

**MANGALORE UNIVERSITY**  
**DEPARTMENT OF BIOSCIENCES**  
**Syllabus and Scheme for two-year (Four semesters)**  
**M.Sc. in Food Science and Nutrition**  
**Choice-based Credit System (CBCS)**

**Preamble:**

As per guidelines of the UGC and Higher Education Council, Government of Karnataka, the Board of Studies in Food Science and Nutrition, Mangalore University framed a new syllabus according to the regulations governing the Choice-based Credit System for the two-year (four semesters) M.Sc. Degree Programmes in 2016. The syllabus has now been revised.

The M.Sc. programme in Food Science and Nutrition under CBCS scheme has a total of 92 credits consisting of *Hard core courses* for 54 credits (58%) and *Soft core courses* with choice for 28 credits (30%) and *Open elective courses* with choice for a total of 6 credits.

**Program Outcome:**

**PO 1 Interdisciplinary Program:** Food Science and Nutrition is an interdisciplinary programme imparting knowledge of food science and nutrition, dietetics, food microbiology, food biochemistry, food preservation and processing, human physiology, and their role in relation to food and health.

**PO 2. In-depth Understanding:** It also provides an in-depth understanding of the correlation between food and health, role of food under specific disease conditions and applications of food science in food processing industries.

**PO3: Hands-on skills and soft skills training:** Students are provided hands-on skill training through laboratory exercises and are enabled to prepare and deliver effective presentations of technical information to food science and nutrition professionals and to the general public.

**Program Specific Outcomes:**

PSO 1 Apply analytical principles of food and nutrients in diet formulation.

PSO 2 Develop comprehensive and analytical skills to work as trained human resource in food industries and health sectors

PSO 3 Gain insight in public health nutrition for employment food as safety officers, Government sectors like FCI, FSSAI etc.

PSO 4 Apply knowledge in the field of personalized nutrition with reference to nutrigenetics and nutrigenomics

PSO 5 Comprehend methods of assessing human nutritional requirements, nutritional assessment and diet planning.

PSO 6 Understand the applications of nutritional sciences in clinical interventions, communication for health promotion,

PSO 7 Acquire skills to work in R&D units of food processing, food products, nutraceuticals and undertake systematic research in the area of food science and nutrition.

PSO 8 Devise research strategies for empowering and promoting healthy living in the community.

PSO 9 Acquire entrepreneurial skills in the field of food science, processed foods and nutrition.

## FIRST SEMESTER

Course Code	Course Title	Teaching Hrs/weeks	Exam Hrs.	Marks		Total	Credits
				IA*	Exam		
<b>HARD CORE COURSES – THEORY</b>							
FNH 401	Food Science	4	3	30	70	<b>100</b>	4
FNH 402	Principles of Nutrition	4	3	30	70	<b>100</b>	4
FNH 403	Human Physiology	4	3	30	70	<b>100</b>	4
<b>SOFT CORE COURSES- THEORY (CHOOSE ANY ONE)</b>							
FNS 404	Nutritional Biochemistry	3	3	30	70	<b>100</b>	3
FNS 405	Food Microbiology						
<b>PRACTICALS</b>							
FNP 406	Food Science	4	3	15	35	<b>50</b>	2
FNP 407	Principles of Nutrition	4	3	15	35	<b>50</b>	2
FNP 408	Human Physiology	4	3	15	35	<b>50</b>	2
FNP 409	Nutritional Biochemistry	4	3	15	35	<b>50</b>	2
FNP 410	Food Microbiology						
Total						<b>600</b>	<b>23</b>

## SECOND SEMESTER

Course Code	Course Title	Teaching Hrs/weeks	Exam Hrs.	Marks		Total	Credits
				IA*	Exam		
<b>HARD CORE COURSES – THEORY</b>							
FNH 451	Vitamins in Human Nutrition	4	3	30	70	<b>100</b>	4
FNH 452	Minerals in Human Nutrition	4	3	30	70	<b>100</b>	4
<b>SOFT CORE COURSES - THEORY (CHOOSE ANY TWO)</b>							
FNS 453	Life Span Nutrition	3	3	30	70	<b>100</b>	3
FNS 454	Analytical Techniques in Food Science						
FNS 455	Food Packaging	3	3	30	70	<b>100</b>	3
FNS 456	Food Safety and Quality Control						
<b>PRACTICALS</b>							
FNP 457	Vitamins in Human Nutrition	4	3	15	35	<b>50</b>	2
FNP 458	Minerals in Human Nutrition	4	3	15	35	<b>50</b>	2
FNP 459	Life Span Nutrition	4	3	15	35	<b>50</b>	2
FNP 460	Analytical Techniques in Food Science						
FNP 461	Food Packaging	4	3	15	35	<b>50</b>	2
FNP 462	Food Safety and Quality Control						
<b>OPEN ELECTIVES (CHOOSE ANY ONE)</b>							
FNE 463	Food Safety	3	3	30	70	<b>100</b>	3
FNE 464	Food Preservation						
Total						<b>700</b>	<b>25</b>

