

**Syllabus**

**for Courses affiliated to the  
Kerala University of Health Sciences  
Thrissur 680596**



**SIDDHA MARUTHUVA ARIGNAR  
(BACHELOR OF SIDDHA MEDICINE  
AND SURGERY-B.S.M.S.)**

**Course Code 005**

**(2016-17 Academic year onwards)**

**2016**

## 2 COURSE CONTENT

### 2.1 Title of course:

Siddha Maruthuva Arignar (Bachelor of Siddha Medicine and Surgery-B.S.M.S.)

The candidate shall be awarded Siddha Maruthuva Arignar (Bachelor of Siddha Medicine and Surgery-B.S.M.S.) degree after passing all the examinations and completion of the course of study extending over the period and the compulsory rotatory internship extending over twelve months.

### 2.2 Objectives of course

The Bachelor of Siddha education should aim at producing graduates of profound scholarship having deep basis of Siddha with scientific knowledge in accordance with fundamentals with extensive practical training so as to become efficient teachers, research scholars, physicians and surgeons of Siddha system, fully competent to serve the healthcare services of the country.

### 2.3 Medium of instruction:

Medium of instruction shall be English (except for the Tamil Language Paper)

### 2.4 Course outline

Four and half years course plus one-year internship. 13 Departments and 19 subjects to be taught.

### 2.5 Duration

The duration of the course shall be five years and six months comprising:—

First Professional - Twelve months

Second Professional - Twelve months

Third Professional - Twelve months

Final Professional - Eighteen months

Compulsory Rotatory Internship - Twelve months.

## 2.6 Subjects

Table 1

Name of the subject	Number of hours of teaching		
	Theory	Practical or Clinical	Total
<b>First Professional</b>			
1. Siddha Maruthuva Adippadai Thathuvangalum Varalarum [History and Fundamental Principles of Siddha Medicine]	150	---	150
2. Tamil Language applicable as per clauses (c) and (d) of regulation 2 relating to admission	100	---	100
3. Communicative English	100	---	100
4. Uyir Vedhiyiyal (Bio-Chemistry)	150	100	250
5. Maruthuva Thavara Iyal (Medicinal Botany and Pharmacognosy)	200	100	300
6. Nunnuyiriyal (Micro Biology)	100	100	200
<b>Second Professional</b>			
1. Udal Koorugal (Anatomy)	200	150	350
2. Udal Thathuvam (Physiology)	150	100	250
3. Siddha Maruthuva Mooligai Ariviyal (Siddha Medicinal Herbal Science)	200	100	300
4. Siddha Maruthuva Kanima, Kanima vethiyal and Siddha Maruthuva Vilangiyal	200	100	300

(Siddha Medicinal Geology, Medicinal Chemistry and Medicinal Zoology).			
<b>Third Professional</b>			
1. Noi Naadal - Paper I (Siddha Pathology)	200	100	300
2. Noi Naadal - Paper II (Principles of Modern Pathology)	150	100	250
3. Noi Anugavidhi Ozhukkam (Hygiene and Community Medicine including National Health Policies and Statistics).	100	---	100
4. Saarntha Maruthuvam Nanjima Maruthuvam (Forensic Medicine and Toxicology)	150	100	250
5. Research Methodology and Medical Statistics	100	--	100

Name of the subject	Number of hours of teaching		
<b>Final Professional</b>			
1. Maruthuvam (Medicine)	150	200	350
2. Varmam, Puramaruthuvam and Sirappumaruthuvam (Varmam Therapy and Special External Medicine)	150	200	350
3. Aruvai, Thol Maruthuvam (Surgery including dentistry and Dermatology)	150	200	350
4. Sool, Magalir Maruthuvam (Obstetrics and Gynaecology)	100	175	275
5. Kuzhanthai Maruthuvam (Paediatrics)	100	175	275

Note 1:- Clinical training to the students shall start from the commencement of third professional session onward.

Note 2:- The clinical training to the students in the hospital attached with college

The concept of Health Care Counselling shall be incorporated in all relevant areas

## **2.7 Total number of hours**

As shown in Table 1

## **2.8 Branches if any with definition**

Not applicable for UG Courses

## **2.9 Teaching learning methods**

Class room lecture, tutorial, seminar, group discussion, practical/ clinical training etc.

## **2.10 Content of each subject in each year**

### **SYLLABUS FOR FIRST PROFESSIONAL B.S.M.S.**

#### **1. SIDDHA MARUTHUVA ADIPPADAI THATHUVANGALUM VARALAARUM (HISTORY & FUNDAMENTAL PRINCIPLES OF SIDDHA MEDICINE)**

**Total Hours : 150**

##### **I. Three primordial, eternal entities and their siddhaanthic theories (Pathi, Pasu, Paasam).**

###### **(1) Pathi (Almighty): (5 hours)**

Definition and description of Pathi, existence of Pathi based on Epistemology (Alavai).  
Nine divine manifestations of Pathi (Thirumenikal). i.e.

1) Sivam 2) Sakthi 3) Naatham 4) Vindhu 5) Sadaasivam 6) Maheswaran 7) Ayan 8) Ari 6. Aran.  
c) Five divine powers of Pathi:-

Paraasakthi 2) Aadhisakthi 3) Gnaana Sakthi 4) Itchaa Sakthi 5) Kriyaasakthi. d) Study of cosmic play (Thirukoothu).

###### **(2) Pasu (Soul): (5 hours)**

Definition and description of Pasu, i.e., distinction between pathi and pasu - three kinds of soul - seven kinds of creation - four kinds of birth - Tholkaappiyer's classification based on senses.

###### **(3) Paasam (Bondages): (5 hours)**

Definition, description and classification  
i.e., Aanavam, Kanmam, Maayai, Mayeyam and Thirodaanam

## Classification of Maayai:-

Sutha Maayai: (Siva thathuvam) -5, Pure evolutes of Maayai: Sivam - Sakthi - Sadaasivam - Easwara - Sudhavidhai.

Asutha Maayai: (Vidya thathuvam) - 7 - Impure evolutes of Maayai: Kaalam - Niyathi - Kalai - Araagam - Viddhai -Puruden - Maayai.

Prakruthi Maayai: (Aanma Thathuvam) – 24, peculiar properties of soul: Thanmathirai -5, Bootham -5, Gnana indriyam -5, Kanmendriyam-5, Anthakaranam-4.

### **II. Deekai (Initiation towards the highest goal of life). (5 hours)**

a) Samaya Deekai b) Vishsha Deekai c) Niruvaana Deekai.

### **III. Epistemology (Alavai) - 10 types. Clinical Application – 5 Examples. (10 hours)**

1) Perception (kaandal), 2) Inference (Karuthal), 3) Testimony (Urai), 4) Non-existence (Abaavam), 5) Deduction (Porul), 6) Analogy (Oppu), 7) Inference by exception (Ozhibu ), 8) Co-existence (Unmai), 9) Tradition (Iytheekam), 10) Natural inference (Iyalbu).

### **IV. Different schools of thought regarding the creation of Universe - (5 hours)**

Relation between macrocosm and microcosm (Andathil Ullathe Pindam).

### **V. Five element theory (Iymbootha Kolgai). (5 hours)**

Creation of five elements - Properties of five elements - fivefold combination and its description (Panchabootha Panchikaranam) - application of five element theory in Siddha treatment aspect.

### **VI. 96 Fundamental Principles (Thathuvams) and its different concepts (15 hours)**

Sivaprakaasa Kattalai - Thirualavai Kattalai - Siddhaanta Kattalai - Vedaantha Kattalai - Thathuva Deepikai - Yugimuni's concept.

Bootham - 5 (five elements) - Pori - 5 (Sense organs) - Pulan - 5 (Perception by the sense organs) - Kanmendriyam - 5 (Motor organs) - Gnana Indriyam - 5 (The inner mechanism responsible for the perception of five senses ) - Karanam – 4 (four intellectual faculties) –

Arivu - 1 (Self-realization) - Naadi - 10 (Vital channel) - Vaayu - 10 (Vital forces) - Aasayam – 5 (Visceral cavities) - Kosam - 5 (fivesheeths) - Aathaaram - 6 (Six stations of soul) - Mandalam - 3 (Three regions) - Malam 3 (Three principles of moral evil) - Thodam – 3 (Three humours) - Eadanai - 3 (Three physical bindings) - Gunam - 3 (Three cosmic qualities) - Vinai - 2 (Acts) - Raagam - 8 (Eight passions) - Avasthai - 5 (Five states of consciousness).

### **VII. Three humoural theory ( Uyir Thaathukkal) : (15 hours)**

Vali, Azhal and Iyam.

Predominant locations - Properties - Physiological functions - Abnormal functions - Increased and decreased features– Temperament of an individual

### **VIII. Seven Physical constituents ( Udal Kattukal ) : (5 hours)**

Saaram (Primary nourishing juice) - Chenneer (blood) - Oon (muscle) - Kozhuppu (fat) - Enbu (Bone ) - Moolai (Bone marrow) - Suckilam / Suronitham (Sperm / Ovum). Description about 7 physical constituents i.e., Normal function, increased and decreased features.

### **IX . Five basic properties of Drug: (5 hours)**

Suvai (Taste) - Gunam (Characters) - Veeriyam (Potency) - Vibaavam (post absorptive tastes) - Prabaavam (Specific action).

Taste- relations with five elements- features of imbalanced intake of six tastes.

Marunthugalin vagaipaadugal with examples (Classification of raw drugs, Fundamental techniques of medicinal preparations)

**X. Definition and description of the following:-**

**(15 hours)**

1. Attamaa Sithigal
2. Thirukkural (Marunthu Athikaram)
3. Rasavaatham (Alchemy).
4. Muppu.
5. Kaayakalpam (Elixir Science).

**XI. History of Tamil Nadu including three Tamil Academies & Ancient Religious Traditions of Tamils (Arusamaiyakolgai)**

**(10 hours)**

**XII. Chuvadi Iyal.**

**A. MANUSCRIPTOLOGY**

**(20 hours)**

Introduction to Manuscriptology

History of Editing Palm leaf Manuscripts with special reference to Tamil

Palm leaf Manuscripts and Paper Manuscripts Editing

Application of Computer in Editing

**B. EDITING**

**(15 hours)**

Basics of Book Editing

History of Book publishing with special reference to Tamil

Proof Reading - Lay out

Book Production, Use of Computer in Editing

**C. PROJECT WORK**

Candidates shall have to undertake a field work regarding copying of Inscriptions or Editing a Palm leaf Manuscript or Editing a Paper Manuscript. The project work has to be submitted to the Head of the Department.

**XIII. History of Siddhars:-**

**(5 hours)**

Agasthiyar - Thirumoolar - Theraiyar - Yugimuni - Bohar - Sattamuni - Nandhidevar - Raamadevar - Dhanvanthri – Konganavar - Karuvoorar - Kaalanganadhar - Pulippaani - Paampaatti Siddhar - Macchamuni - Romarishi - Korakkar - Idaikaadar - Sundaraanandhar - Thiruvalluvar - Agappei Siddhar - Kuthambai Siddhar – Sivavaakkir - Azhuganni Siddhar - Pulathiar.

**XIV. Attaanga Yogam:-**

**(5 hours)**

Iyamam - Niyamam - Aasanam - Pranaayaamam - Prathiyaakaram - Dhaaranai - Dhiyaanam - Samaadhi.

## XV. Encyclopaedia of Siddha Medicine

### Reference Books:

S.No.	Name of book, Language, publishers & year of publication	Author
1.	Thotrakirama Araichiyum Siddha Maruthuva Varalarum, (Tamil), The Directorate of Indian Medicine and Homoeopathy, Govt. of Tamilnadu, Chennai. (2005)	Dr.K.S.Uttamarayan, H.P.I.M,
2.	Siddha Maruthuvanga Churukkam (Tamil), The Directorate of Indian Medicine and Homoeopathy, Chennai (2005)	Dr.K.S.Uttamarayan, H.P.I.M,
3.	Siddha Maruthuva Varalaru, (Tamil), International Institute of Tamil Studies, Chennai (2008)	Anaivari Aananthan
4.	Thenindhiya Maruthuva Varalaru, (Tamil) International Institute of Tamil Studies, Chennai (2008)	Ra. Niranjana Devi
5.	Suvatiyiyal (Tamil) International Institute of Tamil Studies, Chennai (1991)	Dr. P. Subramanian
6.	Fundamentals of manuscriptology, (English), Thiruvananthapuram Dravidian linguistics association (2003).	Visalakshy, P.
7.	Introduction to Manuscriptology, (English), Sharada Publishing House, Delhi 1996.	R S Shiva Ganeshamurthy
8.	Siddha Medical Manuscripts in Tamil, (English), International Institute of Tamil Studies, Chennai (1984)	Madhavan. V.R

9.	Thamizhil maruthuva ilakiyangal – or aaivu (Tamil) Poonkodi Publications, Chennai	Dr. R. Vaasudevan
10.	Pandai thamizhaga varaivukalum kuriyeedukalum (Tamil) International Institute of Tamil Studies, Chennai (2004)	Raasu. Pavunthurai
11.	Aasivagam Ennum Tamizhar Anuviyam (Tamil) Manitam Pathipagam, Trichy-21 (2013)	Neduncheliyan K
12.	Thamilar Varalaaru, (Tamil) Thamilmann Pathippagam, Chennai (2000)	Thevaneya Paavaanar
13.	Siddha Maruthuva Moola Thathuvam (Tamil) Sidha Maruthuvam Valarchi Kazhagam, Jaffna, Srilanka (2002)	S. Sivashanmuga raja
14.	Siddha Dossier, CCRS, Dept. of AYUSH, New Delhi (2013)	-

## Online Material

1. Tamil Maruthuva Varalatra Thonmaikal, Munaivar R. Vasudevan  
<http://ta.wikisource.org/s/bn>
2. Suvadi Iyal Arimukam [http://kovaimani-tamilmanuscriptology.blogspot.in/2012\\_04\\_01\\_archive.html](http://kovaimani-tamilmanuscriptology.blogspot.in/2012_04_01_archive.html)
3. Oolai chuvadi Aaivukal- Prof. Dr. R. Madhavan  
<http://www.tamilheritage.org/manulogy/madavan.html>
4. Religious Traditions of the Tamils (Prof. A. Velupillai)  
<http://tamilelibrary.org/teli2/archives/19>

## Other resources

### DVD

Historical Atlas of South India : a joint effort of French Institute of Pondicherry and the Tamil University, Thanjavur Reference URL: <http://www.ifpindia.org/histatlas>

## 2. TAMIL LANGUAGE

Total Hours : 100

### Objective:

To acquire knowledge to understand the contents that is available in classical Tamil Siddha literature.

## COURSE CONTENT AND SYLLABUS

- Unit : 1 Exercises and drills in the spoken and written variety (4 hrs)
- a) Alphabets in Tamil
  - b) An intensive course in Tamil, CIIL – MYSORE – by Dr.S. Rajaram
  - c) Subhramanian V.I. & Veeraswamy T.V., 1973, "Intensive course in Tamil", Dravidian Linguistics Association, Thumba, Trivandrum.
- Unit : 2 Exercise for Pronunciation (10 hrs)
- a) Tamil alphabets – Classification – Special features – Maththirai (Syllabi)
  - b) Tamil Words – Loan words – its written form – common words in Tamil and Regional language(viz. Malayalam)
- Unit : 3 Formation of words and sentences and study of Basic grammer on the functional level (15 hrs)

- a) Chol (word) – Peyar (Name), Vinai (Verb), Idai (clitics) etc.(Peyar (Name) – Gender, number & case; Vinai (Verb)- Kaalam (Tense) Orumai (Singular), Panmai(Plural)
- b) Thodar (syntax)/Vaakkiyam (Sentence), Kaalam (Tense), Orumai (Singular), Panmai (Plural), Ezhuvaai (Subject), Payanilai (Predicate), Cheyappaduporul (Object). (It is to understand the language structure).
- c) Selected Tamil Proverbs (10)

Unit : 4 Study of selected prose and poetry in Tamil and Siddha literature

**POETRY**

(24 hrs)

(Poems selected only for reading meaningfully and for memorising)

- a) Name of the book : Malarum  
maalaiyum Author : Kavimani  
Title : Pasuvum kantrum  
Lines : Thottathil meythu .....  
.....kantrukkuty. (2 stanzas)
- b) Pieces from Folk songs (Tamil)  
1) Padaku 2) Elelankadi Elelo
- c) Name of the book : Bhaarathiyar  
kavithaikal Author : Subramaniya  
Bhaarathiyar  
Title : Paappaa paattu  
Lines : Odi vilayadu papa .....  
.....Vazhakkappaduthikkollu papa (6stanzas)
- d) Title : Kontrai venthan (15 Lines)  
Author : Auvaiyaar
- e) Name of the book :  
Thirukkural Author :  
Thiruvalluvar  
Title : “Marunthu” Athikaram (10 verses)
- f) Name of the book : Maruthuva vatha yoga gnana  
satthiram Lines : “Aathikaalathilae thillayilae  
.....  
.....chernthaner  
emaikkaakavae”
- g) Name of the book : Yugichinthaamani  
Lines: “  
Uruthiyam poothathi .....  
.....uraikkak kelae”
- h) Name of the book :  
Author : Chithar Padalkal  
Kovinthan

- Lines : Thunaichiru..... (27)  
"Ettumalai....." (28)
- i) Name of the book : Thirumanthiram  
Author : Thirumoolar Marunthu  
Title : " Maruppathu udal noi....."  
: .....marunthenalamae"
- j) Name of the book : Siddha Maruthuva Chirappu  
Author : Dr. R. Thiagarajan  
Title : Ashtanka yokam  
Lines : "Eyama .....  
.....maavathumaame"
- k) Name of the book : Siddha Maruthuvaanka Churukkam Dr.  
Author : C.S. Uthamarayan – H.P.I.M.  
Title : Udal Aimpoothakkoorupaattaiyum Udaiyathu Enal.  
"Paarappa....."  
Lines : .....Lapamatha Mohamacham"
- l) Name of the book : Siddha maruthuvanka churukkam Dr.  
Author : C.S. Uthamarayan – H.P.I.M.  
Title : Iympootham – Arusuvai thodarpu  
Lines : "Mannudane .....  
.....uraittha maraiye"
- m) Name of the book : Siddha maruthuvanka churukkam Dr.  
Author : C.S. Uthamarayan – H.P.I.M.  
Title : Pathinaanku Vekangal  
Lines : "Pathinaanku....."  
: .....swasamaame"

PROSE

(21 hrs)

- a) Name of the book : Siddharkal charithram  
Author : Chollin selvan  
Chapter : Brahmamuni, Korakkar
- b) Name of the book : "Lemuria allathu Kumari Kandam"  
Chapter : Kumari nadu pattriya Tamil nool  
kurippukal  
Author : Panmozhi pulavar K.Appathurai.
- c) Name of the book : Pattukkottai Kaliyana  
Sundaram Padalkal Author: KunRakkudi Adikalaar  
Chapter : Preface of Pattukkottai kaliyana  
Sundaram Padalkal
- d) Name of the book : Nalla Theerppu  
(An eloquent speech of C.N. Anna Durai)

Unit : 5 Study of History of siddha medicine – Selected portion from the Siddha literature.

(20 hrs)

**Topics:-** Siddharkal enpor yaar?- Pathinen Siddharkal – Navanaatha Siddharkal – Siddha Maruthuvathin Chirappukkal – Siddha Maruthuva Varalaru in brief – Iyankum Porudkalum Iyankaa Porudkalum.(who are Siddhars'; Eighteen Siddhars – Navanatha Siddhars – The importance of Siddha medical practices- Brief history of Siddha medical practices – movable and immovable things)

Unit : 6 Exercises in narration / description of a story or an event in a paragraph. (3 hrs)

Unit :7 Translation from Tamil to Regional language or English – and Vice versa.

(3 hrs)

**References Books:**

S.No.	Name of book, Language, publishers & year of publication	Author
1.	Thottakkirama aaraichiyum siddha maruthuva varalaarum.	Dr. Uthamarayan
2.	Siddha maruthuvanga churukkam.	Dr. Uthamarayan
3.	Siddha vaidhya thirattu.	Dr. Uthamarayan
4.	Pathinen siddhargal varalarum Padaitha noolgalum.	Murugesan
5.	Siddhargal, Thamarai noolagam, Chennai – 26.	-

Note: **Internal Oral Test** to be conducted at the end of the course

### 3. UYIR VEDHIYIAL (BIOCHEMISTRY)

Total Hours : 150

#### 1. Chemistry of Carbohydrates:

(9 hours)

Functions of Carbohydrates, Classification of Carbohydrates, Classification and biomedical importance of monosaccharides, Reactions of monosaccharides, Classification and biomedical importance of disaccharides, Polysaccharides-Classification, composition and function.

#### 2. Chemistry of Lipids:

(8 hours)

Functions of Lipids, Classification of Lipids, Classification of fatty acids, Essential fatty acids, Free radicals and antioxidants, Types and functions of phospholipids, Glycolipids and lipo proteins, Steroids, Micelles, Names and functions of eicosanoids.

#### 3. Chemistry of Proteins :

(11 hours)

Functions of proteins, Classification of proteins based on chemical nature and solubility, classification of amino acids based on structure, Structure of proteins primary, secondary, tertiary and quaternary. Biologically important peptides. Plasma proteins: Types and major functions, the complement system.

#### 4. Nucleic acids and Biotechnology:

(8 hours)

Watson and cricks structure of DNA, Types and functions of RNA, structure of transfer RNA, Replication of DNA, Definition of transcription, Polymerase chain reaction (PCR), - Principle, technique, applications. Human genome project, Bioinformatics.

#### 5. Purine nucleotides:

(4 hours)

Degradation of purine nucleotides, Gout.

#### 6. Metabolism of carbohydrates:

(10 hours)

Glycolysis, TCA cycle, HMP shunt pathway, Glycogenesis, glycogenolysis, and Gluconeogenesis. Glucose homeostasis, Diabetes mellitus.

#### 7. Metabolism of proteins:

(6 hours)

Transamination, deamination and urea cycle. Biosynthesis of proteins (Translation).

#### 8. Metabolism of Lipids:

(9 hours)

Fatty acid oxidation, Ketone bodies, Ketosis. Biosynthesis of fatty acids, Biosynthesis of cholesterol, Degradation of cholesterol, Hypercholesterolemia, Metabolism of HDL, Fatty liver, Obesity.

#### 9. Biological oxidation

(8 hours)

Classification of high energy compounds, ATP-ADP cycle, oxidative phosphorylation and electron transport chain, substrate level phosphorylation.

- 10. Enzymes:** (9 hours)  
Classification, Factors affecting enzyme activity, Active site, Mechanism of enzyme action, Coenzymes, Diagnostic importance of enzymes, Enzyme pattern in diseases.
- 11. Digestion and absorption of carbohydrates, proteins and lipids.** (8 hours)
- 12. Haemoglobin:** (5 hours)  
Structure of haemoglobin, Biosynthesis of heme, Degradation of heme. Clinical significance of Glycosylated Haemoglobin, Jaundice, types of haemoglobin, abnormal haemoglobins
- 13. Vitamins:** (9 hours)  
Fat soluble Vitamins and Water soluble vitamins –food source, RDA, biochemical functions and deficiency manifestations.
- 14. Hormones: Biochemical functions and disorders.** (9 hours)
- 15. Minerals:** (9 hours)  
Macro Elements and Micro Elements–food source, RDA, biochemical functions and deficiency manifestations.
- 16. Metabolism of Xenobiotics (Detoxification).** (3 hours)
- 17. Water and electrolytes:** (5 hours)  
Functions of water, water turn over and balance, Composition of electrolytes in the body fluids.
- 18. Nutrition:** (7 hours)  
Calorie value of food stuffs, Basal metabolic rate, Specific dynamic action, Fibre in nutrition, Balanced diet, protein – Energy malnutrition, Energy requirements.
- 19. Cancer and AIDS:** (5 hours)  
Cancer – Etiology and tumour markers. AIDS – Transmission of HIV and Lab Diagnosis.
- 20. Organ function tests:** (8 hours)  
Liver function tests, Renal function tests, Thyroid function tests.

