FATIMA COLLEGE (AUTONOMOUS)

Re-Accredited with "A" Grade by NAAC (3rd Cycle)
74th Rank in India Ranking 2019 (NIRF) by MHRD
Maryland, Madurai- 625 018, Tamil Nadu, India

NAME OF THE DEPARTMENT : HOME SCIENCE

NAME OF THE PROGRAMME : UG

PROGRAMME CODE : UAHS

ACADEMIC YEAR : 2021-2022

VISION OF THE DEPARTMENT

To empower the potential Home Makers & Home Scientists with life management skills to face the multidimensional challenges and contribute towards the progress of Home and Nation.

MISSION OF THE DEPARTMENT

- Empowering the budding youth to play the dual role of bread winner and homemaker effectively.
- Making them economically independent and emotionally stable.
- Enhancing their managerial skills at home and in the workplaces.
- Instilling their leadership qualities and organizational capabilities.
- Promoting their entrepreneurial skills.
- Fine tuning their intellect on the recent advances.

PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

PEO 1	Our graduates will excel in playing the dual role of home maker and bread winner through the knowledge gained in all the major areas of Home Science
PEO 2	The skills acquired through Home Science education enable the home scientists to fit various job roles in addition to becoming successful young entrepreneurs
PEO 3	They will be socially responsible citizensby exhibiting their professional competence by involving in lab to land programmes at regional, national, and international levels
PEO 4	Able to exhibit professional competence in diet planning and counselling.

GRADUATE ATTRIBUTES (GA)

Fatima College empowers her women graduates holistically. A Fatimite achieves all-round empowerment by acquiring Social, Professional and Ethical competencies. A graduate would sustain and nurture the following attributes:

I. SOCIAL COMPETENCE	
GA 1	Deep disciplinary expertise with a wide range of academic and digital literacy
GA 2	Hone creativity, passion for innovation and aspire excellence
GA 3	Enthusiasm towards emancipation and empowerment of humanity
GA 4	Potentials of being independent
GA 5	Intellectual competence and inquisitiveness with problem solving abilities befitting the field of research
GA 6	Effectiveness in different forms of communications to be employed in personal and professional environments through varied platforms
GA 7	Communicative competence with civic, professional, and cyber dignity and decorum
GA 8	Integrity respecting the diversity and pluralism in societies, cultures, and religions
GA 9	All – inclusive skill sets to interpret, analyze, and solve social and environmental issues in diverse environments
GA 10	Self-awareness that would enable them to recognize their uniqueness through continuous self-assessment in order to face and make changes building on their strengths and improving their weaknesses

GA 11	Finesse to co-operate exhibiting team-spirit while working in groups to achieve goals
GA 12	Dexterity in self-management to control their selves in attaining the kind of life that they dream for
GA 13	Resilience to rise instantly from their intimidating setbacks
GA 14	Virtuosity to use their personal and intellectual autonomy in being life-long learners
GA 15	Digital learning and research attributes
GA 16	Cyber security competence reflecting compassion, care and concern towards the marginalized
GA 17	Rectitude to use digital technology reflecting civic and social responsibilities in local, national, and global scenario
II. PROFESSIONAL COMPETENCE	
GA 18	Optimism, flexibility, and diligence that would make them professionally competent
GA 19	Prowess to be successful entrepreneurs and become employees of trans-national societies
GA 20	Excellence in local and global job markets
GA 21	Effectiveness in time management
GA 22	Efficiency in taking up initiatives
GA 23	Eagerness to deliver excellent service
GA 24	Managerial skills to identify, commend and tap potentials

III. ETHICAL COMPETENCE	
GA 25	Integrity and be disciplined in bringing stability leading a systematic life promoting good human behaviour to build better society
GA 26	Honesty in words and deeds
GA 27	Transparency revealing one's own character as well as self-esteem to lead a genuine and authentic life
GA 28	Social and environmental stewardship
GA 29	Readiness to make ethical decisions consistently from the galore of conflicting choices paying heed to their conscience
GA 30	Right life skills at the right moment

PROGRAMME OUTCOMES (PO)

On completion of B.Sc. Home Science with Food Biotechnology Programme, the graduates would be able to

PO 1	Apply acquired scientific knowledge to solve complex issues
PO 2	Attain Analytical skills to solve complex cultural, societal, and environmental issues.
PO 3	Employ latest and updated tools and technologies to analyze complex issues.
PO 4	Demonstrate professional ethics that foster community, nation and environment building initiatives.

