



**MGM UNIVERSITY, AURANGABAD INSTITUTE OF BIOSCIENCES
AND TECHNOLOGY**

CHOICE-BASED CREDIT SYSTEM (CBCS) SEMESTER PATTERN

Faculty of Basic and Applied Sciences Graduate (UG) Program

Food Nutrition and Dietetics-CURRICULUM

W.e.f .Academic Year2023-24

**B.Sc., B.Sc. (Hons.), B.Sc. (Hons.) with Research of Food Nutrition and
Dietetics**

SEMESTER (I, II)

**Prepared By
Mrs. D. A. Thoke**

**Submitted By
Dr. S. V. Maske**

**Approved By
Board of Studies**

Food Nutrition and Dietetics - CURRICULUM

AcademicYear2023-24

B.Sc., B.Sc. (Hons.), B.Sc. .(Hons.) with Research Food Nutrition and

Dietetics

FIRST YEAR

SEMESTER I

Level		First Year (Semester II)																					
4.5	Course	Course code	Course Title	Type	Teaching period per week			Credit	Duration of exam	Evaluation Scheme								Minimum Passing					
					L	T	P			Internal				External				Total	Internal		External		Total
										CA-I	MSE	CA-II	TW	ESE	PR	CA/MSE/TW	ESE		PR				
Core	BNMML108	Principles of Human Nutrition-II	Theory	2			2		10	10	10	-		20	-	50		08		20			
Core	BNMML109	Human Anatomy & Physiology-II	Theory	3		-	3		20	20	20	-		40	-	100		16		40			
MIN	BNMIL110	Annexure I	Theory	2		-	2		10	10	10	-		20	-	50		08		20			
AEC		Communicative English II	Theory	2	-	-	2		10	10	10	-		20	-	50		08		20			
OE**	BNOEL111	Open Elective I	Theory	2		-	2		10	10	10	-		20	-	50		08		20			
OE	BNOEL112	Open Elective II	Theory	2		-	2		10	10	10	-		20	-	50		08		20			
VSC*	BNVSP113	Nutrition Lab-II	Practical			4	2					30		20	50			8		20			
SEC*	BNSEP114	Techniques In Dietetics and Nutritional Research	Practical			4	2					30		20	50			8		20			
VEC		Annexure I	Theory	2	-	-	2		10	10	10	-		20	-	50		08		20			
Core	BNMMP115	Key Skills for Nutrition and Dietetics II	Practical	-	-	2	1			-		30		-	20	50			08	20			
CC		Annexure I	Practical	-	-	4	2			-		30		-	20	50			08	20			
Total (L-T-P) Hrs / week = 29					15		14		22														

*As per the requirement VSC / SEC can be used for Theory or Practical of core subject **As per the requirement, Department/Institute can offer OE practical

Level 4.5 Award of UG certificate with 44 credits and an additional 4-credits core NSQF course / internship OR continue with major and minor

BNMML101

PRINCIPLES OF HUMAN NUTRITION-I

2+0

University: MGM University, Aurangabad **Faculty:** Basic and Applied Science

Institute: Institute of Biosciences and Technology

Degree: Food Nutrition and Dietetics (UG)

Course Unit Code: BNMML101

Course Unit Title: Principles of Human Nutrition-I

Credits allocated: 2+0(2Theory) Level of Study: UG

Mode of delivery, planned learning activities and teaching method: Theory 2hrs/weekly

Recommended Year/Semester: Food Nutrition and Dietetics, Year I/ Semester I

Learning Outcomes: After completing this course students will be able to understand the importance of Nutrition for optimal health

Objectives: To promote awareness and importance about optimal health among students

COURSECONTENTS (Total Lecture – 30)

UNIT I (8 Lecture)

Definition of Food: Nutrition, nutrient, nutritional status, dietetics, balanced diet, Malnutrition, Energy (unit of energy-joule, kilocalorie) **B.M.R:** definition, factors affecting B.M.R and total Energy requirement (calculation of energy of individual)

UNIT II (7 Lecture)

Recommended dietary allowances- principles, determination, requirement, factors affecting RDA, Indian standards of height and weights, reference man and woman, practical applications of RDA, My healthy plate

UNIT III (8 Lecture)

Carbohydrates-Definition, classification, structure and properties, Monosaccharide's-glucose, fructose, galactose, Disaccharides-Maltose, Lactose, sucrose Polysaccharides-Dextrin, starch, glycogen, resistant starch Carbohydrates-sources, daily requirements, functions, Effects of too high and too low carbohydrates on health. Digestion and absorption of carbohydrates

UNIT IV (7 Lecture)

Lipids- Definitions, classification and properties Fatty acid compositions, properties, types. Lipids sources, daily requirements, functions, digestion and absorption of nutrients, Role and nutritional significances of PUFA, MUFA, SFA, OMEGA-3 and OMEGA-6 fatty acids

Text Book:

Sr. No.	Name of Book	Publisher
1	Food Science by B. Shrilakshmi	New age International Publishers
2	Fundamentals of Foods, Nutrition and Diet Therapy	New age International Publishers

University: MGM University, Aurangabad **Faculty:** Basic and Applied Science

Institute: Institute of Biosciences and Technology **Degree:** Food Nutrition and Dietetics (UG)

Course Unit Code: BNMML102

Course Unit Title: Human Anatomy & Physiology-I

Credits allocated: 3+0 (3Theory) **Level of Study:** UG

Mode of delivery, planned learning activities and teaching method: Theory 3hrs/weekly

Recommended Year/Semester: Food Nutrition and Dietetics, Year I/ Semester I

Learning Outcomes: After completing this course students will be able to understand about Human Anatomy & Physiology

Objectives: To promote awareness and importance about Human Anatomy & Physiology among students

COURSE CONTENTS (Total Lecture – 45)

UNIT I (9 Lecture)

Unit of life - Structure and functions of cell with reference to Plasma membrane (Fluid Mosaic Model), Mitochondria, Ribosomes, Endoplasmic reticulum, Nucleus (Nuclear membrane, nuclear chromatin and nucleolus), nucleotide, Homeostasis, positive and negative feedback mechanism.

