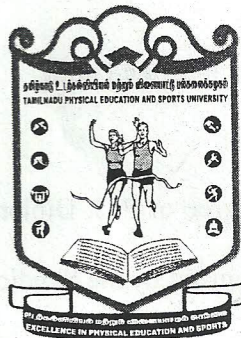


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TAMILNADU PHYSICAL EDUCATION AND SPORTS UNIVERSITY
CHENNAI-600 006



2009-2010

SYLLABUS
P.G. DIPLOMA IN FITNESS AND NUTRITION
(DISTANCE EDUCATION)

DEPARTMENT OF EXERCISE PHYSIOLOGY AND NUTRITION
Tamil Nadu Physical Education and Sports University
Chennai.

TAMIL NADU PHYSICAL EDUCATION AND SPORTS UNIVERSITY

P.G. DIPLOMA IN FITNESS AND NUTRITION
D.D.E PROGRAMME**REGULATIONS:****1. Duration of the Course:**

One Academic year July to May – Non Semester.

2. Objectives:

- (a) To provide well qualified Fitness trainers & Nutritionist in the field of Physical Education / fitness and sports.
- (b) To create Awareness of Fitness among the Public.

3. Eligibility for Admission to the Course:

A Candidate shall be admitted to the degree of P.G. Diploma in fitness and nutrition only if he/she successfully completed any degree recognized by the Syndicate, TNPESU.

4. Course of Study:

- (a) Effect of Exercise on Various Systems
- (b) Cardio Respiratory and Muscular Fitness
- (c) Exercise Prescription for Special Population
- (d) Health Promotion and Nutritional Care
- (e) Occupational fitness

Electives

- (f) Introduction to Basic Nutrition
- (g) Computer application in Fitness and Nutrition
- (h) Fitness and Wellness

5. Scheme of Examination:

Theory written examination will be conducted by the University – 100 marks for each paper.

6. Question Pattern:

5 Question (a) or (b) – each question carry 20 marks.

IM 25 Ext 75

SUBJECT CODE	PAPER	PASS	TOTAL
81101	Effect of Exercise on Various Systems II ✓	50	100
81102	Cardio Respiratory Muscular Fitness I	50	100
81103	Exercise Prescription for Special Population III	50	100
81104	Health Promotion and Nutritional Care V	50	100
81105	Occupational fitness IV	50	100
ELECTIVES			
81106(a)	Introduction to Basic Nutrition	50	100
81106(b)	Computer application in Fitness and Nutrition	50	100
81106(c)	Fitness and Wellness ✓	50	100
PRACTICALS			
81107	Fitness and Nutrition	50	100
Total		350	700

*Minimum pass marks 50.

P G DIPLOMA – FITNESS AND NUTRITION**SUBJECT CODE -81101
EFFECT OF EXERCISE ON VARIOUS SYSTEMS****Unit- I:**

Exercise and cardiovascular system- Changes in heart rate- Stroke Volume- Cardiac output- Changes in blood.

Unit- II:

Exercise and respiratory system- Changes in inspiration and Expiration- Lung volumes and capacities- Changes in ventilation.

Unit- III:

Training and muscular system – muscle adaptation during training-hypertrophy-muscle tone-coordination- sensory receptors.

Unit- IV

Exercise and nervous system- Training adaptation to nervous system – motor unit-screening and facilitation process-decision making process- controlling other activities during exercise.

Unit-V:

Exercise and endocrine system- Different glands- Secretion of different hormones- Pituitary hormones- Adrenal medullary and cortical hormones- Pancreatic hormones- Thyroid hormones.

Reference Books:

1. McArdle, William D, Frank I. Katch, Victor L Katch, (2005) "Essentials of Exercise Physiology", Philadelphia : Lea and Febiger.
2. Victor L. Katch, Frank I. Katch, William D. McArdle, (1996), "Exercise physiology", Williams and Wilkins.
3. William E. Garrett J.R. , Donald T. Kirendall, (2000), "Exercise and sports science", Lippincott Williams and Wilkins.
4. Greg Mclatchie, Mark Harries, Clyde Williams, John King, (2003), "ABC of sports medicines", BMJ Books.
5. Roger M. Enoka, (2002), "Neuromechanics of human movement", Human Kinetics.
6. Fox Edward et al., (1993), "The Physiological Basis for Exercise and Sports", Kerper Boulevard, Dubuque: Wm. C. Brown Communications, Inc.