**PRACTICAL**

**Total Hours : 100  
(26 hours)**

**PART A. Qualitative Analysis:-**

**I. Reactions of carbohydrates -**

1. Reactions of Glucose.
2. Reactions of Fructose.
3. Reactions of Maltose.
4. Reactions of Lactose.

5. Reactions of Sucrose.
6. Reactions of Starch.

**II. Reactions of Protein -**

1. Reactions of Albumin.
2. Reactions of Peptone.
3. Reactions of Gelatin.
4. Reactions of Casein.

**III. Reactions of non protein nitrogenous substances – urea, uric acid, creatinine.**

**IV. Reactions of Normal Urine.**

**V. Analysis of abnormal urine.**

**PART B. QUANTITATIVE ANALYSIS**

**(48 hours)**

1. Estimation of Blood Sugar.
2. Estimation of serum total proteins.
3. Estimation of serum cholesterol.
4. Estimation of serum triglycerides.
5. Estimation of serum urea.
6. Estimation of serum uric acid.
7. Estimation of serum creatinine.
8. Estimation of serum bilirubin.
9. Estimation of serum inorganic phosphate.
10. Estimation of serum amylase.
11. Estimation of SGOT.
12. Estimation of SGPT.

**PART C: DEMONSTRATION**

**(6 hours)**

1. Glucose Tolerance Test with graph (Normal and Abnormal).
2. Paper electrophoresis.
3. Paper chromatography.

**PART D: SPOTTERS**

**(10 hours)**

1. Calorimeter
2. PH meter
3. Haemoglobinometer
4. Rhyles tube.
5. Spectroscope
6. Centrifuge
7. Electrophoresis
8. Chromatography
9. Osazones
10. Semi auto analyzer

**PART E: CASE REPORTS****(10 hours)**

1. GTT Graph
2. Renal Glycosuria
3. Acute myocardial infraction
4. Jaundice
5. Gout
6. Hyperthyroidism
7. Vitamin D deficiency
8. Renal failure
9. Kwashiorkor
10. Hypercholesterolemia.

**Reference Books:**

S.No.	Name of book, Language, publishers & year of publication	Author
1.	Biochemistry	U.Satyanarayana, U.Chakrapani
2.	Text book of biochemistry	D.M. Vasudevan, Sreekumari. S
3.	Biochemistry	Pankaja Naik
4.	Harper's Illustrated Bio - Chemistry	
5.	Manual of practical medical biochemistry	Evangeline Jones. M.D.
6.	Practical text book of biochemistry	D.M. Vasudevan, Subir Kumar das

**4. MARUTHUVA THAVARAIYAL (MEDICINAL BOTANY AND PHARMACOGNOSY)****THEORY:****Total Hours : 200****MEDICINAL BOTANY****Unit - I:****(25 hours)**

Definition - History and importance of Medicinal plants in Siddha science.

Plant biology and Medicinal uses of the following groups: Thallophytes, Bryophytes, Pteridophytes and Gymnosperms.

Study of Life-cycle of the following: Gracilaria, Penicillium, Parmelia and Dryopteris.

**Unit -II:****(35 hours)**

Taxonomy of Angiosperms- Natural system of classification (Bentham and Hooker)  
Herbarium Techniques

Diagnostic vegetative and Reproductive characters, Active principles and Pharmacological constituents of most used plants of the following families:

1. Ranunculaceae
2. Annonaceae
3. Menispermaceae

4. Capparaceae
5. Malvaceae
6. Zygophyllaceae
7. Rutaceae
8. Meliaceae
9. Fabaceae
10. Caesalpiniaceae
11. Mimosaceae
12. Combretaceae
13. Myrtaceae
14. Cucurbitaceae
15. Apiaceae
16. Rubiaceae
17. Asteraceae
18. Apocynaceae
19. Asclepiadaceae
20. Convolvulaceae
21. Solanaceae
22. Acanthaceae
23. Lamiaceae
24. Nyctaginaceae
25. Amaranthaceae
26. Aristolochiaceae
27. Euphorbiaceae
28. Zingiberaceae
29. Liliaceae
30. Poaceae

**Unit – III: (30 hours)**

Plant Anatomy: Idealised plant cell structure, cell organelles and cell inclusion.

Study of following anatomical structures Dicot leaf, stem and root, Monocot leaf, stem and root.

**Unit – IV: (25 hours)**

Plant Ecology - Plants in relation to environment - Hydrophytes, Mesophytes, Xerophytes and Halophytes.

Conservation of extant and endangered medicinal plants.

Plant tissue culture - culture methods - callus initiation - laboratory organization. Detailed study on phytochemical production in tissue culture methods. Maintenance of herbal gardens.

## **PHARMACOGNOSY**

**Unit-I:** (30 hours)

Study of organized raw drugs based on their morphology:

Roots and Rhizomes

Woods

Barks and Galls

Leaves

Flowers

Fruits

Seeds

Whole plant

**Unit -II:** (15 hours)

Study of unorganized raw drugs:

Gums

Resins and types

Fixed oils

**Unit -III:** (20 hours)

Phytochemistry (pharmacological actions of the following)

Glycosides-Anthroquinone, Cardiac and Saponins

Alkaloids-Tropane, Quinoline and Indole

Tannins-Hydrolysable and Condensed

Volatile oils-Obtained from the various plant parts

Pigmentation studies-Chlorophyll, Xanthophyll, A.nthocyanin

**Unit-IV:** (20 hours)

Adulteration of rawdrugs & detection. Poisonous plants. Basics of Herbal drug standardization.

**PRACTICALS:** Total Hours : 100

1. Microscopic slides observation of the non-flowering plant genera mentioned in Unit-I. (10 hours)

2. Identification of Angiosperm families given in Unit II. (20 hours)

3. Field study of various medicinal plants in their original habitat and pigment studies. **(15 hours)**
4. Submission of Herbarium (20 sheets) & Raw drugs (30). **(14 hours)**
5. Pigment studies - By paper chromatography method. **(3 hours)**
6. Anatomical study of plant parts — by section method mentioned in Unit III. **(12 hours)**
7. Plant Ecology - adaptation - Macroscopic & Microscopic mentioned in Unit IV. **(10 hours)**
8. Raw Drugs - Identification. **(16 hours)**

**References Books:**

S.No.	Name of book, Language, publishers & year of publication	Author
1.	College botany vol. I, II, III, Ed. 2000, New Central Book Agency Pvt Ltd.	Gangulee et al.
2.	Outlines of Botany,. Ed. 2003, S. Viswanathan Publishers.	V. Narayanaswamy et. al.
3.	Plant Ecology, S. Chand & Co.	Sharma
4.	A Text Book of Botany - Angiosperms, Rastogi Publishers, Meerut.	V. Singh, Pande & Jain
5.	Medicinal Botany Vol-I&II (Tamil) - Elangovan Publishers.	Somasundaram
6.	Medical Taxonomy of Angiosperms. Recent trends in Medical used and Chemical constituents. Harishi Publication, Chennai.	S. Shankaranarayanan
7.	Taxonomy of Angiosperms (Tamil) V.K. Publishing House, Chennai	S. Pazhaniyappan
8.	Elements of Biotechnology, Rastogi & Company.	P.K. Gupta
9.	Text Book of Pharmacognosy, Nirali Prakashan, Pune.	Gokhale et. al.
10.	Practical Pharmacognosy, Vallabh Prakasham, Delhi – 34.	Dr. C.K. Koate.

## 5. NUNNUYIRIYAL (MICROBIOLOGY)

Total Hours : 100

### General Bacteriology

(15 hours)

1. Introduction and History
2. Morphology of Bacteria
3. Growth and Nutrition of Bacteria
4. Classification and Identification of Bacteria
5. Culture media and cultivation methods
6. Sterilization and disinfection
7. Antimicrobial sensitivity

### Systemic Bacteriology

(30 hours)

1. Gram Positive Cocci - Staphylococcus, Streptococcus, Pneumococcus & Enterococcus
2. Gram Negative Cocci - Meningococci and Gonococci
3. Enterobacteriaceae - Escherichia, Klebsiella, Proteus, Salmonella and Shigella
4. Vibrio cholerae, Pseudomonas, Haemophilus
5. Clostridium tetani, C.perfringens, C.botulinum
6. Bacillus anthracis
7. Corynebacterium diphtheriae
8. Mycobacterium - Tuberculosis and Leprosy
9. Spirochetes - Treponema & Leptospira
10. Mycoplasma, Chlamydiae & Rickettsiae

### Immunology

(20 hours)

1. Infection
2. Structure and function of immune system
3. Immunity
4. Antigens
5. Antibodies
6. Antigen - antibody reaction - Agglutination, Precipitation, Immunofluorescence, Coomb's Test, ELISA, Western blot
7. Complement system
8. Hypersensitivity
9. Auto-immunity

### Mycology

(5 hours)

1. Opportunistic Mycosis
2. Dermatophytes
3. Cryptococcus, Rhinosporidium and Histoplasma
4. Mycotoxicosis and Mycetism

### Virology

(20 hours)

1. General properties and cultivation of Virus

2. Bacteriophage
3. Pox virus
4. Herpes virus - HSV-I & II
5. Myxovirus - H1N1, Avian flu, Mumps and Measles
6. Corona virus — SARS
7. Polio virus
8. Rabies virus
9. Hepatitis virus (A, B & C)
10. Arbo virus - Chikungunya, Dengue & Rubella
11. Retro virus - HIV

**Clinical Microbiology (10 hours)**

1. Nosocomial infection
2. UTI
3. Meningitis
4. Bacterial food poisoning
5. PUO
6. Biomedical waste management
7. Vaccines (Bacterial & Viral)

**Practical**

**Total Hours : 100**

1. Microscopy - Light, Dark Ground, Fluorescent, Electron (6 hours)
2. Staining - Gram's and AFB staining. (15 hours)
3. Culture methods - Streak plate, Anaerobic, RCM. (11 hours)
4. Bacterial identification - Esch.coli, Klebsiella, Pseudomonas, Vibrio cholerae, Corynebacterium, diphtheriae, Staphylococcus aureus. (45 hours)
5. Serology - WIDAL & VDRL with clinical significance. (4 hours)
6. Immunology — ELISA, Latex agglutination. (6 hours)
7. Mycology - LPCB mounting. (6 hours)
8. Viral model - Rabies, HIV, Orthomyxo & Adeno virus. (7 hours)

**Reference Books:**

S.No.	Name of book, Language, publishers & year of publication	Author
1.	Text Book of Microbiology	Ananthanarayan and C.K. Jayaram Paniker
2.	Text Book of Microbiology	D.R. Arora and B Arora
3.	Medical Microbiology	Robert Cruik Shank

## Second Professional BSMS

### 1. UDAL KOORUGAL (ANATOMY) PAPER I

Total Hours : 100

#### I. OSTEOLOGY WITH APPLIED ANATOMY

(30 hours)

1. General structure of bone and Ossification
2. Types of bones
3. Skull – Norma frontalis, Norma verticalis, Norma basalis, Norma lateralis, Norma occipitalis, Cranial fossa
4. Paranasal sinuses
5. Mandible
6. Hyoid bone
7. Vertebral column – Cervical, Thoracic, Lumbar, Sacrum and Coccyx - (Typical and atypical)
8. Ribs, Costal cartilages and Sternum
9. Bones of Upper limb – Clavicle, Scapula, Humerus, Radius, Ulna
10. Name and numbers of Carpal, Metacarpal and Phalanges
11. Bones of Lower limb – Hip bone, Comparison between male and female pelvis, Femur, Patella, Fibula, Tibia
12. Name and numbers of Tarsal, Metatarsal and Phalanges
13. Arches of foot

#### II. ARTHROLOGY WITH APPLIED ANATOMY

(10 hours)

1. Classification of joints
2. Temporomandibular joint
3. Intervertebral joints
4. Shoulder joint
5. Elbow joint
6. Wrist joint
7. Hip joint
8. Knee joint
9. Ankle joint

#### III. MYOLOGY WITH APPLIED ANATOMY

(20 hours)

1. Scalp
2. Muscles of facial expression
3. Muscles of mastication
4. Muscles of eye ball
5. Suprahyoid muscles
6. Infrahyoid muscles
7. Name of the Pre and Para vertebral muscles

8. Lattismus dorsi, Erector spinae, Trapezius, Rhomboideus major and minor, Name of other muscles of back
9. Pectoral region muscles
10. Scapular region muscles
11. Muscles of Arm
12. Muscles of Forearm
13. Name of muscles of hand
14. Intercostal muscles and diaphragm
15. Anterior and Posterior Abdominal wall muscles
16. Names of Pelvic floor and Perineal muscles
17. Gluteal muscles
18. Muscles of thigh
19. Muscles of leg
20. Name of the muscles involved in the formation of sole of foot

#### **FOSSAE AND TRIANGLES\***

**(5 hours)**

1. Triangles of neck
2. Axilla
3. Cubital fossa
4. Ischiorectal fossa
- 5) Inguinal Canal
- 6) Adductor Canal
- 7) Femoral triangle
- 8) Popliteal fossa

#### **IV. ANGIOLOGY**

(Origin, termination, course and branches/tributaries have to be studied)

##### **ARTERIAL SYSTEM**

**(20 hours)**

1. Aorta – Ascending aorta – Coronary arteries – Arch of aorta – Brachiocephalic trunk – Left and Right Common Carotid – Left and Right Subclavian arteries
2. External and Internal carotid arteries, Vertebral and Basilar arteries – Formation of Circle of Willis
3. Major Arteries in Upper limb – Axillary – Brachial – Radial – Ulnar arteries – Superficial and deep palmar arches
4. Thoracic aorta – Abdominal aorta
5. Common iliac – External and Internal iliac artery
6. Major arteries in Lower limb – Femoral – Popliteal – Anterior and Posterior Tibial Arteries – Dorsalis Pedis artery – Plantar arch

##### **VENOUS SYSTEM**

**(10 hours)**

1. Dural Venous Sinuses

2. External and Internal Jugular Vein
3. Veins of Upper limb –Dorsal Venous arch - Cephalic – Basilic – Median Cubital Vein
4. Coronary sinus
5. Veins of thorax – Brachiocephalic – Azygos – Hemi azygos – Accessory azygos
6. Superior and Inferior vena cava
7. Portal vein and Portacaval anastomosis
8. Veins of lower limb –Dorsal Venous arch – Great and small Saphenous – Anterior and Posterior Tibial Vein

## **V. LYMPHATICS**

**(5 hours)**

1. Cisterna Chyli – Thoracic duct – Right lymphatic duct (2 hrs.)
2. Axillary, Cervical, Inguinal lymph nodes and its drainage (3 hrs.)

## **PRACTICALS FOR UDAL KOORUGAL – I**

**Total Hours : 75**

1. Whole body dissection.
2. Specimen demonstration.

**(25 hours)**

**(50 hours)**

## **REFERENCE BOOKS**

1. Gray's Anatomy – 40<sup>th</sup> Edition
2. Text book of Anatomy – T.S. Ranganathan - 5<sup>th</sup> revised edition
3. Human Anatomy – B.D. Chaurasia - Fourth Edition
4. Text book of Anatomy – Inderbir Sing – 5<sup>th</sup> Edition
5. Fundamentals of Human Anatomy – A.S. Moni
6. Atlas of Anatomy – Inderbir Sing

## **2. UDAL KOORUGAL (ANATOMY) PAPER II**

**Total Hours : 100**

### **I. NERVOUS SYSTEM**

**(40 hours)**

1. Meninges of brain and spinal cord
2. Cerebrum – Lobes, Surfaces, Poles, Fissures, Sulci and Gyri, Areas, Types of fibres, Corpus callosum and Internal capsule
3. Basal nuclei
4. Names of nuclei of Diencephalon
5. Thalamus, Hypothalamus – Parts, Nuclei and Connections
6. Location and boundaries of Ventricles
7. Formation and circulation of CSF
8. External and internal features of Brain stem
9. External and internal features of Cerebellum

10. External and internal features of Spinal cord including tracts
11. Cranial nerves
12. Formation of typical spinal nerves and intercostal nerves
13. Formation of Cervical, Brachial, Lumbar and Sacral plexus including branches
14. Name and location of Sympathetic and Parasympathetic ganglion

## **II. SPECIAL SENSES**

**(10 hours)**

1. Eye
2. Ear
3. Nose
4. Tongue
5. Skin

## **III. RESPIRATORY SYSTEM**

**(5 hours)**

1. Larynx
2. Trachea
3. Mediastinum
4. Pleura, Lungs and Bronchopulmonary segments

## **IV. CARDIOVASCULAR SYSTEM**

**(2 hours)**

1. Heart
2. Pericardium

## **V. DIGESTIVE SYSTEM**

**(20 hours)**

1. Oral cavity, Palate, Salivary glands
2. Structure and types of teeth
3. Pharynx
4. Oesophagus
5. Stomach
6. Small intestine
7. Large intestine
8. Peritoneum and its folds
9. Liver
10. Extra biliary apparatus
11. Pancreas

## **LYMPHOID ORGANS\***

**(3 hours)**

1. Spleen
2. Thymus glands
3. Tonsils

## **VI. UROGENITAL SYSTEM**

**(15 hours)**

1. Kidney
2. Ureter

3. Urinary bladder
4. Male and female urethra
5. Male reproductive organs - Scrotum, Testes, Epididymis, Seminal vesicles, Vasdeferens, Spermatic cord, Prostate gland, Penis
6. Female reproductive organs – Uterus, Uterine tubes, Ovaries, External genitalia, Mammary glands

#### **VII. ENDOCRINOLOGY**

**(5 hours)**

1. Pituitary gland
2. Pineal gland
3. Thyroid and Parathyroid
4. Adrenal gland

#### **PRACTICALS FOR UDAL KOORUGAL – II**

**Total Hours : 75**

1. Whole body dissection
2. Specimen demonstration

**(25 hours)**

**(50 hours)**

#### **REFERENCE BOOKS**

1. Gray's Anatomy – 40<sup>th</sup> Edition
2. Text book of Anatomy – T.S. Ranganathan - 5<sup>th</sup> revised edition
3. Human Anatomy – B.D. Chaurasia - 4<sup>th</sup> Edition –
4. Text book of Anatomy – Inderbir Sing – 5<sup>th</sup> Edition
5. Fundamentals of Human Anatomy – A.S. Moni
6. Atlas of Anatomy – Inderbir Sing

### **3. UDAL THATHUVAM (PHYSIOLOGY) PAPER I**

**Total Hours : 50**

1. Ninety six fundamental principles (Thathuvams) and its details. Five elements (Iymbootham) – five sense organs (pori) – five senses (pulan) – Motor organs (Kanmendriyam) – Discriminative power of five senses (Gnanandriyam) – Four intellectual faculties (Karanam) – Wisdom of Self realization (Arivu) – Ten Vital channels (Dhasa nadi) – Ten vital Air (Dhasavayu) – five visceral cavities (Asayam) – five sheaths (Kosam) – Six vital centres of the Soul (Aatharas) – Three regions (Mandalam) – Three impurities of soul (malam), Three humours (Thodam) - Three physical bindings (Edanai) – Three cosmic qualities (gunam) - Two acts (Vinai) – Eight passions (Ragam) – Five states of consciousness (Avathai).

**(5 hours)**

1. Five elements and its medical aspects. Creation of five elements – properties – five fold combination ( panchikaranam) – Manifestation of five elements in our body (panchaboortha

koorugal (or) Purakaruval) – Relation between five elements & six tastes – Five elements and three humours – five elements and seven physical constituents.

**(5 hours)**

3. Development of Embryo according to Siddhars' concepts. Role of five elements during fertilization, and intrauterine life – Different stages of foetal growth – sex determination & Determination of life span according to Siddhar's concept. **(5 hours)**
4. Three humoral theory Vatham:- Predominant locations – properties – physiological role. Functional varieties of vatham – Pranana – Udana – Samana – Abana – Vyana – Naga – Koorma – Kirukara – Devadhana – Dhananjaya. Pitham:-Predominant locations – properties – physiological role. Functional varieties of pitham - Pasaka – Ranjaka – Sathaka – Aalosaka – prasaka. Kapham:- Predominant location – properties – physiological role Functional varieties of Kapham. – Avalampaka – Kilethaka – Pothaka – Tharpaka – Santhika. Temperament of an individual Features of vatha temperament – pitha temperament – Kapha temperament. **(5 hours)**
5. Seven physical constituents:Nutrient juice (saram) – Blood (Chenneer) – Muscle (oona) – fat & adipose tissue (kozhuppu) – Bone & Teeth (Enbu) – Bone marrow & nervous tissue (Moolai) – Semen or ovum (Sukilam/suronitham) – their nature and functions. **(4 hours)**
6. Five sheaths (Kosangal) Physical sheath (Annamaya kosam) – Respiratory sheath (Piranamaya kosam) – Mental sheath (Manomaya kosam) – Intellectual sheath (vignanamaya kosam) – Blissful sheath (Ananthamaya kosam) **(3 hours)**
7. Physical sheath:- Composition of food materials – waste or excretory materials (Chakkai) – Nutrients – Tastes – Three vital units (Uyir thathu) – qualities (gunam) Taste:- Properties of six tastes – Synergetic taste (natpu suvai) Antagonistic taste (pakai suvai) Vatha food – pitha food – Kapha food – Sathuva food – Rajasa food - Thamasa food – food and seasons. **(5 hours)**
8. Respiratory sheath:- Functions of pranana – Regulation of breathing – Pranayama thathuvam. **(5 hours)**
9. Mental sheath Siddhars concept of Nadi – Definitions – Characteristics of Nadi (Nadi Nadai) – Nadi ratio – Ten important sites of Nadi – Guru Nadi – Bootha Nadi – Vatha, pitha, Kapha nadi & conjoined nadi ( Thondha Nadi) **(2 hours)**
10. Fourteen Natural Urges (Vehangal) Vatham (flatus air) – Thummal (sneezing) – Neer (micturition) – Malam (Defecation) – Kottavi (Yawning) – Pasi (appetite) – Neervetkai (Thirst) – Kasam (cough) – Illaippu (exhaustion) – Nithirai (sleep) – Vanthi ( Vomiting) – Kanner (Tears) – Sukilam (semen) – Suvasam ( Breathing).

(2 hours)

11. Longevity of life – According to Siddha principles – Concentration of six Psychophysical centres (Aatharas) – Stimulation of Adharas by meditation & Yoga.

