DDE

Tamil Nadu Physical Education and Sports University
Chennai-6

Department of Physical Education

P.G. DIPLOMA IN

FITNESS AND WELLNESS MANAGEMENT

Paper Title		Internal	External	Total
Theory				
Paper - I	Scientific Foundations of Fitness and Wellness	20	80	100
Paper-II	Exercise Testing and Prescription	20	80	100
Paper-III	Fitness Equipments Management	20	80	100
Paper-IV	Applied Kinesiology and Injury Management	20	80	100
Practicals				
Practical – I	Exercise Testing and Prescription	20	80	100
Practical –II	Fitness Equipments Management	20	80	100
	Total	120	480	600

Educational Qualification	Any degree recognized by the syndicate of the TNPESU
Stream	Regular/ Part Time/ Summer Sequential
Duration	One year

Paper I
SCIENTIFIC FOUNDATIONS OF FITNESS AND WELLNESS

UNIT - I

Fitness – Health related – Motor skill related Fitness – Components of Health related Fitness: Cardiovascular Endurance – Muscular Strength and Endurance – Flexibility – Body composition Components of Motor skill related Fitness: Reaction Time – Speed – Power- Balance- Agility- Coordination.

UNIT - II

Muscle physiology: - Muscle Micro and Macro structure – Sliding Filament theory – Types of muscle action. Neuro – muscular adaptations of exercise.

UNIT - III

Bio energetics: Biological energy system – Metabolism - Adenosine Triphosphate – Phosphagen systems – Glycolysis – Oxidative systems – substrate depletion and repletion – Limiting factors.

UNIT - IV

Exercise Techniques: - Warm-up – Stretching –Development of Strength, Speed and Endurance – Load Assignment: Volume – Frequency –training.

UNIT - V

Wellness: Components – Physical Fitness – Health Education – Cardiovascular Risk Reduction – safety – Substance Abuse control Smoking cessation – sexuality - Spirituality – Stress management – Cancer prevention – Nutrition.

Reference:

Werner W.K. Hoeger and Sharon A. Hoeger (1990) Fitness and Wellness, Morton Publishing Company, Canada.

Allsen, P.E. J.M.Harrison and B.Vance. Fitness for life: An individualized Approach. Dubuque,IA:Wm.C.Brown,1989.

Hawley. E.T. and Franks B.D. (1977) Health Fitness Instructor's handbook. Third Edition. Human Kinetics, Champaign Illinois.

Paper II
EXERCISE TESTING AND PRESCRIPTION

UNIT – I

Definition of exercise testing- need for exercise testing. Clinical assessment of exercise tolerance. Factors affecting exercise tolerance. Diagnostic purpose exercise testing, Indications, of exercise testing, Conditions that can be excluded, Clinician values of exercise testing.

UNIT – II

The exercise electrocardiogram. The normal and abnormal ECG, The ECG in athletes. Approaches to clinical exercise testing, Protocols in Exercise testing, Indications and contraindications to exercise testing.

UNIT – III

Borg scale for measurement of exercise related symptoms intensities. Coronary heart disease, Causes, prevention and therapy, arteriosclerosis, ischemia Responses to Static exercise, Benefits of exercise training, Special consideration for Prescribing exercise selection and intensity.

UNIT – IV

Diabetes, benefits of regular exercise, Exercise dangers and preventive measures, Dislipoproteinemias and factors associate with it, Ability to exercise, Effects of hypolipidemic treatment of ability to exercise, Effects of exercise on LDL, VLDL and HDL, Obesity and exercise.

UNIT – V

Exercise prescription, the individual approach, the aerobic session, Principles of Condoler Exercise prescription. Frequency, time, mode, of exercise, rate of progression. Principles of Strength training prescription musculoskeletal conditioning, Static stretching, systems of muscular strength and endurance training.

REFERENCES

JONES, N.L. (1988), Clinical Exercise testing W.B. Saunders Company, Philadelphia.

SKINNER, J.S. (1988), Exercise Testing and Exercise Prescription for Special Cases.

Paper III
FITNESS EQUIPMENTS MANAGEMENT

UNIT – I

Fitness Centre, Size, Measurements and other facilities, Exercise equipments – usefulness passive exercise machines – vibrating belts, vibrating pads, rollers, electrical stimulators, sauna suits and steam bath.