The Skeleton–General account, Definition, classification, Gross Structure, Blood Supply, Medico legal and Anthropological Aspects, Cartilage and Applied Anatomy.

UNIT II (9 Lecture)

The Muscular System–General Account Types of muscles, characteristics of each, Similarities and Differences, structure of Skeletal Muscles, composition of muscles, Neuromuscular Junction- Definition, structure, transmission, Neuromuscular Blockers, Drugs stimulating Neuromuscular Junction, Motor Unit, Applied Physiology: Disorders of Neuromuscular Junction

UNIT III (10 Lecture)

Blood and Circulatory System – Blood and its composition, Functions of each constituent of blood, RBC- Definition, Structure, Properties, Lifespan, Fate, Functions and Pathological Variations, Erythropoiesis- Definition, sites, Process, Changes during Erythropoiesis, Stages of Erythropoiesis, Factors necessary for erythropoiesis (Stimulating, Maturation and Hb formation), ESR, PCV, Blood indices and Anaemia, WBC (Classification, Morphology, normal count, Lifespan, properties, functions, Leukopoiesis and Applied Physiology) Platelets, Clotting Factors and Coagulation of blood, Blood groups and Blood transfusion and its importance and Precautions.

UNIT IV (10 Lecture)

Cardiovascular System -Over view of Cardiovascular System (Structure and functions of heart), Cardiac Output (Definition and Normal Values, Stroke Volume, Minute volume, Cardiac Index, Ejection Fraction, Cardiac Reserve, Physiological and Pathological Variations, Factors Maintaining Cardiac Output), Heart rate- Normal Heart Rate, Tachycardia, Bradycardia, Regulation of Heart Rate, Blood pressure-

Definition and Normal Values, Variations, Renal, Hormonal and Local Mechanism for Regulation of Arterial Blood Pressure, Measurement of Arterial Blood Pressure and its Applied Physiology, Haemorrhage, Circulatory shock, and Heart Failure, Cardiovascular Adjustments during Exercise.

UNIT V (7 Lecture)

Lymphatic System – Lymph, Lymph glands and functions, Spleen – Structure and Functions Reticule endothelial system, Tissue Macrophage and Spleen, Tissue Fluid and Edema, Their Applied Physiology. Respiratory System – Organs, Structure and Functions, Mechanism of Respiration, Chemical Respiration.

Text Book:

Sr. No.	Name of Book	Publisher
1	Human Physiology vol 1	CBS Publishers
2	Human Physiology vol 2	CBS Publishers
3	Essentials of medical physiology	Jaypee Publishers

BNVSP105

Nutrition Lab-I

(0+2)

University: MGM University, Aurangabad **Faculty:** Basic and Applied Science

Institute: Institute of Biosciences and Technology **Degree:** Food Nutrition and Dietetics (UG)

Course unit code: BNVSP105

Course Unit Title: Nutrition Lab-I

Credits allocated: 0+2(4 Practical) **Level of Study:** UG

Mode of delivery, planned learning activities and teaching method: 4 Practical's/weekly

Recommended Year/ Semester: Food Nutrition and Dietetics, Year I/ Semester I

Prerequisites for registration: Registration of a student in various courses in consultation with the respective course teacher and Adviser and acceptance by the principal. The approved courses must be mentioned in the roster form.

Learning Outcomes:

Students will gain the knowledge about new techniques also they will invent new ideas. They can handle all the equipment which are in laboratory.

Objective:

While doing Lab students will understand new techniques.

COURSE CONTENTS

Synopsis, Lab work, Thesis Writing, Presentation

Ideas of Lab:

Defining Lab ideas is crucial for setting realistic expectations and laying out a clear vision for a Lab life cycle. Lab-based learning not only provides opportunities for students to collaborate or drive their own learning, but it also teaches them skills such as problem solving, and helps to develop additional skills integral to their future, such as critical thinking and time management.

Literature survey:

A literature review establishes familiarity with and understanding of current research in a particular field before carrying out a new investigation. Conducting a literature review should enable you to find out what research has already been done and identify what is unknown within your topic.

Performance:

Performance measurement during a Lab is to know how things are going so that we can have early warning of problems that might get in the way of achieving Lab objectives and so that we can manage expectations. The criteria of it as given below.

1. Implementation:

Follows closely the design, uses appropriate techniques with skill and understanding to produce a good solution.

2. Evaluation:

Clearly relates to the problem. Shows a good understanding and appreciation of the solution. Objectives of what has been done.