PROGRAMME SPECIFIC OUTCOMES (PSO)

On completion of B.Sc. Home Science with Food Biotechnology Programme, the graduates will have the following attributes

PSO1	Understanding the anatomy and functions of the various systems of the human body.
PSO 2	Acquisition of skills in analyzing& estimating various blood parameters.
PSO 3	Scientific knowledge in the area of food and nutrition, food processing and production.
PSO 4	Acquisition of skills in planning therapeutic diets and diet counseling
PSO 5	Scientific knowledge on the role of microbes in food processing and production.
PSO 6	Acquisition of knowledge and skills in front office operation and housekeeping.
PSO 7	Professional competence in planning different cuisines and styles of food service.
PSO 8	Scientific knowledge in the conversion of fibre to fabric and technical textiles.
PSO 9	Acquisition of skills in pattern making, garment construction, wardrobe planning,care of clothes,surface ornamentation and fashion illustration.
PSO 10	Digital literacy in designing garments using Fashion Studio software and calculating the nutritive value of foods using Nutrical software
PSO 11	Understanding the basic aspects that are related to the growth of children at different stages.
PSO 12	Cognizance on children with special needs.
PSO 13	Obtain knowledge on developmental changes that occur at different stages of life span.
PSO 14	Vivid knowledge on the contemporary problems related to marriage & family
PSO 15	Perception on theories & philosophies of preschool education.

PSO 16	Professional competency in creche and preschool management
PSO 17	Creative thinking in application of elements & principles of design in interior decoration and clothing.
PSO 18	Professional competency in the management of family resources
PSO 19	Obtain skills in arrangement of tables and other accessories.
PSO 20	Develop skills in the application of colors, furniture arrangement, lightings, flower arrangement and management of resources in day- to-day life.
PSO 21	Professional competence attributing to an entrepreneur.
PSO 22	Acquire skills to transform the standard of living of rural people.
PSO 23	Practically assess the problems of people using participatory tools.

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FATIMA COLLEGE (AUTONOMOUS), MADURAI-18

RESEARCH CENTRE OF HOME SCIENCE-

HUMAN NUTRITION AND NUTRACEUTICALS

For those who joined in June 2019 onwards

PROGRAMME CODE: PSNN

COURSE CODE	COURSE TITLE	HRS / WK	CREDIT	CIA Mks	ESE Mks	TOT. MKs
SEMESTER - I						
19PG1N1	Advanced Human Nutrition	6	4	40	60	100
19PG1N2	Advanced Dietetics	6	4	40	60	100
19PG1N3	Applied Physiology	6	4	40	60	100
19PG1N4	Advanced Dietetics Lab	4	2	40	60	100
19PG1N5	Clinical Laboratory Techniques Lab	4	2	40	60	100
19N1EDC	EDC-Nutrition & Dietetics	3	3	40	60	100
	Library	1	-	-	-	-
Total		**30**	**19**			
SEMESTER - II						
19PG2N6	Clinical Nutrition & Diet Therapy	6	4	40	60	100
19PG2N7	Functional Foods & Nutraceuticals	6	4	40	60	100
19PG2N8	Research Methodology	6	4	40	60	100
19PG2N9	Clinical Nutrition & Diet Therapy Lab	4	2	40	60	100

19PG2N10 / 22PG2N10	Functional Foods & Nutraceuticals Lab	4	2	40	60	100
19N2EDC	EDC-Nutrition & Dietetics	3	3	40	60	100
	Library	1		-	-	-
Total		**30**	**19**			
SEMESTER - III						
19PG3NS1	Summer Internship	-	3	40	60	100
19PG3N11	Functional Foods & Nutraceuticals in Preventive Dietetics	6	5	40	60	100
19PG3N12	Community Nutrition	6	5	40	60	100
19PG3N13	Analytical Instrumentation	6	5	40	60	100
19PG3NE1/ 19PG3NE2	Food Product Development and Evaluation/ Institutional Management	4	4	40	60	100
19PG3N14	Community Nutrition Lab	4	2	40	60	100
19PG3N15	Techniques for Experimental Nutrition Lab	4	2	40	60	100
Total		**30**	**26**			
SEMESTER - IV						
19PG4N16	Food Microbiology	6	5	40	60	100
19PG4N17	Nutritional Biochemistry	6	5	40	60	100
19PG4N18	Advanced Food Science and Processing Techniques	6	5	40	60	100
19PG4NE3/ 19PG4NE4	Food Safety and Quality Control/ Nutrition in Critical Care and Disasters	4	4	40	60	100
19PG4N19	Food Microbiology Lab	4	2	40	60	100
19PG4N20	Nutrient Analysis Lab	4	2	40	60	100