### THIRD SEMESTER

Course Code	Course Title	Teaching Hrs/week	Exam Hrs.	Marks		Total	Credits
				IA*	Exam		
<b>HARD CORE COURSES –THEORY</b>							
FNH 501	Clinical Nutrition and Dietetics – I	4	3	30	70	<b>100</b>	4
FNH 502	Community Nutrition and Statistics	4	3	30	70	<b>100</b>	4
<b>SOFT CORE COURSES - THEORY (CHOOSE ANY TWO)</b>							
FNS 503	Recent trends in Food Technology	3	3	30	70	<b>100</b>	3
FNS 504	Principles of Food Processing						
FNS 505	Post Harvest Technology	3	3	30	70	<b>100</b>	3
FNS 506	Functional Foods						
<b>PRACTICALS</b>							
FNP 507	Clinical Nutrition and Dietetics – I	4	3	15	35	<b>50</b>	2
FNP 508	Community Nutrition and Statistics	4	3	15	35	<b>50</b>	2
FNP 509	Recent Trends in Food Technology	4	3	15	35	<b>50</b>	2
FNP 510	Principles of Food Processing	4	3	15	35	<b>50</b>	2
FNP 511	Post Harvest Technology						
FNP 512	Functional Foods						
<b>OPEN ELECTIVES (CHOOSE ANY ONE)</b>							
FNE 513	Nutrition for Health	3	3	30	70	<b>100</b>	3
FNE 514	Diet and Disease						
<b>Total</b>						<b>700</b>	<b>25</b>

### FOURTH SEMESTER

Course Code	Course Title	Teaching Hrs/weeks	Exam Hrs.	Marks		Total	Credits
				IA*	Exam		
<b>HARD CORE COURSES – THEORY</b>							
FNH 551	Clinical Nutrition and Dietetics – II	4	3	30	70	<b>100</b>	4
FNH 552	Food Preservation	4	3	30	70	<b>100</b>	4
<b>SOFT CORE COURSES - THEORY (CHOOSE ANY ONE)</b>							
FNS 553	Food Fortification	3	3	30	70	<b>100</b>	3
FNS 554	Sports Nutrition						
<b>PRACTICALS</b>							
FNP 555	Clinical Nutrition and Dietetics – II	4	3	15	35	<b>50</b>	2
FNP 556	Food Preservation	4	3	15	35	<b>50</b>	2
<b>PROJECT WORK / INTERNSHIP</b>							
FNP 557	Project Work / Internship	-	-	30	70	<b>100</b>	<b>4</b>
<b>Total</b>						<b>500</b>	<b>19</b>
<b>Grand Total</b>						<b>2500</b>	<b>92</b>

IA consists of Seminars, Assignments, Internal Tests, Objective test (MCQs)

	HARD CORE COURSES			SOFT CORE COURSES			OPEN ELECTIVES	PROJECT / INTERNSHIP	TOTAL
	No of Courses	Credits	Total	No. of Courses	Credits	Total	Credits	Credits	
I	3Th+3 Pr	4+2	18	1Th+1 Pr	3+2	5	-	-	23
II	2Th+2 Pr	4+2	12	2Th+2 Pr	3+2	10	3	-	25
III	2Th+2 Pr	4+2	12	1Th+1 Pr	3+2	10	3	-	25
IV	2Th+2 Pr	4+2	12	1Th	3	3		4	19
<b>Total</b>			<b>54=58%</b>			<b>28=30%</b>	<b>6</b>	<b>4</b>	<b>92</b>

**NOTE:**

**INTERNAL ASSESSMENT:** Marks in theory courses shall be awarded on the basis of theory test (70 Marks), Objective test (MCQs)(15 Marks), Seminars and Assignments (15 Marks). The marks obtained shall be reduced to 30. The tests will be conducted as per the university time schedule. Practical Internal Assessment marks shall be based on practical test and records. 30 marks for Practical test and 5 marks for Class record. The marks obtained shall be reduced to 15. 30 marks for Project / Internship work (Report/Dissertation and Presentation/Viva).

**THEORY QUESTION PAPER PATTERN:** Question Papers in all the four semesters consists of three sections (Model question paper enclosed). Section I: Write short notes (5x2=10 Marks) Section II: Write explanatory/brief notes on any Four out of Six: (4x5=20 Marks). Section III: Answer any Four out of Six (4x10=40 Marks). Questions should be drawn from all the units of the syllabus by giving equal weightage.

**PRACTICAL QUESTION PAPER PATTERN:** 30 marks for practical examination proper (Major experiment (10 marks), Minor experiments (05+05 marks), Identify and Comment (5x2=10 marks) and Class record (05 marks). The Project work may be conducted either in the department or any other Institution or in an Industry. Project/Internship Report/Dissertation carries 70 marks and evaluated as per regulations.