UNIT – II

Weight Training equipments:, Weight plates - Barbells – dumbbells – Exercise bikes, rowing machines. Skipping ropes, Elastic Strap. Advantage of free weights – advantages of machine systems. Weight lifting barbells and weights power lifting equipments, abdominal board. Push – up plus – steppers – wall – pulley – floor mats, weighted belts.

UNIT – III

Multigym: Weight Machines, Bench press, shoulder press, seated bench press. Lat pull down, leg press, leg extension Heel raise, low pulley – peck duck, Lateral raise, Leg extension leg curl, hip abductor, roman bench, preacher curl Half squat – smith machine – wrist curl abdominal conditioner – specification and purpose of each machine.

UNIT – IV

Treadmill- Steppers – Stair Climbers - Wave Rovers. Bike : Magnetic recumbent, upright and Spin. Cross trainer-Ellipticals.

UNIT – V

Criteria to be followed which selection the equipment – facts about quacks – facts about passive exercise and passive devices – weight belts – nonporous do garments – body wrapping – Elastic tights – vibrating tables and pillows.

REFERENCE:

Hawley. E.T. and Franks B.D. (1977) Health Fitness Instructor's handbook. Third Edition. Human Kinetics, Champaign Illinois.

Lindale J. (1995) Aquatic Fitness Professional Manual. Aquatic Exercise Association, Florida.

Pyke F.S. (1991) Better Coaching – Advanced Coach's Manual. Australian Coaching Council.

Manual, Stex Fitness Equipments.

Paper IV
APPLIED KINESIOLOGY AND INJURY MANAGEMENT

UNIT – I

Definition of the term Kinesiology and Kinetics and Kinematics, Framework of Joints, Types of bones, structure and function of long bones, Bone marrow, Agonist and Antagonist, Role of Fixator and Stabilizer, Role of Synergist and Neutralizer.

UNIT – II

Displacement, Velocity, Acceleration and its relationship for injury, Mass and Inertia, Force, Center of Mass and Center of Gravity, Moment of Force (Torque), Newton's Law of Motion, Equilibrium, work and Power, Momentum, Energy, Friction. Joint mechanics, Joint Mobility and Stability, Lever systems, Joint Motion, Joint reaction forces versus Bone on Bone Forces, Joint Lubrication.

UNIT – III

Criteria for good Posture, Evaluation of Posture, Maintenance posture, Causes of poor Posture, Removing causes, specific defects, and their implication to sports performance, Defects in the axial spine and appendicular skeleton.

UNIT – IV

Injury – Definition – Types of Injury – factors contributing to Injury – Controlling Injury risk – Reducing Injury occurrence – Injuries of Various tissues of Human Body – Prevention & Management of Soft Tissue Injuries – Sprain – Strain – Contusion – Bony Injuries – Fracture, dislocations – skin injuries – Incision, laceration, puncture, Abrasions, Hemorrhage -Blister, callus, corns, Ingrown toenail, plantar wart.

UNIT – V

Environmental injuries – Heat related Injuries – Heat cramps, Heat exhaustion, Heat stroke, Heat syncope. Cold Related Injuries –frostbite frost nip, hypothermia – Common orthopedical injury – Shin splints, Inflammatory reactions of bursa, capsule, synovial membrane, fascia, tendon, muscle, low back ache – First Aid – meaning of First aid – Qualities of First aider. Cardio pulmonary Resuscitation (CPR)

REFERENCE:

Health Fitness – Instructors Hand book – Edward T. Howley B.Don Franks
First aid and emergency care work book – Thygerson – Jones & Balett.
Adult CPR – American Red Cross – mosby
Current Therapy in Sports Medicine – Torg J.S., Welsh P.R. Shepard R.J. Mosby
Hay J.G. & Reid, The Anatomical and Mechanical Basis of Human Motion, Prentice Hall, Inc, USA, 1982.
Uppal A.K. Grey Kumar, L.V.U.Panda, M.M. Bio-Mechanism Physical Educaiton and Exercise Science, Friends Publication, India 2004.
Lutlgenste Hamilton N.Scientific Basis of Human Motion, MCB/McGraw-Hill, Boston, USA, 1997.