3. Lab Log:

- a. The individual student's effort and commitment.
- b. The quality of the work produced by the individual student.
- c. The student's integration and co-operation with the rest of the group.
- d. The completeness of the logbook & time to time signature of guide

Objective: To elaborate the procedure for Guiding Student Labs

Responsibility:

- All the Lab Guide.
- All Semester B.Sc. students
- Lab Heads

BNSEP106 PRACTICAL TECHNIQUES IN HUMAN NUTRITION 0+2

University: MGM University, Aurangabad **Faculty:** Basic and Applied Science

Institute: Institute of Biosciences and Tech. **Degree:** Food Nutrition and Dietetics (UG)

Course Unit Code: BNSEP106

Course Unit Title: Practical Techniques in Human Nutrition

Credits allocated: 0+2 (Practical) **Level of Study:** UG

Mode of delivery, planned learning activities and teaching method: 4 Practical's/weekly

Recommended Year /Semester: Food Nutrition and Dietetics, Year I/ Semester I

Learning Outcomes: Upon successful completion, students will have the practical knowledge and skills about Human Physiology, CBC etc

Objective: To familiarize the students with basic techniques in human nutrition

Practical:

1. Estimation of RBC count by hemocyte meter.(3hours)
2. Estimation of hemoglobin in mammalian blood using Sahli's Haemometer. (3hours)
3. Estimation of bleeding and clotting time and blood groups. (4hours)
4. Determination of blood pressure by Sphygmomanometer
5. (Auscultatory method) Its variation with exercise. (1Hour)
6. Measurement of Body temperature. (1Hour)
7. Demonstration/EstimationRespiratoryquotient,InspirationandExpiration.(3Hour)
8. Demonstration&identifyingdifferentorgansandskeletalsysteminhumanbody.(5hour)

BNMMP107 KEY SKILLS FOR NUTRITION AND DIETETICS- I 0+1

University: MGM University, Aurangabad **Faculty:** Basic and Applied
Science

Institute: Institute of Biosciences and Tech.

Degree: Food Nutrition and Dietetics (UG)

Course Unit Code: BNMMP107

Course Unit Title: Key Skills for Nutrition and Dietetics-I

Credits allocated: 0+1(Practical) **Level of Study:** UG

Mode of delivery, planned learning activities and teaching method: 2 Practical/weekly

Recommended Year/Semester: Food Nutrition and Dietetics, Year I /Semester I

Learning Outcomes: Upon successful completion, students will have the practical knowledge and skills for Biochemistry subject.

Objective: To familiarize the students with basic key skills for nutrition and dietetics

Practical:

1. Laboratory conduct and responsibilities; knowledge of different food stuffs in English, Hindi and local language
2. Terms used in cookery, weights and measures; identification and use of different kitchen items and equipment.
3. Identification and listing of various food groups (Food Guide Pyramid). Preparation of food from different food groups and their significance in relation to health.
4. Market survey of processed, preserved foods, Packaged and organic foods available in the market and critically evaluate the labeling on the Food Product
5. Planning and preparation flow-costdiets (Atleast5recipesandcalculatethecostofeachrecipe.
6. To prepare recipes as per different food preparation like boiling, roasting, frying, sautéing and baking.

BNMML108

PRINCIPLES OF HUMAN NUTRITION-II

2+0

University: MGM University, Aurangabad **Faculty:** Basic and Applied Science

Institute: Institute of Biosciences and Technology

Degree: Food Nutrition and Dietetics (UG) **Course Unit Code:** BNMML108

Course Unit Title: Principles of Human Nutrition-II

Credits allocated: 2+0 (2Theory) **Level of Study:** UG

Mode of delivery, planned learning activities and teaching method: Theory 2hrs/weekly

Recommended Year/Semester: Food Nutrition and Dietetics, Year I/ Semester II

Learning Outcomes: Upon successful completion, students will have the knowledge about principles of human nutrition.

Objective: To familiarizer the students with basic key skills for nutrition.

COURSECONTENTS (Total Lecture – 30)

UNIT I (10 Lecture)

Proteins – definitions, classifications, structure and properties. Amino acids- classifications, types, functions, Proteins- sources, daily requirements, functions. Effects of too high or too low proteins on health. Digestion and absorption. Assessment of protein quality (BV, PER,NPU).Factorsaffectingproteinbio-availabilityincludinganti-nutritionalfactors.

UNIT II (5 Lecture)

Dietary fibre-classifications, sources, composition, properties and nutritional significance

UNIT III (10 Lecture)

Minerals and trace elements: Bio-chemical and physiologicalrole, bio-availability and requirements, sources, deficiencies and excess (calcium, sodium, potassium, phosphorus, iron,fluoride,zinc, selenium, iodine, chromium)**Vitamins**- Bio-chemical and physiological role, bio-availability and requirements, sources,deficienciesandexcess

UNIT IV (5 Lecture)

Water–Functions, daily requirements, water balance

Text Book:

Sr. No.	Name of Book	Publisher
1	NutritionandDietetics5 th edition	McGraw Hill
2	Nutritional Guidelines for Sports person	NIN
3	Nutritive value of Indian Foods & Dietary Guidelines for Indians	NIN

BNMML109 HUMAN ANATOMY & PHYSIOLOGY-II**3+0****University:** MGM University, Aurangabad**Faculty:** Basic and Applied Science**Institute:** Institute of Biosciences and Tech.**Degree:** Food Nutrition and Dietetics (UG)**Course Unit Code:** BNMML109**Course Unit Title:** Human Anatomy & Physiology-**II Credits allocated:** 3+0 (3 Theory) **Level of Study:** UG**Mode of delivery, planned learning activities and teaching method:** Theory 3hrs/weekly**Recommended Year/Semester:** Food Nutrition and Dietetics, Year I /Semester II**Learning Outcomes:**

Upon successful completion, students will have the knowledge about functioning of human physiology.

