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 – 2015

Post Graduate Diploma in Sports Science, Fitness and Nutrition

Objectives:

1. To train and develop professionals with expertise in fitness and nutrition management for services in wellness/fitness centres, weight management programmes, and to school/college/university teams, health centres and sports academies.
2. To develop capabilities to provide individual counseling and group education in nutrition, exercise and fitness.
3. To prepare students for careers as entrepreneurs in organizing, directing or managing physical fitness programmes with a holistic approach to fitness and wellness.

Eligibility:

Students with minimum 50% marks or B grade who have BSc Foods and Nutrition, Food Science and Nutrition, Clinical Nutrition and Dietetics, Biochemistry, Life sciences, Applied Nutrition, Food Technology, Nutrition and Dietetics, Public Health and Nutrition, Physiology.

SCHEME: Semester I

Code No	Courses	Total credits	Th Cr	Pr Cr	Int Cr/ Marks	Ext Cr/Marks	Total Marks	U/C
103001	Human Nutrition and Metabolism	4	4	-	2/50	2/50	100	U
103002	Human Nutrition Pr	4	-	4	2/50	2/50	100	U
103003	Human Physiology	4	4	-	2/50	2/50	100	U
103004	Sports and Exercise Science Th	4	4	-	2/50	2/50	100	U
103005	Sports and Exercise Science Pr	4	-	4	2/50	2/50	100	C
103006	Anatomy, Kinesiology and Ergonomics	4	4	-	2/50	2/50	100	C
	Total	24	16	8	12/300	12/300	600	

Semester II

Code No	Courses	Total credits	Th Cr	Pr Cr	Int Cr/Marks	Ext Cr/Marks	Total Marks	U/C
203001	Nutrition in Health and Disease	4	4	-	2/50	2/50	100	U
203002	Nutrition for Sports	4	4	-	2/50	2/50	100	U

	and Exercise Th							
203003	Nutrition for Sports and Exercise Pr	4	-	4	2/50	2/50	100	C
203004	Weight Management, Rehabilitation and Fitness Th	4	4	-	2/50	2/50	100	U
203005	Weight Management, Rehabilitation and Fitness Pr	4	-	4	2/50	2/50	100	C
203006	Sports Psychology and Counseling	4	4	-	2/50	2/50	100	U
	Total	24	16	8	12/300	12/300	600	

Clinical Placement
Duration 4 months: May/June to September

HUMAN NUTRITION AND METABOLISM

4 Credits Theory

Objectives :
The course will enable the students to:
(i) Impart knowledge regarding the principles of human-nutrition and metabolism of nutrients
(ii) Familiarize with basic concepts nutrient requirements and meal planning throughout the life cycle

Module No	Topics and Details	Number of credits
1	**Nutrition and its relation to health** **Food Acceptance and Food Behaviour** Internal factors influencing the intake of food External factors influencing the intake of food **Digestion of Food-** Role of gastrointestinal tract, hepatobiliary system and pancreas Absorption- mechanisms of transport **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)	1
2	**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) **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	1
3	**Absorption and transport, functions(physiological and biochemical), sources, requirements during different stages of life cycle,effects of deficiencies and excess of** : Fat soluble vitamins - Vitamin A - Vitamin D - Vitamin E	1

	- Vitamin K Water soluble vitamins - Vitamin C - Thiamin - Riboflavin - Niacin - Pyridoxine - Folic acid - Vitamin B12 - Pantothenic acid - Biotin	
4	**Absorption and transport, functions(physiological and biochemical), sources, requirements during different stages of life cycle, effects of deficiencies and excess of** **Minerals and trace elements** - Calcium and phosphorus - Iron - Zinc - Fluoride - Iodine - Selenium - Copper Sodium, Potassium and Chloride	**1**

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 Techology, 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. Ramasastri and S.C. Balasubramanian (1989)- Nutritive Value of Indian Foods. NINICMR Hyderabad 500 007

