

SNDT Women's University

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Syllabus **Post Graduate Diploma in Sports Science,** **Fitness and Nutrition**



SNDT Women's University
1, Nathibai Thackersey Road,
Mumbai 400 020

Revised – 2008

Eligibility:

Graduates in: Foods and Nutrition, B.Sc Applied Nutrition, B.Sc Dietetics and Food Service Management

Life Sciences,
Physiotherapy
Chemistry
Zoology
Physiology

Science graduates will be required to successfully complete a course in Human Nutrition as prescribed by the Department.

Students with the following undergraduate degrees are eligible provided they complete the required prerequisites by the end of Semester II i.e FY MSc: B.Sc Biochemistry, BSc Food Technology, B.Sc Life Sciences

Student should have obtained minimum 50% marks in the undergraduate degree or B grade from any recognized University

Prerequisites required:

Human Nutrition Theory and Practicals
Basic Food Science Theory and Practicals

Objectives:

1. To train and develop professionals with expertise in fitness and nutrition management for services in wellness Centres and Sports Academics
2. To develop capabilities to provide preventive, promotive and therapeutic care in health and diseases

Faculty Name: Home Science

Course Name Post Graduate Diploma in Sports Science, Fitness and Nutrition

SCHEME: Semester I

	Subjects	L	Cr	P/T	D	TP	Internal	P/V	T
1	Human Nutrition and Metabolism	3	3	-	2.5	75	-	-	75
2	Human Nutrition practicals	-	2	4	-	-	25	25	50
3	Human Physiology	4	4	-	2.5	75	25	-	100
4	Sports and Exercise Science Theory	4	4	-	2.5	75	25	-	100
5	Sports and Exercise Science Practical	-	4	8	-	-	50	50	100
6	Anatomy, Kinesiology and Ergonomics	4	4	-	2.5	75	25	-	100
	Total	15	21	12		300	150	75	525

Semester II

	Subjects	L	Cr	P/T	D	TP	Internal	P/V	T
1	Nutrition in Health and Disease	3	3	-	2	50	25	-	75
2	Nutrition for Sports and Exercise	4	4	-	2.5	75	25	-	100
3	Weight Management, Rehabilitation and Fitness Th	3	3	-	2.5	50	25	-	75
4	Weight Management, Rehabilitation and Fitness Pr	-	2	4	-	-	-	50	50
3	Catering Management for Sports and Fitness	-	4	8	-	-	50	50	100
4	Sports Psychology and Counseling	3	3	-	2	50	25	-	75
5	Seminar and Project	-	2	4	-	-	25	25	50
	Total	13	21	16		250	175	125	525

In addition to course work, three months of internship in sports/fitness industry and one month internship in the community is mandatory

Value added courses:

- 1. Stress Management**
- 2. Yoga**
- 3. Aerobics**
- 4. Prenatal and Postnatal Exercises**
- 5. Weight management**
- 6. Massage and Aroma therapy**

HUMAN NUTRITION AND METABOLISM

Objectives :

This course will enable the students to:

1. Impart knowledge regarding the principles of human-nutrition and metabolism of nutrients
2. Familiarize with basic concepts nutrient requirements and meal planning throughout the life cycle

Subjects	L	Cr	P/T	D	TP	Internal	P/V	T
Human Nutrition and Metabolism Th	3	3	-	2.5	75	-	-	75

Contents:

Block	Topics and Details	No of lectures	% weightage
1	Nutrition and its relation to health	1	
2	Food Acceptance and Food Behaviour Internal factors influencing the intake of food External factors influencing the intake of food	1	5
3	Digestion of Food- Role of gastrointestinal tract, hepatobiliary system and pancreas Absorption- mechanisms of transport	2	5
4	Digestion, Absorption and metabolic conversions (in brief), functions, sources, requirements effects of deficiencies and excess of Carbohydrates : sugar, starches, fibre Metabolic conversions to include utilization of glucose(postabsorptive), conversion to glycogen and fat Glucose homeostasis and role of hormones(in brief)	6	8-10
5	Digestion, Absorption, Transport (in brief), functions, sources, requirements, effects of deficiencies and excess of Lipids : fatty acids, fat, cholesterol Role of lipoproteins and implications for health (in brief)	5	8-10

