



**KANNUR UNIVERSITY**  
**SCHOOL OF PHYSICAL EDUCATION AND SPORTS SCIENCE**  
**Syllabus for Diploma in Kalarippayattu**

**I SEMESTER**

**PAPER I - FOUNDATIONS PRINCIPLES AND METHODS OF  
 KALARIPPAYATTU**

**UNIT-I**

- 1.1 Origin and development of Kalarippayattu  
 Legend, History of Kalarippayattu- Evolution of Kalari Martial Art from Sangam period onwards, Tamil literature, Influence of Chera Dynasty period.
- 1.2 Patronage of erstwhile Kerala Kings-Decadence during and after foreign rule in India-Ballads of Kerala
- 1.3. Revival in Post-independent India- Stalwarts and Kalari institutions instrumental to the revival

**UNIT-II**

- 2.1 Ethics of martial art traditions in India with special emphasis on Kalarippayattu- How Kalari trained masters became part of medieval period judiciary- Ankam, Poithu, Mamankam.
- 2.2 Different regional styles of Kalarippayattu existing or extinct in parts of Kerala- Their salient features.
- 2.3 Bearing of Kalari tradition on art, culture and rituals, simulation of erstwhile battles of Kerala- Theyyam ,Poorakkali, Kolkalli ,Circus and the like
- 2.4 Old and famous Kalaris in Kerala and Tulu Nadu and their social and spiritual importance.

**UNIT-III**

- 3.1 Differences of Callisthenics in kalarippayattu and in other martial art systems.
- 3.2 Kinds of body conditioning exercises (Meithary) of Kalarippayattu and the use of muscle groups and joints to their maximum potentials.

**UNIT-IV**

- 4.1 Different types of Kolthari exercises with three kinds of common wooden weapons to endow one with quick reflexes.

**UNIT-V**

- 5.1 Armed combat with sharp metallic weapons (Ankathari) and their salient features
- 5.2 Unarmed defence techniques (Verumkai) and their applications

## References

1. Sreedharan Nair T Chirakkal (2016). The Complete Guide to Kerala's Martial Art, Westland Books, Chennai.
2. Prasad S R D (2012) Mei Payattu, Kerala Folk Lore Academy
3. Sreedharan Nair T Chirakkal(2012) Uzhichal,Bharat kalari.
4. Prasad S R D (2004) Otta,Rainbow Book Publishers.
5. Vijayakumar K(2000). Keralathinte Shakhtiyum Vijayavum, Samskarika Vakuppu Publications.
6. Venugopalan A K (2005) Vattenthiruppu Sambradayam, Current books.
7. Phillip B Zarvilli,(2009).When Body Becomes All Eyes, Oxford, India.
8. Prasad S R D (2016) Kalaripayattu Vignana Kosham (Encyclopedia), Kairali Books.

## 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

### 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-  $VO_2 \text{ Max.}$  - Minute Ventilation

### 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)

**Endocrine System**- Location, structure and function of endocrine glands

**Digestive System**- Structure of digestive system - Mechanism of ingestion, digestion, absorption, assimilation & excretion

### 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.

## References

1. Saladin – Anatomy & Physiology : The Unit Form and Function, Published by
2. McGraw –Hill New Yord, 3 Ed, 2004
3. Gerard J. Tortora “Principles of Anatomy & physiology, Published by John Wiley & Sons, Inc, New York, 9<sup>th</sup> Ed, 2000
4. William Peter. L. Gray's Anatomy. Edinburgh; Churchill living stone, 1980.
5. Pearce Ecelyn C. Anatomy and Physiology for Nurses, Oxford University press, Kolkatta, 1978.
6. Thimpson, Elern. W. and R.T. Floyd; Manual of structural Kinesiology, St, Louis Morby 1994.
7. Hamilton, Nancy, Kinesiology, Boston , McGraw Hill, 2002
8. Crouch James E. – Essential Human Anatomy A Text – Lea & Febriger , Philladelphia, 1980.
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.

## **KALARIPPAYATTU PRACTICAL** (Basic and Intermediate level)

### **UNIT-I**

- 1.1 Dress code in Kalari
- 1.2 General warm up
- 1.3 Preliminary postures and phases -*Kalukal* in Kalari parlance
- 1.4 First series of *Meipayattu*.

### **UNIT-II**

- 2.1 1 to 5 series of *Kettukari* (long canes)

## 2.2 Second series of *Meipayattu*.

### UNIT-III

- 3.1 1 to 4 series of *Cheruvadi*
- 3.2 6 to 10 series of *Kettukari*
- 3.3 Swinging of long canes(vadi veesal)

### UNIT-IV

- 4.1 5 to 8 series of *Cheruvadi*
- 4.2 First and second series of *Otta*

### UNIT-V

- 5.1 Verum kaikal- Avoidance(*ozhivvukal*), Defensive Blocks.
- 5.2 Unarmed combat (*verumkai*), Locks and Holds (*Pidutham*)

### References

1. Sreedharan Nair T Chirakkal (2016). The Complete Guide to Kerala's Martial Art, Westland Books, Chennai.
2. Prasad S R D (2012) Mei Payattu, Kerala Folk Lore Academy
3. Sreedharan Nair T Chirakkal(2012) Uzhichal, Bharat kalari.
4. Prasad S R D (2004) Otta, Rainbow Book Publishers.
5. Vijayakumar K(2000). Keralathinte Shakhtiyum Vijayavum, Samskarika Vakuppu Publications.
6. Venugopalan A K (2005) Vattenthiruppu Sambradayam, Current books.
7. Phillip B Zarvilli,(2009). When Body Becomes All Eyes, Oxford, India.