(2 hours)

12. Intellectual sheath:- (Vingnana maya kosam) Four intellectual faculties (Anthakaranam) – Good & Bad Acts (Iruvinai) – Mukkunam (Satwa, Rajas & Thamas) – Aatharam (six station of soul) – Avathai (Six stages of consciousness) – Dhasa Nadi (Idakalai, Pinkalai, Suzhumunai, Sikuvai, Purudan, Kanthari, Atthi, Alampudai, Sankini & Gugu)

(2 hours)

13. Blissful sheath (Anantha maya kosam) Self realization (Arivu) – achievement (Siddham) and its details

(2 hours)

14. Envagai Thervu: Naa- Niram – Mozhi – Vizhi – Malam – Moothiram- Naadi – Sparisam- Physiological Aspect.

(3 hours)

**PRACTICAL**

**Total Hours : 50**

**Part-A**

**Major:**

1. Examination of Naadi
2. Examination of Udal kattugal
3. Examination of Envagai Thervu
4. Examination of Udal iyai

**(30 hours)**

**Part-B**

**Minor:**

1. Suvaigal
2. Panchabootha panchekaram

**(15 hours)**

**Part- C:**

**Spotters:**

1. Suvaigal
2. Unavu Poruttkal

**(5 hours)**

**Reference Books**

1. Udal Thathuvam- Dr. P.M Venugopal
2. Siddha Maruthuvanga Churukkam – Dr. K.S Uthamarayan

#### 4. UDAL THATHUVAM (PHYSIOLOGY) PAPER II

Total Hours : 100

- I. General Physiology (4 hours)**
1. Cell - organelles - Transport across cell membrane - Trans membrane electrical potential.
  2. Homeostasis - Positive and negative feedback - Acid base balance.
- II. Blood and Body fluids (20 hours)**
1. Body fluids - ECF & ICF, plasma proteins - classification and functions.
  2. Erythrocytes - Erythropoiesis - functions - destruction. Haemoglobin and 'Fe' metabolism, Anaemia, ESR, PCV, Blood indices.
  3. Leucocytes - Classification, functions, formation, fate, plasma cells, Immunity
  4. Thrombocytes - Hemostasis, Coagulation of Blood.
  5. Blood groups, Blood transfusion - compatability.
  6. Reticulo endothelial system, spleen, lymphatic system & lymph, tissue fluid & odema.
  7. Applied physiology
- III. Muscle Physiology (5 hours)**
1. Functional anatomy of muscle, Classification, structure, Excitation, contraction and relaxation of smooth, skeletal and cardiac Muscles, Neuro muscular junction.
  2. Applied physiology
- IV. Renal physiology and Excretion. (10 hours)**
1. Functional anatomy of kidney, Nephron, Renal circulation, juxta glomerular apparatus.
  2. Urine formation, Glomerular filtration, Reabsorption of filtrate, Renal threshold, Urine concentrating mechanism, Role of kidney in Acid base balance. Filling of bladder and micturation, Action of parathormone & vasopressin. Renal Function Tests.
  3. Skin - structure, functions, glands, Regulation on body temperature.
  4. Applied physiology
- V. Endocrinology (10 hours)**
1. Introduction to endocrine physiology, control of secretion, feed back regulation.
  2. Hormones secreted, Biosynthesis, functions and regulation of secretion of the following endocrine glands – Hypothalamus, pituitary, Thyroid, Parathyroid, Pancreas, Adrenal cortex and medulla, Local Hormones.
  3. Applied physiology
- VI. Reproductive systems (6 hours)**

1. Sexual differentiation of foetus in uterus, Male sex organs, spermatogenesis, semen, Male sexual act, Male sex hormones, actions & control.
2. Female sex organs, Oogenesis, Menstrual cycle, role of female sex hormones, Menopause.
3. Fertilization, Fetoplacental unit, Pregnancy, parturition, Mammary glands & lactation.
4. Applied physiology

**VII. Digestive system (10 hours)**

1. Functional anatomy of alimentary tract.
2. Mastication, salivary glands, composition & function of saliva, control of salivation, deglutition.
3. Secretion, composition, functions, control of secretion of Stomach, pancreas, Liver, small intestine.
4. Gall bladder, enterohepatic circulation, Motility of GIT, Digestion & absorption of carbohydrates, proteins, Lipids, Defecation.
5. Applied physiology

**VIII. Cardio vascular system (10 hours)**

1. Introduction – properties of cardiac muscle, conducting tissue of the heart, pacemaker, ionic basis of Action potential.
2. Cardiac cycle – phases & events, heart sounds, Murmur, ECG, Cardiac output and venous return, cardiac function curves, Regulation of cardiac function, Hemodynamics.
3. Arterial Blood pressure & its Regulation, Arterial pulse and venous pulse.
4. Foetal circulation and respiration, shock, cardio vascular adjustments during Exercise.
5. Applied physiology

**IX. Respiratory and Environmental Physiology (10 hours)**

1. Functional Anatomy of Respiratory tract, Mechanism of Respiration, Ventillation, Surfactant, Compliance, Spirometric volumes and capacities.
2. Exchange of Respiratory gases, Transport of O<sub>2</sub> and Co<sub>2</sub> in blood and tissue fluid.
3. Physiological effects of ascent to high altitudes, Acclimatization, Deep sea physiology. Effects of Exercise on Respiration.
4. Applied physiology

**X. Nervous system (10 hours)**

1. Functional anatomy of brain and spinal cord, Synapse , Neuroglial cells, degeneration and regeneration of Nerve fibers, Sensory receptors – classification, Threshold stimulus, Grouping of sensory fibres.
2. Reflex activity – Spinal reflexes, reciprocal inhibition, Muscle tone, Motor units.

3. Pathway and Function of Spinal Cord, Ascending & Descending tracts of spinal cord, upper motor neurons, control of muscle tone and voluntary movements, Physiology of Pain.
4. Nuclei, parts, connections and functions of Thalamus, Hypothalamus, basal ganglia, brain stem, limbic system, proprioceptor & vestibular apparatus.
5. Cerebral cortex – layers, connections, Functions of Cerebellum – morphology – nuclei, connections, functions.
6. Higher intellectual functions.
7. Reticular formation – physiology of sleep and arousal, EEG.
8. CSF – formation, circulation and functions.
9. ANS
10. Applied Physiology

**XI. Special senses.**

**(5 hours)**

1. Functional anatomy of sense organ,
2. Eye – visual process – field of vision – visual path way – pupillary reflex- colour vision – Errors of Refraction.
3. Ear – Auditory Pathway. Mechanism of Hearing – Auditory Defects
4. Sensation of taste
5. Sensation of smell.
6. Applied physiology



## PRACTICAL

Total Hours : 50

### Part-A

#### Major:

(25 hours)

1. Estimation of Haemoglobin
2. Determination of ESR
3. Determination of PCV & Absolute values
4. Total WBC Count
5. Total RBC Count
6. Differential count of WBC

### Part-B

#### Minor:

(22 hours)

1. Determination of bleeding time
2. Determination of clotting time
3. Blood grouping and Rh typing
4. Measurement of Body Temperature
5. Measurement of Blood Pressure
6. Examination of Deep Tendon Reflex (Specify)
7. Examination of Superficial Reflex(Specify)
8. Examination of Cranial Nerves(Specify)
9. Examination of Cardio vascular System(Specify)
10. Examination of Respiratory System(Specify)
11. Examination of Digestive System(Specify)

### Part- C:

#### Spotters:

(3 hours)

1. Parts of microscope
2. Apparatus
3. Identification of different type of WBC
4. ECG pattern

### Reference Books :-

1. Samson and Wright applied Physiology
2. Hewer's Histology
3. Schafer's Histology
4. Guyton Physiology
5. Ganong Physiology
6. Essentials of Medical Physiology - Dr. K.S.Sembulingam
7. Text book of Physiology- Dr.Saratha Subramaniyam

## 5. SIDDHA MARUTHUVA MOOLIGAI ARIVIYAL (SIDDHA MEDICINAL HERBAL SCIENCE)

Total Hours : 200

1) **Introduction** : (3 hours)

- i. Properties of drug
- ii. Taste, character, potency, post absorptive tastes (Vibagam)
- iii. Specific action (prabhagam)

2) Study about therapeutic actions with few examples. (3 hours)

3) Detailed study about the following herbs including their Synonyms, Botanical names, various names in regional languages, origin, identification, availability, parts used, description about their properties, therapeutic actions, indications, doses, home remedies and specific formulae related to particular herbs. (174 hours)

<b>Sl. No.</b>	<b><u>Tamil Name</u></b>	<b><u>Botanical Name</u></b>
1	Agatti	- Sesbania grandiflora
2	Agil	- Aquilaria agallacha roxb
3	Akkarakaaram	- Anacylus pyrethrum DC
4	Asogu	- Saraca asoca
5	Athimathuram	- Glycyrrhiza glabra
6	Athividayam	- Aconitum heterophyllum
7	Atti	- Ficus recemosa
8	Aakasathamarai	- Pistia stratiotes
9	Anthimalli	- Mirabilis jalapa
10	Abini -Kasa Kasa	- Papaver somniferum
11	Amukkurakkizhangu	- Withania somnifera
12	Ammaan pachcharisi	- Euphorbia pilurifera
13	Ammaiyar koondhal	- Curcuta reflexa
14	Arasu	- Ficus religiosa
15	Arathai	- Alpinia galanga
16	Ari-val mookku patchilai	- Sida acuta
17	Arunelli	- Phyllanthus acidus
18	Alari	- Nerium odorum
19	Alli	- Nymphaea nouchali
20	Avarai	- Lablab purpureus

21	Avuri	-	<i>Indigofera tinctoria</i>
22	Azhavanam	-	<i>Lawsonia inermis</i>
23	Azhinjil	-	<i>Alangium salvifolium</i>
24	Arugu	-	<i>Cynodon dactylon</i>
25	Annasipoo	-	<i>Illicium verum</i>
26	Aakaasagarudan	-	<i>Corallocarpus epigaeus</i>
27	Aadathodai	-	<i>Justicia adatoda</i>
28	Aadutheendapalai	-	<i>Aristolochia bracteolata</i>
29	Aadaiyotti	-	<i>Pupalia orbiculata</i>
30	Aathandam	-	<i>Capparis zeylanica</i>
31	Aamanakku	-	<i>Ricinus communis</i>
32	Chitraamanakku	-	
33	Peraamanakku	-	<i>Ricinus inermis</i>
34	Chevvaamanakku	-	<i>Ricinus tanarius</i>
35	Aayil	-	<i>Chukrasia tabularis</i>
36	Aalamaram	-	<i>Ficus benghalensis</i>
37	Aavarai	-	<i>Cassia auriculata</i>
38	Aalivirai	-	<i>Lepidium sativum</i>
39	Aattruthumatti	-	<i>Citrullus colocynthis</i>
40	Iruvi	-	<i>Dryopteris felixmas</i>
41	Isangu	-	<i>Clerodendrum inerme</i>
42	Isappukol vidhai	-	<i>Plantago ovata</i>
43	Inji	-	<i>Zingiber officinale</i>
44	Indu	-	<i>Mimosa rubicaulis</i>
45	Iththi	-	<i>Ficus microcarpa</i>
46	Impooral	-	<i>Oldenlandia umbellata</i>
47	Ireval chinni	-	<i>Rheum emodi</i>
48	Ilanda maram	-	<i>Ziziphus mauritania</i>
49	Lavangam	-	<i>Syzygium aromaticum</i>
50	Lavangappattai	-	<i>Cinnamomum verum</i>
51	Ilavamaram	-	<i>Bombax ceiba</i>
52	Mul ilavu	-	<i>Bombax malabaricum</i>
53	Iluppai	-	<i>Madhuca longifolia</i>
54	Ilaikkalli	-	<i>Euphorbia ligularia</i>
55	Eechu (Sitrechu)	-	<i>Phoenix sylvestris</i>
56	Paereechu	-	<i>Phonex dactilifera</i>
57	Echchura mooli	-	<i>Aristolochia indica</i>
58	Usilamaram	-	<i>Albizia odoratissima</i>
59	Uttamani	-	<i>Pergularia daemia</i>
60	Uppilangodi	-	<i>Mimosa paniculata</i>
61	Rudra jada	-	<i>Ocimum basilicum</i>

62	Rudraksham	-	Elacocarpus sphacsisus
63	Urulai kizhangu	-	Solanum tuberosum
64	Uzhundu	-	Vigna mungo
65	OOmaththai	-	Datura metal
66	Karu oomaththai	-	
67	Aetti	-	Strychnos nux-vomica
68	Aerukku	-	Calotropis gigantea
69	Aelikkadilai	-	Merremia emarginata
70	Aeliyamanakku	-	Jatropha curcas
71	Aelumichai	-	Citrus lemon
72	Aellu	-	Sesamsum indicum
73	Aelam	-	Elettaria cardamomum
74	Chitraelam	-	Elettaria regains
75	Kattu – aelakkai	-	Amomum subulatum
76	Malayelam	-	
77	Iyvirali	-	Diplocyclos palmatus
78	Odimaram	-	Lanea coromandelica
79	Omam	-	Carum copticum
80	Kurosani omam	-	Hyoscyamus niger
81	Oritazhtamarai	-	Ionidium suffrufiocosum
82	Orilai tamarai	-	Nervilia aragoana
83	Kanja	-	Cannabis sativa
84	Kadambu	-	Anthocephalus cadamba
85	Kadalazhinjil	-	Salacia reticulata
86	Kadalai	-	Cicer arietinum
87	Kadarpassi	-	Gracilaria lichenoides
88	Chengadugu	-	Brassica juncea
89	Vengadugu	-	Brassica alba
90	Kadugu rokani	-	Picrorhiza scrophulariflora
91	Kadukkai	-	Terminalia chebula
92	Kattukodi	-	Cocculus hirsutus
93	Kanap-pundu	-	Exacum pedunculatum
94	Kandangkattari	-	Solanum surattense
95	Kandupaarangi	-	Clerodendron serratum
96	Kathakambu	-	Uncaria gambir
97	Kasthuri manjal	-	Curcuma aromatica
98	Kamuku -Kalippakku	-	Areca catechu
99	Kambu	-	Pennisetum typoideum
100	Kottaikaranthai	-	Spaeranthus indicus
101	Kaththari	-	Solanum melongena

102	Karisalankanni	- Eclipta prostrata
104	Karunai thandu	- Amarphophallus paeonic folius
105	Karpooravalli	- Aniso chilus carnosus
106	Karumbu	- Saccharum officinarum
107	Karkadaga singhi	- Rhus succedanea
108	Kalappai kizhangu	- Glorius superba
109	Kaliyana pushnikai	- Benincasa hispida
110	Kaliyana murukku	- Erythrina variegata
111	Kazharchi kodi	- Caesalpinia bonduc
112	Kala	- Carissa carandar
113	Kalli	- Euphorbia ligularia
114	Kodikalli	- Sarcosemma brevistigma
115	Sadhurakalli	- Euphorbia antiquorum
116	Kalli-mulayan	- Stapelia virgata
117	Kari-vembu	- Murraya koenigi
118	Karpasi	- Parmelia perlata
119	Katrzhai	- Aloe barbadensis
120	Kariabolam	- Aloe littoralis
121	Kaakkanam	- Clitoria ternatea
122	Kaakkai kolli	- Anamirta cocculus
123	Kaanchori	- Tragiainvolucrata
124	Kaattatti	- Bauhinia tomentosa
125	Kaattaamanakku	- Jatropha curcas
126	Kaappikottai	- Coffea arabica
127	Kaarai	- Catunaregum spinora
128	Kaarpokarisi	- Psoralea corylifolia
129	Kaalaan	- Agaricus campestris
130	Kitchilikizhangu	- Curcuma zeodaria
131	Kitchilipazham	- Citrus aurantium
132	Kiranthithakaram	- Tabernaemontana divaricata
133	Kiliyural	-
134	Kilukiluppai	- Crotalaria retusa
135	Keerippundu	- Ophiorrhiza mungos
136	Keeraikal	- Greens
137	Puthina	- Mentha arvensis
138	Puliyarai	- Oxalis corniculata
139	Manali keera	- Gisekia pharnaceoides
140	Keeraithandu	- Amaranthus gangeticus
141	Keezhkaai nelli	- Phylanthus amarus
142	Kungiliam	- Shorea robusta
143	Kungumappoo	- Crocus sativus

144	Kudasappaalai	-	Holarrhena pubescens
145	Kudiyottipoondu	-	Argemone mexicana
146	Kunthrikkam	-	Boswellia serrata
147	Kuppeimeni	-	Acalypha indica
148	Kuruver	-	Vetiveria zizanioides
149	Kurattai	-	Trichosanthes tricuspidata
150	Kurinjan	-	Gymnema sylvestre
151	Kuntri	-	Abrus precatorius
152	Kaezhvaragu	-	Eleusine coracana
153	Kodiveli	-	Glycosmis arborea
154	Chenkodiveli	-	Plumbago rosea
155	Kottikizhangu	-	Aponogeton monostachyon
156	Koththumalli	-	Coriandrum sativum
157	Kollu	-	Macrotyloma uniflorum
158	Kollukkaivelai	-	Tephrosia purpurea
159	Korukkaip-puli	-	Pithecellobium duke
160	Konrai-Sarak-Konrai	-	Cassia fistula
161	Sirukonrai	-	Cassia arborescens
162	Senkonrai	-	Cassia margiata
163	Kottam	-	Costus speciosus
164	Gothumai	-	Triticum aestivum
165	Korai	-	Cyperus rotandus
166	Kovai	-	Coccinia grandis
167	Gowrivalpul	-	
168	Sadamaanji	-	Nardostachys grandiflora
169	Shenbagam	-	Michelia champaca
170	Chathakuppai	-	Anethum graveolens
171	Chaarana	-	Trianthema decandra
172	Chandanam	-	Santalum album
173	Naattu jadhikai	-	Myristica fragrans
174	Chaathipaththiri	-	Myristica fragrans
175	Saamai	-	Panicum sumatrense
176	Shaambrani	-	Styrax benzoin
177	Salaamisri	-	Orchis latifolia
178	Sivathai	-	Operculina turpethum
179	Shivanar vembu	-	Indigofera aspalathoides
180	Chirunaagapoo	-	Mesua nagassarium
181	Chirupeyathi	-	Ficus hispida
182	Chitramutti	-	Pavonia zeylanica
183	Peramutti	-	Pavonia odorata
184	Chinni	-	Acalypha fruticosa

185	Cheekai	-	Acacia sinuate
186	Seendhil	-	Tinospora cordifolia
187	Porseendhil	-	
188	Seemai athi	-	Ficus carica
189	Cheerakam	-	Cuminum cyminum
190	Karuncheerakam	-	Nigella sativa
191	Peruncheerakam	-	Pimpinella anisum
192	Kaattu cheerakam	-	Vernonia antihelminthica
193	Chukku	-	Zingiber officinale
194	Chundai	-	Solanum torvum
195	Churai	-	Lagenaria siceraria
196	Chemparuthi	-	Hibiscus rosa-sinensis
197	Chemparathai	-	Gossypium arboreum
198	Chembai	-	Sesbania sesban
199	Cheruppadi	-	Mollugo lotoides
200	Cheviyam	-	Piper nigrum
201	Sembu	-	Colocasia esculenta
202	Cherankottai	-	Semecarpus anacardium
203	Cholam	-	Sorghum vulgare
204	Thakarai (Usithakarai)	-	Cassia tora
205	Thakkali	-	Physalis minima
206	Manathathakkali	-	Solanum nigrum
207	Thannirvittan kizhangu	-	Asparagus racemosus
208	Tharuppai	-	Desmostachya bipinnata
209	Thavasu murungai	-	Rungia parviflora
210	Thazhuthazhai	-	Clerodendrum phlomoidis
211	Thaamarai	-	Nelumbo nucifera
212	Thaazhai	-	Pandanus odoratissimus
213	Thaalisa-paththiri	-	Abies spectabilis
214	Thaantri	-	Terminalia bellirica
215	Thippili	-	Piper longum
216	Thippiliver	-	Piper longum
217	Thirakshai	-	Vitis vinifera
218	Thinai	-	Setaria italica
219	Thutthi	-	Abutilon indicum
220	Thuvarai	-	Cajanus cajan
221	Thumbai	-	Leucas aspera
222	Thulasi	-	Ocimum sanctum

223	Thuthuvelai	-	<i>Solanum trilobatum</i>
224	Thengumaram	-	<i>Cocos nucifera</i>
225	Thelkodukku	-	<i>Heliotropium indicum</i> , 226. Devadaru-Cedrus
227	Thettran	-	<i>Strychnos potatorum</i>
228	Thottar Chinungi	-	<i>Mimosa pudica</i>
229	Nancharuppan	-	<i>Tylophora indica</i>
230	Naththaichuri	-	<i>Spermacoce hispida</i>
231	Naralai	-	<i>Cayratia pedata</i>
232	Nanthiavattam	-	<i>Tabernaemontana divaricata</i>
233	Nannaari	-	<i>Hemidesmus indicus</i>
234	Naagamalli	-	<i>Rhinacanthus nasuta</i>
235	Naabi	-	<i>Aconitum napellus</i>
236	Naayuruvi	-	<i>Achyranthes aspera</i>
237	Naaval	-	<i>Syzygium cumini</i>
238	Nilavembu	-	<i>Andrographis paniculata</i>
239	Nila vaarai	-	<i>Cassia senna</i>
240	Neeradimuthu	-	<i>Hydnocarpus laurifolia</i>
241	Neermulli	-	<i>Hygrophila auriculata</i>
242	Nuna	-	<i>Mosinda tinctoria</i>
243	Neichatti	-	<i>Vernonia cinerea</i>
244	Nerunjil	-	<i>Tribulus terrestris</i>
245	Nel	-	<i>Oryza sativa</i>
246	Nelli	-	<i>Phyllanthus emblica</i>
247	Naervalam	-	<i>Croton tiglium</i>
248	Notchi	-	<i>Vitex negundo</i>
249	Payaru	-	<i>Vigna mungo</i>
250	Pachillai	-	<i>Garcinia xanthochymus</i>
251	Pappali	-	<i>Casica papaya</i>
252	Pala	-	<i>Artocarpus heterophyllus</i>
253	Palasu	-	<i>Butea monosperma</i>
254	Parangippattai	-	<i>Smilax china</i>
255	Parppadaakam	-	<i>Hedyotis coryanbose</i>
256	Panai	-	<i>Horastus flbellifer</i>
257	Badampisin	-	
258	Pathiri	-	<i>Stereospermum colais</i>
259	Barelee	-	<i>Hordeum vulgare</i>
260	Vetpaalai	-	<i>Wrightia tinctoria</i>
261	Pirappan kizhangu	-	<i>Calanus rotang</i>
262	Peetharoghani	-	<i>Coptis teeta</i>
263	Peenarimaram	-	<i>Sterculia foetida</i>
264	Paavattai	-	<i>Pavetta indica</i>
265	Pidangunari	-	<i>Premma tomentosa</i>
266	Pirandai	-	<i>Cissus quadrangularis</i>

267	Chirupeelai	-	Aerva lanata
268	Pugaiyilai	-	Nicotiana tobacum
269	Pungu	-	Pongamia pinnata
270	Pulluruvi	-	Dendrophthoe falcata
271	Puli	-	Tamarindus indicus
272	Pulladi	-	Desmodium gangeticum
273	Puvarasu	-	Thespesia populnea
274	Poonaikali	-	Mucuna pruriens
275	Perungayam	-	Ferula asafetida
276	Poduthalai	-	Phyta nodiflora
277	Ponnanganni	-	Alternanthera sessilis
278	Magizh	-	Mimusops elengi
279	Mangusthan	-	Garcinia mangostana
280	Manjal	-	Curcuma longa
281	Mara manjal	-	Coscinium fenestratum
282	Manjitti	-	Rubia cordifolia
283	Madhanakamappu	-	Cycus circinalis
284	Mantharai (red)	-	Bauhinia purpurea
285	Malli	-	Jasminum grandiflorum
286	Marakkarai	-	Catunaregum spinosa
287	Maruthu	-	Terminalia arjuna
288	Maa	-	Mangifera indica
289	Masikkai	-	Quercus infectoria
290	Masipathiri	-	Artemisia nilagisica
291	Mathulai	-	Punica granatum
292	Milagu	-	Piper nigrum
293	Vaal milagu	-	Piper cubeba
294	Milakaranai	-	Todalia asiatica
295	Musumusukkai	-	Mukia madraspatana
296	Mudakkatran	-	Cardiospermum helicacabum
297	Murungai	-	Moringa oleifera
298	Mulaam	-	Citrullus vulgaris
299	Munnai	-	Premna corymbosa
300	Mukkirattai	-	Boerhavia diffusa
301	Mungkil	-	Bambusa arundinacea
302	Vasambu	-	Acorus calamus
303	Vandukolli	-	Cassia alata
304	Varagu	-	Paspalum scrobiculatum
305	Valampurikkai	-	Helicteres isora
306	Vallarai	-	Centella asiatica
307	Vallaikodi	-	Convolvulus repens
308	Vaadhanarayan	-	Delonix elata