SUBJECT CODE -81102

CARDIO RESPIRATORY AND MUSCULAR FITNESS
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UNIT I:

Increasing Cardio respiratory Endurance - Cardio respiratory Endurance, Cardio respiratory Endurance and Wellness, Principles of Conditioning Other Exercise outside rations, Environmental Conditions 1a

Unit II:

Heart and nervous system - location and functional anatomy of the heart, and locate the major arteries and vein, the functional the central and peripheral nervous system, Identify major muscle names and locations 2a

Unit III:

Physiology of Exercise-Physiology of the cardiopulmonary system, the three energy pathway systems, the cardiopulmonary responses to exercise and aerobic training, the four variable to consider when developing a CV training program, Describe basic skeletal muscle anatomy and physiology, Describe strength training guidelines 3a

UNIT IV:

Building Muscular Strength And Endurance-Health Benefits of Resistance Training, Anaerobic Exercise, Muscular Strength, Muscular Contractions and Resistance Training-Principles of Resistance Training, Muscular Endurance, Ergogenic Aids, Keeping a Daily Training Log 4a

Unit V:

Muscular Strength and Endurance -Benefits of strength training, biomechanical and physiological factors that affect strength, demonstrate the relationship between muscular strength and endurance, and demonstrate guidelines and considerations for effective strength Training. 5a

Reference Books

1. McArdle, William D, Frank I. Katch, Victor L Katch, (2005) "Essentials of Exercise Physiology", Philadelphia : Lea and Febiger. 5b
2. Victor L. Katch, Frank I. Katch, William D. McArdle, (1996), "Exercise physiology", Williams and Wilkins.
3. William E. Garrett J.R. , Donald T. Kirendall, (2000), "Exercise and sports science", Lippincott Williams and Wilkins.
4. Greg Mclatchie, Mark Harries, Clyde Williams, John King, (2003), "ABC of sports medicines", BMJ Books.
5. Roger M. Enoka, (2002), "Neuromechanics of human movement", Human kinetics.
6. Fox Edward et.al., (1993), "The Physiological Basis for Exercise and Sports", Kerper Boulevard, Dubuque: Wm.C. Brown Communications, Inc.
7. Lorry G. Shaver (1981). "Essentials Of Exercise Physiology" Delhi: Surjeeth Publications.

SUBJECT CODE -81103
EXERCISE PRESCRIPTION FOR SPECIAL POPULATION

Unit I:

Definition of Diabetes Mellitus – Prevalence of DM – Etiology of DM – Types of DM – Signs and Symptoms of DM – Prevention of DM – Exercise prescription for DM.

Unit II:

Definition of Hypertension – Prevalence of Hypertension – Etiology of hypertension – Types of hypertension – Signs and Symptoms and complications of hypertension – Prevention of hypertension – Exercise prescription for Hypertension.

Unit III:

Definition of obesity – Prevalence of obesity – Etiology of obesity – Types of obesity – Signs and symptoms of obesity – Prevention of obesity – Exercise prescription for obesity.

Unit IV:

Definition of Hypercholestermia and Coronary Heart Disease (CHD) – Prevalence of Hypercholestermia and CHD – Etiology of Hypercholestermia and CHD – Sign and symptoms of Hypercholestermia and CHD – Prevention of Hypercholestermia for CHD – Exercise prescription and Hypercholestermia for CHD.

Unit V:

Definition of Cancer and AIDS - Prevalence – Etiology – Signs and Symptoms – Prevention – Exercise Prescription for cancer and AIDS

Reference Books:

1. Greg Mclatchie, Mark harries, Clyde Williams, John king, (2003), “ABC of sports medicines”, BMJ Books.
2. Roger M.Enoka, (2002), “Neuromechanics of human movement”, Human kinetics.
3. Kelli McCormack Brown, David Q.Thomas, Jerome E.Kotecki, (2002), “Physical activity and health an interactive approach”, Jones and Bartlett Publishers.
4. Barbara herlihy, Nancy K.Maebius, Caithin Duckwall,(2003), “The human body in health and illness”, Saunders
5. Kate woolf- may, Steve Bird, Polly Davey, Jane Fallows, (2006), “Exercise prescription physiological foundations”, Churchill living stone.
6. Gordon Edlin, Eric golanty(2004), “Health and wellness”, Jones and Bartlett Publishers.
7. K.Lee lerner, Brenda wilmoth lerner, (2007), “World of sports science”, Thomson.

SUBJECT CODE -81104**HEALTH PROMOTION AND NUTRITIONAL CARE****Unit I:**

Historical Review of Exercise and Fitness – Future Challenges – Strategies for increasing physical activity in India – The wellness revolution all over the world – Definition of Physical activity, exercise and physical fitness – cardio respiratory endurance - Body composition and musculoskeletal fitness.

Unit-II:

The acute and chronic effects of physical activity, Effect of exercise on heart rate, stroke volume, and cardiac output – Major Cardio respiratory changes from exercise training when at rest.