HUMAN NUTRITION Practicals
4 credits

Module No	Topics and Details	Number of credits
1	**Basic five food groups, dietary guidelines and food pyramid Standardization of common recipes**	1
2	**Meal Planning and Preparation**: (a) Principles of meal planning (b) Planning and preparation of nutritionally adequate diets for - Adult man - Adult woman - Adolescent - School going child - Preschooler - Pregnant woman - Lactating woman	2
3	**Planning and preparation of:** - Energy dense recipes - High fibre recipes - Low fat recipes - Low sodium recipes - Micronutrient dense recipes	1

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 Techology, edited by I D Morton)

6 Guthrie Helen (1986) Introductory Nutrition. Times Mirror/ Mosby College Publishing.

7 Mudambi, S.R., Rajgopal, M.V. Latest dFundamentals 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. Ramasastri and S.C. Balasubramanian (1989)- Nutritive Value of Indian Foods. NIN ICMR Hyderabad 500 007

HUMAN PHYSIOLOGY

4 credits Theory

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.
3. Understand alterations of structure and function in various organs and systems in disease conditions.

Module No	Topics and Details	Number of credits
1	**Unit 1. Cell Structure** Levels of cellular organization Types of cell organelles, tissues, organs and systems Regulation of cell Multiplication **Unit 2. Tissues** Structure, physiological properties and function of Epithelial tissue Structure, physiological properties and function of Muscle tissue Structure, physiological properties and function of Nervous tissue Structure, physiological properties and function of Skeletal tissue (bone and cartilage) **Unit 3. Body Fluids** Blood, Lymph, CSF, Ocular, Interstitial, Pleural, Pericardial and Synovial fluids Blood formation, composition, coagulation, factors affecting coagulation, hemostasis. Blood groups and histocompatability, blood indices, Anemia. **Unit 4. Biological Aspects of Immunity** Innate, acquired and active immunity Cell mediated immunity Humoral immunity and complement system Tumor and transplantation. Auto immune disease Immune deficiency disorders Innate, acquired and active immunity, Cell mediated and humoral mediated immunity. Auto immune disease and Immune deficiency disorders.	1

2	Unit 1. Endocrine System Different endocrine glands and their major functions, synergistic and antagonistic hormones, chemical classification of hormones Hormone-Receptors, mode of action, second messenger system, negative feed back control. **Unit 2**. **Gastrointestinal system and Hepato biliary system** Structure, physiology and functions of different organs and role of hormones and enzymes **Unit 3. Excretory System** Components of Excretory System, Kidney: Structural and functional relation Urine formation Regulation of water balance, excreting dilute or concentrated urine Regulation of acid base balance	**1**
3	**Unit 1. Heart and Circulation** Basic Structure, special junctional tissues, cardiac muscle properties Cardiac cycle, cardiac output, factors affecting cardiac output Normal ECG, heart failure Systematic, pulmonary, coronary and portal circulation Blood pressure, control and factors affecting blood pressure. **Unit 2. Respiratory System** Structural components of Respiratory System External and Internal respiration Mechanical control of respiration Chemical control of respiration Neural control of respiration	**1**
4	**Unit 1**: Brain and Nervous system central and autonomic nervous system, organization, Structure and properties of nerve, transmission of impulse , resting and action potential, Reflex action , reflex arc. **Unit 2:** Musculoskeletal system **Unit 3: Reproductive System** Unit 1. Female Reproductive System – Structure and function of Ovary, Uterus Unit 2. Hormonal control of menstrual cycle Unit 3. Male reproductive system – Structure and Function of Testis, hormonal control of spermatogenesis.	

References:

1. West, J.B.: Best and Taylor's Physiological Basis of Medical Practice, 11th Edition.
2. Chatterjee, C.C. (2002): Human Physiology: Medical Allied Agency, Calcutta.

3. Guyton and Hall (2003): Test Book of Medical Physiology, 9th Edition, Prism Books Pvt. Ltd., W.B. Sanders Company, USA.
4. Tortora (2003) Principles of Anatomy and Physiology.. John Wiley and sons.
5. Keel and Neil: Samson and Wright's Applied Physiology (12th edition), Oxford University Press. London.
6. Ross and Wilson: Anatomy and physiology in Health and Illness, 8th Edition, Church Hill Livingstone, N.Y.