Block	Topics and Details	No of lectures	% weightage
6	<p>Digestion, Absorption and metabolic conversions (in brief), functions, sources, requirements during different stages of life cycle, effects of deficiencies and excess of Protein and amino acids- essential and non-essential amino acids Disposal of nitrogenous wastes – role of liver and kidney Protein synthesis and breakdown vis-à-vis the intake</p>	4-6	8-10
7	<p>Absorption and transport, functions(physiological and biochemical), sources, requirements during different stages of life cycle, effects of deficiencies and excess Fat soluble vitamins</p> <ul style="list-style-type: none"> - Vitamin A - Vitamin D - Vitamin E - Vitamin K 	10	20
8	<p>Absorption and transport, functions(physiological and biochemical), sources, requirements during different stages of life cycle, effects of deficiencies and excess Water soluble vitamins</p> <ul style="list-style-type: none"> - Vitamin C - Thiamin - Riboflavin - Niacin - Pyridoxine - Folic acid - Vitamin B12 - Pantothenic acid - Biotin 	10-12	20
9	<p>Absorption & transport, functions (physiological & biochemical), sources, requirements during different stages of life cycle, effects of deficiencies and excess of Minerals and trace elements</p> <ul style="list-style-type: none"> - Calcium and phosphorus - Iron - Zinc - Fluoride - Iodine - Selenium - Copper - Sodium, Potassium and Chloride 	6-8	25

References:

1. Groff, James L & Gropper, Sareen S: Advanced nutrition and human metabolism. 3rd ed. Stamford : Wadsworth Publ, 1999.
2. Barasi, Mary E : Human nutrition : a health perspective. London : Arnold, c1997.
3. Present Knowledge in Nutrition. International Life Sciences Institute.
4. Eastwood, Martin & Edwards, Christine & Parry, Doreen : Human nutrition : a continuing debate. London : Chapman & Hall, c1992.
5. The Role of Fats in Human Nutrition/edited by F B Padley and Podmore. Chichester : Ellis Horwood, c1985.(Ellis Horwood Series in Food Science and Technology, edited by I D Morton)
6. Guthrie Helen (1986) Introductory Nutrition. Times Mirror/ Mosby College Publishing.
7. Mudambi, S.R., Rajgopal, M.V.(1990) Fundamentals of Foods and Nutrition, New Age International Pvt. Ltd.
8. Nutrient Requirements and Recommended Dietary Allowances for Indians- I.C.M.R. Publication 1999.
9. Robinsson, and Lawler. (1986) Normal and Therapeutic Nutrition. Mac Millan Pub.Co.
10. Elenaor N., Whitney S., Rady R. (1993): Understanding Nutrition, West Publishing Company, Minneapolis.
11. Wardlaw (1993): Perspectives in Nutrition, Paul Insel Mosby.
12. Bhatia Arti: Nutrition & Dietetics- Anmol Publication Pvt. Ltd.- New Delhi.
13. C. Gopalan, B.V. Ramasastry and S.C. Balasubramanian (1989)- Nutritive Value of Indian Foods. NIN ICMR Hyderabad 500 007

HUMAN NUTRITION

Subjects	L	Cr	P/T	D	TP	Internal	P/V	T
Human Nutrition Pr	-	2	4	-	-	25	25	50

Contents:

Blok No	Topic and Details	No of Periods	% weightage
1	Basic five food groups, dietary guidelines and food pyramid	2	10
2	Standardization of common recipes	10	10
3	Meal Planning and Preparation: Principles of meal planning Planning and preparation of nutritionally adequate diets for <ul style="list-style-type: none"> - Adult man - Adult woman - Adolescent - School going child - Preschooler - Pregnant woman - Lactating woman 	32	40
4	Planning and preparation of: <ul style="list-style-type: none"> - Energy dense recipes - High fibre recipes - Low fat recipes - Low sodium recipes - Micronutrient dense recipes 	20	40

References:

- 1 Basic Nutrition and Diet Therapy 7 ed Corinne H. Robinson, Emma S. Weigley Donna H. Mueller Macmillon Publishing Company
- 2 Nutrition in Health and Disease 17th ed L. Anderson Dibble P. R. Turkki H. S. Michael H. J. Ryribergen J. B. Lippincott Company, Philadelphia
- 3 Introductory Nutrition 6th ed Guthrie Helen A St. Louis C. V. Mosby
- 4 Fundamentals of Food & Nutrition Sumati R. Mudambi and M. V. Rajagopal New Age International (P) Ltd. Bombay

HUMAN PHYSIOLOGY

Objectives:

This course will enable students to:

1. Advance their understanding of some of the relevant issues and topics of human physiology.
2. Understand the integrated functions of all systems and the grounding of nutritional science in Physiology.

	Subjects	L	Cr	P/T	D	TP	Internal	P/V	T
	Human Physiology Th	4	4	-	2.5	75	25	-	100

Contents:

Block No	Topic and Details	No of periods	% weightage
1	Introduction to human physiology, cells, tissues, organs and system organization.	1	5
2	Cell structure, transport through cell membrane, Classification of tissue.	4	10
3	Nervous system , central and autonomic nervous system, organization, Structure and properties of nerve, transmission of impulse , resting and action potential, Reflex action , reflex arc.	4	10
4	Endocrine system - Different endocrine glands and their hormones, major functions, mode of action, feed back mechanism.	3	5
5	Digestive system- organs of GI tract and their major functions.	4	10
6	Cardiovascular system- anatomy of heart and blood vessels, conduction system in heart, Normal ECG. Systemic, coronary and pulmonary circulation. Cardiac cycle, cardiac output and blood pressure.	6	15
7	Respiratory system- anatomy, mechanism of respiration, lung volume and capacities, external and internal respiration, transport of O ₂ and CO ₂	6	15
8	Excretory system - anatomy, function, renal circulation, auto regulation of the circulation, Structural and functional unit, Urine formation.	4	15
9	Reproductive system- Male reproductive system-Structure and Function Female reproductive system - Structure and Function, menstrual cycle and pregnancy.	4	10
Block No	Topic and Details	No of Periods	% weightage
10	Immune system - Innate, acquired and active immunity, Cell mediated and humoral mediated immunity. Auto immune disease and Immune deficiency disorders.	4	5

References-

1. Understanding Medical Physiology , R.L. Bijlani, (1995) J P Brothers Medical Publishers.
2. Text Book of Medical Physiology, Guyton Hall , (2003)Saunders publishers.
3. Principles of Anatomy and Physiology. Tortora (2003) . John Wiley and sons.
4. Human Physiology, by C.C.Chatterjee, (2002)Medical Allied Agency,

SPORTS AND EXERCISE SCIENCE Theory

Objectives:

This course will enable students to:

1. Understand the scientific background of exercise and sporting activities
2. Prescribe and monitor the athletic and fitness programmes
3. assess effectiveness of the training

	Subjects	L	Cr	P/T	D	TP	Internal	P/V	T
	Sports and Exercise Science Theory	4	4	-	2.5	75	25	-	100

Contents:

Block No	Topic and Details	No of periods	% weightage
1	Sports, Games and Exercise , Types and description. Principles, importance, advantage and disadvantages of types of exercises including Aerobics, yoga, Resistance exercise, isometric and isotonic exercise etc.	4	5
2	Body composition: Body cell mass, Lean body mass, direct and indirect techniques for determining body composition; Body types, Kinanthropometry.	6	10
3	Skeletal muscle types , relation with different types of activities. Effects of over training and detection, Muscle fatigue, prevention and recovery.	4	15
4	The Cardio Respiratory system –effect of different types of exercise on cardiac cycle, cardiac output, blood pressure, peripheral adaptation and oxygen transport. Athletic heart. Index of training, Importance of heart rate monitoring, over training and detraining. Respiratory system- control during physical exercise. Effect of training on heart and lung performance, chronic and acute adaptation, Hypoxia and hypercapnia. Lung function test and its importance, Spirometry	8	25

Block No	Topic and Details	No of Periods	% weightage
6	Menstrual problems of female athletes. Female athletic triad.	4	10
7	Doping and its control.	2	10
8	Sports injury and rehabilitation. Stress and strain, Basic injuries in upper and lower limb, neck, trunk and hip joint and nerve injuries, acute and chronic back ache, foot problem in sports, role of physiotherapy and yoga, preventive exercise program.	4	5
9	Determination of energy expenditure in sports and exercise using various methods.	2	5

SPORTS AND EXERCISE SCIENCE
Practicals

	Subjects	L	Cr	P/T	D	TP	Internal	P/V	T
	Sports and Exercise Science Pr	-	4	8	-	-	50	50	100

Contents:

Block No	Topic Details	No of periods	% weightage
1	Physiological tools for testing and monitoring of training -Blood pressure, Heart rate, Calculating Training heart rate.	4	20
2	Exercise ergometry - Cycle ergometer, treadmill	4	20
3	Physical fitness assessment - Body composition , body fat % by skinfold method and Somatotyping. BMI, Ideal body weight. Assessment of Muscle Mass and Bone mass	6	20
4	Cardio-respiratory fitness - Max aerobic capacity using modified Harvard test (Queens college test) , Assessment of Physical work capacity (PWC) Physiological response on Bicycle ergometer/ trademill. Anaerobic threshold.	8	20
5	Flexibility, Muscular endurance and power.	4	20

References

1. Sports Physiology, by Edward L. Fox, Holt-Saunders International Editions, 1983.
2. Exercise Physiology, Energy, Nutrition and Human performance. McArdle, W.D.; Katch, F.I and Katch V.I.(eds).1996.
3. Essentials of Exercise Physiology. McArdle, W.D.; Katch,F.I and Katch V.I.(eds).1991
4. Satyanarayan, K; Nageshwar Rao. C; Narsinga Rao,B.S.; Malhotra, M.S. (1985). Recommended Dietary Intakes for Indian Sportsman and Women, Hyderabad, National Institute of Nutrition.
5. Applied Anatomy and Biomechanics in Sport;1994. - John Bloomfield, Timothy R. Ackland and Bruce C. Elliot; Blackwell Scientific Publications.
6. Measurement and evaluation for Physical Educators - Don Kirkendall, Joseph J Gruber and Robert E. Johnson. 1987. Human Kinetics Publishers Inc.

ANATOMY, KINESIOLOGY AND ERGONOMICS

Objectives:

This course will enable students to:

1. Utilize knowledge of biomechanics
2. Enable sportsmen/athletes and individuals who exercise to use optimum energy to maximize performance under normal and stressed conditions while minimizing injury
3. Provide the essential inputs for design of sports and exercise equipment .

Subjects	L	Cr	P/T	D	TP	Internal	P/V	T
Anatomy, Kinesiology and Ergonomics Th	4	4	-	2.5	75	25	-	100

Contents:

Block No	Topic Details	No of periods	% weightage
1	Introduction, definition and scope	1	5
2	Human anatomy and its applied aspects in body movement. Musculoskeletal system, general anatomy of bones, joints and muscular attachments, joints and their kinds. Muscle structure, functional units , their function, muscle types, recruitment and contraction of muscle fibre, neuromuscular structure .	8	25
3	Introduction, definition and scope of Kinesiology. Axis and planes, levers, kinematics (osteo and ortho), kinetics, Types of contraction, motion, velocity, development of force and its relation to muscular contraction, basis of human movement.	6	10
4	Basic rules of mechanics and its application in sports, external and internal forces, principles of stability, whole body centre of gravity, movement of inertia, dynamometry, static and dynamic forces, joint motion study. Posture, concepts, principles and adjustments	6	15
5	Definition of and need for sports Ergonomics Principles of ergonomics (Basic human factors and MME system).	1	10
6	Cumulative traumatic disorders, types, risk factors and prevention	2	10
7	Effect of work environment on health, safety and performance. Altitude, different climatic condition. Body temperature control and its importance in sports and performance. Process of heat transfer, thermal stress on physiological variables at rest and	6	15

	during activity. Heat tolerance, precautionary measures during the training in adverse condition.		
8	Principle of designing protective equipments in sports -shoes, helmets, shoulder pads, braces etc.	3	10

References

1. Joint structure and Function - Pamela K. Levangie and Cynthia Norkin ; 4th edition
2. Sports Injuries - Christopher Noriris
3. Industrial Therapy - Glenda Key
4. Ergonomics Edge - Dan Macloid
5. Sports Physiology, by Edeard L. Fox, Holt-Saunders International Editions, PP418, 1983.
6. The Physiological Basis of Physical Education and Athletics, by E. L. Fox and D.K..Mathews, Published by Holt-Saunders, 1981.
7. Text Book of Work Physiology, by P. Astrand and K.Rodahl, Published by McGraw-Hill, 1970.
8. Textbook of Medical Physiology, by A.C.Guyton, Published by W.B.Saunders Co., PP1014, 1991.
9. Fitting the task to the man, by E.Grandjean, Published by Taylor & Francis Ltd.1980.
10. Indian Anthropometric Dimensions: for ergonomics design practice, by D.Chakrabarti, Published by National Institute of Design, 1997.
11. The Mechanics of Athletics by G. Dyson, Published by Dover Publications Inc., 1962.
12. An Introduction to Measurement in Physical Education, by H. J. Montoye, Published by Allyn and Bacon Inc., 1978.

NUTRITION IN HEALTH AND DISEASE

Objectives:

This course will enable students to:

1. Understand regulation of fluid, electrolyte and acid-base balance
2. Understand energy metabolism and regulation of weight
3. Understand the nutritional implications of various diseases
4. Know the principles of diet management for selected disease conditions

Subjects	L	Cr	P/T	D	TP	Internal	P/V	T
Nutrition in Health and Disease	3	3	-	2	50	25	-	75

Contents

Block No	Topic and Details	No of periods	% weightage
1	Fluid balance, electrolyte balance and acid-base balance	6-7	10
2	Body composition -changes through the lifecycle	2	5
3	Energy Metabolism : 1. Energy : Metabolic Concept and Measurements a. Body's need of energy b. Metabolic processes to yield energy (in brief) c. Units of Energy 2. Energy Needs of the Body :BMR, REE, Voluntary activities, Influence of food, Energy requirements across the life span, Meeting energy needs (in brief)	5	7
4	Energy Balance- Maintaining body weight Undernutrition and Obesity – causes and consequences Basic Principles of nutritional care	4	8
5	Dyslipidemias, Hypertension and Heart disease Definition and indicators, etiological factors, principles of nutritional care	7	15-20
6	Diabetes Mellitus Definition, Classification and indicators, etiological factors, basic principles of nutritional care	7	15-20
Block No	Topic and Details	No of Periods	% weightage
7	Diarrhoea and dehydration	2	5
8	Introduction to Renal diseases Nomenclature, definition, indicators and basic principles of nutritional care	6	8-10
9	Nutrition and Bone health(preventive aspects)	3	8-10
10	Nutrition and Cancer(preventive aspects)	4	8-10

References:

1. Mahan, L.K. and Escott-Stump, S. (2000): Krause's Food Nutrition and Diet Therapy, 10th Edition, W.B. Saunders Ltd.
2. Shils, M.E., Olson, J.A., Shike, M. and Ross, A.C. (1999): Modern Nutrition in Health and Disease, 9th Edition, Williams and Wilkins.
3. Escott-Stump, S. (1998): Nutrition and Diagnosis Related Care, 4th Edition, Williams and Wilkins.
4. Garrow, J.S., James, W.P.T. and Ralph, A. (2000): Human Nutrition and Dietetics, 10th Edition, Churchill Livingstone.
5. Williams, S.R. (1993): Nutrition and Diet Therapy, 7th Edition, Times Mirror/Mosby College Publishing.
6. Davis, J. and Sherer, K. (1994): Applied Nutrition and Diet Therapy for Nurses, 2nd Edition, W.B. Saunders Co.
7. Walker, W.A. and Watkins, J.B. (Ed) (1985): Nutrition in Pediatrics, Boston, Little, Brown & Co.
8. Guyton, A.C. and Hall, J.E. (1999): Textbook of Medical Physiology, 9th Edition, W.B. Saunders Co.
9. Ritchie, A.C. (1990): Boyd's Textbook of Pathology, 9th Edition, Lea and Febiger, Philadelphia.
10. Fauci, S.A. et al (1998): Harrison's Principles of Internal Medicine, 14th Edition, McGraw Hill.
11. World Cancer Research Fund (1997). Food, Nutrition and the Prevention of Cancer- A Global perspective, Washington E.D. WCRF.

Journals and Other Reference Series

1. Nutrition Update Series
2. World Review of Nutrition and Dietetics
3. Journal of the American Dietetic Association
4. American Journal of Clinical Nutrition
5. European Journal of Clinical Nutrition
6. Nutrition Reviews

NUTRITION FOR SPORTS AND EXERCISE

Theory

Objectives:

This course will enable students to:

1. Understand the special nutritional requirements for physical activities related to sports and exercise
2. Apply the knowledge to improve the performance of sportspersons

	Subjects	L	Cr	P/T	D	TP	Internal	P/V	T
	Nutrition for Sports and Exercise (Th)	4	4	-	2.5	75	25	-	100

Contents:

Block No	Topic and Details	No of periods	% weightage
1	Introduction , Nutritional considerations for sports / exercising person as compare to normal active person.	2	10
2	Energy substrate for activities of different intensity and duration, aerobic and anaerobic activities.	2	10
3	Macro Nutrients -Carbohydrate as an energy source for sport and exercise. Carbohydrate stores, Fuel for aerobic and anaerobic metabolism, Glycogen re-synthesis, CHO Loading, CHO composition for pre exercise, during and recovery period.	8	20
4	Role of Fat as an energy source for sports and exercise. Fat stores, regulation of fat metabolism , factors affecting fat oxidation (intensity, duration , training status, CHO feeding) , effect of fasting and fat ingestion.	6	10
5	Protein and amino acid requirements , Factors affecting Protein turnover, Protein requirement and metabolism during endurance exercise, resistance exercise and recovery process. Protein supplement.	6	10
6	Important micronutrients for exercise. B complex vitamin and specific minerals. Exercise induced oxidative stress and role of antioxidants.	4	5
7	Dietary supplements and ergogenic aids (nutritional, pharmacological and physiological) .	4	5

Block No	Topic and Details	No of Periods	% weightage
8	Fluid balance in sports and exercise, importance, symptoms and prevention of dehydration, Sports drink,	4	15
9	Chronic dieting and eating disorder. Female athletic triad, sports anemia.	4	5