## II SEMESTER

### PAPER III -KALARIPPAYATTU FOR SPORTS AND FITNESS

#### UNIT-I

Similarity and difference between Kalaripayattu and Physical exercises- Complimentary nature of Kalaripayattu in Sports – Kalaripayattu's many uses for an athlete. Role of Kalaripayattu in Sports promotion.

#### UNIT-II

System of physical exercises –Meaning of exercise and physical activity –various types of physical exercises-Structure of exercises- Isotonic and Isometric Exercises -Aerobic exercises – Anaerobic exercise- Resistance exercises-Therapeutic exercise –Corrective exercises –System of Kalari Exercise -Body exercises (Mei Payyattu), Exercises with wooden weapons(Koltharipayattu), Exercise with sharp weapons (Valppayattu etc), Bare-handed defence (verum kai exercises)

#### UNIT-III : CONCEPT OF FITNESS

Meaning and definition - Components of Fitness – Types of Fitness - Components of Health related Fitness- Cardio respiratory endurance, Muscular strength, Muscular endurance- Flexibility - Body composition - Use of Kalari training for general warm-up Kalari training for cardio-respiratory fitness, Use of Kalari training for improving core strength, flexibility and agility - Standard Tests for measurement of Components of health related fitness.

### **UNIT-V: FIRST AID**

Meaning, aims of first Aider, Responsibilities of First Aider, Cardiopulmonary Resuscitation (CPR), First aid for fracture, sprain, strains ,electric shock ,poisonous snake bites , burns ,near-drowning and spinal cord injury – Methods of Kalari First Aid.

### **UNIT VI : NUTRITION**

Meaning and definitions, Types of nutrition- Nutrients- macro nutrients and micronutrients - Malnutrition, definition, causes of malnutrition ,Diseases due to deficiency of vitamins and minerals, prevention of malnutrition- Adulteration in food, Steps to remove adulteration in food – Kalari Nutrition- Kalari diet for maintaining normal body composition.

### **Reference:**

1. Batman P. and Van Capelle M.(1995) The Exercise Guide to Resistance Training.FITAU publications. Australia.
2. Bucher, C. A. (n.d.) Foundation of physical education. St. Louis: The C.V. Mosby Co.
3. Deshpande, S. H. (2014). Physical Education in Ancient India. Amravati: Degree college of Physical education.
4. Dick, Frank W. (1980) sports Training Principles. London Lepus Books Stephen I. Bull (1999) Adherence issues in sports and exercise.
5. Havley E. T. and Franks B . D. (1997) Health Fitness instructions handbook . Third edition. Human kinetics Champaign Illinois
6. Mohan,V. M.(1969). Principles of physical education. Delhi: Metropolitan Book Dep.
7. Nixon, E. E. & Cozen, F.W. (1969). An introduction to physical education. Philadelphia: Pvt. Ltd., New Delhi).
8. Sreedharan Nair T Chirakkal (2016). The Complete Guide to Kerala's Martial Art, Westland Books, Chennai.
9. Prasad S R D (2012) Mei Payattu, Kerala Folk Lore Academy
10. 'First Aid the Vital Link' The Canadian Red Cross Society , Mosby Lifeline 1994
11. Terras S. (1994) Stress, How Your Diet can Help: The Practical Guide to Positive
12. Health Using Diet, Vitamins, Minerals, Herbs and Amino Acids, Thorons.

## **PAPER IV - PHYSIOLOGY OF EXERCISE AND KALARI MARMAS**

### **UNIT I –Skeletal Muscles and Exercise**

Macro & Micro Structure of the Skeletal Muscle, Chemical Composition-Types of Muscle fibre. Muscle Tone, Chemistry of Muscular Contraction – Heat Production in the Muscle, Effect of exercises and training on the muscular system.

### **UNIT II –Cardiovascular System and Exercise**

Heart Valves and Direction of the Blood Flow – Conduction System of the Heart – Blood Supply to the Heart – Cardiac Cycle – Stroke Volume – Cardiac Output – Heart Rate – Factors Affecting Heart Rate – Cardiac Hypertrophy – Effect of exercises and training on the Cardio vascular system.