19PG4NPR	Project*& Viva Voce		3	50	50	100
Total		**30**	**26**			
	Total	**120**	**90**			

OFF-CLASS PROGRAMME

ADD-ON COURSES

Course Code	Courses	Hrs.	Credits	Semester in which the course is offered	CIA Mks	ESE Mks	Total Marks
	SOFT SKILLS	40	4	I	40	60	100
	COMPUTER APPLICATIONS SPSS	40	4	II	40	60	100
	MOOC COURSES (Department Specific Courses/any other courses) * Students can opt other than the listed course from UGC-SWAYAM /UGC /CEC	-	Minimum 2 Credits	-	-	-	
	COMPREHENSIVE VIVA (Question bank to be prepared for all the papers by the respective course teachers)	-	2	IV	-	-	100

	READING CULTURE	15/ Semester	1	I-IV	-	-	-
	TOTAL		13 +				

EXTRA CREDIT COURSE

Course Code	Courses	Hrs.	Credits	Semester in which the course is offered	CIA Mks	ESE Mks	Total Marks
19PGSLN1	**SELF LEARNING COURSE for ADVANCED LEARNERS (Offered for II PG)**	-	-	III & IV	40	60	100

- **Lab Courses :**
  - A range of 10-15 experiments per semester

- **Summer Internship:**
  - Duration-1 month (2nd Week of May to 2nd week of June-before college reopens)

- **Project:**
  - Off class
  - Evaluation components-Report writing + Viva Voce (Internal marks-50) + External marks 50

- **EDC:**

  Syllabus should be offered for two different batches of students from other than the parent department in Sem-I & Sem-II

I M.Sc., HUMAN NUTRITION AND NUTRACEUTICALS OLD

SEMESTER –I

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSNN	19PG1N3	Applied Physiology	Major Core	6	4

COURSE DESCRIPTION

The course provides a detailed insight on the anatomy and functions of the various systems of the human body.

COURSE OBJECTIVES

- Organs of the body and their functions
- Different systems of the body, their functions with special reference to the control and feedback mechanisms
- Physiological changes at different stages of life.

UNITS

UNIT –I BLOOD AND ENDOCRINE SYSTEM (18 HRS.)

Blood

Composition and functions of blood and Plasma proteins,RBC – Structure and functions, Bone marrow – functions, Erythropoiesis, Haemoglobin, Life span ,fate, Anaemia, haemolysis, polycythemia, ESR, WBC – Classification and functions, Coagulation, Bleeding time, clotting time.Blood Groups.Blood indices,Use of blood for investigation and diagnosis of specific disorders.

Endocrine system

Structure, functions,role of hormones,regulation of hormonal secretion and disorders of pituitary gland, thryroid gland, parathyroid gland, pancreas and adrenal glands. Emphasis on physiology of Diabetes and stress hormones.

UNIT –II CIRCULATORY SYSTEM (18 HRS.)

Anatomical considerations of heart, valves of heart and its action, layers of heart, blood vessels – arteries, arterioles, capillaries, veins, vasa vasorum.Blood pressure – factors and regulation.

Cardiac centre – heart rate – regulation, cardiac output, cardiac impulse, junctional tissues, cardiac cycle, heart sounds, ECG, coronary circulation, pulmonary circulation, cerebral circulation, hepatic circulation, renal circulation, cutaneous circulation and skeletal muscle circulation.

UNIT –III DIGESTIVE AND EXCRETORY SYSTEM (18 HRS.)