Objective: To familiarize the students with Human anatomy and physiology**COURSE CONTENTS (Total Lecture – 45)****UNIT I (8 Lecture)**

Digestive System – Structure and Functions of Alimentary tract. Functions of various secretions and juices – Saliva, Gastric, Bile, Intestinal, and Pancreatic. Functions of enzyme, digestion. Digestion of nutrients – Proteins, Fats, Carbohydrates. Common problems of Digestive tract – Vomiting, Constipation, Diarrhea

UNIT II (7 Lecture)

Excretory System – Structure and Functions of (a) Kidney (b) Ureter (c) Bladder (d) Skin. Urine -Formation of urine, Composition of normal and abnormal urine. Role of excretory system in homeostasis, fluid balance, Regulation of body temperature

UNIT III (10 Lecture)

Nervous System – Structure of Nerve Cell, Fibre, Classification of Nervous System, Central Nervous System – Brain, Lobes of brain, Cerebrum, Cerebellum, Medulla oblongata, Hypothalamus. Pituitary Gland – structure, Functions, Spinal Cord – structure and functions, Autonomic and Sympathetic nervous system

UNIT IV (10 Lecture)

Reproductive System – Female reproductive system – organs, structure and functions Male reproductive system – structure and functions, Menstruation, menstrual cycle, Puberty, Menarche, Menopause, Fertilization of ovum, Conception, Implantation **Sense Organs** – Eye – structure and function, Ear – structure and function, Skin -structure and function

UNIT V (10 Lecture)

Glands and Endocrine System – Liver – structure and function, Gall Bladder – structure and function, Enterohepatic circulation, Pancreas – structure and function, Endocrine system – Endocrine glands – structure and function. Hormone – types and functions, role in metabolism. Endocrine disorders, Regulation of Hormone Secretion

Text Book:

Sr. No.	Books Name	Publishers
1	HumanPhysiologyVol1	CBS Publishers
2	HumanPhysiologyVol2	CBS Publishers
3	Essentials of Medical physiology	Jaypee

University: MGM University, Aurangabad **Faculty:** Basic and Applied Science

Institute: Institute of Biosciences and Tech.

Degree: Food Nutrition and Dietetics (UG)

Course Unit Code: BNMIL110

Course Unit Title: Personal and Professional Skill for

Nutrition Credits allocated:2+0(Theory) **Level of study:** UG

Mode of delivery, planned learning activities and teaching method: Theory 2 lectures weekly

Recommended Year/Semester: Food Nutrition and Dietetics, Year I/ Semester II

Learning Outcomes: Upon successful completion, students will have the knowledge and skills about professional skills for nutrition

Objective: To familiarizethestudentswithbasicsofpersonalandprofessionalskillfornutrition

COURSE CONTENTS

UNIT I (7 Lecture)

The Dietician- Classification and role of Dietician, Code of ethics, Responsibilities, Assessment and diet planning

UNIT II (7 Lecture)

Anthropometric Cut offs- Calculation of IBW, BMI classifications, Waist – Hip ratio (WHR)and waist circumference, MUAC for ADULT

UNIT III (10 Lecture)

Menu Planning-Explanation of Term, Dietary Goals, Nutrient requirement, Dietary standards, Balanced Diet, Food groups suggested by ICMR, Food Exchange List, Food Composition Database, Principles of Planning Diets, Point to be considered in planning a diet, Steps Involved in planning a diet

UNIT IV (6 Lecture)

Recommended Dietary Allowances- Explain Summary of RDA, Portion size for Menu planning

Text Book:

Sr. No.	Name of Book	Publisher
1	Nutrition and Dietetics 5 th edition	McGraw Hill
2	Nutritional Guidelines for Sports person	NIN
3	Nutritive value of Indian Foods & Dietary Guidelines for Indians	NIN

BNVSP113

NUTRITIONAL LAB-II

0+2

University: MGM University, Aurangabad **Faculty:** Basic and Applied

Science Institute: Institute of Biosciences and Technology

Degree: Food Nutrition and Dietetics (UG)

Course Unit Code: BNVSP113

Course Unit Title: Nutritional Lab-II

Credits allocated: 0+2 (Practical) **Level of Study:** UG

Mode of delivery, planned learning activities and teaching method: 4 Practicals/weekly

Recommended Year/Semester: Food Nutrition and Dietetics, Year I / Semester II

Prerequisites for registration: Registration of a student in various courses in consultation with the respective course teacher and Adviser and acceptance by the principal. The approved courses must be mentioned in the roster form.

Learning Outcomes:

Students will gain the knowledge about new techniques also they will invent new ideas. They can handle all the equipment which are in laboratory.

Objective:

While doing Lab students will understand new techniques.

COURSE CONTENTS

Synopsis, Lab work, Thesis Writing, Presentation

Ideas of Lab:

Defining Lab ideas is crucial for setting realistic expectations and laying out a clear vision for a Lab life cycle. Lab-based learning not only provides opportunities for students to collaborate or drive their own learning, but it also teaches them skills such as problem solving, and helps to develop additional skills integral to their future, such as critical thinking and time management.

Literature survey:

A literature review establishes familiarity with and understanding of current research in a particular field before carrying out a new investigation. Conducting a literature review should enable you to find out what research has already been done and identify what is unknown within your topic.

Performance:

Performance measurement during a Lab is to know how things are going so that we can have early warning of problems that might get in the way of achieving Lab objectives and so that we can manage expectations. The criteria of it as given below.

1. Implementation:

Follows closely the design, uses appropriate techniques with skill and understanding to produce a good solution.

2. Evaluation:

Clearly relates to the problem. Shows a good understanding and appreciation of the solution. Objectives of what has been done.