### **UNIT III –Respiratory System and Exercise**

Mechanics of Breathing – Respiratory Muscles, Minute Ventilation – Ventilation at Rest and During Exercise. Diffusion of Gases – Exchange of Gases in the Lungs –Exchange of Gases in the Tissues – Control of Ventilation – Ventilation and the Anaerobic Threshold. Oxygen Debt – Lung Volumes and Capacities – Effect of exercises and Training on the respiratory system.

### **UNIT IV – MARMAS**

Concept of Marmas in Kalaripayattu

Location of Marmas on the Physical body and their impact on health

### **UNIT V – KALARI MARMAS AND THEIR PHYSICAL AND PHYSIOLOGICAL EFFECTS**

Classification of Kalari Marmas according to Agatsya - Padu Marmas and Thodu Marmas

Kalari Marmas according to Kulabhyasa(Kula Marmas)-Marmas of the arms, legs, abdomen, chest, sides and back, neck and head.

Kalari First Aid for skeletal and muscular injuries.

### **References:**

1. Amrit Kumar, R, Moses. (1995). Introduction to Exercise Physiology. Madras: Poompugar Pathipagam.
2. Beotra Alka, (2000) Drug Education Handbook on Drug Abuse in Sports: Sports

Authority of India Delhi.

3. Clarke, D.H. (1975). Exercise Physiology. New Jersey: Prentice Hall Inc., Englewood Cliffs.
4. David, L Costill. (2004). Physiology of Sports and Exercise. Human Kinetics.
5. Fox, E.L., and Mathews, D.K. (1981). The Physiological Basis of Physical Education and Athletics. Philadelphia: Sanders College Publishing.
6. Guyton, A.C. (1976). Textbook of Medical Physiology. Philadelphia: W.B. Sanders co.
7. Richard, W. Bowers. (1989). Sports Physiology. WMC: Brown Publishers.
8. Sandhya Tiwaji. (1999). Exercise Physiology. Sports Publishers.
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10. Vincent, T. Murche. (2007). Elementary Physiology. Hyderabad: Sports Publication.
11. William, D. Mc Aradle. (1996). Exercise Physiology, Energy, Nutrition and Human performance. Philadelphia: Lippincott Williams and Wilkins Company.
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14. Sreedharan Nair T Chirakkal(2012) Uzhichal,Bharat kalari.
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16. Sushrutha, Sushrutha Samhitha with Nibandha Sangraha vyakhyana of Dalhanacharya.YadavjiTrikamjiAcharya, editor. 8<sup>th</sup> ed. Varanasi: ChoukhambaSurabharthi Publication; 2005. Pp-824,p369-376.
17. Vagbhata, Astangahridaya with Sarvangasundara vyakhyana of Arunadatta and Ayurveda rasayana of Hemadri Hari Sadasiva Satri Paradakara Bhisagacarya, editor. 9<sup>th</sup> edition. Varanasi chaukambha orientalia 2005, Pp 956, p409-416.
18. Vijayakumar K(2000). Keralathinte Shakhtiyum Vijayavum, Samskarika Vakuppu Publications.
19. Venugopalan A K (2005) Vattenthiruppu Sambradayam, Current books.
20. Phillip B Zarvilli,(2009).When Body Becomes All Eyes, Oxford, India.
21. Kunhukrishnan Nadar.M- Marma Sastra Peedika.
22. Kochukrishna Nadar -Marma Sastra Samaharam

## **KALARIPPAYATTU PRACTICAL (Advanced level) AND KALARI THERAPY**

### **UNIT-I**

- 1.1 Advanced series of *Meipayattu*.
- 1.2 3 to 6 series of *Meipayattu*.
- 1.3 7 to14 series of *Meipayattu*

### **UNIT-II**

- 2.1 Angathari with sword ,spear, Urumi and Dagger
- 2.2 Sword swinging and Sword fight
- 2.3 Spear and sword skills of fighting.

## 2.4 Urumi and Dagger Skills of fighting

### UNIT-III

#### 3.1 Methods of Kalari First Aid for Skeletal / joint injuries , Muscular injuries

### UNIT-IV

#### 4.1 Karali Uzhichhal

#### 4.2 Kai Uzhichhal (hand massage) in lying position.

#### 4.3 Kai Uzhichil(hand massage) in standing position.

### UNIT-V

#### 5.1 Marma massage

#### 5.2 Foot massage (Chavitty uzichil)

### References

1. Sreedharan Nair T Chirakkal (2016). The Complete Guide to Kerala's Martial Art, Westland Books, Chennai.
2. Prasad S R D (2012) Mei Payattu, Kerala Folk Lore Academy
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6. Vagbhata, Astangahrdaya with Sarvangasundara vyakhyana of Arunadatta and Ayurveda rasayana of Hemadri Hari Sadasiva Satri Paradakara Bhisagacharya, editor. 9<sup>th</sup> edition. Varanasi chaukambha orientalia 2005, Pp 956, p409-416.
7. Vijayakumar K(2000). Keralathinte Shakhtiyum Vijayavum, Samskarika Vakuppu Publications.
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10. Sreedharan Nait T Chirakkal. Marma Darpanam, P K Brothers Kozhikode.



