects of food constituents and effect of processing on them, colours in food & their affect in food processing. Flavors in food , Food additives . Preservation Techniques (Heating, Cooling, Dehydration, Irradiation, Microwave heating & Fermentation). Food Flavors, Application of natural & synthetics flavors & colours, latest trend in the concept of Functional foods, their role in designer foods, nutraceuticals, phytochemicals, antioxidants, genetically modified foods.**Food Spoilage:** Causes of food spoilage. Microorganism in food (mold, yeast, bacteria): primary sources, morphology, cultural characteristics and biochemical activities, of microorganism, factors affecting growth & survival of microorganism in food, physical & chemical means to control microorganism, contamination & spoilage of foods (cereals, sugar, vegetables & fruits, meat, fish, eggs, milk).**Food Analysis:** Chromatographic techniques: Paper, TLC, GC, HPLC, Separation techniques: Gel filtration, dialysis, electrophoresis, ultra filtration and centrifugation, isotopic techniques. Immunoassay techniques; Isotopic, non-isotopic and enzyme immunoassays; thermal methods in food analysis (bomb calorimeter), colour and texture measurement techniques. **Quality Control & Evaluation:** Quality attributes- Physical, Chemical, Nutritional, Microbial & Sensory; Their measurements & evaluation, sensory Vis-avis instrumental methods for testing quality, Governmental Regulation of Food and nutrition labeling, various organizations dealing with inspection , traceability, authentication, certification & quality assurance(PFA, FPO, MPO, AGMARK, BIS etc)

Recommended Books:

- Lal G. Sidappa, C.E. Tandon ,2005. *Preservation of Fruits & Vegetables*.
- .Jay JM, Loessner MJ & Golden DA. 2005. *Modern Food Microbiology*. 7th Ed. Springer.
- Leo ML. 2004. *Handbook of Food Analysis*. 2nd Ed. Vols. I-III.
- Early R.1995.*Guide to Quality Management Systems for Food Industries*. Blackie Academic.