Digestive system

Review of anatomy and functions- secretary, digestive and absorptive functions of the digestive tract – Buccal cavity, stomach, pancreas, liver, small intestine and large intestine. Role of enzymes and hormones in digestion and absorption of carbohydrate, protein and fat. Dysfunction of liver,pancreas and gallbladder.

Excretory system

Anatomy and functions of kidney and nephrons, juxta glomerular apparatus. Formation of urine, micturition. Role of kidney in maintaining pH of blood. Water, electrolyte and acid base balance, diuretics.

UNIT –IV MUSCULO –SKELETAL AND RESPIRATORY SYSTEM (18 HRS.)

Musculo -Skeletal system

Structure and function of Bone tissue – osteocytes, osteoblasts, osteoclasts, structure of osseous tissue, section of femur bone. Types of muscles – structure and functions.

Respiratory system

Review of structure and functions of the respiratory tract, lung unit.Mechanism of respiration, transport of oxygen and carbon dioxide. Regulation of respiration, lung volumes, pulmonary function tests, Cardio – respiratory response to exercise and physiological effects of training.

UNIT –V NERVOUS SYSTEM AND REPRODUCTIVE SYSTEM (18 HRS.)

Nervous System

Review of structure and function of nervous system –central or somatic nervous system - neuron –types, structure, properties, myelin sheath, nerve endings, synapse, neurotransmitters, reflex arc, receptors, brain –cerebrum-cerebral cortex-cerebral lobes-structure and functions, cerebellum, medulla oblongata, - thalamus, hypothalamus. The role of

Hypothalamus in various body functions – obesity, sleep, memory. Autonomic nervous system – sympathetic and parasympathetic – actions, functions of ANS. Blood Brain Barrier, CSF

Reproductive System

Primary and accessory sex organs, Menstrual cycle, menopause and post menopausal changes.

BOOK REFERENCES:

1. Best and Taylor, The Living Body, Chapman and Hall ltd., London.
2. Chatterji (1999).*Human Physiology*, Roy Publications
3. Gitanjali Chatterjee (1999) *Handbook of Food and Nutrition*, Rajat Publications.
4. Guyton, A.C& Hall J.B (1996):*Textbook of Medical Physiology*,9th edition W.B Sanders Company, Prism Books (Pvt) Ltd,Bangalore.
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12. Vijay Kamshik (2000).*Food science and nutrition,* Mangal Deep Publications. Jaipur

JOURNAL REFERENCES:

1. Journal of Applied Physiology
2. Journal of General Physiology
3. BMC Physiology
4. Physiological Reviews
5. International Journal of Basic & Applied Physiology

Open Educational Resources

1. https://journals.physiology.org/doi/full/10.1152/japplphysiol.00711.2011
2. https://www.springer.com/journal/421
3. https://opentextbooks.concordia.ca/oerbydiscipline/chapter/kinesiology-2/

4. https://publons.com/journal/39067/european-journal-of-applied-physiology-and-occupat/
5. https://openstax.org/details/books/anatomy-and-physiology

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 BLOOD AND ENDOCRINE SYSTEM				
1.1	Composition and functions of blood	1	Chalk & Talk	Black Board
1.2	Plasma proteins; RBC – Structure and functions; WBC – Classification and functions	3	Chalk & Talk	Black Board
1.3	Bone marrow – functions, Erythropoiesis	2	Lecture	PPT & Videos
1.4	Haemoglobin, Life span, fate, Anaemia, haemolysis, polycythemia	2	Lecture	Black Board
1.5	Coagulation, bleeding time, clotting time, ESR, Blood Groups; Blood indices; Use of blood for investigation and diagnosis of specific disorders	3	Demonstration	Blood coagulation and grouping kits
1.6	Pituitary gland- Structure, functions, role of hormones,	2	Lecture	PPT

	secretion, regulation and disorders			
1.7	Thyroid gland- Structure, functions, role of hormones, secretion, regulation and disorders	2	Lecture	PPT
1.8	Parathyroid gland, pancreas and adrenal glands.	2	Chalk & Talk	Black Board
1.9	Physiology of diabetes and stress hormones	1	Group discussion	Black Board
UNIT -2	**CIRCULATORY SYSTEM**			
2.1	Anatomical considerations of heart, valves of heart and its action, layers of heart	2	Lecture	Model
2.2	Blood vessel – arteries, arterioles, capillaries, veins, vasovasorum	2	Chalk & Talk	Black Board
2.3	Blood pressure factors and regulation	2	Lecture	PPT
2.5	Cardiac centre – heart rate – regulation	2	Lecture	Smart Board
2.6	Cardiac output, cardiac impulse, functional tissues	2	Lecture	Videos
2.7	Cardiac cycle, ECG, heart sounds	3	Discussion	Videos
2.8	Coronary circulation, Pulmonary circulation, Cerebral circulation, hepatic circulation	3	Chalk & Talk	Black Board