References

1. Bucci, L., 1993 Nutrients as Ergogenic Aids for Sports and Exercise. Boca Raton, FL.:CRC Press.
2. Advances in Sport and Exercise Science : Nutrition and Sport , Edited by Don MacLaren. , ChPublished by Churchill Livingstone, Elsevier. 2007
3. Sports Medicine: The school age athlete by Bruce Reider. 1996. Published by W.B. Saunders.
4. Nutrition for Serious Athletes. Dan Banardot. 2000; Human Kinetics.
5. Energy-Yielding Macronutrients and Energy Metabolism in Sports Nutrition. Edited by Judy A Driskell , Ira Wolinsky, CRC Press 2000.
6. Recommended Dietary Intakes for Indian Sportsman and Women. Satyanarayan, K; Nageshwar Rao. C; Narsinga Rao,B.S.; Malhotra, M.S. (1985)., Hyderabad, National Institute of Nutrition.

WEIGHT MANAGEMENT, REHABILITATION AND FITNESS Theory

Objectives:

This course will enable students to:

1. Develop professional expertise in weight management, rehabilitation and fitness
2. Help clients to sustain the changes achieved

Subjects	L	Cr	P/T	D	TP	Internal	P/V	T
Weight Management, Rehabilitation and Fitness Theory	3	3	-	2.5	75	-	-	75

Contents:

Block No	Topic and Details	No of periods	% weightage
1	Adult and Childhood obesity , Prevalence, Types, etiology, Theories of obesity, Factors affecting, Co-morbidity. Management through- Long term and short term measures, Nutrition, Exercise, pharmaceutical, Surgical, Stress Mgt. & Lifestyle modification.	12	25
2	Regulation of energy intake and expenditure, control of appetite and food intake , Foods selection and consumption pattern Hormonal control: Insulin , Thyroid & estrogen,	6	25
3	Critical evaluation of standard weight loss diet commonly followed by weight watchers.	4	15
4	Care and cure in rehabilitation , precaution. Necessity of continuous monitoring and necessary emergency procedures.	2	15
5	Components of fitness - Total Fitness (health related fitness) and Athletic fitness. Body Composition and types, Cardiorespiratory Fitness, Muscular endurance and power, Flexibility. Athletic Fitness- Balance, Coordination, Agility , reaction Time etc.	6	20

**WEIGHT MANAGEMENT, REHABILITATION AND FITNESS
Practicals**

	Subjects	L	Cr	P/T	D	TP	Internal	P/V	T
	Weight management, Rehabilitation and Fitness (Pr)	-	2	4	-	-	-	50	50

Contents:

Sr. No	Topic and Details	No of periods	% Weightage
1	Classification of obesity according to BMI. Assessment of body fat by different method, Fat distribution, Ideal body weight calculation using BMI, Body fat % and Broca's Index. Calculation of desirable body weight.	8	15
2	Types of Exercise including Aerobics, spinning, Tai Chi, Yoga, Power Yoga , Pillati, weight training, strength training, Circuit training, etc	4	10
3	Equipments commonly used in Fitness Industry, their advantages and limitation.	4	10
4	Exercise for weight gain / muscle development and improving muscle tone	4	10
5	Exercise for weight loss	4	15
6	Exercise for Cardio-respiratory fitness	4	15
7	Strengthening the joints and bones and increasing flexibility.	4	10
8	Therapeutic exercise and program designing for specific demands including specific joint problems, osteoporosis, arthritis, blood pressure, PCO, Diabetis and CVD. Precaution and indicators for stopping exercise and necessary emergency procedures..	8	15

References

1. Edward L. fox and Donald K Mathews (1985). CBS College Publishing. Japan
2. Present Knowledge in Nutrition; Ed, Myrtle L. Brown, ILSI Press.
3. David C. Nieman , Fitness and Sports Medicine, A Health related Approach (3rd edition, 1995
4. Bases of fitness- Edward L. fox , Timothy E. Kirby and Ann Roberts Fox (1987)
5. Measurement and evaluation for Physical Educators - Don Kirkendall, Joseph J Gruber and Robert E. Johnson. 1987. Human kinatics Publishers Inc.
6. The Physiological Basis of Physical Education and Athletics, by E.L.Fox and D.K.Mathews, Holt-Saunders, 1981.