3. Lab Log:

- a. The individual student's effort and commitment.
- b. The quality of the work produced by the individual student.
- c. The student's integration and co-operation with the rest of the group.
- d. The completeness of the logbook & time to time signature of guide

Objective: To elaborate the procedure for Guiding Student Labs

Responsibility:

- All the Lab Guide.
- All Semester B.Sc. students
- Lab Heads

BNSEP114 TECHNIQUES IN DIETETICS AND NUTRITIONAL RESEARCH 0+2

University: MGM University, Aurangabad

Faculty: Basic and Applied Science

Institute: Institute of Biosciences and Tech.

Degree: Food Nutrition and Dietetics (UG)

Course Unit Code: BNSEP114

Course Unit Title: Techniques in Dietetics and Nutritional Research

Credits allocated: 0+2 (Practical) **Level of Study:** UG

Mode of delivery, planned learning activities and teaching method: 4Practicals/weekly

Recommended Year /Semester: Food Nutrition and Dietetics, Year I/ Semester II

Learning Outcomes: Upon successful completion, students will have the practical knowledge and skills about Human Physiology, CBC etc

Objective: To familiarize the students with basic techniques in dietetics and nutritional research

Practical:

1. Handling of equipment and instruments
2. Qualitative and quantitative tests of carbohydrates-Identification of Mono, Di and polysaccharides
3. Qualitative analysis of amino acids
4. Qualitative analysis of proteins
5. Determination of acid values
6. Saponification and iodine numbers
7. Paper chromatography of amino acids or carbohydrates ascending and descending
8. Estimation of nitrogen by Kjeldhal method
9. Estimation of fat by Soxhlet method
10. Quantitative estimation of Sugars (Glucose, lactose, starch)
11. Estimation of acid value, iodine value, Saponification value of fats
12. Estimation of blood Glucose
13. Estimation of serum cholesterol

BNMMP115 KEY SKILLS FOR NUTRITION AND DIETETICS II 0+1

University: MGM University, Aurangabad **Faculty:** Basic and Applied Science

Institute: Institute of Biosciences and Tech. **Degree:** Food Nutrition and Dietetics (UG)

Course Unit Code: BNMMP115

Course Unit Title: Key Skills for Nutrition and Dietetics II

Credits allocated: 0+1 (Practical) **Level of Study:** UG

Mode of delivery, planned learning activities and teaching method: 2 Practicals/weekly

Recommended Year /Semester: Food Nutrition and Dietetics, Year I/ Semester II

Learning Outcomes: Upon successful completion, students will have the practical knowledge and skills for nutrition and dietetics subject.

Objective: To familiarize the students with basic Dietetics skills

Practical:

1. Introduction of exchange list Discussion on exchange list and food composition table and how to use them in diet planning
2. Introduction to energy requirement and expenditure and factors which influence energy expenditure
3. Calculating the Energy balance
4. Calculating the percent energy supplied by carbohydrate in the diet
5. Survey of high fiber products available in the market
6. Evaluation of protein quality an overview

List of Options to select from Bucket of Courses provided in various categories (Sample of Faculty of Basic and Applied Sciences):

Major
Food Nutrition and Dietetics

Minor options Within Faculty of Basic Sciences	Food Technology and Processing
	Microbiology
	Biotechnology
	Bioinformatics

Minor options from Other Faculty	Faculty of Engineering and Technology	Faculty of Social Sciences and Humanities	Faculty of Design	Faculty of Management and Commerce	Interdisciplinary Faculty	Performing Arts
	Artificial Intelligence (AI)	Journalism and Mass Communication	Product Design	Operations and Supply Management	Cosmetic Technology	Theatre Arts
	Machine Learning (ML)	Film Making	Visual Communication	Human Resource (HR)	Educational Technology	Dance
	Data Analytics	Photography	Contemporary Arts	Finance Management	Yog Sciences	Music
	Robotics	Psychology	Interior Design	Marketing	Physical Education	Painting
	Industrial Automation	Economics	Fashion Technology	Accounting	Library Sciences	Pottery

IKS (As per the UGC guidelines. Visit Link:https://iksindia.org/English-BGSamposhan-Kendram-1-updated.pdf) ***	Faculty of	AEC (to be discussed and developed by committee of Dean)*		OE(Provide 4-8 courses of your department to be approved by the BOS)	Faculty of
Holistic medicine and wellness	***Courses For reference purpose only	Communicative English	*Courses For reference purpose only	Nutraceutical and Functional foods	Food Technology and Processing
Indian psychology and yoga		Communication and Soft Skills		Human Nutrition	Food Technology and Processing
Indian sports and martial arts		German		Healthy Living and Nutrition	Food Technology and Processing
Architectural engineering, town planning, civil engineering, Vaastu and Shilpa Shastra		French		Food and Diet for Seafarers	Food Technology and Processing
Sustainable agriculture and food preservation methods		Spanish		Introduction to Food Science	Food Technology and Processing

VSEC (Respective departments will prepare the list)	Faculty of	CC(Two courses to be finalized for I & II Semester)***		VEC (to be discussed and developed by committee of Dean) ***
		NSS	***Courses For reference purpose only	Universal Human Values
		Digital Awareness		Gandhian Studies
		Personality Development		Value Education
		Yoga		
		NCC		