2.9	Renal circulation, cutaneous circulation, and skeletal muscle circulation	2	Chalk & Talk	Black Board
UNIT -3	**DIGESTIVE AND EXCRETORY SYSTEM**			
3.1	Anatomy of digestive system	2	Lecture	Model
3.2	Secretary, digestive, and absorptive functions of the digestive tract	2	Lecture	PPT
3.3	Buccal cavity, stomach, pancreas, liver	1	Chalk & Talk	Black Board
3.4	Small intestine and large intestine	3	Lecture	Smart class
3.5	Role of enzymes and hormones in digestion and absorption of carbohydrate, protein and fat	2	Discussion	Black Board
3.6	Dysfunction of liver, pancreas and gall bladder	2	Lecture	PPT
3.7	Anatomy and functions of kidney and nephrons, juxta glomerular apparatus	3	Lecture	Model
3.8	Formation of urine, micturition	1	Lecture	Smart class
3.9	Role of kidney in maintaining pH of blood. Water, electrolyte	1	Chalk & Talk	Black Board

3.10	Acid base balance, diuretics	1	Lecture	PPT
UNIT -4	**MUSCULO –SKELETAL AND RESPIRATORY SYSTEM**			
4.1	Structure and function of Bone tissue	2	Lecture	Smart class
4.2	Osteocytes, osteoblasts, osteoclasts	2	Chalk & Talk	Black Board
4.3	Structure of osseous tissue	1	Lecture	PPT
4.4	Section of femur bone	1	Lecture	PPT
4.5	Muscles – Structure, types and functions	3	Lecture	Smart class
4.6	Structure and functions of the respiratory tract, lung unit	2	Lecture	Smart class
4.7	Mechanism of respiration	2	Lecture	PPT
4.8	Regulation of respiration, lung volumes	2	Chalk & Talk	Black Board
4.9	Pulmonary function tests, Cardio – respiratory response to exercise and physiological effects of training	3	Discussion	Black Board
UNIT -5	**NERVOUS SYSTEM AND REPRODUCTIVE SYSTEM**			
5.1	Structure and function of nervous system –central or somatic nervous system	2	Chalk & Talk	Black Board

5.2	Neuron –types, structure, properties, myelin sheath, nerve endings, synapse, neurotransmitters, reflex arc, receptors	3	Lecture	PPT
5.3	Brain – cerebrum-cerebral cortex- cerebral lobes	2	Chalk & Talk	Black Board
5.4	Structure and functions - cerebellum, medulla oblongata, thalamus, hypothalamus	2	Lecture	Smart class
5.5	Role of hypothalamus in various body functions – obesity, sleep, memory	1	Discussion	Videos
5.6	Autonomic nervous system – sympathetic and para sympathetic – actions	2	Lecture	PPT
5.7	Functions of ANS. Blood Brain Barrier, CSF	2	Chalk & Talk	Black Board
5.8	Primary and accessory sex organs and secondary sex characters; Transgender- Definition and Characteristics	2	Lecture	Smart class
5.9	Menstrual cycle	1	Chalk & Talk	Black Board
5.10	Menopause and post-menopausal changes.	1	Discussion	Black Board

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total
	T1 10 Mks.	T2 10 Mks.	Seminar 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.
K2	4	4	-	-	-	8	-	8
K3	2	2	-	5	-	9	-	9
K4	2	2	-	-	5	9	-	9
K5	2	2	5	-	-	9	-	9
Non Scholastic	-	-	-	-	-		5	5
Total	10	10	5	5	5	35	5	40

CIA

Scholastic	**35**
Non Scholastic	**5**
	40

- **All the course outcomes are to be assessed in the various CIA components.**
- **The levels of CIA Assessment based on Revised Bloom's Taxonomy for PG are :**