SPORTS AND EXERCISE SCIENCE

4 credits 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

Contents:

Module No	Topics and Details	Number of credits
1	**Sports, Games and Exercise**, Types and description. Principles of exercise, importance, advantage and disadvantages of types of exercises including Aerobics, yoga, Resistance exercise, isometric and isotonic exercise etc. **Body composition:** Body cell mass, Lean body mass, direct and indirect techniques for determining body composition; Body types, Kinanthropometry.	**1**
2	**The Cardio Respiratory system** –Athletic heart. Acute and chronic adaptation (effect of different types of exercise), 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 **Determination of energy expenditure** in sports and exercise using various methods.	**1**
3	**Skeletal muscle types**, relation with different types of activities. Physiological adaptations to strength training. Effects of over training and detection, Muscle fatigue, prevention and recovery. **Effects of exercise on nervous system.**	**1**
4	**Menstrual problems of female athletes. Female athletic triad.** **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. **Doping and its control.**	**1**

SPORTS AND EXERCISE SCIENCE

4 credits Practicals

Contents:

Module No	Topics and Details	Number of credits
1	**Physiological tools for testing and monitoring of training**-Blood pressure, Heart rate, Calculating Training heart rate. **Exercise ergometry**- Cycle ergometer, treadmill	1
2	**Physical fitness assessment-** Body composition , and other indices for assessment of obesity, body fat percentage by skinfold method and Somatotyping. BMI, Ideal body weight. Assessment of Muscle Mass and Bone mass	1
3	**Cardio-respiratory fitness** - Max aerobic capacity using modified Harvard test (Queens college test) , Nine minute walk / run test, One mile walk Assessment of Physical work capacity (PWC) Physiological response on Bicycle ergometer/ treadmill. Anaerobic threshold.	2
	Assessment of Flexibility, Muscular endurance, Strength and Power.	

References

1. Fox EL (1983).Sports Physiology.Holt-Saunders International Editions,
2. McArdle, W.D.; Katch, F.I and Katch V.I.(eds)..Exercise Physiology, Energy, Nutrition and Human performance. Latest edition
3. McArdle, W.D.; Katch, F.I and Katch V.I. (eds).Essentials of Exercise Physiology. Latest edition
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. Bloomfield J, Ackland TR. and Elliot BC (1994). Applied Anatomy and Biomechanics in Sportsssss. Blackwell Scientific Publications.
6. Kirkendall D, Gruber J J and. Johnson R E. (1987). Measurement and evaluation for Physical Educators -. Human Kinetics Publishers Inc.

ANATOMY, KINESIOLOGY AND ERGONOMICS

4 credits Theory

Objectives:

This course will enable students to:

1. Utilize knowledge of biomechanics
2. Enable sportsmen/athletes and physically active 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 .

Contents:

Module No	Topics and Details	Number of credits
1	**Introduction, definition and scope** **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. **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.	**1**
2	**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	**1**
3	**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 during activity. Heat tolerance, precautionary measures during the training in adverse condition**s.**	**1**
4	**Definition of and need for sports Ergonomics** Principles of ergonomics (Basic human factors and MME system). Cumulative traumatic disorders, types, risk factors and prevention. Principle of designing protective equipments in sports -shoes, helmets, shoulder pads, braces etc.	**1**

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 Anthropomeetric 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

4 credits Theory

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

Module No	Topics and Details	No of Credits
1	**Fluid balance, electrolyte balance and acid-base balance** **Body composition**-changes through the lifecycle **Diarrhoea and dehydration**	**1**
2	**Energy Metabolism** : 1.Energy : Metabolic Concept and Measurements (i) Body's need of energy (ii) Metabolic processes to yield energy (in brief) (iii) Units of Energy 2.Energy Needs of the Body :BMR, REE, Voluntary activities, Influence of food, Energy requirements across the life span and during exercise. Energy requirements across the life span, Meeting energy needs (in brief) **Energy Balance-** Maintaining body weight Undernutrition and Obesity – causes and consequences Basic Principles of nutritional care in weight management.	**1**
3	**Diabetes Mellitus** Definition, Classification and indicators, etiological factors, basic principles of nutritional care **Dyslipidemias, Hypertension and Heart disease** Definition and indicators, etiological factors, principles of nutritional care	**1**
4	**Introduction to renal diseases** **Nomenclature, definition, indicators and basic principles of nutritional care** **Nutrition and Bone health(preventive aspects)** **Nutrition and Cancer(preventive aspects)**	**1**