309	Vaavidangum	-	Embelia ribes
310	Vaaluzhuvai	-	Celestrus paniculatus
311	Vaazhai	-	Musa paradisiaca
312	Vidathari	-	Dichrostachys cinerea
313	Viraali	-	Dodonaea viscosa
314	Vilvam	-	Aegle marmeoles
315	Vilamichamver	-	Plectranthus vettiveroides
316	Vizhuthi	-	Cadaba trifoliata
317	Vilaamaram	-	Limonia acidissima
318	Vishamungkil	-	Crinum asiaticum
319	Vishnukiranthi	-	Evolvulus alsinoides
320	Vengayam	-	Alium cepa
321	Vetchi	-	Ixora coccia
322	Vendakai	-	Abelmoschus esculantus
323	Vendhayam	-	Trigonella foenum
324	Vellarikai	-	Cucumis sativus
325	Vellarugu	-	Enicostemma axillare
326	Vellilothram	-	Symplocos racemosa
327	Vellulli	-	Allium sativum
328	Vettilai	-	Piper betle
329	Vembu	-	Azadirachta indica
330	Verkadalai	-	Arachis hypogea
331	Vel	-	Acacia nilotica
332	Velvel	-	Acacia leucophloea
333	Kudaivel	-	Acacia latronum
334	Peekkaruvel	-	Acacia farnesiana
335	Velai	-	Cleome viscosa
336	Thaivelai	-	Gynandropsis gynandra

The following plants which are comparatively less important and can be studied by the students themselves with guidance of the teacher. **(20 hours)**

<b>Sl. No.</b>	<b><u>Tamil Name</u></b>	<b><u>Botanical Name</u></b>
1	Akrottu	- Juglans regia lin.
2	Alisi virai	- Linum usitatissimum
3	Arukeerai	- Amaranthus tristis
4	Annasipazham	- Ananas comosus
5	Aaraikirai	- Marsilea quadrifolia
6	Alapagoda pazham	- Prunus domestica
7	Aal-vallikizhangu	- Manihot esculenta

8	Aattrunetti	-	<i>Neptunia oleracea</i>
9	Aanai-katrazhai	-	<i>Agave americana</i>
10	Aanai kunri	-	<i>Adenantha pavonina</i>
11	Aanaippuliamaram	-	<i>Adansonia digitata</i>
12	Rattai – peimarutti	-	<i>Anisomeles malabarica</i>
13	Rathabolam	-	<i>Aloe barbadensis</i>
14	Ezhathalari	-	<i>Plumeria rubra</i>
15	Uka	-	<i>Salvadora persica</i>
16	Uzhalathi	-	
17	Usilam	-	
18	Aerisalai	-	
19	Aelumichan thulasi	-	<i>Ocimum gratissimum</i>
20	Aezhilapalai	-	<i>Alstonia scholaris</i>
21	Odukkai	-	<i>Cleistanthus collinus</i>
22	Kakkarikkai	-	<i>Cucumis sativus</i>
23	Kasa-kasa	-	<i>Papaver somniferum</i>
24	Kadarpaalai	-	<i>Argyrea nervosa</i>
25	Kadar thengai	-	<i>Lodoicea maldivica</i>
26	Kadara naaraththai	-	<i>Citrus medica</i>
27	Kalumichchamkai	-	
28	Kavizh thumbai	-	<i>Trichodesma indicum</i>
29	Kazhu-neer	-	<i>Nymphaea alba</i>
30	Kalarva	-	<i>Salvadora persica</i>
31	Chirukalarva	-	<i>Salvadora persica</i>
32	Karkovai	-	<i>Melothria heterophylla</i>
33	Kartaamarai	-	<i>Smilax zeylanica</i>
34	Kaasa	-	<i>Memecylon umbellatum</i>
35	Kaasi rathnam	-	<i>Quamoclit pennata</i>
36	Kaattu aelumichchai	-	<i>Atalantia malabarica</i>
37	Kaattu aellu	-	<i>Sesamum prostratum</i>
38	Kaattu kadugu	-	<i>Cleome viscosa</i>
39	Kaattu karuvappattai	-	<i>Cinnamomum iners</i>
40	Kaattu thumbai	-	
41	Kaattu paagal	-	<i>Momordica dioica</i>
42	Kaattu peipudal	-	<i>Trichosanthes lobata</i>
43	Kaattu mullangi	-	<i>Blumea lacera</i>
44	Kaattu Vengayam	-	<i>Urginea indica</i>
45	Kai-vallikkodi	-	<i>Dioscorea alata</i>
46	Kaaramani	-	<i>Vigna unguiculata</i>
47	Kaavatambul	-	<i>Cymbopogon martinic</i>
48	Kiranthinayagam	-	

49	Kumizhamaram	-	Gmelina arborea
50	Kurukkaththi	-	Hiptage benghalensis
51	Kuruvich-chi	-	Ehretia microphylla
52	Kuthan Kuthambai	-	Cantana indica
53	Kuntharpanai	-	Caryota urens
54	Kuvaikkizhangu	-	Maranta arundinacea
55	Koththavarai	-	Cyamopsis tetragonoloba
56	Kodaga salai	-	Rungia repens
57	Gopuram thangi	-	Andrographis echiodes
58	Chanappu	-	Crotalaria juncea
59	Sanninayagam	-	
60	Chavukkumaram	-	Casuarina equisetifolia
61	Samanthipoo	-	Chrysanthemum coronarium
62	Chayamaram	-	Caesalpinia sappan
63	Chavvarisimaram	-	
64	Chaaraiaruppu	-	Buchanania lanzan
65	Chinnikizhangu	-	
66	Chukkankai	-	
67	Chukkan kirai	-	Rumex vesicarius
68	Chulukku nayagam	-	
69	Suriyakanthi	-	Helianthus annus
70	Cheppu – nerunhil	-	Indigofera enneaphylla
71	Chevaganar kizhangu	-	Gloriosa superba
72	Peyavarai	-	Cassia occidentalis
73	Thakkolam	-	
74	Tamaraththam	-	Avarrhoa carambola
75	Thara	-	Fumaria parviflora
76	Thalippanai	-	Corypha umbraculifera
77	Thillai	-	Excoecaria agallocha
78	Thumbilkkai	-	Diospyros peregrina
79	Thurinjibeen	-	Alhagi maurorum
80	Thekku	-	Tectona grandis
81	Naruvili	-	Cordia dichotoma
82	Naaganam	-	
83	Naagathali	-	Opuntia dillenii
84	Naanal	-	Saccharum spontaneum
85	Nilakkadambu	-	Asarum europaeum
86	Nilakumizh	-	Gmelina asiatica
87	Nilappanai	-	Curculigo orchioides
88	Nilavaamanakku	-	
89	Nintral chinungi	-	

90	Neeralari	-	<i>Polygonum barbatum</i>
91	Neerbrahmi	-	<i>Bacopa monnieri</i>
92	Neerpula	-	<i>Phyllanthus reticulatus</i>
93	Neermel neruppu	-	<i>Ammania baccifera</i>
94	Nettilingam	-	<i>Polyalthia longifolia</i>
95	Neithar kizhangu	-	<i>Nymphaea pubescens</i>
96	Pannimonthan kizhangu	-	<i>Trapa natans</i>
97	Paruththi	-	<i>Gossypium herbaceum</i>
98	Motchai	-	<i>Lablab purpureus</i>
99	Chemparuththi	-	<i>Gossypium arboretum</i>
100	Parangikkai	-	<i>Cucurbita maxima</i>
101	Panneerpoo	-	<i>Rosa centifolia</i>
102	Paakal	-	<i>Momorchica charantia</i>
103	Paalai	-	<i>Manikara hexandra</i>
104	Piramiya vazhukkai	-	<i>Bacopa monniesi</i>
105	Piraii	-	<i>Streblus asper</i>
106	Pilimbi	-	<i>Averrhoa bilimbi</i>
107	Pilavai kolli	-	
108	Pudal	-	<i>Trichosanthes cucumesina</i>
109	Punnai	-	<i>Calophyllum inophyllum</i>
110	Ponmusuttai	-	<i>Sida acuta</i>
111	Manippungu	-	<i>Sapindus lausifolia</i>
112	Musarkaathilai	-	<i>Ipomea pes-caprae</i>
113	Maavilangu	-	<i>Crateava magna</i>
114	Munthiri	-	<i>Anacardium occidentale</i>
115	Mullangi	-	<i>Raphanus sativus</i>
116	Modagavalli	-	<i>Sterculia foetida</i>
117	Valli	-	<i>Dioscorea esculenta</i>
118	Chevalli	-	<i>Dioscorea purpurea</i>
119	Vaagai	-	<i>Albizia lebbeck</i>
120	Karuvaagai	-	<i>Albizia odoratissima</i>
121	Vaadhumai	-	<i>Prunus dulcis</i>
122	Vizhalarisi	-	Seed of red grass
123	Peru-lavangappattai	-	<i>Cinnamomum macrocarpum</i>
124	Peyatti	-	<i>Ficus hispida</i>
125	Vengai	-	<i>Pterocarpus marsupium</i>

126	Aruvada	- Ruta chalepensis
127	Ezhuttani poondu	- Launaea pinnatifida
128	Karimulli	- Solanum anguini
129	Kaanaam vaazhai	- Commelina benghalensis
130	Seeththa	- Anona squamosa
131	Pallipundu	- striga lutea
132	Valendrabolam	- Commiphora myrrh

### Practicals.

**Total Hours : 100**

1. Manappagu	<b>(8 hours)</b>
2. Kudineer	<b>(8 hours)</b>
3. Chooranam	<b>(8 hours)</b>
4. Vadagam	<b>(8 hours)</b>
5. Nei	<b>(8 hours)</b>
6. Rasaayanam	<b>(8 hours)</b>
7. Ilagam	<b>(8 hours)</b>
8. Maathirai	<b>(8 hours)</b>
9. Vennai	<b>(8 hours)</b>
10. Parpam	<b>(8 hours)</b>
11. Thailam	<b>(8 hours)</b>
12. Pasai	<b>(8 hours)</b>
13. Theeneer	<b>(4 hours)</b>

### Reference Books

1. Gunapadam – Mooligai Vaguppu – by Dr. Murugesamudaliar
2. Materia Medica – Vol I & II – by Dr. Natkarani.
3. Mooligai Iyal – By – Dr.V.Arunachalam M.D.Siddha.

## 6. SIDDHA MARUTHUVA KANIMA, KANIMA VETHIYAL AND SIDDHA MARUTHUVA VILANGIYAL (SIDDHA MEDICINAL GEOLOGY, MEDICINAL CHEMISTRY AND MEDICINAL ZOOLOGY)

**Total Hours : 200**

### INTRODUCTION

**(25 hours)**

- Introduction to General Pharmacology (Gunapadam)

Maruthuvam and its type, Marunthu and its type, Muppu and Guru, Maaranam, Seyaneer and Dravagam, Siddha Posology

- Classification of metals & minerals
- Instruments used for medicine preparation, description about specific techniques, including the special technique of drug preparation.
- Acid distillation formulae.
- Converting ancient measurements into new metric units.
- Internal applications – 32, Definition, examples & their life span
- How to form a medicine production unit
- Classification of combustion (Spudam)
- Study of friendly drugs (Synergetic) and antagonistic drugs.
- Classification of drugs based on five elements

### Ulogangal – Metals

(20 hours)

Sl. No	Tamil Name	English Name / Scientific Name
1	Ayam	Iron
2	Ekkhu	Steel
3	Kareeyam	Lead
4	Kandham	Magnetic Oxide of Iron
5	Thambram	Copper
6	Naagam	Zinc
7	Thankam	Gold
8	Mandooram	Ferrous Ferric Oxide
9	Velleeyam	Tin
10	Velli	Silver

### II. Pancha Sootham - Mercury & its ores

(15 hours)

Sl. No	Tamil Name	English Name / Scientific Name
1	Rasam	Mercury
2	Rasa chendhooram	Red Sulphide of mercury
3	Lingam	Cinnabar – Natural
4	Pooram	Calomel - Hydragrym subchloride
5	Veeram	Corrosive sublimate - Hydrogyrum per chloride

### III. Paashanagal - Metal Salts

(25 hours)

Sl. No	Tamil Name	English Name / Scientific Name
1	Anjanakal	Antimony Sulphide
2	Kanthakam	Sulphur
3	Gowri paashanam	Yellow Oxide of arsenic (Synthetic)
4	Thaalagam	Yellow Arsenic Trisulphide
5	Thottipaashanam	A pharmaceutical preparation of Arsenic

combined with mercury & sulphur.

6	Nava pashanangal	Nine kinds of metal salts
7	Pancha paashanangal	Five kinds of metal salts
8	Manosilai	Red Arsenic Disulphide (Realger)
9	Mirudhaar sinki	Galena (Lead Sulphide)
10.	Vellaippashanam	Arsenum Acidum (White Arsenic)

#### IV. Karasaram – Salts

(30 hours)

Sl. No	Tamil Name	English Name / Scientific Name
1	Applakkaaram	Sodium Carbonate impure
2	Indhuppu	Sodium Chloride Impure (RockSalt)
3	Evatchaaram	Potassium Carbonate impure
4	Ekambachaaram	A Prepared Salt (an efflorescentsalt)
5	Kadal nurai	Sea froth engendered by submarine fire
6	Kanavaai odu	OS SEPIAE (Cuttle fish bone)
7	Gandhiuppu	Salts of Sulphur
8	Gandhaga lavanam	Salt obtained from Sulphur, mixed with other ingredients (Consolidated sea salt)
9	Kalluppu	Salt found in lumps deposited on beds of rocks at the bottom of the sea
10	Kariuppu	Sodium chloride (Common salt)
11	Kaachulavanam	Salt produced from the earth impregnated with soda
12	Cheenaakkaaram	Alum (Aluminous Sulphate)
13	Soodan	Camphor
14	Thilaalavanam	A salt derived from sessamum
15	Navauppu mezhugu	Waxy preparation comprises with salts
16	Navachchaaram	Ammonium chloridum (Sal ammoniac)
17	Pachai karpooram	Borneo camphor (Crude camphor)
18	Panchalavanam	Mixture of five salts
19	Pidaalavanam	Black salt
20	Pooneeru	Fuller's earth
21	Amber	Ambra arasea
22	Valaiyaluppu	Extracted salt from fuller's earth (Glass gall)
23	Vengaaram	Sodium biborate (Borax)
24	Vediuppu	Potassium nitrate (Salt petre)
25	Attuppu	A boiled salt obtained from salt petre

**V. Navamanigal – Gems (15 hours)**

Sl. No	Tamil Name	English Name / Scientific Name
1	Komedhagam	Onyx (Berly)
2	Neelamani	Sapphire
3	Pavazham	Coral
4	Pushparaagam	Topaz, Yellow Topaz
5	Maragadham	Emerald
6	Maanickam	Ruby (Carbuncle)
7	Vaidooriyam	Cats eye (Chryso prase)
8	Vairam	Diamond
9	Muthu	Pearl

Pavazham & Muthu to be studied in detail, rest of other gems may be studied briefly.

**VI. Uparasam - Minerals (Natural Substances) (20 hours)**

Sl. No	Tamil Name	English Name / Scientific Name
1	Appiragam	Mica
2	Annabedhi	Ferri Sulphas (Green vitriol) Crystallised foliated
3	Karpoorasilaasathu	Gypsum
4	Kalnaar	Asbestos
5	Kal-matham	
6	Karchunnam	Lime stone
7	Kaadikkaaram	Nitrate of silver
8	Kaavikkal	Red ochre
9	Gomuthra silaasathu	Asphaltum (Asphalt mineral piteh) Cupric sulphate (Blue vitriol)
10	Thurusu	
11	Nandukkal	Fossil stone crab
12	Nimilai	Bismuth
13	Paalthutham	Sulphate of zinc
14	Saathirabedhi	

**JEEVAM -MATERIA MEDICA (ANIMAL KINGDOM)****(50 hours)**

<b>Sl. No</b>	<b>Tamil Name</b>	<b>English Name / Scientific Name</b>
1)	Attai	Hirudo Medicinalis (Speckled leech)
2)	Aamai	Chelonia Turtle (Tortoise)
3)	Aalkaattipatchi	Lapwing bird (Vanellus indicus)
4)	Indrakopa poochi	Mutilla Occidentalis
5)	Iragukal	Feathers
6)	Udumbu	Varanus Sps (Monitor)
7)	Eri vandu	Mylabris Sps.
8)	Elumbugal	Bones
9)	Onan	Calotis (Common Agamaid Lizard)
10)	Kasthuri	Moschus moschiferus musk
11)	Kaandamiruga kombu	Rhinoceros unicornis
12)	Kilinjil	Ostrea edults linn (Common oyster shell)
13)	Kulambugal	Hoofs
14)	Kulavikkoondu	Wasps nest
15)	Kombarakku	Carteria Lacca (Lac)
16)	Kombugal	Horns
17)	Korochanam	Fel Borinum purifactum (Oxbile)
18)	Kozhi	Gallus domes (Domestic cock & hen)
19)	Sangu	Turbinella rapa (Conch Shell)
20)	Chaanam	Dung
21)	Siruneer	Urine
22)	Suraa	Squalus carcharius (Shark)
23)	Thantham	Teeth
24)	Thaen	Honey
25)	Nandu	Crab
26)	Nathai	Fresh Water Snail
27)	Nari echam	Jackal's excreta
28)	Palagarai	Cypraea moneta Linn (Cowry)
29)	Pantri	Sus indicushog (Pig)
30)	Paambu chattai	Snake's slough
31)	Palum pal porutkalum	Milk and milk products
32)	Pitchi	Bile
33)	Puli	Tiger
34)	Punugu	Viverra Civetta (Civet cat)

35)	Poo naagam	Earth Worm
36)	Mayil	Pavo Cristatus Linn (Pea Cock)
37)	Maan	Deer
38)	Min mini poochi	Fire fly
39)	Muttai odugal	Egg shells
40)	Musiru muttai	Egg of Formica Smaragdina
41)	Mudhalai	Crocodills porosus (Crocodile)
42)	Muthuchippi	Mytilus margaritiferus (Pearl Oyster Shell)
43)	Mezhugu	Wax
44)	Yaanai	Elephas indicas (Elephant)
45)	Mulleli	
46)	Pazham thinni Vavvaal	(Bat).
47)	Thavalai (Patchai).	Green coloured Frog.
48)	Kaattu-Poonai.	

#### Practical

Total Hours : 100

- |                                   |            |
|-----------------------------------|------------|
| 1. Sutthi (Purification of Drugs) | (10 hours) |
| 2. Chooranam                      | (7 hours)  |
| 3. Vadagam                        | (7 hours)  |
| 4. Maathirai                      | (7 hours)  |
| 5. Thailam                        | (7 hours)  |
| 6. Kuzhambu                       | (7 hours)  |
| 7. Ilagam                         | (7 hours)  |
| 8. Parpam                         | (7 hours)  |
| 9. Chendhooram                    | (7 hours)  |
| 10. Mezhugu                       | (7 hours)  |
| 11. Vennai                        | (7 hours)  |
| 12. Rasaayanam                    | (7 hours)  |
| 13. Kalimbu                       | (7 hours)  |

Perparation of Peru Marunthugal can be shown in Video to students during Practical hours  
(6 hours)

#### Reference books:

1. Text of Gunapadam – Thathu Jeeva Vaguppu – Vol. II & III – by Dr.R.Thiagarajan
2. Pathartha Guna Chindamani
3. Pathartha Guna Vilakkam – Kannusamy
4. Materia Medica - Vol. I & II – by Dr. Natkarni

5. Siddha Vaidhya Thirattu – by Dr. C.S. Uthamarayan

## **Third Professional BSMS**

### **1. NOI NAADAL PAPER – I**

**(PRINCIPLES OF SIDDHA PATHOLOGY)**

**Total Hours : 200**

#### **1. Introduction to Siddha Pathology**

[Page No. 1-4, 107-108, 117-124, Text Book S. No. 1; 5 Hrs]

1. 1. Definition of Noi and Noi Naadal
1. 2. Importance of Noi Naadal
1. 3. Etiology of Diseases as per Siddha system.
1. 4. Noi intri vazha kadai pidikka vendiya vithi muraikal , maruthuvanin kadamaikal according to Thiruvalluvar
1. 5. Noi intri vazha Kaayakalpam- mani manthira avizhtham

#### **2. Interrelations between five elements, six tastes and three humours – abnormalities during derangements.** [Page No. 21-25, Text Book S. No. 1; 5 Hrs]

#### **3. Mukkutra iyal (Vatham – Pitham – Kapham)**

[Page No. 232-245, Text Book S. No. 1; 15 Hrs]

- 3.1 Predominant locations – properties – Functional varieties – physiological role
- 3.2 Pathological conditions ( increased & decreased features)
- 3.3 Thanilai valarchi – Vetrunilai valarchi – Thannilai adaithal).

#### **4. Thega ilakkanam correlated with diseases**

[Page No. 245-248, Text Book S. No. 1; 10 Hrs]

#### **5. Derangements of Uyir thathukal,**

[Page No. 255-259, Text Book S. No. 1; 20 Hrs]

#### **6. Naadi:** [Page No. 82-107, 124-156, 167-195 , Text Book S. No. 1; 20 Hrs]

- 6.1. Definition – locations
- 6.2. Vatha Naadi, Pitha Naadi, Kapha Naadi, ratio of Naadi , Conjoined Naadi
- 6.3. Pulse variations according to seasons
- 6.4. Preponderant period of Vatha, Pitha & Kapha Naadi – conditions responsible for

irregular pulse rhythm – prognosis of a disease based on Naadi.

6.5.Bootha naadi and Pancha Bootha Naadi

6.6.Guru Naadi and its abnormalities

7. Fourteen Natural Urges and the Pathological features manifested due to their suppression. [Page No. 260-265, Text Book S. No. 1; 5 Hrs]

8. Asaathiya, Marana Naadikal and Kurigunangal (Fatal signs & symptoms) [Page No. 195-232, Text Book S. No. 1; 7 Hrs]

9. Ennvagai Thervukal, [Page No. 269-272, 282-325, Text Book S. No. 1; 15 Hrs]

9.1.Examination through Naadi

9.2.Examination through Sparism

9.3.Examination through Naa

9.4.Examination through Niram

9.5.Examination through Mozhi

9.6.Examination through Vizhi

9.7.Examination through Malam

9.8.Examination through Moothiram- Neerkkuri , & Neikkuri .

9.8. 1 Neerkkuri: (Urine general examination) – Alavu ( Quantity), Niram (colour),

Manam (odour), Nurai (froth), Edai ( Density) – Enjal (Deposits)

9.8.2. Neikkuri : The different changes in the oil dropped on the urine to be observed

9.9. Diagnosis of diseases, curable and incurable condition through Ennvagai Thervukal

10. Special Diagnostic Methods in Siddha System

[Page No. 339-352, Text Book S. No. 1; 3 Hrs]

10.1. Manikkadai Nool (Wrist circumetric findings)

10.2.Thoothuvan Ilakkanam.

11. Seven physical constituents (Udal thathukkal) & Malangal (feaces, Urine & sweat increased decreased features).

[Page No. 255-259, Text Book S. No. 1; 5 Hrs]

12. Digestive fire (Udal thee) -Geographical Classifications & Seasonal variations (Nilamum pozhuthum) – Appropriate time for medications.