Level 1	Second Year (Semester IV)																				
	Course Type	Course code	Course Title	Type	Teaching period per week			Credits	Duration of exam	Evaluation Scheme (Marks)						Minimum Passing (Marks)					
					L	T	P			Internal				External	Total	Internal			External		Total
										CA1	MSE	CA2	TW			ESE	PR	CA	MSE	TW	
Core	BNMML210	Nutrition Diagnosis and intervention	Theor y	2	-	-	2		10	10	10	-	20	-	50				8		20
Core	BNMML211	Principles of nutrition Assessment-II	Theor y	3		-	3		20	20	20	-	40	-	100				16		40
Core	BNMML212	Fundamentals of Food Science-II	Theor y	2	-	-	2		10	10	10	-	20	-	50				8		20
OE	BNOEL213	Annexture I	Theor y	2	-	-	2		10	10	10	-	20	-	50				8		20
MIN	BNMIL214	Annexture I	Theor y	3		-	3		20	20	20	-	40	-	100				16		40
AEC		Annexture I	Theor y	2	-	-	2		10	10	10	-	20	-	50				8		20
SEC	BNSEJ215	Mini Project	Practic al		-	4	2					30		20	50					8	20
MIN	BNMIL216	Annexture I	Theor y		-	2	1		-	-	-	30	-	20	50					8	20
Core	BNMMP217	Dietary Assessment Techniques For Dietician	Practic al	-	-	2	1		-	-	-	30	-	20	50					8	20
CEP	BNCEP218	Clinical Nutrition And Dietetics (Case Study)	Practic al		-	4	2					30	-	20	50					8	20
CC		Annexture I	Practic al		-	4	2		-	-	-	30	-	20	50					8	20
		Total (L-T-P) Hrs / week = 29		15		14	22														

Level 5.0 Award of UG Diploma in major and minor with (44+44)= 88 credits and an additional 4-credits core NSQF course / internship OR continue with major and minor

Level	Third Year (Semester VI)																					
	Course Type	Course code	Course Title	Type	Teaching period per week			Credits	Duration of exam	Evaluation Scheme (Marks)						Minimum Passing (Marks)						
					L	T	P			Internal				External		Total	Internal			External		Total
										CA1	MSE	CA 2	TW	ESE	PR		CA	MSE	TW	ESE	PR	
5.5	Core	BNMML311	Global Issues In Nutrition	Theory	2	-	-	2		10	10	10	-	20	-	50				8		20
	Core	BNMML312	Food Microbiology and toxication-II	Theory	3		-	3		20	20	20	-	40	-	100				16		40
	Core	BNMML313	Medical Nutrition Therapy-II	Theory	3		-	3		20	20	20	-	40	-	100				16		40
	Core elective	BNMEL314	Family Meal Management	Theory	3		-	3		20	20	20	-	40	-	100				16		40
	MIN	BNMIL315	Annixture I	Theory	3		-	3		20	20	20	-	40	-	100				16		40
	OJT	BNJTP316	On Job Training	Practical		-	8	4			-		30	-	20	50					8	20
	MIN	BNMIP317	Annixture I	Practical	-	-	2	1			-		30	-	20	50					8	20
	Core	BNMMP318	Biostatistics and scientific writing	Practical	-	-	2	1			-		30	-	20	50					8	20
	Core	BNMMP319	Diet Therapy (Case Study)	Practical	-	-	2	1			-		30	-	20	50					8	20
	Core elective	BNMEP320	Family Meal Management Survey	Practical	-	-	2	1					30	-	20	50					8	20
			Total (L-T-P) Hrs / week = 28		16		12	22														

Level 5.5 Award of UG degree in major and minor (44+44+44)=132 credits OR continue with major and minor

Level	Fourth Year (Semester VII)																						
	6.0	Course Type	Course code	Course Title	Type	Teaching period per week			Credits	Duration of exam	Evaluation Scheme (Marks)						Minimum Passing (Marks)					Total	
						L	T	P			Internal			External			Total	Internal			External		
											CA1	MSE	CA2	TW	ESE	PR		CA	MSE	TW	ESE		PR
Core	BNMML401	Space Nutrition & Planning	Theory	3		-	3		20	20	20	-	40	-	100				16		40		
Core	BNMML402	Diabetes Management	Theory	3		-	3		20	20	20	-	40	-	100				16		40		
Core	BNMML403	Sports And Exercise Nutrition	Theory	3		-	3		20	20	20	-	40	-	100				16		40		
Core	BNMML404	Entrepreneurship Development	Theory	2		-	2		10	10	10	-	20	-	50				8		20		
Core elective	BNMEL405	Community Nutrition	Theory	3		-	3		20	20	20	-	40	-	100				16		40		
RM	BNRML406	Research Methodology	Theory	3		-	3		20	20	20	-	40	-	100				16		40		
RM	BNRM407	Seminar (Research Paper Based)	Practical	-	-	2	1		-	-	-	30	-	20	50					8	20		
Core elective	BNMEP408	Community Nutrition	Practical	-	-	2	1					30	-	20	50					8	20		
Core	BNMMP409	Industrial Food Manufacture And Product Development	Practical	-	-	2	1		-	-	-	30	-	20	50					8	20		
Core	BNMMP410	Nutritional Lab	Practical	-	-	2	1		-	-	-	30	-	20	50					8	20		
Core	BNMMP411	Elective - 1-Food Creativity, Styling And Photography 2-Enviornment And Quality Management 3-Food Service And Retail	Practical	-	-	2	1		-	-	-	30	-	20	50					8	20		
			Total (L-T-P) Hrs / week = 27		17		10	22		220	110		150	220	100	800				88	40	320	