K2-Understand, **K3**-Apply, **K4**-Analyse, **K5**-Evaluate

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

C1 – Internal Test-1

C2 – Internal Test-2

C3 - Seminar

C4 – Assignment

C5 - OBT/PPT

C6 – Non – Scholastic

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED

CO 1	Describe the functions of blood and endocrine system	K2	PSO1
CO 2	Illustrate the anatomy and functions of circulatory system	K2	PSO1
CO 3	Identify the role of digestive and excretory systems	K3	PSO1
CO 4	Analyse the mechanism of musculoskeletal and respiratory systems	K4	PSO1
CO 5	Explain the structure and functions of nervous and reproductive systems	K5	PSO1

Mapping of COs with PSOs

CO / PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10	PSO 11	PSO 12	PSO 13	PSO 14	PSO 15
CO1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CO2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CO3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CO4	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CO5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Mapping of C0s with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	2	1	1	1
CO2	1	1	1	1
CO3	1	1	1	1
CO4	1	1	1	1
CO5	2	1	1	1

Note: Strongly Correlated – 3 ¨ Moderately Correlated – 2

¨ Weakly Correlated -1

COURSE DESIGNER:

1.Dr.Vasantha Esther Rani

2. Mrs.C.Helen

Forwarded By

(Dr.Vasantha Esther Rani)

I M.Sc., HUMAN NUTRITION AND NUTRACEUTICALS NEW

SEMESTER –I

10%

For those who joined in 2019 onwards

PROGRAMME CODE	COURSE CODE	COURSE TITLE	CATEGORY	HRS/WEEK	CREDITS
PSNN	19PG1N3	Applied Physiology	Major Core	6	4

COURSE DESCRIPTION

The course provides a detailed insight on the anatomy and functions of the various systems of the human body.

COURSE OBJECTIVES

- Organs of the body and their functions
- Different systems of the body, their functions with special reference to the control and feedback mechanisms
- Physiological changes at different stages of life.

UNITS

UNIT –I BLOOD AND ENDOCRINE SYSTEM (18 HRS.)

Blood

Composition and functions of blood and Plasma proteins,RBC – Structure and functions, Bone marrow – functions, Erythropoiesis, Haemoglobin, Life span ,fate, Anaemia, haemolysis, polycythemia, ESR, WBC – Classification and functions, Coagulation, Bleeding time, clotting time.Blood Groups.Blood indices,Use of blood for investigation and diagnosis of specific disorders.

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Cardiac centre – heart rate – regulation, cardiac output, cardiac impulse, junctional tissues, cardiac cycle, heart sounds, ECG, coronary circulation, pulmonary circulation, cerebral circulation, hepatic circulation, renal circulation, cutaneous circulation and skeletal muscle circulation.

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Excretory system

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UNIT –IV MUSCULO –SKELETAL AND RESPIRATORY SYSTEM (18 HRS.)

Musculo -Skeletal system

Structure and function of Bone tissue – osteocytes, osteoblasts, osteoclasts, structure of osseous tissue, section of femur bone. Types of muscles – structure and functions.

Respiratory system

Review of structure and functions of the respiratory tract, lung unit.Mechanism of respiration, transport of oxygen and carbon dioxide. Regulation of respiration, lung volumes, pulmonary function tests, Cardio – respiratory response to exercise and physiological effects of training.

UNIT –V NERVOUS SYSTEM AND REPRODUCTIVE SYSTEM (18 HRS.)

Nervous System

Review of structure and function of nervous system –central or somatic nervous system - neuron –types, structure, properties, myelin sheath, nerve endings, synapse, neurotransmitters, reflex arc, receptors, brain –cerebrum-cerebral cortex-cerebral lobes-structure and functions, cerebellum, medulla oblongata, - thalamus, hypothalamus. The role of Hypothalamus in various body functions – obesity, sleep, memory.

Autonomic nervous system – sympathetic and parasympathetic – actions, functions of ANS. Blood Brain Barrier, CSF

Reproductive System 10%

Primary and accessory sex organs, secondary sexual characteristics of male, female, Menstrual cycle, menopause and post menopausal changes. Transgender - Definition and characteristics.