[Page No. 265-268, Text Book S. No. 1; 3 Hrs]

13. Primary aetiology of various diseases according to Theraiyar. [Page No. 363-364, Text Book S. No. 1; 2 Hrs]

14. Worms and infectious diseases (Ottu noigal)

[Page No. 353-359, 365-366, Text Book S. No. 1; 10 Hrs]

**Diseases: [Text Book S. No. 2]**

The following headings should be covered for the following diseases. Veru peyar , Noi kaaranam, mukkutra verubadu, Noyin murkurigal, pothukkurigal , Naadi nadai,, Theerum Theeratha Nilai (Prognosis).

Sl. No.	Topics	Hours
1.	Suram	5 hrs
2.	Mukkadaippu	2 hrs
3.	Irumal	2 hrs
4.	Irraippu	2 hrs
5.	Ilaippu	2 hrs
6.	Thamaraga Noi	2 hrs
7.	Athi Kurathi Azhal Noi	2 hrs
8.	Vaanthi	2 hrs
9.	Gunmam	2 hrs
10.	Athisaaram	2 hrs
11.	Kirani (Nina Kazhichal)	2 hrs
12.	Seetha Kazhichal	2 hrs
13.	Kalleeral Noi	2 hrs
14.	Manneeral Noi	2 hrs
15.	Paandu	2hrs
16.	Sobai	2 hrs
17.	Kaamalai	2 hrs
18.	Peruvayiru	5 hrs

**Siru Neer Noigal**

19.1.	Siruneer Perukkal Noi	5 hrs
19.2.	Siruneer Arukkal Noi	5 hrs
20.	Vatha Noigal	10 hrs
21.	Pitha Noigal	5 hrs
22.	Kapha Noigal	5 hrs
23.	Keel Vatham	3 hrs

## **PRACTICALS**

**Total Hours : 100**

### **Major:**

- Clinical applications of Three Humours (Vatham, Pitham, Kapham) **(15 hours)**
- Interpretation of Enn vagai Thervukal **(30 hours)**
- Examination of Ezhu Udal Thathukkal **(5 hours)**

### **Minor:**

- Manikkadai Nool **(5 hours)**
- Neerkkuri and Neikkuri **(15 hours)**
- Clinical applications of individual humours **(15 hours)**
- Clinical applications of individual Udal Thaathu **(5 hours)**  
**(10 hours)**
- Clinical applications of Enn vagai Thervu

## **TEXT BOOK**

1. Shanmugavelu 2003, Noi Naadal Noi Mudal Naadal Thirattu / Part - I 2<sup>nd</sup> Edition. Department of Indian Medicine & Homoeopathy, Chennai, Govt. of Tamil Nadu.
2. Shanmugavelu 2003, Noi Naadal Noi Mudal Naadal Thirattu / Part - II 2<sup>nd</sup> Edition. Department of Indian Medicine & Homoeopathy, Chennai, Govt. of Tamil Nadu.

## **REFERENCES**

1. Prof. Dr. P.M.VENU GOPAL H.P.I.M. 2014, Udal Thathuvam, Department of Indian Medicine & Homoeopathy, Chennai, Govt. of Tamil Nadu.
2. Dr.Kuppusamy Mudaliar, H.P.I.M. 2012 Siddha Maruthuvam Pothu, Department of Indian Medicine & Homoeopathy, Chennai, Govt. of Tamil Nadu.
3. Dr.K.S.Uthamarayan H.P.I.M. 2003, Siddha Maruthuvanga Churukkam, 3<sup>rd</sup> Edition, Department of Indian Medicine & Homoeopathy, Chennai, Govt. of Tamil Nadu.
4. Periya Gnana Kovai -- Dhasa vayu's Pancheeharanam
5. Dr.Kannan Rajaram B.S.M.S, ATSVS Siddha Medical College, Munchirai
  - a. 2008 Varma Maruthuvam
  - b. 2008 Atharam thoondum muraikalum Noi kanippum
  - c. 2007 Varma Maruthuvathin Adipadaikal

## 2. NOI NADAL PAPER- II

(Principles of Modern Pathology including Clinical Pathology) Total Hours : 150

### 1. Introduction of Pathology [5 hrs]

- 1.1. Advances of Pathology
- 1.2. Classification of Pathology

### 2. Lab Techniques, equipments, study of Pathogenesis (Instrumental Technique) [6 hrs]

### 3. Cell [15 hrs]

### 4. Immunopathology, [10 hrs]

Cell injury , Cell response to injury – Degeneration – Common Causes – Fatty changes  
Atrophy, Hypertrophy – Metaplasia , Hyperplasia – Aplasia etc.

### 5. Haemodynamics – Shock , oedema , embolism , thrombosis , ischemia , infarction , congestion [20 hrs]

### 6. Inflammation and wound healing [7 hrs]

### 7. Infectious diseases (Pathogenesis of the bacteria, virus and fungal infections) [15 hrs]

### 8. Gene and chromosomal Pathology – Diseases due to abnormalities of Gene, Diagnosis [10 hrs]

### 9. Nutrition (Proteins, vitamins and minerals) [15 hrs]

### 10. Haematology [7 hrs]

Abnormalities RBC, WBC, Platelets

### 11. Neoplasm [10 hrs]

Etiology – Classification – Pathogenesis - Para neoplastic syndromes and complications -  
Diagnosis

### 12. Metabolic and life style disorders [30 hrs]

Diabetes, Obesity, Hypertension COPD, Jaundice, Arthritis and Ill effects of radiation etc.

## Practicals

Total Hours :100

### CLINICAL PATHOLOGY

1. Haematology (30 hours)
2. Examination of Sputum for AFB. (5 hours)
3. Examination of Urine (4 hours)
4. Examination of Faeces (2 hours)
5. Blood smear examination (5 hours)
6. Widal Test (3 hours)
7. Vaginal Smear. (3 hours)
8. Serological test- VDRL – Elisa Test – Hbs Ag, RA factor – ASO Titre (10 hours)
9. Skin – Skin clipping procedure. (2 hours)
10. Liver Function Tests, Renal Function Tests. (6 hours)

### Histopathology slides & specimens (minimum 10 nos.) (10 hours)

1. Liver-fatty, cirrhosis & carcinoma
2. Lung – Tuberculosis, Bronchitis, Bronchiectasis &
3. carcinoma Stomach – Gastritis, Ulcer & carcinoma
4. Uterus & Ovary – Endometritis, PCOD, Fibroid, Ovarian cyst &
5. carcinoma. Fibro adenoma breast
6. Colloidal Goiter
7. Osteoclastoma
8. Other slides

### Haematology slides (10 hours)

1. Iron deficiency Anaemia
2. Acute Myeloid leukaemia

3. Chronic Myeloid leukaemia
4. Acute lymphoblastic leukaemia
5. Chronic lymphoblastic leukemia

**Radiology**

**(10 hours)**

1. Basic Principles
2. Respiratory System – Tuberculosis, COPD, Pleural effusion etc.
3. Cardio-vascular System – Enlargement, etc.
4. Osteology - Fracture, Dislocation, Tumor etc.

**Text Books:**

1. Harsh Mohan 2010, Text Book Of Pathology, 6<sup>th</sup> Edition, Jitinder P Vij, Jaypee Brothers Medical Publishers (p) Ltd., EMCA House, 22/23B Ansari Road Danyaganj.
2. Robbins and Cotran 2008, Pathologic Basis of Disease, 7<sup>th</sup> Edition Elsevier adivision of Reed Elsevier India private Limited, Logix Park, First Floor, A4 &A5 Sector -16 Noida 201301, U.P> India. Vinay Kumar MD, FRC Patho, Abul K. Abbas MBBS & Nelson Fausto,MD.
3. CK. Jayaram Panikar 2007, Text Book of Medical parasitology, 6<sup>th</sup> Edition, Jaypee Brothers Medical Publishers (p) Ltd. EMCA House, 22/23B Ansari Road Danyaganj.
4. Sanyal & Battacharya 2011, Clinical Pathology, A Practical Manual, 2<sup>nd</sup> Edition Elsevier, a division of Reed Elsevier. India private Ltd.
5. Harsh Mohan 2010, Clinical Pathology, 6<sup>th</sup> Edition, Jitinder P Vij, Jaypee Brothers Medical Publishers (p) Ltd. EMCA House, 22/23B Ansari Road Danyaganj.

**3. SATTAM SARNTHA MARUTHUVAMUM NANJU MARUTHUVAMUM**

**(Forensic Medicine and Toxicology)**

**Total Hours : 150**

**SATTAM SARNTHA MARUTHUVAM (Forensic Medicine)**

**1. Introduction :-** (Page No: 21-49, Ref.Book- S.No.1 , 3hours)

Definitions – unnatural deaths – inquest – courts – power of courts – proceedings of the courts – medical evidences – dying declaration – witness – Sentences- professional secrets of a doctor – doctors and proceedings of the courts- Medical Certificate.

**2. Medical Law and Ethics:** (Page No: 29,32,35,49,53,- Ref.Book-S.No.3 , Page No.45- S.no: 4 , 3hours)

Duties of Medical Practitioners-Professional Secrecy-Professional Negligency -Mercy killing-Organ Transplantation.

**3. Identity :-** (Page No: 50-110, Ref.Book- S. No.1 , 10 hours)

Useful factors for identity- identity in civil and criminal cases - identity in dead person - racial characters and religion– sex – sex determination from bones -age – age determination from teeth and bones – general development and stature -complexion features of individuality – hair- external peculiarities-scars –Moles- malformation-

Tattoo marks – Anthropometry – Dactylography – poroscopy-occupational marks.

**4 Medico legal Autopsy :-** (Page No: 113-134, 163-164- Ref.Book- S. No.1 , 3hours)

Type of Autopsy- Conditions – Important points to be noted – External and Internal examination – preparation of specimens for analysis – Issue of death certificate-Exhumation.

**5. Death and Its Causes :-** (Page No 130-145, Ref.Book- S No.3 , 3hours)

Definition -Medico legal importance – Modes of death and classification – sudden death – signs of death.

**6. Post-mortem Changes :-** (Page No: 146, 170, Ref.Book- S. No.3 , 147-162- Ref.Book- S. No.1 , 3hours)

Post Mortem Hypostasis- Cadaveric changes in the muscle – primary relaxation – rigidity – Secondary relaxation – Decomposition – Putrefaction-Adipocere formation Mummification – Estimation of time since death.

**7. Asphyxia :-** (Page No.165-207 - Ref.Book- S. No.1 , 10hours)

Definition-Asphyxia and Asphyxial death – causes – features of asphyxia and asphyxial death – Autopsy findings common to all asphyxias – Hanging – Complete and Incomplete Hanging- causes of death – autopsy findings – judicial hangings – medico legal aspects – Accidental-Suicidal-Homicidal Hanging-strangulation – autopsy findings – medico legal aspects – differences between hanging and strangulation – Throttling – autopsy findings – Drowning –

causes – Autopsy findings – How to confirm the cause of death — first aid – smothering – Suffocation- medico legal aspects – choking – traumatic asphyxias – autopsy findings.

**8. Wounds and classification :-** (Page No: 208--283, Ref.Book- S. No.1 , 10 hours)

Wounds –classification- abrasions – contusion – lacerated wounds – incised wound – stab wound – firearm wound and their medico legal importance – Ante mortem and post mortem wounds – Internal and external changes of wounds – Age of the wounds – death due to wounds – fatal injuries - Grievous injuries – Defense wound – varieties of firearm and its function. Causes for death due to firearm – Hemorrhage – fat embolism – Systemic embolism-Bomb Explosive Wounds.

**9. Sexual offences :** (Page No: 392-416- Ref.Book- S.No.3, 6 hours) Classifications-Rape-Incest – procedure for examination of the accused and victim – Findings of the examination – Important point to be noted in accused and victim – Examination of the place where the offence takes place- blood stains – general

examination–age and sex identification from blood stains-blood groups-DNA –finger printing-chemical examination – Semenology – acid phosphatase test – alizarin test & etc. ; Serological examinations – Microscopic examination – Difference between semen & other substances- **Unnatural sexual offences** :Sodomy- Examination of the accused and Victim- Bestiality – Examination of the accused and animal -Buccal Coitus – Tribadism – **Sexual Perversions:** Transveritism – Sadism – Masochism –Exhibitionism-Fetchism – Necrophilia-Froteurism- masturbation-undinism-lust murder.

**10.Impotence and Sterility, Sterilization, Artificial Insemination:** (Page No: 364-370- Ref.Book- S.No.3, 4 hours)

Impotence and Sterility- Sterilization-Artificial Insemination-Surrogate Motherhood.

**11.Virginity :-** (Page No: 371-373- Ref. Book- S.No.3 and Page No.399- S. no: 4 , 2 hours)

Anatomy of Female genitalia – Hymen – Causes for the Rupture of hymen – Medical legal importance.

**12.Pregnancy :-** (Page No: 327-347, Ref. Book- S. No.1 and Page No: 378- Ref. Book- S.No.3, 3 hours)

Fertilization — Confirmatory findings for pregnancy – Presumptive signs – Probable signs – Positive signs – Biological Tests-Medico legal Importance-Legitimacy and Paternity-Posthumous child-Super fecundation.

**13.Delivery :-** (Page No: 379-380- Ref. Book- S.No.3, 3hours)

Signs of delivery the living – Signs of remote delivery in the living – Signs of delivery in the non living Woman– Supposititious child.

**14.Abortion :-** (Page No: 381-391- Ref. Book- S.No.3, 3 hours)

Definition – Natural abortion –Cause of Abortion-Artificial Abortion- Justifiable abortion

– Abortion on the basis of health condition – Rules to be followed by the physician – Procedures – Criminal abortion – complications – Cause of death.

**15.Infanticide :-** (Page No: 417-427- Ref. Book- S.No.3, 3 hours)

Infanticide & its criminal proceedings – Still born babies – Features – Dead born – features – mummification – Causes of death – To confirm whether still born or birth after death – Accidental causes –Natural Causes-Criminal Causes- Precipitate Labor – Medico legal Importance-Concealment of Birth-Sudden Infant death syndrome-Battered baby syndrome.

**16.Burns and Scalds :-** (Page No: 394-411, Ref. Book- S. No.1 , 5 hours)

– Burns – Scalds – Stages of Burns & scalds – signs & symptoms – causes of death – Autopsy findings- Dowry death

**17.Death from Lightning, Electricity, Hot & Cold :-** (Page No: 412-422, Ref. Book- S. No.1 , 6hours)

Lightning and its effects – Medication – Autopsy findings – Electricity and its effect – Causes for death – Medication – Autopsy findings – Hot – Effects – cold and its effects – Autopsy findings.

**18.Starvation :-** (Page No: 320-321- Ref. Book- S.No.3, 3 hours)

Definitions – signs & Symptoms – Cause of death– Autopsy findings.

**19.Forensic Psychiatry :-** (Page No: 457-472- Ref. Book- S.No.3, 8 hours)

Insanity – Delirium – Delusion – Medico legal aspects – Hallucination – illusion –Lucid interval– impulse – obsession – Phobia- idiocy – Mental Subnormality-Diagnose insanity- Imbecility – feeble-mindedness – Dementia – Schizophrenia – Psychic epilepsy – melancholia – Psychiatry due to alcohol abuse – Feigned insanity – laws related to psychiatry – court and psychiatrics – somnambulism – Automatism-Hypnotism and mesmerism-Medico legal Importance.

## NANJU MARUTHUVAM (TOXICOLOGY)

### **Section: 1 Introduction** (Page No: 473-493- Ref. Book- S.No.3, **3 hours**)

Definition – History of poison-Law of Poisons- classification of poisons – Factors modifying the Effect of Poison- Action of Poison-Biotransformation – Route of administration –Route of Excretion- diagnosis of poisoning in Living and dead – Duties of a doctor in case of poisoning – Treatment of poisoning.

### **Section: 2 Corrosive poisons** (Acids strong alkalis) (Page No: 525-529- Ref.Book- S.No.1 and Page No: 505-508,528,529 Ref.Book- S.No.3, **3 hours**)

Inorganic Acids: Sulphuric Acid-Nitric Acid-Hydrochloric Acid.

Organic Acids: Carbolic Acid-Oxalic acid.

Strong Alkalis: Sodium, Potassium, Ammonium Hydroxides and Carbonates

### **Section: 3 Irritant Poisons**

**I. Agricultural poisons:** Organo Phosphorous- Organo Chlorine- Carbamates. (Page No: 494-498,500- Ref.Book- S.No.3, **2 hours**)

**II. Inorganic Irritant Poisons:** (Page No: 510-520- Ref.Book- S.No.3 and Page No.611-- 612, S.No.1 **4hours**)

**Metals:** Arsenic Compounds-Antimony-Lead-copper-Mercury compounds-Zinc-Chromium

**Non Metals:** Phosphorous--Sulphur-Mica.(PageNo.530-32 -S.No.1 and Page No.27,35-S.No.2 **2 hours**)

**Mechanical Irritants:** Glass powder-Diamond powder-Animal and vegetable Hairs. (PageNo.612 -S.No.1, **2 hours**)

**III. Inorganic Irritant Poisons:** (Page No: 524-528- Ref.Book- S.No.3 and Page No.46-63, S.No.2 **10 hours**)

**Plants:** Abrus precatorius – Calotropis gigantea – Semecarpus anacardium – Capsicum annum – Croton tiglium – Ricinus communis – Euphorbia antiquorum – Excoearia agallocha- Gloriosa Superba-Plumbago zeylanica (Parts used, Chemical Compounds, Signs and Symptoms, Fatal

dose, Fatal Period, Siddha and Modern method of Treatment, Postmortem Examination and Medico legal Importance)

**Animal Bites and Stings:** (Page No: 639-664- Ref.Book- S.No.1 - Page No.74-134, S.No.2-Page No.528-536-S.No.3 **3 hours**)

Ants-Scorpion-Wasps-Spider-Snakes- Centlipedes-Bees-Rats-Onan-Lizards-Leech-Frog-Dog-Cat-Monkey-Horse-Fox-Unknown bite-Crocodile-Beetle-Pig-Animal bites treated with palagarai parpam.

#### **Section: 4 Systemic Poisons**

##### **I. Neurotic or Cerebral Poisons:**

**Inebriant and CNS depressants:** Opium-Morphine - Pethidine- Alcohol-Ethyl ,Methyl Alcohol-Toddy-Country Arrack. (page no.580-85,615-17,630-39-S.No.1 and page No.59-S.No.2, 4 hours)

**CNS Stimulants:** Amphetamine. (Page No: 562- Ref.Book- S.No.3, 1hour)

**Deliriant:** Datura fastuosa- Cannabis sativa--Cocaine. (Page No: 566-571- Ref.Book-S.No.3 and Page No.58-60, S.No.2, **2 hours**)

**Spinal Poison:** Strychnosnux vomica. (Page No: 585-590- Ref.Book- S.No.1 - Page No.59-S.No.2, 1 hour)

##### **II. Cardiac Poisons:** - (Page No: 583-587- Ref.Book- S.No.3 and Page No.57,58,60-62, S.No.2 (**3hours**))

Nerium odorum – Cerbera thevitea- Aconitum ferox – Nicotiana tobaccum- Cleistanthus collinus-Digitalis Purprea. (Parts used, active principles, Signs and Symptoms, Fatal dose, Fatal Period, Siddha and Modern method of Treatment, Postmortem Examination and Medico legal Importance)

##### **III. Asphyxiants:** (Page No: 588-594- Ref.Book- S.No.3 , **3hours**) Carbon

Monoxide-Carbon Dioxide-Hydrogen Sulphide and War Gases.

#### **Section: 5 Food Poisonings and Poisonous Foods** (Page No: 603-608- Ref.Book- S.No.3 and Page No.46-63, S.No.2 , **11 hours**)

Definition-poisoning due to Micro organisms( Bacteria,Protozoa,fungus) - Botulism-poison due to chemical - Vegetable Origin ( Lythrus Sativus, Rye, Oats, Barely, Ground nut, Argemone Mexicana, Mushrooms, Ulunthu, Thuvarai, kadali, motchai, Cocconut, Banana fruit, Jack fruit, Bombax Malbaricum, Naval kottai, Sivanar root, Nungu, Magilam poo, wheet, Gingily oil)-Fish Poisoning—Ghee-Honey-Curd rice-Rice- Egg- Kudineer Thodam- Idu Marunthu -Neer Thodam-Features of Poisonous food-Examination of Poisonous Food-Signs and Symptoms-Treatment.

**Section: 6 Drug Dependence** (Page No: 572-574- Ref.Book- S.No.3 , **3 hours**)

Definition-Causes-Types of Drug Dependence-Treatment-Investigations of drug abuse deaths.

**Section: 7 House hold Poisons** (Page No: 475- Ref.Book- S.No.3 and Page No.599-602, S.No.1, **2hours**)

Analgesics, Anti pyretics, Kerosene, Camphor, - Ant powder-Match Box-

**Practicals**

**Total Hours : 100**

**Topics:**

**Spotters:** Toxic Plants-Toxic Metals and Minerals-Toxic Animals and household poison.  
(Practical work - 18 hours).

**Microscope Findings:** Stains, Animal and Human Hairs, Semen, Blood, Fibers etc. (Practical work - 9 hours).

**Photos:** Injury Cases, Burning, Drowning, Hanging, Strangulation.(Practical work -19 hours)

**Weapons:** Knife, Stone, Ligature, Stick, Blunt and Sharp edged weapons, Fire arms  
(Practical work - 14 hours).

**Certificates:** Medical Certificate, Physical Fitness, Wound Certificate,

Age Certificate, Drunkenness, Death certificate.(Practical work - 20 hours).

**Instruments: stomach wash tube and Ryles tube**

(Practical work - 5 hours)

**Examinations:** Bones, X rays, Dental.

(Practical work - 15 hours)

### Text Books:

1. Sattam Saarntha Maruthuvamum Nanju Maruthuvamum, Second Edition 1999, P.A. Muhammed Iqbal, MD (Siddha), Published by Department of Indian Medicine and Homeopathy, Chennai 106,
2. Nanju Murivu Nool, Third Edition, 1998, K.S. Murukesa Mudaliyar, Published by Department of Indian Medicine and Homeopathy, Chennai 106,
3. Dr.K.S.Narayan Reddy, 2013-The Essentials of Forensic Medicine and Toxicology, 32<sup>nd</sup> Edition, Published by K.Suguna devi, H.No.16-11-15/2/2, Saleem nagar colony, No.1 malakpet, Hyderabad-36.
4. Dr. Apurba Nandy, 2013-Nandys's Hand Book of Forensic Medicine and Toxicology, 1<sup>st</sup> published, New Central Book Agency (P)Ltd., 8/1,Chintamani Das lane, Kolkota-9.

### Reference Books:

1. C.A.Franklin, 1988-Modi's Text Book of Medical Jurisprudence and Toxicology 21<sup>st</sup> a. Edition.
2. Dr.K.M.Natkarni.1993- Materia Medica vol-I and II, 3<sup>rd</sup> Edition, K.M.Popular Prakashan PVT Ltd, Bombay.
3. Vishavaidhya Arooda Noolkal, First edition, 2000, Thamarai Noolakam, Chennai 26
4. Sarabendra Vaidhya Muraikal, Visha Roga Chikitchai, Fifth edition 2005, Dr.S. Venkata Rajan, Saraswathy Mahal Library, Thanjavur
5. Visha Vaidhya Chintamani, Sirumanavoor Munisamy Mudhaliyar, 1995, B.R. Balakrishnan Nayakar, Chennai- 79
6. Theran Yamaka Venba , Second edition, 1973, Dr.P.A. Muhamed Abdullah Sahib
7. Gunapadam, Thathu Jeevam, Fourth Edition, 1992, Dr. R. Thyagarajan, Published by Department of Indian Medicine and Homeopathy, Chennai 106

## 4. NOI ANUGAVITHI OZHUKKAM

Total Hours : 100

### (HYGIENE AND COMMUNITY MEDICINE INCLUDING NATIONAL HEALTH POLICIES)

#### CHAPTER – 1

(Hour - 1)

Introduction to preventive and social medicine, concept of man and society, aim and scope of preventive and social medicine, relations between economic factors and environment in health and disease

**CHAPTER – 1 (A)****(Hour - 1)**

The ways to lead a disease free life as said by ancient siddhar Theriyar

**CHAPTER – 2****(Hour - 2)**

The five Geographical Classifications - description and occurrence of diseases

**CHAPTER – 3****(Hours - 2)**

Ancient town planning – modern town planning

**CHAPTER – 4****(Hours - 3)**

Industries – occupational diseases and its preventions – Occupational hazards.