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

4 credits 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

Module No	Topics and Details	No of Credits
1	**Introduction,** Nutritional considerations for sports / exercising person as compare to normal active person. **Energy substrate for activities of different intensity and duration, aerobic and anaerobic activities**. **Fluid balance in sports and exercise, importance, symptoms and prevention of dehydration, Sports drink,**	**1**
2	**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.	**1**
3	**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 **Protein and amino acid requirements,** Factors affecting Protein turnover, Protein requirement and metabolism during endurance exercise, resistance exercise and recovery process. Protein supplement.	**1**
4	**Important micronutrients for exercise.** B complex vitamin and specific minerals. Exercise induced oxidative stress and role of antioxidants **Chronic dieting and eating disorder.** Female athletic triad, sports anemia **Dietary supplements and ergogenic aids** (nutritional, pharmacological and physiological)	**1**

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 Churchhill 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
4 credits 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

Module No	Topics and Details	No of Credits
1	**Regulation of energy intake and expenditure, control of appetite and food intake,** Foods selection and consumption pattern Hormonal control: Insulin , Thyroid & estrogen,	**1**
2	**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.	**1**
3	**Critical evaluation of standard weight loss diets commonly followed by weight watchers.** **Care and cure in rehabilitation**, precaution. Necessity of continuous monitoring and necessary emergency procedures.	**1**
4	**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.	1

WEIGHT MANAGEMENT, REHABILITATION AND FITNESS
4 credits Practicals

Module No	Topics and Details	No of Credits
1	**Equipments commonly used in Fitness Industry, their advantages and limitation.** **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. **Types of Exercise** including Aerobics, spinning, Tai Chi, Yoga, Power Yoga , Pilate, Strength training, Pyramid training, Circuit training, etc	1
2	**Exercise for : Cardio-respiratory fitness** **Strengthening the joints and bones and increasing flexibility.**	1
3	**Exercise for weight gain / muscle development and improving muscle tone** **Exercise for weight loss**	1
4	**Therapeutic exercise and program designing for specific demands** including specific joint problems, osteoporosis, arthritis, blood pressure, PCO, Diabetes and Cardio Vascular Disease. Precaution and indicators for stopping exercise and necessary emergency procedures..	1

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.

SPORTS PSYCHOLOGY & COUNSELING

4 credits Theory

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

Module No	Topics and Details	No of Credits
1	**A) Sports Psychology** Importance and need of Psychological Training in Sports. **The Emotional Contents of Sports** : Intrinsic Pressures, Social Pressures & Personal Pressure. **Mind**- The mechanics of Flight or Fight Response, The Physical Disruptions and the Mental Disruptions. **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.	1
2	**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	1
3	**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.	1
4	**Mental Preparation for the Game and Mental Practice for the play.** Rational Emotive Mental Training Programme' for sportsman using Mind-Body co-ordination **Techniques to Improve Performance** -creative Visualisation, Desensitization,Auto- suggestion Therapy, Rational Thinking for specific purpose and Progressive Relaxation procedure	1

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 Publisher: Routledge Foundation

4. A Comparative Study Of Sports Psychology by Dharmendra P Bhatt Publisher: Sports Publications

5. Basic Aspect Of Sport Psychology by D C Lal Publisher: Sports Publications

6. Essential Sport Psychology by Murphy Shane Publisher: Human Kine

7. Doing Sport Psychology by Andersen Mark Publisher: Human Kine

8. Sport Psychology: Contemporary Themes by Lavallee David Publisher: Palgrave M

9. Sport Psychology Interventions by Murphy Shane M Publisher: Human Kine

10. Sport Psychology (with Infotrac) by Arnold D Leunes Publisher: Wadsworth Publishing Company

11. Coaches Guide To Sport Psychology by Rainer Martens Publisher: Human Kinetics Publishers

12. Learning Experiences In Sport Psychology Publisher: Human Kine

13. Sport Psychology: The Key Concepts by Cashmore Ernest Publisher: Routledge

14. Applied Sport Psychology: Personal Growth To Peak Performance by 4th Edition Williams Publisher: Academic Internet Publishers