BOOK REFERENCES:

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12. Vijay Kamshik (2000).*Food science and nutrition,* Mangal Deep Publications. Jaipur

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1. Journal of Applied Physiology
2. Journal of General Physiology
3. BMC Physiology
4. Physiological Reviews
5. International Journal of Basic & Applied Physiology

Open Educational Resources

1. https://journals.physiology.org/doi/full/10.1152/japplphysiol.00711.2011
2. https://www.springer.com/journal/421

3. https://opentextbooks.concordia.ca/oerbydiscipline/chapter/kinesiology-2/
4. https://publons.com/journal/39067/european-journal-of-applied-physiology-and-occupat/
5. https://openstax.org/details/books/anatomy-and-physiology

COURSE CONTENTS & LECTURE SCHEDULE:

Module No.	Topic	No. of Lectures	Teaching Pedagogy	Teaching Aids
UNIT -1 BLOOD AND ENDOCRINE SYSTEM				
1.1	Composition and functions of blood	1	Chalk & Talk	Black Board
1.2	Plasma proteins; RBC – Structure and functions; WBC – Classification and functions	3	Chalk & Talk	Black Board
1.3	Bone marrow – functions, Erythropoiesis	2	Lecture	PPT & Videos
1.4	Haemoglobin, Life span, fate, Anaemia, haemolysis, polycythemia	2	Lecture	Black Board
1.5	Coagulation, bleeding time, clotting time, ESR, Blood Groups; Blood indices; Use of blood for investigation and diagnosis of specific disorders	3	Demonstration	Blood coagulation and grouping kits
1.6	Pituitary gland- Structure, functions, role of hormones,	2	Lecture	PPT

	secretion, regulation and disorders			
1.7	Thyroid gland- Structure, functions, role of hormones, secretion, regulation and disorders	2	Lecture	PPT
1.8	Parathyroid gland, pancreas and adrenal glands.	2	Chalk & Talk	Black Board
1.9	Physiology of diabetes and stress hormones	1	Group discussion	Black Board
UNIT -2	**CIRCULATORY SYSTEM**			
2.1	Anatomical considerations of heart, valves of heart and its action, layers of heart	2	Lecture	Model
2.2	Blood vessel – arteries, arterioles, capillaries, veins, vasovasorum	2	Chalk & Talk	Black Board
2.3	Blood pressure factors and regulation	2	Lecture	PPT
2.5	Cardiac centre – heart rate – regulation	2	Lecture	Smart Board
2.6	Cardiac output, cardiac impulse, functional tissues	2	Lecture	Videos
2.7	Cardiac cycle, ECG, heart sounds	3	Discussion	Videos
2.8	Coronary circulation, Pulmonary circulation, Cerebral circulation, hepatic circulation	3	Chalk & Talk	Black Board

2.9	Renal circulation, cutaneous circulation, and skeletal muscle circulation	2	Chalk & Talk	Black Board
UNIT -3	**DIGESTIVE AND EXCRETORY SYSTEM**			
3.1	Anatomy of digestive system	2	Lecture	Model
3.2	Secretary, digestive, and absorptive functions of the digestive tract	2	Lecture	PPT
3.3	Buccal cavity, stomach, pancreas, liver	1	Chalk & Talk	Black Board
3.4	Small intestine and large intestine	3	Lecture	Smart class
3.5	Role of enzymes and hormones in digestion and absorption of carbohydrate, protein and fat	2	Discussion	Black Board
3.6	Dysfunction of liver, pancreas and gall bladder	2	Lecture	PPT
3.7	Anatomy and functions of kidney and nephrons, juxta glomerular apparatus	3	Lecture	Model
3.8	Formation of urine, micturition	1	Lecture	Smart class
3.9	Role of kidney in maintaining pH of blood. Water, electrolyte	1	Chalk & Talk	Black Board