**CHAPTER – 5****(Hours - 4)**

Oorthooimai – waste management – Excreta disposal – modern sewage treatment and other methods of sewage disposal. Recycling Methods

**CHAPTER -6****(Hours - 2)**

Modern house and vaasthu, Modern Construction Techinques which prevent natural calamities.

**CHAPTER – 7****(Hour - 1)**

Burial and Cremation.

**CHAPTER – 8****(Hours - 4)**

Seasons (Perumpozhuthu, Sirupozhuthu) – Principles to be followed in the above seasons and the specific food.

Imporikal Kappu, Seasonal Food habits, Uthrayanam, Thakshinayanam, Utthama, Mathima, Athama Kaala Ozhukam.

**CHAPTER – 9****(Hours - 5)**

Water – uses – sources – pollution and its related diseases, Purification and distribution. Water treatment methods

Rain water, Snow water – Collection methods and Application types

River Water – types and therapeutic Values

Waterfalls, Pond water and Well water – types and therapeutic Values

Nandu Kuzhi neer, Naaval mara neer, Karunkalli neer, Vaazhai neer, Ella neer – types and therapeutic Values.

**CHAPTER – 10**

**(Hours - 3)**

Neruppu (or) thee – Atmospheric temperature – Effects of heat stress – Effects of cold stress – Preventive measures of global warming – humidity

**CHAPTER – 11**

**(Hours - 5)**

Air pollution – Health aspects, Prevention and control, ventilation – Types, Effects of different types of fumes

**CHAPTER – 12**

**(Hours - 2)**

Noise – effects of noise pollution and its control.

**CHAPTER – 13**

**(Hours - 3)**

Habits – Personal hygiene and daily routines– Costumes – gems and pearls –. Pancha Karpam

**CHAPTER – 14**

**(Hours - 4)**

Food – Six tastes – Three types of food – Toxicity – Adulteration – Food borne diseases – Prevention and control – Food standards- Food Digestion time, Paththiyam, Selection of food based on uyir thathukal. Junk foods and health hazards.

**CHAPTER – 15**

**(Hours - 2)**

Beverages – Drinking water- Effects of water depending on the utensils – fruit juices - Neerakaram, Kaadi neer.

**CHAPTER – 16**

**(Hours - 2)**

Uses of Betel leaf and nut. Ill effects of Tobacco products

**CHAPTER – 17**

**(Hours - 2)**

Rest and sleep – Types of bed

**CHAPTER – 18**

**(Hours - 4)**

Nutritious and balanced diet – Role of fibers, cereals, vegetables – Greens – fruits – animal proteins – fish – birds – pickles etc. – Diseases –Thritoda sama porulgal –, Nutritional Disorders and public health

**CHAPTER – 19**

**(Hour -3)**

Serving procedures – types of vessels and their effect on food preparation.

**CHAPTER – 20**

**(Hours - 14)**

**Communicable diseases:**

Causes – Symptoms – Prevention and control of Chicken pox – Measles – Mumps – Influenza – Diphtheria – Whooping cough – Tuberculosis – Plaque – Rubella, etc

**Intestinal infections:**

Causes, symptoms, prevention and control of poliomyelitis – Viral hepatitis – Cholera – acute diarrheal diseases – Typhoid – Food poisoning – Amoebiasis – Ascariasis – Hook worm infestation etc

**Vector borne infection:**

Causes, Symptoms, Prevention and Control of; Dengue – Malaria – Filariasis – Chi-gun- gunia, Lepto Spirosis, SARS.

**Surface infection:**

Causes, Symptoms, Prevention and Control of; Trachoma – Tetanus - Leprosy – STD – AIDS/ HIV.

**CHAPTER – 21**

**(Hours - 12)**

National & Regional health programmes – NMEP – NFCP – NLCP – NTP – National Aids control programme – National programme for control of blindness – Iodine deficiency disorders programme – National cancer control programme – National mental health programme – National diabetes control programme – Child survival and safe motherhood programme – National family welfare programme – National water supply and sanitation programme – Minimum needs programme – Health and missions.

**CHAPTER – 22**

**(Hours - 5)**

Mental Health – Counseling and eradication of social stigma.

**CHAPTER – 23**

**(Hours - 5)**

Siddha concept of preventive measures – immunology and personnel hygiene.

Vaccination & Immunization Schedule

**CHAPTER – 24**

**(Hours - 5)**

Hospital Acquired Infections, Preventive methods.

**CHAPTER – 25**

**(Hours - 4)**

Hospital & Bio Medical Waste – Types and Disposal management.

**Text Books:**

1. Noi illa neri by Dr. Durairajan, H.P.I.M., Department of Indian Medicine & Homoeopathy, Chennai, Govt. of Tamil Nadu.
2. Park's Textbook of Preventive and Social Medicine by K. Park, 21<sup>st</sup> Edition, Banarsidas Bhanot Publishers

## Reference books:

1. Pathartha Guna Chintamani – Published by Ratna nayakar & Sons, Chennai 1932.
2. Agathiyar Gunavagadam
3. Siddha Maruthuvannga Surukkam – Dr. C. S. Uthamarayan – H.P.I.M., Department of Indian Medicine & Homoeopathy, Chennai, Govt. of Tamil Nadu.
4. A Treatise on Hygiene and Public Health by Birendra Nath Ghosh, Scientific Publishing Company, 1953.

## 5. RESEARCH METHODOLOGY AND MEDICAL STATISTICS

Total Hours : 100

### 1. Research Methodology [10 hrs]

#### i. Introduction

- Objectives of research
- Types of research
- Research methods
- Research process (Sources of data and data collection, Developing hypothesis and formulating research question, Extensive research survey, Preparing research design, Determining sample design, Execution of project, Analysis of data, Hypothesis testing, Generalisation and interpretation, Preparation of the report or the thesis)
- Problems encountered by researchers in India.

#### ii. Areas of Research Interest in Siddha [5 hrs]

- Alavaigal and its interpretation with contemporary research
- Literary research / Fundamental research (especially Siddha research methodologies)
- Product/Drug/Pharmaceutical research
- Epidemiological/Clinical research.
- SWOT(Strength, Weakness, Opportunity & Threat)

### 2. Literary Review [5 hrs]

Reviewing in research / Search for research Hypothesis/ Historical evidences / published papers

### 3. Protocol [5 hrs]

- Designing a Protocol
- Various Templates in Protocol

#### 4. Epidemiological studies and its application in clinical research [10 hrs]

##### Observational studies:

- i. Descriptive studies
- ii. Analytical studies: Ecological, Cross sectional, Case-control (Retrospective) and Cohort study (Prospective, Retrospective and Combined)

##### Experimental studies:

- i. Randomization (Randomized Controlled Trial and its varieties & Non randomized trial and its varieties)
- ii Blinding

#### 5. Pre-clinical studies [10 hrs]

- Traditional methods to identify the quality of raw materials and preparations
- Authentication and Standardization of Siddha drugs
- Pharmacological screening for Safety and efficacy (in vivo and in vitro)
- Nanotechnology.  
(Ref: Protocol for testing by PLIM/ OECD Guidelines / GMP Guidelines)

#### 6. Prerequisites for clinical study [5 hrs]

- Investigational pharmaceutical product
- Pre- clinical supporting data & pilot study etc.
- Research Protocol (Relevant components of protocol)
- Case Report Form (CRF)
- Informed consent process
- Interim review.

#### 7. Ethical guidelines [10 hrs]

- Ethical and safety considerations (Ethics committee)
- Composition
- Submission of application
- IEC approval

#### 8. Clinical trial designs and AYUSH GCP [15 hrs]

- Clinical research /trial – introduction

- Types of clinical trials
- Phases of clinical trial
- Data collection, Processing, and Data analysis
- Interpretation-Reporting method of clinical trial
- Clinical data management (CDM)
- Responsibilities of Sponsor, Monitor and Investigator
- Clinical Trial Registry of India –CTRI

### 9. Bio- Statistics [15 hrs]

- Introduction
- Measures of Central Tendency and Dispersion
- Normal distribution
- Sampling-Probability- Sampling variability
- Tests of significance- difference in means - difference in proportions of large samples -Chi-square test, t-test
- Demography and vital statistics
- Data analysis& Interpretation of results
- Tabulation- Diagrams (Bar charts, Histogram, Pie charts, Pictogram)- Statistical maps- Sources and presentation of data- Statistical averages
- Scientific writing.
- Hospital information Systems and hospital management system.
- Qualitative and quantitative data
  - Statistical Analysis of SPSS, Epi info and Epi data

### 10. Pharmacovigilance [5 hrs]

- Introduction&importance
- Siddha literature and Pharmacovigilance
- Difficulties in Pharmacovigilance (Rechallenging & dechallenging)
- Adverse Drug reactions- Regulations
- Identification of ADR- Prevention of ADR.

### 11. Intellectual Property Right (IPR),TKDL [5 hrs]

### 12. Glossary of selected terms in research methodology and statistics.

#### Text Books:

1. Introduction to Biostatistics and Research Methods - P. S. S. Sundar Rao, J. Richard

2. Biostatistics, Principles and Practices, Antonisamy.B et al, Tata Mcgraw hiil Education Private Limited, New Delhi,2010

**Sources for Reference:**

1. Good Clinical Practices published by CDSCO, Gol. (<http://rgcb.res.in/wp-content/uploads/2014/07/Good-Clinical-Practice-Guideline.pdf>)
2. Becoming a Successful Clinical Trial Investigator by Dr.P.K. Julka DNA Press 2<sup>nd</sup> Edn. 2009.
3. ETHICAL GUIDELINES FOR BIOMEDICAL RESEARCH ON HUMAN PARTICIPANTS by Indian Council for Medical Research, New Delhi on ( [http://icmr.nic.in/ethical\\_guidelines.pdf](http://icmr.nic.in/ethical_guidelines.pdf))
4. Good clinical Practice for Clinical trials of Ayurveda, Siddha and Unani Medicine (GCP-ASU) Department of AYUSH, Ministry of Health & Family Welfare, Government of India, New Delhi-2013 (<http://indianmedicine.nic.in/writereaddata/linkimages/5110899178-Final%20Book%202028-03-13.pdf>)
5. Handbook for good clinical research practice (GCP): Guidance for implementation World Health Organization 2002 ([http://apps.who.int/prequal/info\\_general/documents/GCP/gcp1.pdf](http://apps.who.int/prequal/info_general/documents/GCP/gcp1.pdf))

**Final Professional BSMS**

**1. MARUTHUVAM (MEDICINE)**

**Total hours 150**

*Study of following disease with clinical demonstration, their various names, Definition, causes, premonitory signs, signs & symptoms , description about the humoural disorders, pulse reading , complications , Associated disease, fatal signs, Line of treatment, prognosis, specific or special medicines, regimen and diet. Necessary modern scientific correlations shall also be incorporated as and when required.*

- |  |            |
|--|------------|
| 1. Kural kammal (Hoarseness of voice)  | (2 hours ) |
| 2. Mookkadaippu (Sinusitis and Nasal block)                                  | (2 hours ) |
| 3. Irumal noi (Cough)  | (2 hours ) |
| 4. Eraippu noi (Bronchial asthma)  | (2 hours ) |
| 5. Elaippu noi (Tuberculosis)  | (2 hours ) |
| 6. Kuruthiazhal noi (Bleeding disorders and abnormalities of blood pressure) | (2 hours ) |
| 7. Thamaraga noi (pertaining with heart diseases)                            | (3 hours ) |
| 8. Veluppu noi (Anaemia)   | (2 hours ) |
| 9. Oodhal noi (Dropsy)   | (2 hours ) |
| 10. Ulaimanthai (Acute / chronic enteritis)                                  | (2 hours ) |
| 11. Suvayinmai (Disorder of tastes)  | (2 hours ) |
| 12. Seriyamai (Indigestion)  | (2 hours ) |
| 13. Neervetkai (Polydipsia)  | (2 hours ) |
| 14. Vikkal (Hiccup)  | (2 hours ) |

15. Vanthi (Vomitting) (2 hours )
16. Mantham (Dyspepsia) (2 hours )
17. Gunmam (Pain abdomen) (3 hours )
18. Manneeral noi (Diseases of spleen) (2 hours )
19. Kalleeral noi (Diseases of liver) (2 hours )
20. Manjal noi (Jaundice) (2 hours )
21. Peruvayiru (Abdominal distension) (4 hours )
22. Kudalpidippu (Abdominal colic) (2 hours )
23. Perunkalichal noi (Diarrhoea) (2 hours )
24. Ninakalichal noi (Amoebic dysentery) (2 hours )
25. Kaduppu kalichal noi (Bacillary dysentery) (2 hours )
26. Oozhi noi (Cholera) (2 hours )
27. Soolai (Pricking pain of varied aetiology) (3 hours )

**28. Siruneer noikal**

28 (I) Neerina arukkal noikal (Conditions of reduced urinary output)

- a) Kalladaippu noi (Renal calculi) (3 hours ) b) Neeradaippu noi (Retension of urine) (3 hours ) c) Neerkattu (Anuria) (3 hours ) d) Sottu neer (Incontinence of urine) (3 hours ) e) Neersurukku (Oliguria) (3 hours )
- f) Vellai noi (Urethritis/ inflammation of the uro-genital organs) (3 hours)

28 (II) Neerina perukkal noikal (Conditions of increased urinary output)

- a) Meganeer/Athimoothiram (Polyuria) (4 hours ) b) Neerizhivu ( Diabetes mellitus) (3 hours ) c) Thelineer (Diabetes insipidus) (2 hours ) d) Venneer (Spermatorrhoea) (2 hours )

29. Keel vayu (Arthritis) (4 hours)
30. Suram – 64 (Fever – 64 types) (7 hours)
31. Mukkutra noi (Delirium) (3 hours)
32. Ammai noi (Viral infections) (3 hours)
33. Vatha noi (Rheumatic diseases and other neurological disorders) & Pakkavatham (Hemiplegia) (8 hours)
34. Pitha noi (Pitha diseases) (5 hours)
35. Iya noi (Kapha diseases) (4 hours)
36. Endocrine (diseases) (8 hours)
- (i) Hyper pituitarism
  - (ii) Hypo pituitarism
  - (iii) Hyper thyroidism
  - (iv) Hypo thyroidism
  - (v) Cushing's syndrome
  - (vi) Adrenal insufficiency
  - (vii) Hyper parathyroidism
  - (viii) Hypo parathyroidism
37. Infectious diseases (5 hours)
38. Sexually transmitted diseases
- 38.1 Korrukku noi (Syphilis) – 38.2 Mega vettai noi – (Gonorrhoea) (5 hours)
39. Ema kurai noi/ Theivu noi – HIV & AIDS (3 hours)
40. Life style disorders (7 hours)

**PRACTICALS:****(200 hours)**

1. Practical training in the general examination and systemic examination.
2. Maintaining clinical records
3. Envagai thervu
4. Nadi parisothanai
5. Application of Neerkuri and Neikuri
6. Application of Manikkadai nool
7. Application of Clinical investigations and interpretations
8. Practical training in common medical emergencies
9. Practical application of puramaruthuvam in medical cases

**REFERENCE BOOKS:**

1. Siddha Maruthuvam, Kuppusamy Muthaliar (1st Edn. 1954), Tamilnadu Siddha medical council, Chennai, 2<sup>nd</sup> Edn. 1987.
2. Yugi vaidhya chintamani, Yugimamunivar, Department of Indian Medicine & Homoeopathy, Govt. of Tamil Nadu, Chennai, Revised Edn. 1998
3. Jeeva raktchamirtham, Subramaniya Pandithar, The Arrow Press, Madras, 2<sup>nd</sup> Edn., 1928
4. Siddha Maruthuvaanga Surukkam, C. S. Uthamarayan, H.P.I.M., Department of Indian Medicine & Homoeopathy, Govt. of Tamil Nadu, Chennai,
5. Noikalukku Siddha parikaram Part I & II, Shanmugavelu, Indian medicine and homeopathy department, Chennai – 106, (1st Edn. 1972, Reprint: 2012)
6. Davidson's principle and practice of medicine, 2014, 22<sup>nd</sup> Edn., Churchill Livingstone, Elsevier, ISBN NO.- 9780702050473
7. Hutchison's Clinical Methods, Saunders Ltd. ISBN: 978-0-7020-4091-7.
8. Practical Medicine, PJ Mehta, The National Book Depot, 20<sup>th</sup> Edn., 2013, ISBN : 9788190704618

**2. VARMAM, PURAMARUTHUVAM AND SIRAPPUMARUTHUVAM****(Varmam Therapy, External Therapy and Special Medicine)****Total hours: 150****I. KAYAKALPAM****(15 hours)**

Definition – Description – Regimen – uses &amp; etc.

1. Kalpa medicines (Rejuvenation Therapy) - Classification – General & special karpam.
  - a. Mooligai karpam – (Herbal origin)
  - b. Thathu Karpam (minerals origin)
  - c. Jeeva Karpam – (Animal origin)
2. Attanga yogam - Iyamam- Niyamam- Asanam- Pranayamam- Prathiyakaram- Thaarana-  
Thiyanam-Samadhi
3. Pranayamam – Definition – Philosophy – method – Regimen – Uses
4. Yoga –Definition – Principles of yoga practice- yoga postures – types - explanation–  
philosophy – uses.
5. Muppu - Definition – philosophies – classification – description – uses.

## II. VARMAM:

(10 hours)

1. Definition – Description about the importance of Varmam – why it is called as Unique  
feature of Siddha system : - Basic Philosophies related to the formation of Varma points  
– classification based on three humours – based on anatomical locations – based on  
signs & symptoms – special & particular physical manipulation techniques & massage  
pertaining to Varma therapy – pulse diagnosis of varma patients – Important medicines  
used in varma therapy – Specific food items prescribed for the patients.
2. Detailed study about the following Varma points:- (it includes location – signs &  
symptoms –  
necessary manipulation techniques – medicines)

### Paduvarmam (12)

(6 hours)

- |                      |                               |
|----------------------|-------------------------------|
| 1) Uchi varmam       | 7) Urakka kaalam              |
| 2) Pidari kaalam     | 8) Thummi kaalam              |
| 3) Chevikuthikaalam  | 9) Ner Varmam                 |
| 4) Natchathirakaalam | 10) Adappa kaalam             |
| 5) Thilartha kaalam  | 11) Periya athisurikki kaalam |
| 6) Kannaadikaalam    | 12) Kallidai kaalam           |

### Thodu varmam (96)

(34 hours)

#### I. Varma points located in Head & Neck :(22)

- |                       |                                |
|-----------------------|--------------------------------|
| 1) Pootellu Varmam    | 12) Aayama kaalam              |
| 2) Mun chuvadi varmam | 13) Nadi kaalam                |
| 3) Nettri kaalam      | 14) Chenni Varmam              |
| 4) Pin chuvadi varmam | 15) Poigai kaalam              |
| 5) Porichal varmam    | 16) Kurunthukuthi kaalam       |
| 6) Puruva kaalam      | 17) Alavattukona chenni Varmam |
| 7) kannakaalam        | 18) Vettu Varmam               |
| 8) Kumbidum kaalam    | 19) Kokki kaalam.              |
| 9) Bala varmam        | 20) Manthira kaalam            |
| 10) Chuliyadi Varmam  | 21) Kannu varmam               |
| 11) Moorthi kaalam    | 22) Arukukaalam.               |

II Varma Points located in Trunk : (37)

- |                           |                          |
|---------------------------|--------------------------|
| 23) Malar varmam          | 24) Vilangu varmam       |
| 25) Kulir varmam          | 26) Arangu varmam        |
| 27) Maattraan kaalam      | 28) Thivalai varmam      |
| 29) Kaareeral varmam      | 30) Velleeral varmam     |
| 31) Koombu varmam         | 32) Nenchadaippan varmam |
| 33) Villu varmam          | 34) Mundellu varmam      |
| 35) Urumi varmam          | 36) Kuttri varmam        |
| 37) Kakotta kaalam        | 38) Chippi varmam        |
| 39) Changu thirikaalam    | 40) Vaayu kaalam         |
| 41) Manthira kaalam       | 42) Chiriya Athichuriki  |
| 43) Iruppu varmam         | 44) Villu varmam         |
| 45) Andakkaalam           | 46) Kaccha varmam        |
| 47) Thandu varmam         | 48) Thandinadi varmam    |
| 49) Pandri varmam         | 50) Ada varmam           |
| 51) Mothira kaalam        | 52) Vaanthi kaalam       |
| 53) Valamburi kaalam      | 54) Chorutheenda kaalam  |
| 55) Naabi varmam          | 56) Hanuman varmam       |
| 57) Pushti kaalam         | 58) Chuli varmam         |
| 59) Kurunthukuthi kaalam. |                          |

III The Varma points located in the Extremities: (37)

- |                               |                            |
|-------------------------------|----------------------------|
| 60) Thuthikai varmam          | 61) Dhakshana kaalam       |
| 62) Kavali varmam             | 63) Peruviral mayya varmam |
| 64) Manikattu varmam          | 65) Kannu varmam           |
| 66) Muzhankai varmam          | 67) Muttu varmam           |
| 68) Kochu varmam              | 69) Chulukku varmam`       |
| 70) Puja varmam               | 71) Mozhi varmam           |
| 72) Aani varmam               | 73) Pathakkala varmam      |
| 74) Chulukku varmam           | 75) Kochu varmam           |
| 76) Aaama kaalam              | 77) Thundu varmam          |
| 78) Chirattai varmam          | 79) Muttu varmam           |
| 80) Channi varmam             | 81) Naai thalai varmam     |
| 82) Visha varmam              | 83) Uppu Kuttri varmam     |
| 84) Kaal kannu varmam         | 85) Kuthikaal varmam       |
| 86) Nadai varmam              | 87) Kulachu varmam         |
| 88) Mudichu Varmam            | 89) Boomi kaalam           |
| 90) Naduviral chulukku varmam | 91) Kaal kavali            |
| 92) Peruviral mayya varmam    | 93) Adakka varmam          |
| 94) Konachanni                | 95) Komberi kaalam         |
| 96) Paathachakkaram.          |                            |

**III. GERIATRICS**

(5 hours)

Definition – Description – Care and management physical & mental disorder – Care – External changes.

#### IV. PSYCHIATRY:

(25 hours)

1) Classification of psychiatric disorders – Aetiological factors – Examination of mental state – Manifestations of psychiatric illness – Delusions and hallucinations – symptoms of depression – Anxiety symptoms – Deliberate self harm and Suicidal ideation – Schizophrenia & Delusional disorders – Mood disorders – Neurotic, stress related and Somatoform disorders – Disorders of Adult personality and behaviour.

Introduction – Definition – Types – Treatment of the following diseases.

#### 2) Paithiyam noi - 18 types

- |                        |                           |                        |
|------------------------|---------------------------|------------------------|
| 1. Aavesa Paithiyam    | 2. Abikasa Paithiyam      | 3. Mavuna Paithiyam    |
| 4. Suronitha Paithiyam | 5. Vihaara Paithiyam      | 6. Thaaga Paithiyam    |
| 7. Azhal Paithiyam     | 8. Murka Paithiyam        | 9. Naduku Paithiyam    |
| 10. Visha Paithiyam    | 11. Pralaaba Paithiyam    | 12. Pitha Paithiyam    |
| 13. Aankaara Paithiyam | 14. Gnana Paithiyam       | 15. Kaivisha Paithiyam |
| 16. Kama Paithiyam     | 17. Visha Thaga Paithiyam | 18. Siddha Paithiyam   |

#### 3)a) Kirigai noi

- b) Unmatham noi
- c) Brammai noi
- d) Matha noi
- e) Mathathiyam noi
- f) Soothika vatham
- g) Moorchai – Apasmaram – mayakkam.

