



KANNUR UNIVERSITY

SCHOOL OF PHYSICAL EDUCATION AND SPORTS SCIENCES

Syllabus for Certificate Course in Swimming Training

SYLLABUS

PAPER I- PRINCIPLES AND METHODS OF SWIMMING TRAINING

UNIT-1 INTRODUCTION

- 1.1 Swimming-Meaning and definition
- 1.2 Basic swimming skills –submerging, jumping, floating, locomotion & breathing -
- 1.3 Swimming pool rules and regulations
- 1.4 Safety and Sanitation of swimming pools
- 1.5 Chemicals required for maintenance
- 1.6 Pool water tests
- 1.7 Maintenance of Pool equipments.

UNIT-II -ORGANISATION

- 2.1 Swimming class management
- 2.2 Swimming competitions

UNIT-III - TECHNIQUES AND TEACHING OF DIFFERENT STROKES

- 3.1 Body position, arm action, leg action, breathing and coordination of Free Style
- 3.2 Body position, arm action, leg action, breathing and coordination of Back Stroke
- 3.3 Body position, arm action, leg action, breathing and coordination of Butterfly
- 3.4 Body position, arm action, leg action, breathing and coordination of breast Stroke
- 3.5 Grab Start- Track Start- Back Stroke Start
- 3.5 Free Turns - Open Turns

UNIT-IV SURVIVAL AND LIFE SAVING TECHNIQUE OF SWIMMING

- 4.1 Meaning and definition of First Aid
- 4.2 The PRICE principles of first aid -
- 4.3 The ABC and steps involved in Cardiopulmonary Resuscitation (CPR)
- 4.4 Life Saving - Indirect method- By reaching pole, By life saving rings, By rope, By life jacket - Direct method - Jumps, Approach, Hold, Artificial Resuscitation
- 4.5 Treatment for drowning ,fracture ,sprain and strain at swimming pool.

UNIT V- DIET , NUTRITION AND RECREATION

- 5.1 Basics of Nutrition :□Macro Nutrient, Micro Nutrient
- 5.2 Sources and functions of Nutrients
- 5.3 Balance diet- Calories & diet
- 5.4 Exercise & diet
- 5.5 Relationship between diet and swimming performance.
- 5.6 Active recreation in swimming Pools.

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13. Practical guide to First Aid Dr. Pippa Keech MBchB MRCGP ,published by Lorens Books, 2003
14. 'First Aid the Vital Link' The Canadian Red Cross Society , Mosby Lifeline 1994
15. Clark N (1997) Nancy Clark's Sports Nutrition Guidebook. Second Edition. Human Kinetics, Champaign Illinois.
16. Sharad Chand Mishra. Dr. (2005) Concepts & issues in sports Nutrition

PAPER II - HUMAN ANATOMY PHYSIOLOGY AND KINESIOLOGY

UNIT– I

Meaning of Anatomy and Physiology -**Cell**: Structure & Functions - The Cell theory - Types, shapes and size of cells -Organelles and their functions - Process of Active and Passive Transport in cells, DNA, Genes and Chromosomes- **Tissues**- Types of Tissues - Structure and functions of tissues :Epithelial tissue-Connective tissue -Muscular tissue - Nervous tissue

UNIT–II : SKELETAL SYSTEM

Axial and Appendicular skeleton - Classification of bones - Skeletal development from embryo to maturity - Classification of joints- Spinal Column & its Common Structural Deformities - Effect of Exercise on Skeletal System.

UNIT III: CARDIO RESPIRATORY SYSTEM

Structure and functions of the Heart- The organization of systematic and pulmonary circulation, Heart rate measurement , cardiac cycle, Cardiac output - Blood pressure (systolic/ Diastolic) - Calculation of Target Heart Rate zone -Respiration mechanism- Respiratory rate- VO_2 Max. - Minute Ventilation- - Effect of Exercise on Cardio Respiratory System.

UNIT IV: NERVOUS SYSTEM, ENDOCRINE SYSTEM AND DIGESTIVE SYSTEM

Nervous System Structure and functions of Neuron - Central nervous system (Brain and spinal cord) - Peripheral nervous system- Autonomic nervous System (Sympathetic and Para sympathetic nervous systems) -Effect of Exercise on nervous system. **-Endocrine System-** Location, structure and function of endocrine glands - Effect of exercise on Endocrine system. **-Digestive System-** Structure of digestive system - Mechanism of ingestion, digestion, absorption, assimilation & excretion - Effect of Exercise on Digestive system.

UNIT V: KINESIOLOGY

Kinesiology, Meaning and definition– Importance of Kinesiology – Fundamental concepts : Anatomical position, Body Cavities-, Axis, Planes and Directional terms – Fundamental movements- Major muscles of the upper body and lower body and their functions - Muscle Movement Classification –Agonist, Antagonist, Target , Synergist , Stabilizer, Connective tissues of muscular system - Tendons, Ligaments, Cartilage, Fascia , Bursa -Muscle Attachments : Origin , Insertion - Types of muscle contraction – Isotonic contraction- Concentric and Eccentric, Isometric (Static)- Posture and Movement analysis. Effect of Exercise on Muscular System.

References

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9. Hay, James G & Reid J.G. – Anatomical and Mechanical Basis of Human Motion, Prentice hall, New Jeresy, 1985.
10. Jenson C.R. & Schultzer G.W. – Applied Kinesiology and Biomechnics, Mc Grow hill book Co. New York, 1984,
11. Lock Hurt and others – Anatomy of the human body, Feber & Feber Oxford University, 1975
12. Pearce Evelyn – Anatomy and Physiology for Nurses, Oxford University, 1975.
13. Rasch & Bruke – Kinesiology and applied Anatomy, Lea Febriger, Philladelphia, 1978.
14. 13. Rasch, Philip J. – Kinesiology and Applied Anatomy, Lea Febriger, Philladelphia, 1989.

SWIMMING PRACTICAL

UNIT I - General exercises for swimming

- 1.1 General and specific warm up on land and in water
- 1.2 Limbering down

UNIT II - Development of General conditioning abilities.

- 2.1 Freehand/calisthenics exercises.
- 2.2 Development of basic endurance in swimming.
- 2.3 Development of basic strength, speed, flexibility and coordinative abilities required in swimming.

UNIT III - personal performance and demonstration ability in swimming strokes

- 3.1 Free style
- 3.2 Back stroke
- 3.3 Breast stroke
- 3.4 Butterfly
- 3.5 All starts and Turns

UNIT IV -Practice on Life Saving. Teaching Practice:

- 4.1 Indirect Method- Pole, rings, rope, life jacket
- 4.2 Direct Method- Jumps, Approach, Hold, Artificial Resuscitation
- 4.3 Steps in Cardio Pulmonary Resuscitation (CPR)

UNIT V- Test and Measurement

- 5.1 Swimming performance ability test- Speed test and Endurance test.
- 5.2 Cardio respiratory fitness - 12 Min. Run or Walk Test/ Harvard Step Test
- 5.3 Flexibility- Sit and reach test
- 5.4 Body composition - BMI/ Skin Fold Calliper

Reference

1. Maglischo, E.W.(1999): Swimming Fastest Mansfield Publishing Company, Polo Alto, California.
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