3.10	Acid base balance, diuretics	1	Lecture	PPT
UNIT -4	**MUSCULO –SKELETAL AND RESPIRATORY SYSTEM**			
4.1	Structure and function of Bone tissue	2	Lecture	Smart class
4.2	Osteocytes, osteoblasts, osteoclasts	2	Chalk & Talk	Black Board
4.3	Structure of osseous tissue	1	Lecture	PPT
4.4	Section of femur bone	1	Lecture	PPT
4.5	Muscles – Structure, types and functions	3	Lecture	Smart class
4.6	Structure and functions of the respiratory tract, lung unit	2	Lecture	Smart class
4.7	Mechanism of respiration	2	Lecture	PPT
4.8	Regulation of respiration, lung volumes	2	Chalk & Talk	Black Board
4.9	Pulmonary function tests, Cardio – respiratory response to exercise and physiological effects of training	3	Discussion	Black Board
UNIT -5	**NERVOUS SYSTEM AND REPRODUCTIVE SYSTEM**			
5.1	Structure and function of nervous system –central or somatic nervous system	2	Chalk & Talk	Black Board

5.2	Neuron –types, structure, properties, myelin sheath, nerve endings, synapse, neurotransmitters, reflex arc, receptors	3	Lecture	PPT
5.3	Brain – cerebrum-cerebral cortex- cerebral lobes	2	Chalk & Talk	Black Board
5.4	Structure and functions - cerebellum, medulla oblongata, thalamus, hypothalamus	2	Lecture	Smart class
5.5	Role of hypothalamus in various body functions – obesity, sleep, memory	1	Discussion	Videos
5.6	Autonomic nervous system – sympathetic and para sympathetic – actions	2	Lecture	PPT
5.7	Functions of ANS. Blood Brain Barrier, CSF	2	Chalk & Talk	Black Board
5.8	Primary and accessory sex organs and secondary sex characters; Transgender- Definition and Characteristics	2	Lecture	Smart class
5.9	Menstrual cycle	1	Chalk & Talk	Black Board
5.10	Menopause and post-menopausal changes.	1	Discussion	Black Board

Levels	C1	C2	C3	C4	C5	Total Scholastic Marks	Non Scholastic Marks C6	CIA Total
	T1 10 Mks.	T2 10 Mks.	Seminar 5 Mks.	Assignment 5 Mks	OBT/PPT 5 Mks	35 Mks.	5 Mks.	40Mks.
K2	4	4	-	-	-	8	-	8
K3	2	2	-	5	-	9	-	9
K4	2	2	-	-	5	9	-	9
K5	2	2	5	-	-	9	-	9
Non Scholastic	-	-	-	-	-		5	5
Total	10	10	5	5	5	35	5	40

CIA

Scholastic	**35**
Non Scholastic	**5**
	40

- **All the course outcomes are to be assessed in the various CIA components.**
- **The levels of CIA Assessment based on Revised Bloom's Taxonomy for PG are :**

K2-Understand, **K3**-Apply, **K4**-Analyse, **K5**-Evaluate

EVALUATION PATTERN

SCHOLASTIC					NON - SCHOLASTIC	MARKS		
C1	C2	C3	C4	C5	C6	CIA	ESE	Total
10	10	5	5	5	5	40	60	100

C1 – Internal Test-1

C2 – Internal Test-2

C3 - Seminar

C4 – Assignment

C5 - OBT/PPT

C6 – Non – Scholastic

COURSE OUTCOMES

On the successful completion of the course, students will be able to:

NO.	COURSE OUTCOMES	KNOWLEDGE LEVEL (ACCORDING TO REVISED BLOOM'S TAXONOMY)	PSOs ADDRESSED

CO 1	Describe the functions of blood and endocrine system	K2	PSO1
CO 2	Illustrate the anatomy and functions of circulatory system	K2	PSO1
CO 3	Identify the role of digestive and excretory systems	K3	PSO1
CO 4	Analyse the mechanism of musculoskeletal and respiratory systems	K4	PSO1
CO 5	Explain the structure and functions of nervous and reproductive systems	K5	PSO1

Mapping of COs with PSOs

CO / PSO	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10	PSO 11	PSO 12	PSO 13	PSO 14	PSO 15
CO1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CO2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CO3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CO4	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CO5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Mapping of C0s with POs

CO/ PSO	PO1	PO2	PO3	PO4
CO1	2	1	1	1
CO2	1	1	1	1
CO3	1	1	1	1
CO4	1	1	1	1
CO5	2	1	1	1

Note: Strongly Correlated – 3 ¨ Moderately Correlated – 2

¨ Weakly Correlated -1

COURSE DESIGNER:

1.Dr.Vasantha Esther Rani

3. Mrs.C.Helen

Forwarded By

(Dr.Vasantha Esther Rani)