#### 4) Seizure disorders

- a) Valippu noi
- b) Kakai Valippu noi

#### V. PURA MARUTHUVAM (External Therapy) 32 types

(15 hours)

Definition – Types – THOKKANAM – (Physical manipulation) Descriptions according to Therantharu – practical training – Steam therapy - Fume therapy- Bandages- Patru (Plaster) – Ottradam (Fomentation) – Poochu (paste) – Podi thimirdhal (powder massage)- Kalikkam- Anjanam (eye applications) – Nasika paranam (Medicated snuff )-Nasiyam ( Nasal drops ) – Murichal (Surgical correction of malunited fracture) –kombu kattal (splinting) – peeche (enema/douche) Oothal (blowing), Podi thimirthal-(Massage with herbal grains or paste)

#### VI. BONE AND JOINT DISEASES:

(25 hours)

**Injuries to bones** : Fracture – varieties – X-ray findings – complications – indications for surgical treatment – fracture of childhood – reduction procedures with splints – POP and modern techniques – practical training.

**Diseases of bones**:-Osteomyelitis – Tuberculosis – Rickets – Scurvy – Paget's disease – Osterochondritis –Acromegaly–Tumours of bones–(Benign and malignant)–Secondary tumours.

**Injury to Joints:** Dislocation of shoulder joint, Jaw etc.

**Diseases of Joints:** Acute suppurative, Gonococcal, syphilitic arthritis, chronic arthritis - T B gummatous, Rheumatoid and osteo arthritis – X-ray findings.

Injuries to muscles and tendons

Deformities -Scoliosis, kyphosis, cubitus valgus, Dupuytren's contracture, Coxa vara, Genu valgum, flat foot.

Injury to vertebrae – complications

Skull fracture

**VII. Diseases of Central Nervous System :** (15 hours)

1. Hemiplegia
2. Parkinsonism
3. Poliomyelitis
4. Cranial nerve disorders
5. Paraplegia
6. Quadriplegia
7. Cerebellar ataxia
8. Myopathy
9. Motor neuron disease

**PRACTICAL TRAINING IN THE ATTACHED HOSPITAL ON THE FOLLOWING** (200 hours)

1. Clinical examination of Neurological, Psychiatry and Orthopedics cases.
2. Practical training on Varma Therapy.
3. Practical training on Puramaruthuvam – (External therapy) Steam therapy - Fume therapy- Bandages- Patru (Plaster) – Ottradam (Fomentation) – Poochu (paste) – Podi thimirdhal (Massage with herbal grains or paste) - Kalikkam- Anjanam (eye applications) – Nasika paranam- Nasiyam ( Nasal applications) – Murichal (Surgical correction of malunited fracture) – kombu kattal (splinting) – peechu (enema/douche)
4. Practical training on Therapeutic applications of Yoga.
5. Writing case records.

### **Text Book:**

1. Siddha Maruthuvam Sirappu, Dr.R.Thiagarajan, Directorate of Indian Medicine & Homeopathy, Chennai, 1995.
2. Varma Soothiram (A Tamil text on martial arts), Institute of Asian Studies, Chennai, 2007
3. Light on Yoga, Shri BKS Iyengar, HarperCollins Publishers, 2001, ISBN: 9780007107001
4. Siddhar Kaya Karpam – Central Council for Research in Ayurveda & Siddha, New Delhi, 1985
5. External Therapies of Siddha Medicine, Dr.Thirunarayanan, Centre for Traditional Medicine and Research, Chennai, 2010
6. Sanni, Vaisoori, Paithiyam & Oozhinoi Thoguthi (Paithya Roga Nidaanam), T.Mohana Raj, ATSVS Siddha Medical College and Hospital, Kanniyakumari, ISBN :9789380288079

### **Reference Book**

1. Sanni, Vaisoori, Paithiyam & Oozhinoi Thoguthi, T.Mohana Raj, ATSVS Siddha Medical College and Hospital, Kanniyakumari, ISBN :9789380288079
2. Varmam marthuvam – Dr. Kannan Rajaram, ATSVS Siddha Medical College and Hospital, Kanniyakumari, ISBN: 9788190868433
3. Yugi vaidhya chintamani, Yugimamunivar, Department of Indian Medicine & Homoeopathy, Govt. of Tamil Nadu, Chennai, Revised Edn. 1998
4. Vatha Noi Thoguthi, T.Mohana Raj, ATSVS Siddha Medical College and Hospital, Kanniyakumari, ISBN :9789380288079
5. Varma Odivu Murivu Saari suthiram 1500, T.Mohana Raj, ATSVS Siddha Medical College and Hospital, Kanniyakumari, ISBN -9789380288062
6. Asana Paranayama Muthira Bantha, Swami Sathyanananda Saraswathi, Yoga Publications Trust, Bihar, 2008, ISBN: 9788186336144
7. A Short Text Book of psychiatry, M S Bhatia, CBS publishers and distributors Pvt. Ltd., New Delhi 2011. ISBN 9788123920450
8. Text Book of Neurology, Navneet Kumar, PHI learning Pvt. Ltd., New Delhi, 2011, ISBN: 9788120342439
9. Davidson's principle and practice of medicine, 2014, 22<sup>nd</sup> Edn., Churchill Livingstone, Elsevier, ISBN NO: 9780702050473

10. Text book of orthopaedics and traumatology, Mayilvahanan Natarajan, Wolter Kluwer India | Lippincott William, 2011, ISBN:9788184734430

### **3. ARUVAI, THOL MARUTHUVAM (SURGERY**

**INCLUDING DENTISTRY AND DERMATOLOGY)**

**Total hours 150**

#### **ARUVAI MARUTHUVAM (GENERAL SURGERY)**

**(60 hours)**

1. Literary evidences for the antiquity of surgical practice in Siddha medicine (1 hour)
2. Classification on the practice of treatment. Divine method (Vinnavarurai) – Rational method (Manidarurai) – Surgical method (Asurarurai) – (Aruvai, Agni, Karam and 25 sub divisions). (1 hour)
3. Study on Aruvai (Surgical excision)- Keeral (Incision)- Kuruthi vungal (Blood letting)- Attai vidal (Leech therapy)- Salagai (Probing)- Varthi (Medicated wick)- Oodhal (Blowing)- Peechu - (enema/ douch) -Urinal (Sucking)--Kattudhal (bandaging)- Chuttigai (cauterization)-Vedhu (Steam therapy)- Pugai (Fumigation)- Karam (caustic applications) (2 hours)
4. General principles of surgery – Pre and post operative care – its management. (1 hour)
5. Study of causes, clinical features, classification, diagnosis, treatment (medical & surgical) with scientific correlations – clinical examination and investigations for the following diseases.
  - a. Veekam – (Inflammation) (2 hours)
  - b. Punkal – (Ulcers) (2 hours)
  - c. Kattigal- (Tumours) (2 hours)
  - d. Silaippun- (Sinus ulcers & its treatment with karanoole) (2 hours)
  - e. Moolanoikal- (Ano-rectal diseases) (2 hours)

Arpaviranam –(koppulam – mugapparu – Thavalaichori – Akkul koppulam  
Akkul katti – Akkul nilapoosani katti – Akkul erichal katti – Putru vanmegam  
Aani – Naga chutru – Setrupun – Maru – Attathar kopulam – Varagu koppulam) (5 hours)
  - g. Pavuthiram – Fistula-in-ano (2 hours)

- h. Mega kattikal – Diabetic skin lesions, STD (1 hour)
- i. Yanaikkal – Filariasis (1hour)
- j. Kandamalai – Cervical adenitis (1 hour)
- k. Nagil katti – Benign & malignant tumours of the breast (1 hour)
- l. Vithai noi – Diseases of scrotum (1 hour)
- m. Kiranthi noi – Chronic ulcers (1 hour)
- n. Kalladaippu - Renal calculi (1 Hour)
- o. Aankuri noigal – Diseases of the male genetalia. (1 hour)
6. Naakku noigal (Diseases of the tongue) – Ulnakku noigal (Diseases of the uvula). (2 hours)
7. Acute specific infections – Tetanus, Gas gangrene, Cellulitis, Septicaemia, Bactremia, Pyemia, Wounds. (2 hours)
8. Non- specific infectious diseases: Cellulitis, Carbuncle, Ulceration and gangrene. (2 hours)
9. Tumours and cysts – Benign and malignant tumours. (2 hours)
10. Fluid electrolyte and acid base balance – Parenteral fluid therapy – contra indications to I.V therapy – clinical guide to fluid requirement – Alternative route for parentral fluid therapy –  
Proctolysis, Transnasal intragastric tube – Acidosis & Alkalosis. (5 hours)
11. Burns and Scalds – Haemorrhage – Types of Shock (2 hours)
12. a) Diseases of arteries – Aneurysm, Embolism, Thrombosis (5 hours)
- Diseases of veins – Thrombosis of vein, Varicose vein, Venous ulcer, Thrombophlebitis
- Diseases of lymphatic vessels and lymph nodes – Lymphoedema, lymphadenitis, lymphadenoma (Hodgekin's disease)
13. Infections of Hand & Foot (1 hour)
14. Diseases of breast – Breast abscess, Fibroadenoma, ANDI, Carcinoma breast. (2 hours)
15. 1) Diseases of Rectum, Anus, Fissure in ano etc. (2 hours)
- 2) Diseases of urinary bladder, Prostatic gland, retention of urine. (2 hours)
16. Diseases of urethra, Phymosis, Paraphymosis. (1 hour)
17. Diseases of testis & scrotum – Orchitis, Hydrocele, Haematocele, Varicocele, Herniae (2 hours)

**KAN, KATHU, MOOKKU, THONDAI MARUTHUVAM**  
**KAN MARUTHUVAM (Eye diseases & Management) (20 hours)**

1. Definition of normal healthy eye
2. Names of 96 eye diseases according to “Agasthiyar nayana vithi”
3. Prophylactic measures for healthy vision
4. Causes of eye diseases
5. Classification of eye diseases according to Agasthiyar and Nagamuni nayana vithi – Including their names, signs & symptoms, surgical treatment techniques and medicines
6. Surgical treatment for Pitha kasam
7. Suttigai or Ratchai treatment for Padalam
8. Surgical treatment for Karunagappadalam
9. Ratchai treatment for Ezhuchinoi
10. Surgical treatment for Mudamayir
11. Medicines commonly used for Eye diseases:
  - a. Padalathi mathirai
  - b. Kankasa mathirai
  - c. Matcha Rethinadhi mathirai
  - d. Ilaneer kuzhambu
  - e. Chandrodhaya mathirai
  - f. Narikelanjanam
  - g. Pazha kirambu pakkuva vennai
  - h. Kandu Parpam
  - i. Anda neer
  - j. Kan thailam
12. Comparision with modern diagnosis:
  - a. Suzhal vanderithal - Vitreous opacities
  - b. Naga padalam - Pterygium
  - c. Mayir puzhuvettu - Ulcerative blepharitis
  - d. Amaram - Ophthalmia neonatorum
  - e. Kuvilai vippuruthi - Dacryocystitis
  - f. Vellezhuthu - Presbyopia

- g. Thurmamisa valarchi – Episcleritis
- h. Mudamayir - Trichiasis

- 13. Cataract and its surgical treatment.
- 14. Conjunctivitis and its treatment.
- 15. Glaucoma and its treatment.
- 16. Presbyopia, Myopia, Astigmatism, Nystagmus.
- 17. The causes and prevention of blindness.
- 18. Hygiene of Eye.
- 19. Viral infections of Eye

**KATHU MARUTHUVAM (Ear diseases & Management) (10 hours)**

Study of the following ear diseases with internal and external medicines: Sevi vatha noi – sevi soolai noi – sevi sannai noi –sevi vippuruthi noi – Sevi yezhuchi, Sevi Karappan - sevikkuttam – seviparu – sevipilavai

- 1. Diseases of the external ear.
- 2. Diseases of Middle Ear
- 3. Tinnitus
- 4. Deafness

**MOOKKU MARUTHUVAM (Nasal diseases& Management) (5 hours)**

- 1. Peenisam - Nasal and paranasal sinus diseases.
- 2. Epistaxis
- 3. Rhinitis, nasal polyp.
- 4. Head ache

**THONDAI MARUTHUVAM (THROAT DISEASES& Management) (5 hours)**

- 1. Infections of nasopharynx, Tonsils, Adenoids, Esophagus.
- 2. Acute and chronic laryngitis
- 3. Disorders of voice.

**PAL MARUTHUVAM (DENTISTRY)****(15 hours)**

1. Pal noigal (Dental diseases) – Eeru noigal (Diseases of the gums) –Aids to Oral Hygiene.
2. Abnormalities of Structure – Hypoplasia of the deciduous and permanent dentition – classification of aetiological factors in hypoplasia – Flurosis – Prevention of flurosis.
3. Attrition, Abrasion and erosion of the Teeth.
4. Dental caries.
5. Inflammation, Necrosis and Gangrene of pulp.
6. Acute and chronic periapical abscess.
7. Resorption of the Teeth.
8. Cementum abnormalities associated with its formation.
9. Stains and discolouration of the Teeth.
10. Gingivitis – supra gingival and sub gingival calculus – Stomatitis.
11. Congenital abnormalities of salivary glands – congenital atresia of the ducts.

**THOL MARUTHUVAM (SKIN DISEASES & Management)****(35 hours)**

1. Classification of Kutta noigal according to “Yugi chinthamani”
2. Definition for common Dermatological terms Macule – Papule – Vesicles – Wheal – Pustule – Scales – Crust – Excoriations – Fissure –Ulcer - Scar – Alopecia Areata – Atrophy – Burrow – Comedone – Circinata – Erythema – Erythroderma – Erythemato – Squamous – Granuloma etc.
3. Aids to healthy skin
4. Karappaan - Dermatitis and Eczema.
5. Padarthamarai – Tinea infections - Pimples(Acnes)- Verkuru (Prickly heat)
6. Kanakkadi, Silvida thadippu- Urticaria
7. Puzhu vettu-Alopaecia

8. Podugu-Dandruf, Palunni-Molluscum, Maru-Wart
9. Venpadai – Vitiligo and leucoderma
10. Kalanjaga Padai - Psoriasis
11. Sirangu- Scabies
12. Perunoi – Leprosy
13. Bacterial, Viral, Fungal infections of the skin
14. Drug eruption and Bullous eruptions.
15. Diseases of the hair and scalp – Nails – Sebaceous glands – Sweat glands.
16. Skin disorders due to metabolic, nutritional, vascular, atrophic, endocrinal dysfunction and poisons.

**PRACTICAL TRAINING IN THE ATTACHED HOSPITAL ON THE FOLLOWING (200 hours)**

1. Aruvai (Surgical excision)- Keeral (Incision)- Kuruthi vungal (Blood letting)- Attai vidal (Leech therapy)- Salagai(Probing)- Varthi (Medicated wick)- Oodhal (Blowing)- Peechu (Douch/enema) Urinchal(Sucking)- Kattudhal (bandaging)- Chuttigai(cauterization)- Vedhu (Steam therapy)-Pugai (Fumigation)- Karam (caustic medicines)
2. Sterilization – Anti sepsis – Sepsis – Surgical Instruments
3. Dressing of Ulcers and wounds.
4. Hospital infection and preventions
5. I.V. fluids infusion and blood transfusion
6. Modern surgical instruments – Various Forceps – Retractors – Needle holders – Urinary Catheters - Proctoscope – nasogastric tube – Suture needles and Threads.
7. Suture materials – varieties of suture – practical training in suturing.
8. Preparation and application of Karanool.
9. A knowledge of anaesthesia of general & local.
10. Examination of surgical cases – Acute abdomen- wounds – tumours etc.
11. Examination of Eye – Ear – Nose – Throat – Skin etc.
12. Writing case sheets of surgical cases.
13. Practical training in reading, X-rays, Ultra sonogram, CT scan & MRI.
14. 1st aid – to aid unconscious patients – CPR – bandages – snake bite – scorpion sting – burns  
– scalds – haemorrhages and etc.

## REFERENCE BOOKS

1. Siddhar Aruvai Maruthuvam, Dr.C.S. Uthamarayan, Department of Indian Medicine and Homeopathy, Chennai, 3<sup>rd</sup> Edn., 1999,
2. Siddha Maruthuvam Sirappu, Dr.R.Thiagarajan, Directorate of Indian Medicine & Homeopathy, Chennai, 1995.
3. Kan Maruthuvam, Mohammed Iqbal, .
4. Agathiar Nayana Vidhi 500, Amirthalingam Pillai, T.S. Manoranjani Press, Chennai, 1936.
5. Nagamunivar Nayana Vidhi 200, Amirthalingam Pillai, T.S. Manoranjani Press, Chennai, 1936
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7. Kann Maruthuvam, Madhavan, V.R, International Institute of Tamil Studies, Chennai, 1982.
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9. Agathiar 2000, Vengatraman, S., Sarasvati Mahal Library Publication, Thanjavur, 1981, pp. 219-319.
10. Agasthiar Rana Vaidhyam, Vaithiyar.V.R.Sundaram,
11. Siddha Vaidya Thirattu, K.N.Kuppusamy Mudaliar, Dept. of Indian Medicine and Homeopathy, Chennai
12. Theran Thylavarka Churakkam, Ramachandiran S P., Thamarai Noolagam, Chennai, 2012.
13. Yugi vaidhya chintamani, Yugimamunivar, Department of Indian Medicine & Homoeopathy, Govt. of Tamil Nadu, Chennai, Revised Edn. 1998
14. Baily & love's Short practice of surgery, Norman S Williams, CRC Press, ISBN: 9781444121278
15. A Manual on Clinical surgery, S. Das, S. Das's Publications, ISBN: 9788190568104
16. SRB's Manual of surgery, Sriram Bhatt, Jaypee Brothers Medical Publishers Pvt. Ltd. ISBN: 9789351524168

17. Text book of Diseases of Eye, Vasudev Anantha Rao, All India Publishers & Distributors, 2015, ISBN : 9788180040481
18. Diseases of Ear, Nose, Throat – Dr. Muhammed Iqbal
19. Practice of Dermatology, Dr. Bhel, CBS Publishers & Distributors, 2002, ISBN: 9788123905723
20. Essentials in Dermatology, D. M. Thappa, Jaypeebrothers, 2009, ISBN: 9788184485585
21. A concise text book of surgery, Das S., Dr Somen Das – Kolkata, 2014, ISBN: 9788190568128,

#### **4. SOOL, MAGALIR MARUTHUVAM**

**(Obstetrics and Gynaecology) Total hours 100**

##### **SOOL MARUTHUVAM (Obstetrics)**

- I. Koopagam (Anatomy and Physiology) : (3 hrs)
  1. Applied Anatomy of Pelvis – Types – Divisions - True & False Pelvis – pelvic floor – Perineum.
  2. External Genital organs – Internal Genital organs
  3. Breast – Physiology of ovulation and Menstruation.
- II. Karu Urpathy : (4hrs)
 

(Development of Embryo) According to Siddha aspect – Early development of Embryo in Modern aspect – Fertilization – Morula – Blastocyst- Implantation – Trophoblast – Decidua – Chorion and chorionic villi – Amnion – Amniotic fluid - Development of inner cell mass – Umbilical cord transport – Placental development – Placental hormones and Functions - Maternal and fetal circulation.
- III. Karpini Urupugalin Maruthalgal: (Maternal changes due to Pregnancy) (4hrs)
 

Role of hormones in pregnancy. Management of disorders and treatment
- IV. Sool Kanippu: (Diagnosis of Pregnancy): (4hrs)
 

First, Second & Third trimester – Subjective – Objective – confirmative signs – Assessment of duration of pregnancy – Calculation of Estimated Date of confinement – Pseudocyesis – Difference between Primi and multigravidae.

- V. Karpini Tharkaapu (Antenatal care):** (5hrs)  
 Abdominal and pelvic examination – Antenatal visits – Advice – Obstetric grips – Vaginal examination – Minor ailments in pregnancy - Siddha treatment and Yogasanas during pregnancy. Contraception – Siddha and modern concepts – Oral – Injectables – Implants - IUCDs. Etc – Management and treatment
- VI. Magavu: (Foetus) :** (2hrs)  
 Attitude – lie – Presentation – Position – Sizes of embryo and Foetus during gestation. Diameters of fetal skull – term baby – Preterm baby. – Management and treatment
- VII. Irattai Magavu and Pan Sool: (Twins and Multiple pregnancy).** (2hrs)
- VIII. Magaperu Kukaranam: (Complications of Pregnancy):** (9hrs)  
 Hyperemesis gravidarum – Hydatidiform mole – Oligohydramnios – Polyhydramnios - Anaemia – Abnormalities of placenta and cord – Hypertensive disorders of pregnancy – Gestational Hypertension - Pre eclampsia – Eclampsia – Gunava avathanagam (Stanza 324 of Yugi vaithiya chinthamani) – Preterm labour – Premature Rupture of Membrane (PROM) – Intra Uterine Growth Retardation (IUGR) – Rhesus isoimmunisation. – Management and treatment -Maternal infection – TORCH – Sexually Transmitted Diseases (STD) – Syphilis – HIV – Gonorrhoea – Chicken pox – Malaria – Diabetes – Heart disease – Liver disease – Tuberculosis – Urinary Tract infections. – Management and treatment
- IX. Karuchithaivu: (Abortion) :** (4hrs)  
 Types, Kandagava avathanagam (Stanza 323 of Yugi vaithiya chinthamani) – Differential diagnosis — Management and treatment – Ectopic Pregnancy – Tubal – abdominal – ovarian.
- X. Magaperu Mun Uthirasalai: (Antepartum Hemorrhage):** (2hrs)  
 a. Abruptio placenta b. Placenta previa. – Management and treatment
- XI. Sukha Magaperu Nadai: (Stages of Normal Labour):** (3hrs)  
 Role of hormones in Labour – Uterine action. – Management students are to be exposed to sufficient number of deliveries.
- XII. Sukha Magaperu Nigalchikal: (Mechanism of Normal Labour):** (2hrs)  
 Descent – flexion – Internal rotation – Extension – restitution – external rotation.
- XIII. Sukha Magaperu Kanippu: (Management of Normal Labour):** (3hrs)

Diagnosis of Labour – Management of First Stage – Aseptic and Antiseptic precautions - Second stage of Labour – Delivery position- Episiotomy – Ligation of cord – Management of third stage.

**XIV. Asatharana Magaperu: (Abnormal Labour):** (6hrs)

Occipito posterior presentation – Face – brow – Breech – Transverse or oblique lie – Compound presentation – Cesarean procedures – Management

**XV. Sool Poopu Sugaranam: (Normal Puerperium):** (3hrs)

Involution of uterus – other pelvic Structures - Lochia – Lactation – Physiology of Lactation – Advantages of breast feeding – care of puerperium – care of the newborn. – Management and treatment

**XVI. Magaperu Pin Uthirasalai: (Postpartum hemorrhage):** (1hr)

Retained placenta. – Management and treatment

**XVII. Sool Poopu Kukaranam: (Abnormalities of the Puerperium)** (3hrs)

Puerperal pyrexia – Puerperal sepsis – subinvolution – Predisposing causes – Organisms – venous complications in the puerperium – Deep vein Thrombosis – Thrombophlebitis – Cerebral venous Thrombosis – Mastitis and breast abscess – Postpartum pituitary Necrosis – Psychiatric disorders during puerperium. – Management and treatment

**Text books :**

1. Sool Maruthuvam, P.M. Venugopal, Department of Indian Medicine & Homoeopathy, Govt. of Tamil Nadu, Chennai, 5<sup>th</sup> Edn. 2007.

