

TAMIL NADU PHYSICAL EDUCATION AND SPORTS UNIVERSITY

CHENNAI – 06

Name of the Course	:	PG Diploma in Gym Instructor
Stream	:	Distance Education
Educational Qualification	:	Any Degree
Duration	:	One Year
Medium of Instruction	:	English
Year of Commencement	:	2010 - 2011

TAMIL NADU PHYSICAL EDUCATION AND SPORTS UNIVERSITY

PG DIPLOMA IN GYM INSTRUCTOR

PAPER I

ANATOMY & PHYSIOLOGY

Unit I:

Introduction to Anatomy and physiology. Cell: Definition – Structure – Cell Organelles : Nucleus – Cytoplasm – Mitochondria – Endoplasmic Reticulum – Ribosomes – Golgi apparatus – Plasma membrane – Lysosomes. Constructional units - cells - tissues - organs – systems. Tissues – Types of tissues – Functions.

Unit II:

Nervous System: Classification of Nervous System: Central nervous system – peripheral Nervous System – Autonomic Nervous System – Structure and Function of brain and spinal cord – Neuron – Reflex Arc – Effects of training on nervous system.

Unit III:

Cardiovascular System – Structure and Functions of heart – Types of Circulation – Cardiac cycle – cardiac output – Blood pressure – pulse – Effects of training on cardiovascular system.

Respiratory System – Respiration – Structure and function of lung – mechanism of breathing – Lung volumes and capacities – Effects of training on respiratory system.

Unit IV:

Musculo skeletal system : Bone – Types of Bone – Functions. Joints – Types of joints – Functions. Muscle – Types of Muscle – Functions – Fatigue – Muscles of Upper Limb – Muscles of Lower limb – Muscles of trunk. Effects of training on Musculo skeletal system.

Unit V

Posture – Components of good posture – Poor posture – Types of posture – Posture correction. Energy systems – CP system – Aerobic energy – Anaerobic energy – Effects of training on energy systems.

Reference:

1. Anthony & Kothoff: Text Book of anatomy and Psychology C.V.Mosby & Co.,
2. Astran Pond K. Rodahl.1986. "Text book of work physiology "New York : Mc.Graw– hill.
3. Evelyn C. Pearce (1986) Anatomy to Physiology fro Nurses. Sixteenth edition Oxford University Press Calcutta.
4. Edward L. Fox, Donald K. Mathews (1981) the Physiology Basis of physical Education and Athletics. CBS College publishing. Third Edition.
5. W.C.Brown Devries , (1986) Physiology of exercise for physical education and athletics , Dubuque, iowa
6. Rasch P.(1989) Kinesiology and applied anatomy . Philadelphia , Lea & Febiger.

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PAPER II

SCIENTIFIC FOUNDATIONS OF FITNESS AND WELLNESS

UNIT I

Fitness – Definition – Health Related Physical fitness : Cardio respiratory Endurance – Muscle Endurance – Muscle Strength – Flexibility – Body Composition – Skill Related Physical Fitness : Agility – Speed – Balance – Co-ordination – Reaction Time – Power – Proprioception. Benefits of Physical Fitness – Acute and chronic effects of Physical Activity.

UNIT II

Warm up - Types of Warm up: General and Specific Warm up – Benefits of warm up – Cool down – Benefits of Cool down. Flexibility – Types of Flexibility : Static Flexibility – Dynamic Flexibility – Types of Stretching : Active Stretch – Passive Stretch – Static Stretch - ballistic Stretching – PNF Stretch. Benefits of Stretching – Myths of Stretching.

UNIT III

Exercise Prescription – Principles of Exercise Prescription – Cardiovascular Endurance training – Aerobic Exercise – Anaerobic Exercise – Resting Heart Rate- Karoven's Formula – Target Heart Rate – Exercise Programme for beginners, intermediate and advanced population – Benefits of Cardiovascular endurance- Myths of Cardiovascular endurance.

UNIT IV

Resistance Training – Principles of Resistance training – Muscular strength training: intensity – 1RM – Muscular endurance training – Muscle power – core training- benefits of muscular strength and endurance training- Myths of resistance training.

UNIT-V

First aid- principles of first aid- first aid kit- basic life support: air way, breathing, circulation- first aid for emergency situations in a fitness centre- Ethics of fitness trainer-qualities and qualifications of a gym instructor.

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PAPER III

FITNESS EQUIPMENT MANAGEMENT

UNIT I

Fitness Centre, size, measurement 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. Advantages of free weights - advantages of machine weights- Weight lifting barbells and weights, Power lifting barbells and, 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 deck, 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 rowers. Bike: magnetic recumbent, upright and spin-elliptical cross trainer- Exercise Cycle.

UNIT-V

Criteria of selecting gym equipments- facts about quacks- facts about passive exercise and passive devices-weight belts- body wrapping-elastic tights-vibrating tables and pillows.

REFERNCES :

1. Hawley ET and Franks BD (1977) Health Fitness Instructor's handbook Third Edition, Human Kinetics, Champaign Illinois.
2. Lindale J (1995) Aquatic Fitness Professional Manual, Aquatic Exercise Association, Florida.
3. Pyke FS (1991) Better Coaching – Advanced Coach's Manual, Australian Coaching Council.

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PRACTICAL - I

UNIT-I

Cardio vascular endurance assessment- sites of measuring resting heart rate and method of measuring resting heart rate, exercise heart rate and recovery heart rate.

UNIT-II

Muscular strength assessment.

UNIT-III

Muscular endurance assessment.

UNIT-IV

Flexibility assessment.

UNIT-V

Measurement of blood pressure, temperature, respiratory rate.

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PRACTICAL - II

UNIT-I

Exercise to improve Cardio vascular Endurance

UNIT-II

Exercise to improve muscular strength.

UNIT-III

Exercise to improve muscular endurance.

UNIT-IV

Exercise to improve flexibility

UNIT-V

Basic first aid procedures.