Unit-III:

Benefits of musculoskeletal fitness – strategies for increasing physical activity in India – Physical Activity and Ageing, Statistics and trends, Ageing process, Health habits and ageing, physical activity and life expectancy.

Unit-IV:

Assessment of Nutritional status - Principles of Menu planning - Nutritional deficiencies – Nutritional needs for various ages-Recommended dietary allowances.

Unit-V:

Food toxins– food contamination – Pesticides, food borne illness, safe food handling parasitic infestation – vegetarian of diet – Principles of planning types – vegan food behavior advantages of vegetarian diet – Non nutritive foods – Weight management.

Books Reference:

1. Robert E.C.Wildman, Barry S. Miller, (2004), "Sports and fitness Nutrition", Thomson.
2. Heather Hedrick fink, Lisa A.Burgoon, Alan E.Mikesky, (2006), "Practical application in sports nutrition", Jones and Bartlett.
3. McArdle D.William (2005), "Exercise Physiology Energy Nutrition and Human Performance", (2ND ED) Philadelphia : Lea and Febiger.
4. Janice Thompson, Melinda Manore, (2005), " Nutrition: An applied approach", Pearson.
5. William D.Mcardle, Frank I.Katch, Victor L.Katch, (2000), "Essentials of exercise physiology", Lippincott Williams and wilkins.
6. William E.Garrett J.R. , Donald T.Kirendall, (2000), "Exercise and sports science", Lippincott Williams and wilkins.
7. Greg Mclatchie, Mark harries, Clyde Williams, John king, (2003), "ABC of sports medicines", BMJ Books.

SUBJECT CODE -81105

OCCUPATIONAL FITNESS

Unit: I-

Physical activity and heart disease, definition of heart disease, coronary heart disease, stroke, warning signals and risk factors for heart disease, arteriosclerosis and exercise. hypercholestraemia, lipoproteins and their formation and exercise, lifestyle factors and exercise in the prevention of heart disease.

Unit:II-

Physical activity and psychological health, meaning of stress, stress management principles, physical activity and stress, exercise addiction, mood disturbance and sleep disruption , effect of exercise on sleep, controlled studies on exercise and stress, self esteem cognition and exercise.

Unit: III -

Worksite health promotion and fitness activities, benefits of worksite programmers, impact of exercise on absenteeism, impact of medical and health care costs, cost-benefit of worksite exercise programmers, future growth predicted for worksite health programs.

Unit: IV-

Women and exercise, exercise and menstruation, changes in body composition, exercise during pregnancy,. Effect of weight training and osteoporosis, medico legal aspects of exercise and injuries.

Unit:V-

Physical activity and ageing, statistics and trends, ageing process, health habits and ageing, exercise and ageing, Vo2 max and ageing, physical training by the elderly, cardio respiratory, muscular strength and resistance training, body composition changes, physical activity and life expectancy.

Reference Books:

1. Greg Mclatchie, Mark harries, Clyde Williams, John king, (2003), "ABC of sports medicines", BMJ Books.
2. Roger M.Enoka, (2002), " Neuromechanics of human movement", Human kinetics.
3. Kelli McCormack Brown, David Q.Thomas, Jerome E.Kotecki, (2002), "Physical activity and health an interactive approach", Jones and Bartlett Publishers.
4. Barbara herlihy, Nancy K.Maebius, Caithin Duckwall,(2003), "The human body in health and illness", Saunders
5. Kate woolf- may, Steve Bird, Polly Davey, Jane Fallows, (2006), "Exercise prescription physiological foundations", Churchill living stone.
6. Gordon Edlin, Eric golanty(2004), "Health and wellness", Jones and Bartlett Publishers.
7. K.Lee lerner, Brenda wilmoth lerner, (2007), "World of sports science", Thomson.
8. Macdougel Dencan J Wrenger Howard A.and Green Howard J.(1991) Physiology Testing of the High Performance Athlete,(2nd ed), Illinois: Human Kinetics Books Champaign.

SUBJECT CODE -81106(a) (Elective)
INTRODUCTION TO BASIC NUTRITION

Unit I:

Carbohydrates - Definition, Classification and Types of carbohydrates - Function – Understanding Glycemic Index – Carbohydrate loading – Fuel for exercise – RDA.

Unit II:

Proteins – Definition, Types, Classification, and Importance in body function – Essential & Non essential amino acids – Fate of protein in endurance exercise – Use as organic acid – RDA.

Unit III:

Lipids – Definition, Types, classification –Essential Fatty acids – cholesterol – waxes – Fuels for exercise – Importance and function of fat – RDA.