CATERING MANAGEMENT FOR SPORTS AND FITNESS Practicals

Objectives:

This course will enable students to:

1. Plan and implement food preparation and service on large-service for sports camps
2. Prescribe specific nutrient rich, energy-rich, energy-diluent meal for improving performance
3. Plan and prepare meals, snacks and beverages for specific meals

	Subjects	L	Cr	P/T	D	TP	Internal	P/V	T
	Catering Management for Sports and Fitness Practical	-	4	8	-	-	50	50	100

Contents:

Sr. No	Topics details	No of periods	Weightage%
1	Block 1: Principles of meal planning for bulk cooking considering serving size and serving style Block 2 Market survey, procurement of raw material, storage, costing and budgeting	6 6	8
2	Meal planning for regular training, balanced diet of different calorific value for specific sport and exercising person (gymnast, Runner/ swimmers (sprinter, middle distance/ long distance, marathon) weight lifter, Boxer, cricketer, golfer, archery, throwing events, Hockey, Football , and aerobic and strength training exercise)	10	12

Sr. No	Topic and Details	No of periods	% Weightage
3	Block 1: Carbohydrate rich diet, cyclic menu, low glycemic and high glycemic food, Block 2: CHO loading, Block 3: Pre event meal and liquid meal.	10	15
4	Block 1: Post event meal, high energy meal, Block 2 Protein rich meal	10	15
5	Sports bar- Energy bar, protein bar and Nutri bar	12	10
6	Sports Drink – Hypo, Iso and Hypertonic drink for hydration/energy and recovery drink.	12	15
7.	Antioxidant rich diet	6	5
8.	Balance ethnic meal	12	5
9.	Meal for weight loss program	12	15

SPORTS PSYCHOLOGY & COUNSELING

Objectives:

This course will enable students to:

1. Understand the psychological problems during extreme physical and mental stress
2. Develop abilities to counsel individuals/groups for stress management, improve performance and boost morale of sportspersons

	Subjects	L	Cr	P/T	D	TP	Internal	P/V	T
	Sports Psychology and Counseling	3	3	-	2	50	25	-	75

Contents

Block No	Topic Details	No of periods	% weightage
	A) Sports Psychology		
1	Importance and need of Psychological Training in Sports.	2	5
2	The Emotional Contents of Sports : Intrinsic Pressures, Social Pressures & Personal Pressure.	2	5
3	Mind- The mechanics of Flight or Fight Response, The Physical Disruptions and the Mental Disruptions.	2	10
4	The Sports Emotional – Reaction profile :Factors affecting performance like Desire, Assertiveness, Sensitivity, Tension Control ,Personal Accountability, Self discipline, Confidence, Concentration, Consistency, Commitment and Trait Interaction.	4	15
5	Mental Preparation for the Game and Mental Practice for the play. Rational Emotive Mental Training Programme’ for sportsman using Mind-Body co-ordination	4	15
6	Techniques to Improve Performance -creative Visualisation, Desensitization, Auto-suggestion Therapy, Rational Thinking for specific purpose and Progressive Relaxation procedure	4	10
Sr. No	Topic and Details	No of periods	% Weightage

7	Understanding the problems of Sportsman - Lack of adequate motivation and concentration, Fear of Insecurity & Rejection, Fear of Making a wrong move, Not able to make the use of maximum available resources (Physical & Mental) Psychological Barriers between student & teacher and Drugs	4	20
8	Counselling in sports : Importance & Need of Psychological Counselling, Types of Counselling like Individual, Group, Team etc. Effective Counselling Methods & Techniques, Case studies, Role Plays and Discussion.	10	20

References

1. Sports Psychology by Yadvinder Singh
Publisher: Sports Publications
2. Sports Psychology Basics by Andrew Caruso
Publisher: Reedswain
3. Key Concepts In Sports Psychology by Ellis Cashmore
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