Level	Fourth Year (Semester VIII)																				
	6.0	Course Type	Course code	Course Title	Type	Teaching period per week			Credits	Duration of exam	Evaluation Scheme (Marks)						Minimum Passing (Marks)				
						L	T	P			Internal				External	Total	Internal			External	Total
											CA1	MSE	CA2	TW			ESE	PR	CA		
Core	BNMML412	3 Months Internship (Hospital internship)	Theory	3		-	3		20	20	20	-	40	-	100				16		40
Core	BNMML413	Internship Report Writing	Theory	3		-	3		20	20	20	-	40	-	100				16		40
Core	BNMML414	Community Nutrition	Theory	3		-	3		20	20	20	-	40	-	100				16		40
Core	BNMML415	Geriatric Nutrition	Theory	2		-	2		10	10	10	-	20	-	50				8		20
Core elective	BNMEL416	Diet counselling and Patient Care	Theory	3		-	3		20	20	20	-	40	-	100				16		40
OJT	BNJTL417	Assessment of Nutritional Status in Community	Theory	2		-	2		10	10	10	-	20	-	50				8		20
OJT	BNJTL418	Food Sanitation and Hygiene	Theory	2		-	2		10	10	10	-	20	-	50				8		20
Core elective	BNMEP419	Food Safety and Quality Control	Practical	-	-	2	1					30	-	20	50					8	20
Core	BNMMP420	Big Idea (Thesis)	Practical	-	-	2	1					30	-	20	50					8	20
Core	BNMMP421	Seminar (Research Paper Based)	Practical	-	-	2	1					30	-	20	50					8	20
Core	BNMMP422	Food Preservation	Practical	-	-	2	1					30	-	20	50					8	20
		Total (L-T-P) Hrs / week = 26		18		8	22														

Level 6.0 Four year UG Honors Degree in major and minor (44+44+44+44) = 176 credits

Level	Fourth Year (Semester VIII)																				
	6.0	Course code	Course Title	Type	Teaching period per week			Credits	Duration of exam	Evaluation Scheme (Marks)						Minimum Passing (Marks)					
					L	T	P			Internal			External	Total	Internal			External	Total		
										CA1	MSE	CA2			TW	ESE	PR			CA	MSE
Core		Medical Nutrition Therapy – IV	Theory	3		-	3		20	20	20	-	40	-	100				16		40
Core		2 case studies & Report submission	Theory	3		-	3		20	20	20	-	40	-	100				16		40
Core		Assessment of Nutritional Status in Community	Theory	3		-	3		20	20	20	-	40	-	100				16		40
Core		Food Sanitation and Hygiene	Theory	2		-	2		10	10	10	-	20	-	50				8		20
Core elective		Community Nutrition	Theory	3		-	3		20	20	20	-	40	-	100				16		40
OJT		Geriatric Nutrition	Theory	2		-	2		10	10	10	-	20	-	50				8		20
OJT		Diet counselling and Patient Care	Theory	2		-	2		10	10	10	-	20	-	50				8		20
Core elective		Assessment of Nutritional Status in Community	Practical	-	-	2	1					30	-	20	50					8	20
Core		Food Sanitation and Hygiene	Practical	-	-	2	1					30	-	20	50					8	20
Core		Hospital Internship (3 months)	Practical	-	-	2	1					30	-	20	50					8	20
Core		Seminar (Evidence Based Case Study)	Practical	-	-	2	1					30	-	20	50					8	20
		Total (L-T-P) Hrs / week = 26		18		8	22														

Level 6.0 Four year UG Honors with research Degree in major and minor (44+44+44+44) = 176 credits

*[Students who secure 75% marks and above in the first six semesters and wish to undertake research at the undergraduate level can choose a research stream in the fourth year

BNOEL103 **CERTIFICATION IN NUTRITION AND DIETETICS** **2+0**

University: MGM University, Aurangabad Faculty: Basic and Applied Science

Institute: Institute of Biosciences and Technology

Degree: Food Nutrition and Dietetics (UG)

Course Unit Code: BNOEL103

Course Unit Title: Certification in Nutrition and Dietetics

Credits allocated: 2+0(2Theory) Level of Study: UG

Mode of delivery, planned learning activities and teaching method: Theory 2hrs/weekly

Recommended Year/Semester: Food Nutrition and Dietetics, Year I/ Semester I

Learning Outcomes:

After completing this course students will be able to understand the importance of Nutrition for optimal health

Objectives:

To promote awareness and importance about optimal health among students

COURSE CONTENTS (Total Lecture – 30)

UNIT I (8 Lecture)

Introduction of Food, Nutrition and Dietetics: Definition of Food, Nutrition and Dietetics, Importance of nutrients and nutrition in good health, nutritional status, Importance of balanced diet, Energy (unit of energy-joule, kilocalorie) B.M.R: definition, factors affecting B.M.R and total Energy requirement (calculation of energy of individual)

UNIT II (7 Lecture)

Classification of Food- on the basic of Nutritional Status, Examples, on the basis of moisture content, Classification of Nutrients, Important functions of Nutrients, types of water, role of water

UNIT III (8 Lecture)

Carbohydrates-Definition, classification, structure and properties, Carbohydrates-sources, daily requirements, functions, Effects of too high and too low carbohydrates on health. Digestion and absorption of carbohydrates

UNIT IV (7 Lecture)

Proteins and Fats- Definitions, classification and properties, sources, daily requirements, functions, digestion and absorption of nutrients, Role and nutritional significances, Effect of too high or too low Proteins and Fats.