Unit IV:

Vitamins – Types & classification – Importance in body function – Deficiencies, Sources – Requirement for athletes – Mega doses.

Minerals and trace elements – Importance of Iron, Calcium, Zinc, Chromium, Potassium, Magnesium, Selenium, Manganese – Electrolyte balance – Requirement for athletes – Cramping – Minerals as organic acid.

Unit V:

Fibre – types, classification, and function of fibre -Sources of soluble & insoluble fibre – Recommendations Diets while traveling.

Reference Books:

1. Janice Thompson, Melinda Manore, (2005), "Nutrition: An applied approach", Pearson.
2. Robert E.C.Wildman, Barry S. Miller, (2004), "Sports and fitness Nutrition", Thomson.
3. Heather Hedrick fink, Lisa A.Burgoon, Alan E.Mikesky, (2006), "Practical application in sports nutrition", Jones and Bartlett.
4. McArdle William D. et.al.,(2005)" Exercise Physiology, Nutrition and Human Performance, Philadelphia :lea and Febiger.
5. Mcardle, William D.,Katach, Frank I and Katach, Victor L(2005) "Exercise Physiology", Philadelphia ,lea and Febiger.
6. S.Paul (2007), "A textbook of Bio-Nutrition curing diseases through diet", CBS.
7. Judy A.Driskell, (2007), "Sports nutrition fats and proteins", CRC Press.

SUBJECT CODE -81106(b) (Elective)
COMPUTER APPLICATION IN FITNESS AND NUTRITION

Unit:I

Introduction to Computer- Definition – Types – of computer – basic parts – Hard Ware – Soft Ware input and output devices – Arithmetic and logic unit – Control unit – C.P.U – Comparison at human being and computer.

Unit:II

Computer memory – Secondary or auxiliary storage – computer language – Assembly language – Machine language – High level language – Binary , octal, hexadecimal number system – Bits, Bytes and words – Complement numbers – complement notation, floating point notation.

Unit:III

Microsoft word – Microsoft excel – Creating document, formatting, editing, deleting, coping etc, statistical application – introduction to database.

Unit:IV

Microsoft power point – preparing a slide – animation – clipart, picture from file – background designing application – introduction and communication.

Unit:V

Internet – introduction – history – uses – connection – worldwide web – usage of internet explorer – search box – Email – outwork express – inbox – outbox – sent time, drafts, sending message, save, print, reply. Forward previous message and next – Chatting.

Reference Books:

1. Abraham Silberchatz, Henry F. Korth and S.Sundarshan,(2002), “ Data Z Base System concepts”, 4th Edition McGraw Hill.
2. Michael Halvorson, Michael.J Young. Microsoft Office XP Inside Out (paper back), Microsoft press.
3. ITL Education Solutions Limited, (2005),” Introduction to Information Technology”, Pearson Education (India).

SUBJECT CODE -81106(c) (Elective)**FITNESS AND WELLNESS****Unit-I:**

Definition and Meaning of Physical Fitness-Physical Fitness - Components of Health Related Physical Fitness and Athletic related Physical Fitness -- Factors influencing fitness -- Definition and components of wellness -- Relationship between fitness, health and Wellness.

Unit-II:

Factors influencing Fitness - Age, Sex, Climate, Diet, Exercise and Training effects of Physical Activity on various systems of the body -- Health benefits of Physical Activity -- Assessment of Cardio-respiratory Fitness, Musculoskeletal Fitness.

Unit-III:

Prescription for aerobic exercise modes of aerobic exercise -- Implementing an aerobic fitness programme -- (walk-jog-run) aerobic dancing, rope jumping, treadmill running, Jogging in place stair climbing, stationary bicycling.

Unit-IV:

Prescription for Flexibility - Principles of flexibility Exercise -- Types of Flexibility and methods of training -- Flexibility exercise for the low back, round shoulders, joggers, runners and various muscles or upper and lower extremities.

Unit-V:

Resistance Training - Meaning -- Benefits of resistance training -- Terminology used in resistance training,-- Principles of exercise prescription Progression -- warm-up -- cool-down-Types of exercise Strength -- Exercise programming for resistance training.

Reference:

1. Franks Don B. et.al (1999) , The Health Fitness Handbook, Human Kinetics.
2. Lindsey Ruth, Corbin B.Charles (2007), Fitness for Life, Human Kinetics.
3. Pollock,Michael.et.al(1998), Health and Fitness Through Physical Activity,New York: McGrew Hill Book Company.
4. Williams H. Melvin (1995), Life time Fitness and Wellness, Brown Publicatinos, Dubugue.
5. Siedentop Daryl, 1994 "Introduction to Physical Education Fitness and Sport", Mayfield Publishing Company, Mountain view, California.