Text Book:

1. Food Science by B. Shrilakshmi New age International Publishers
2. Fundamentals of Foods, Nutrition and Diet Therapy, New age International Publishers

BNOEL104

CERTIFICATION IN CHILD CARE NUTRITION 2+0

University: MGM University, Aurangabad **Faculty:** Basic and Applied Science Institute:
Institute of Biosciences and Technology

Degree: Food Nutrition and Dietetics (UG)

Course Unit Code: BNOEL104

Course Unit Title: Certification in Child Care Nutrition

Credits allocated: 2+0 (3Theory) **Level of Study:** UG

Mode of delivery, planned learning activities and teaching method: Theory 2hrs/weekly

Recommended Year/Semester: Food Nutrition and Dietetics, Year I/ Semester I

Learning Outcomes: After completing this course students will be able to understand about Human Anatomy & Physiology

Objectives: To promote awareness and importance about Human Anatomy & Physiology among students

COURSE CONTENTS (Total Lecture – 30)

UNIT I (7 Lecture)

Importance of nutrition to Children- Importance of providing good nutrition to children, • Brain development, growth and development in a child's first four years, Typical growth, diseases related to poor nutrition, good nutrition for reducing diseases related to growth

UNIT II (7 Lecture)

Importance of Fluid – Importance of fluid in child health, Importance of safe and clean drinking water, Guidelines for fat free, low fat, unsweetened plain milk for 2 year & older children, 100% juices recommended intake, permitted limits of beverages with artificial color, sweetener etc

UNIT III (7 Lecture)

Infant and Toddlers – Best practices for feeding infants and toddlers including breast milk, iron fortified formula, and introducing first foods, Provide an overview of how to serve age-appropriate healthy foods at each snack and meal that are based on the standards of the current Dietary Guidelines.

UNIT IV(9 Lecture)

Recommended dietary guidelines for child- RDA for fats, sugars & salts for children, application of food labels to identified healthy food choice, Practices for building healthy eating habits for children

Textbook:

1 Human Physiology vol1 CBS Publishers

2 Human Physiology vol2 CBS Publishers

3 Essentials of medical physiology Jaypee Publishers

BNOEL111

CERTIFICATION IN WOMAN HEALTH

2+0

**University: MGM University, Aurangabad Faculty: Basic and Applied Science Institute:
Institute of Biosciences and Technology**

Degree: Food Nutrition and Dietetics (UG)

Course Unit Code: BNOEL111

Course Unit Title: Certification in Woman Health Credits allocated: 2+0 (Theory)

Level of Study: UG Mode of delivery, planned learning activities and teaching method: Theory
2 lectures weekly

Recommended Year/Semester: Food Nutrition and Dietetics, Year I / Semester II

Learning Outcomes:

Upon successful completion, students will have the knowledge and skills about professional skills for nutrition

Objective:

To familiarize the students with basics of personal and professional skill for nutrition

COURSE CONTENTS

UNIT I (7 Lecture)

Polycystic Ovarian Syndrome- Symptoms, contributing factors and underlying problems associated with PCOS. Common features, risk factors and indications for further investigation to diagnose, diagnostic criteria for PCOS including presenting symptoms, specific criteria for diagnosis and the process for eliminating other potential causes and conditions to optimize the health of women undergoing treatment for PCOS. Tools and resources for screening and management of the condition

UNIT II (7 Lecture)

Menstrual Irregularities - Common menstrual problems of abnormal menstrual bleeding, dysmenorrhea and premenstrual dysphoria and includes classification systems, diagnostic criteria, and clinical guidelines for management and treatment for each condition, diagnostic criteria for these disorders, Food incorporation in healing period pain

UNIT III (10 Lecture)

Premature ovarian insufficiency- Early and premature menopause, Risk factors and causes of spontaneous POI, Iatrogenic POI, caused by chemotherapy, radiotherapy or surgery, clinical presentations of POI, diagnosis criteria, patient history, examinations, investigations and ongoing monitoring, Health consequences may include psychological distress, osteoporosis, cardiovascular disease, cognitive impairment, sexual dysfunction and other health concerns, management of POI from initiating care and coordinating care, managing symptoms of menopause, sexual health difficulties and psychological issues, consideration regarding

prevention of bone loss, osteoporosis and prevention of cardiovascular disease.

UNITIV (6 Lecture)

Menopause- Definitions, features and underlying causes of menopause and discusses the typical process and duration for each of the four stages: perimenopausal, menopausal, early postmenopausal and late postmenopausal, Methods for assessment and differential diagnosis of menopausal symptoms including indications for further investigation, lifestyle modifications, “natural” or complementary therapies, non-hormone pharmaceutical options and menopause hormone therapy (MHT)

Textbook:

1 Nutrition and Dietetics 5th edition Mc Graw Hill

2 Nutritional Guidelines for Sports person NIN

3 Nutritive value of Indian Foods & Dietary Guidelines for Indians NIN

BNOEL112

CERTIFICATION IN WOMAN HEALTH 2+0

**University: MGM University, Aurangabad Faculty: Basic and Applied Science Institute:
Institute of Biosciences and Technology**

Degree: Food Nutrition and Dietetics (UG)

Course Unit Code: BNOEL112

Course Unit Title: Certification in Woman Health Credits allocated: 2+0 (Theory)

Level of Study: UG

Mode of delivery, planned learning activities and teaching method: Theory 2 lectures / weekly

Recommended Year/Semester: Food Nutrition and Dietetics, Year I / Semester II

Learning Outcomes:

Upon successful completion, students will have the knowledge and skills about professional skills for nutrition

Objective:

To familiarize the students with basics of personal and professional skill for nutrition

COURSE CONTENTS

UNIT I (7 Lecture)

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3 Nutritive value of Indian Foods & Dietary Guidelines for Indians NIN