2. DC Dutta's Textbook of Obstetrics, DC Dutta, Hiralal Konar, 8th Edn. JAY PEE Bros. Medical Publishers Pvt. Ltd., ISBN:9789351527237

3. Mudaliar and Menon's Clinical Obstetrics, Universities Press Pvt Ltd., Hyderabad, 12<sup>th</sup> Edn., 2015,

## Reference books:

1. Agathiyar vaithiya chinthamani, Dr.Prema, Thamarai noolakam, March 1996
2. Chikicha rathina deepam 4000, C. Kannusami pillai, Rathnanayagar & sons, Chennai. 1<sup>st</sup> Edn., 2007.
3. Maadhar Maruthuvam, Dr.Chidambarathanu pillai Siddha Medical Literature Research Centre, Chennai, 2nd Edn., Nov. 1984.
4. Arivaiyar chinthamani, Dr.P.Mohan raj, ATSVS Siddha medical college, Munchirai, May 2008.
5. Yacob vaithiya chinthamani 700,S.P. Ramachandran, Thamarai noolakam,May 1996.
6. Theraiyar vagadam , B.Ramachandran, Thamarai noolakam, October 2000.
7. Theraiyar thailavarukka surukkam, C.T.Subramaniya pandithar, Rathnanayagar & sons, Chennai, 4<sup>th</sup> Edn., 2006.
8. Theraiyar vaithiya kaaviyam 1500,S.P. Ramachandran, Thamarai noolakam, 2<sup>nd</sup> Edn., Aug 2000.
9. Yugimuni vaithiya kaaviyaam, P.C Mohan, Thamarai noolakam, 2<sup>nd</sup> Edn., October 2014.
10. Birammamuni vaithiya soothiram Vol. II, Dr.K.Maruthamuthu, Saraswathy mahal noolakam, Thanjavur, 2<sup>nd</sup> Edn., 2006.
11. Pulippani vaithiyam 500, S.P. Ramachandran, Thamarai noolakam, 1<sup>st</sup> Edn., Dec 1999.
12. Eliya vaithiya muraikal 800, Dr.Prema, Tamil university, Thanjavur, 2<sup>nd</sup> Edn., May2010.
- 13.Yugi vaidhya chintamani, Yugimamunivar, Department of Indian Medicine & Homoeopathy, Govt. of Tamil Nadu, Chennai, Revised Edn. 1998.

## **SUBJECT: MAGALIR MARUTHUVAM (Gynaecology)**

1. History, Examination and diagnostic procedure of a Gynecological patient. (1hr)
2. Congenital malformation of female genital organs. (1hr)  
Vaginal – Uterine – Fallopian tube – ovarian anomalies – other anomalies.
3. Muthal Poopu(Sukharanam & Kukaranam): (1hr)  
Puberty – Normal and abnormal. – Management and treatment
4. Poopu: (2hrs)  
Menstruation –Menstrual cycle-Hypothalamo-pituitary-Ovarian axis (H-P-O axis)  
Premenstrual syndrome. – Management and treatment
5. Kadai Poopu: (1hr)  
Menopause – organ changes – Menopausal symptoms – Management in siddha.
6. Neuroendocrinology in relation to Reproduction. (1hr)
7. Poopu Kolarugal: (Disorders of Menstruation). (2hrs)  
Amennorrhoea – Menorrhagia – Metrorrhagia – Dysfunctional Uterine bleeding – Types –  
DD ) — Management and treatment
8. Soothagavali: (Dysmenorrhoea): (1hr)  
Siddha and modern concepts– Management and treatment
9. Karuppai Adithallal:(Displacement of Uterus). (1hr)  
Genital prolapse – Retroversion – chronic inversion. – Management and treatment
10. Maladu: (4hrs)  
Infertility in Siddha and modern aspects – Types, Treatment and Management
11. Yoni Rogangal: Diseases of the Vagina in Siddha aspect and treatment. (2hrs)
12. Koopaga Urupugallin azharchi: Infections of the pelvic organs. (4hrs)  
Vellai -(Leucorrhoea) – Vulvitis – Bartholinitis – Vaginitis – Cervicitis – Endometritis –  
Salpingitis – Oophoritis – Parametritis – Genital Tuberculosis – Management and treatment  
Sexually Transmitted Infections. Gonorrhoea – Syphilis – AIDS – Hepatitis B & C – Bacterial  
vaginosis – Trichomonas Vaginitis– monilial vaginitis – Management and treatment
13. Siruneer vega Kolarugal: Urinary problems in Gynecology. (2hrs)  
Urinary Tract Infections – Incontinence – Fistula – Vesico vaginal fistula and Recto vaginal  
fistula (VVF & RVF). – Management and treatment
14. Nan Maravai Kattigal-Karuppai (Benign lesions of the Uterus) (2hrs)  
Fibroid – polyps. – Management and treatment

15. Nachu Maravai Kattigal- Karuppai (Malignant lesions of the Uterus) Cancer of cervix, Uterus and Vagina. – Management and treatment ( 6 hrs)
16. Nan Maravai Kattigal- Sinaippai (Benign lesions of the ovary) Polycystic ovarian Disease (PCOD) – Siddha treatment. Follicular cyst – Endometrial cyst (Chocolate cyst) – Dermoid cyst. – Management and treatment ( 2hrs)
17. Nachu Maravai Kattigal – Sinaippai: (2hrs)  
(Malignant Ovarian Tumors) Management and treatment
18. Nagil Sothanai: (3hrs)  
Breast Examination – Fibroadenoma – Carcinoma. – Management and treatment
19. Miscellaneous: (2hr)  
Post menopausal bleeding – Lowbackache – Dyspareunia – Pruritus Vulvae – Hirsutism. – Management and treatment– Hermaphroditism, Turner’s syndrome, Klinefelter’s syndrome- Virilism – Management

**PRACTICAL TRAINING IN THE ATTACHED HOSPITAL ON THE FOLLOWING (175 hours)**

1. Examination of Ante natal and Post natal Cases
2. Practical training on handling instruments like speculum, uterine sound, vulsalum etc.,
3. Vaginal smear
4. Clinical examination of Breast.
5. Writing of case records.
6. Training on Ultrasonogram ,necessary investigations and interpretations.
7. Application of Puramauthuvam in OG conditions

**Text books :**

1. Magalir Maruthuvam, P.M. Venugopal, Department of Indian Medicine & Homoeopathy, Govt. of Tamil Nadu, Chennai, 4<sup>th</sup> Edn., Reprint, 2013.
2. DC Dutta’s Textbook of Gynaecology, DC Dutta, Hiralal Konar, 7<sup>th</sup> Edn. JAY PEE Bros. Medical Publishers Pvt. Ltd., ISBN: 9789385891595
3. Shaw’s Text book of Gynecology, Shirish N. Daftary & V.G. Padubidri, Reed Elsiwer India Pvt. Ltd, 16<sup>th</sup> Edn 2015, ISBN: 9788131238721.

### Reference books:

1. Jeeva raktchamirtham, Subramaniya Pandithar, The Arrow Press, Madras, 2<sup>nd</sup> Edn., 1928
2. Yugi vaidhya chintamani, Yugimamunivar, Department of Indian Medicine & Homoeopathy, Govt. of Tamil Nadu, Chennai, Revised Edn., 1998.
3. Agathiyar vaithiya chinthamani 4000, S. Prema, Thamarai noolakam, March 1996.
4. Chikicha rathina deepam, C.Kannusami pillai, Rathnanayagar & sons, Chennai. 1<sup>st</sup> Edn., 2007.
5. Maadhar Maruthuvam, Dr.Chidambarathanu pillai Siddha Medical Literature Research Centre, Chennai, 2nd Edn., Nov 1984. Yacob vaithiya chinthamani 700, S.P. Ramachandran, Thamarai noolakam, May 1996.
6. Theraiyar vagadam, B.Ramachandran, Thamarai noolakam, October 2000.
7. Theraiyar thailavarukka surukkam, C.T.Subramaniya pandithar, Rathnanayagar & sons, Chennai. 4<sup>th</sup> edition-2006.
8. Theraiyar vaithiya kaaviyam 1500, S.P. Ramachandran, Thamarai noolakam, Sec. Edition, Aug 2000.
9. Yugimuni vaithiya kaaviyaam, P.C Mohan, Thamarai noolakam, Sec. Edition, October 2014.
10. Birammamuni vaithiya soothiram Vol. II, K.Maruthamuthu, Saraswathy mahal noolakam, Thanjavur, 2<sup>nd</sup> Edn., 2006.
11. Pulippaani vaithiyam 500, S.P. Ramachandran, Thamarai noolakam, 1<sup>st</sup> Edn., Dec 1999.
12. Eliya vaithiya muraikal 800, S.Prema, Tamil university, Thanjavur, 2<sup>nd</sup> Edn., May 2010.
13. Thanvanthiri vaithiya kummi -300, V.R.Madhavan, Tamil university, Thanjavur, 1<sup>st</sup> Edn., July 2004.

## 5. KUZHANTHAI MARUTHUVAM (PAEDIATRICS)

Total hours 100

1. Neo natal care, Infant care, Child care. (4hrs)

2. Breast milk (3hrs)

composition, advantages and disadvantages to the children and mother.

3. New born (6hrs)

Term baby-preterm baby-Low birth weight-Minor problems in pediatric age group.- Intrauterine infections.-Respiratory disorders.-Icterus.-Neonatal seizures.-Rh incompatibility- ABO incompatibility.-Undescended testis.-Phimosis.-Hydrocele.-Ambiguous genitalia.-APGAR score.- Neonatal reflexes

4. Immunization (3hrs)

Immunization schedule. (IAP, WHO)-complication of immunisation-other schedules of immunisation-Urai maathirai. -Chei ennai

5. Growth and development (6hrs)

Introduction-factors affecting growth and development.-periods of growth-assessment of physical growth-assessment of bone age.-eruption of teeth-behavioural development.- developmental milestones.-developmental delay.

### -Disorders of growth and development

-short stature-failure to thrive

-behavioural disorders-nail biting, thumb sucking, pica eating

-poor school achievers.

-breath holding spells.

6. Adolescent (3hrs)

Physiology.-Stages of sexual maturation.-Hormonal changes.-Health problems during adolescence.-Psychological problems.-Juvenile delinquency-management and line of treatment

**7. Nutritional deficiency disorders**

**(4hrs)**

Protein energy malnutrition.-Vitamin and mineral deficiency diseases.-management and line of treatment-Study of causes, clinical features, classification, diagnosis, treatment (medical & surgical) with scientific correlations – clinical examination and investigations for the following diseases.

**8. Agakaarana noigal according to yugimuni**

**(32hrs)**

Kiranthi (2 types)– Thodam(25 types) – Maantham(33 types ) – Kanam(24 types ) - Karappan(18 types) – Suram(20 types ) – Sanni(9 types ) – Valippu(4 types ) – Akkaram(8 types ) - Paandu, Sobai, Kamalai(3 types) – Kazhichal(3 )types– Kakkuvan -Amaram-Maalaikann

**9.Purakaarana noigal according to yugimuni**

**(2hr)**

Seeri seeri azhuthal – Vikkal – Vayiru porumal- Vayitru noi - Kottaavi – Malakkattu – Neerkkattu

-Vayiruveengal – Paal Kudiyaamai - Paal ethireduthal - Thodam

**10.Infectious diseases.**

**(8hrs)**

Diphtheria-Pertussis-Tetanus-Mumps-Measles-Chicken pox-AIDS in children.

**11.Infestations:**

**(2hrs)**

Naaku poochi -Keeri poochi-Masaraipuzhu-Other infestations-management and line of treatment

**12. Gastro intestinal system.**

**(6hrs)**

Seriyamai - Vaanthi – Vikkal - Lactose intolerance - Malabsorption syndrome – Dysentery - Rectal prolapse - Congenital pyloric stenosis - management and line of treatment

**13.Cardio vascular system.**

**(6hrs)**

Congenital cardiac diseases. -cyanotic and acyanotic heart diseases -management and line of treatment

**14. Central nervous system. (8hrs)**

Baala vaatham and its types-Cerebral palsy. -Mental retardation. Hyperactivity disorders-ADHD, Autism-Temper tantrum. -management and line of treatment

**15. Musculo skeletal disorder. (2hr)**

Muscular dystrophy -management and line of treatment

**16. Genetic disorder (2hr)**

Down's syndrome & its management, other common genetic disorders

**17. Endocrine disorder. (3hr)**

Cushing's syndrome. -Juvenile diabetes mellitus. management and line of treatment

**PRACTICAL TRAINING IN THE ATTACHED HOSPITAL ON THE FOLLOWING (175 hours)**

1. Examination of Infantile and Neonatal cases.
2. Practical training on handling instruments like incubator, suction tube etc.,
3. Practical application on Immunization schedule
4. Training on General and Systemic Examinations of Pediatric cases
5. Writing of case records.
6. Training on Ultrasonogram ,necessary investigations and interpretations.
7. Application of puramaruthuvam in peadiatric ailments.

**References**

1. Pillaipini maruthuvam, S.sundhar rajan, Department of Indian Medicine & Homoeopathy, Govt. of Tamil Nadu, Chennai, 1<sup>st</sup> edn. 1993
2. Kuzhanthai maruthuvam Vol. I to V, Chidambarathanu pillai, Siddha Medical Literature Research Centre, Chennai, 2003-2004

3. Balavatha nidhanam, Chidambarathanu pillai, Siddha Medical Literature Research Centre, Chennai
4. Kuzhandhai vaithiyam, Chidambarathanu pillai, Siddha Medical Literature Research Centre, Chennai, 1997
5. Maadhar Maruthuvam, Dr.Chidambarathanu Pillai, Siddha Medical Literature Research Centre, Chennai
6. Mooligai Iyal, Dr.V.Arunachalam, Pothigai Pathippagam, Ambasamuthiram, 1<sup>st</sup> Edn., 1994.
7. Pregnancy, childbirth, postpartum and newborn care - A guide for essential practice, WHO, United Nations Population Fund & UNICEF, 3rd edn., 2015
8. Managing complications in pregnancy and childbirth - A guide for midwives and doctors, WHO; United Nations Population Fund; UNICEF & World Bank, 2003, ISBN: 9241545879
9. Managing newborn problems -A guide for doctors, nurses and midwives, World Health Organization, Dept. of Reproductive Health and Research; United Nations Population Fund; UNICEF, ISBN: 9241546220
10. WHO recommended interventions for improving maternal and newborn health - Integrated management of pregnancy and childbirth, WHO, 2007
11. Standards for maternal and neonatal care - Group 1: General standards of care for healthy pregnancy and childbirth, World Health Organization, Department of Making Pregnancy Safer and Department of Reproductive Health and Research, 2007 (Web only version as a part of WHO Integrated Management of Pregnancy and Childbirth Care (IMPAC) Package)
12. Balavagadam, C.S. Murugesu Mudaliar (Au.), Pon Kurusironmani (Ed.), Department of Indian Medicine & Homoeopathy, Govt. of Tamil Nadu, Chennai, Revised Edn. 1998
13. Jeeva raktchamirtham, Subramaniya Pandithar, The Arrow Press, Madras, 2<sup>nd</sup> Edn., 1928
14. Aathmaratchaamirthamennum Vaithiya Saara Sangiragam, Kandasamy Mudaliar, Sri Shenbaga Pathipagam, 2012
15. Kuzhanthai Nala Maruthuvam, Dr. N. Rajarajeswari, Dr. A. Jagadeesan, Tamil University, Thanjavoor, 2003, ICBN: 9788170903154
16. Mathalai Noi thoguthi, Dr. P. Mohanraj, ATSVS Siddha Medical College and Hospital, Kanniyakumari, 2008 (Vol. I, II), 2009 Vol. III, ISBN : 9789380288109

17. Guide to Child Care (Parenting the Indian way), R.K. Anand, Vakils Feffer And Simons Ltd.,

2<sup>nd</sup> Edn. 2008, ISBN: 9788184620085

18. Siddha Maruthuvam, Dr. Kuppusamy Mudhaliar, Tamilnadu Siddha medical council, Chennai, 2<sup>nd</sup> edn, 1987.

Ghai Essential Pediatrics, Vinod K Paul, CBS Publishers & Distributors-New Delhi ISBN: 9788123923345,

Achar's Textbook of Pediatrics, Swarna Rekha Bhat (ed.), Universities Press, 4<sup>th</sup> Edn., 2009

**2.11 No: of hours per subject (lecture including -tutorial-seminar-group discussion)**

As shown under the title “2.6 SUBJECTS”, Table 1

**2.12 Practical training given in labs/supervision (No: of hours for each exercise/training)**

As shown in subject wise detailed syllabus under title “2.10 CONTENT OF EACH

**SUBJECT IN EACH YEAR”**

**2.13 Records**

Mandatory for the subjects, having practical and clinical classes

**2.14 Dissertation: Guide/Co Guide/ Change of Guide**

Not applicable for UG course

**2.15 Speciality training if any**

Special training will be given in identification of raw drugs, medicinal preparations, Siddha diagnostic methods, case presentations, record writing, drug dispensing, yoga, varma massage, traditional bone setting, Siddha external treatment methods etc.

## 2.16 Project work to be done if any

Not applicable for UG course

## 2.17 Any other requirements (CME, Paper publishing etc.)

Not applicable for UG course

## 2.18 Prescribed/recommended textbooks for each subject

As shown in subject wise detailed syllabus under title **“2.10 CONTENT OF EACH SUBJECT IN EACH YEAR”**

## 2.19 Reference books

As shown in subject wise detailed syllabus under title **“2.10 CONTENT OF EACH SUBJECT IN EACH YEAR”**

## 2.20 Journals

As shown in subject wise detailed syllabus under title **“2.10 CONTENT OF EACH SUBJECT IN EACH YEAR”**

## 2.21 Logbook

Maintenance of Logbook /work book by interns are mandatory

## 3 EXAMINATIONS

### 3.1 Eligibility to appear for exams

1. Securing minimum 35% of internal assessment marks are mandatory for gaining eligibility for appearing examinations only. This shall not be considered for awarding pass to the subject concerned.
  2. Minimum of 80% attendance separately in clinicals/practicals and theory is the criteria for appearing the university examination.
  3. Minimum of eighty per cent attendance (80% ) in each subject separately in theory and practical shall be essential for a student appearing in the supplementary examination.
    - The failed student of first Professional shall be allowed to appear in second professional examination, but the student shall not be allowed to appear in third professional examination unless the student passes all the subjects of first professional examination and maximum four chances shall be given to pass first professional examination within a period of maximum three years.
    - The failed student of second professional who have passed all the subjects of first professional examination shall be allowed to appear in third professional examination.
    - Maximum four chances shall be given to pass second, third and final professional examination each within a period of maximum three years, provided the course shall be completed within 9 years excluding internship.
- The Candidate shall pass all subjects of the previous years before registering for final year examinations.

### 3.2 Schedule of Regular/Supplementary exams

1. The first professional session will ordinarily start as per the date prescribed by the University/Statutory Council and the first professional examination shall be at the end of one academic year of first professional session.

2. The second professional session shall start every year following completion of first professional examination and the second professional examination shall be ordinarily held and completed by the end of one academic year every year after completion of one year of second professional session.
3. The third professional session shall start every year following completion of second professional examination and the third professional examination shall be ordinarily held and completed by the end of one academic year every year after completion of one year of third professional session.
4. The final professional session shall be of one year and six months duration and shall start every year following completion of third professional examination and the final professional examination shall be ordinarily held by the end of after completion of one year and six months of final professional session
5. The supplementary examination shall be held within six months of regular examination and failed students shall be eligible to appear in its supplementary examination

### **3.3 Scheme of examination showing maximum marks and minimum marks**

(1) (a) The first professional session shall ordinarily start in July or in the date prescribed by the university / statutory council and the first professional examination shall be at the end of one academic year of first professional session.

(b) The first professional examination shall be held in the following subjects, namely:-

(i) Siddha Maruthuva Adippadai Thathuvangalum Varalarum [History and Fundamental Principles of Siddha Medicine]

(ii) Tamil Language or Communicative English (wherever applicable)

(iii) Uyir Vedhiyiyal (Bio Chemistry)

(iv) Maruthuva Thavara Iyal (Medicinal Botany and Pharmacognosy) and

(v) Nunnuyiriyal (Micro Biology)

(c) The failed student of first Professional shall be allowed to appear in second Professional examination, but the student shall not be allowed to appear in third Professional examination unless the student passes all the subjects of first Professional examination and maximum four chances shall be given to pass first Professional examination within a period of maximum three years.

(2) (a) The second professional session shall start every year following completion of first professional examination and the second professional examination shall be ordinarily held and completed by the end of one academic year every year after completion of one year of second professional session.

(b) The second professional examination shall be held in the following subjects, namely:-

(i) Udal Koorugal (Anatomy) Paper I

(ii) Udal Koorugal (Anatomy) Paper II

(iii) Udal Thathuvam (Physiology) Paper I

(iv) Udal Thathuvam (Physiology) Paper II

(v) Siddha Maruthuva Mooligai Ariviyal (Siddha Medicinal Herbal Science) and

(vi) Siddha Maruthuva Kanima, Kanima vethiyal and Siddha Maruthuva Vilangiyal (Siddha Medicinal Geology, Medicinal Chemistry and Medicinal Zoology).

(c) The failed student of second Professional who have passed all the subjects of first professional examination shall be allowed to appear in third Professional examination, but the student shall not be allowed to appear in final professional

examination unless the student passes all the subjects of second Professional examination and maximum four chances shall be given to pass second professional examination within a period of maximum three years.

(3) (a) The third professional session shall start every year following completion of second professional examination and the third professional examination shall be ordinarily held and completed by the end of one academic year every year after completion of one year of third professional session.

(b) The third professional examination shall be held in the following subjects, namely:-

(i) Noi Naadal -Paper I (Siddha Pathology)

(ii) Noi Naadal -Paper II (Principles of Modern Pathology)

(iii) Noi Anugavidhi Ozhukkam (Hygiene and Community Medicine including National Health Policies and Statistics)

(iv) Sattam Saarntha Maruthuvamum Nanju Maruthuvamum (Forensic Medicine and Toxicology) and

(v) Research Methodology and Medical Statistics.

(c) The failed student of third professional who have passed all the subjects of first and second professional examinations shall be allowed to appear in final professional examination and maximum four chances shall be given to pass third professional examination within a period of maximum three years.

(d) For the purpose of teaching of Research Methodology, Bio-statistician shall be required as part time to teach Research Methodology.

(4) (a) The final professional session shall be of one year and six months duration and shall start every year following completion of third professional examination and the final professional examination shall be ordinarily held and completed by the end of completion of one year and six months of final professional session.

(b) The final professional examination shall comprise of the following subjects, namely:-

(i) Maruthuvam (Medicine)

(ii) Varmam, Puramaruthuvam and Sirappumaruthuvam (Varmam Therapy, External Therapy and Special medicine)

(iii) Aruvai, Thol Maruthuvam (Surgery including dentistry and Dermatology)

(iv) Sool, Magalir Maruthuvam (Obstetrics and Gynaecology) and

(v) Kuzhanthai Maruthuvam (Paediatrics)

(c) The student failed in any of the four professional examinations in four chances shall not be allowed to continue his or her studies:

Provided that, in case of serious personal illness of a student and in any unavoidable circumstances, the Vice-Chancellor of the concerned University may provide one more chance in anyone of four professional examinations.

(d) To become eligible for joining the compulsory internship programme, all four professional examinations shall be passed within a period of maximum nine years including all chances as mentioned above.

#### DISTRIBUTION OF MARKS FOR THEORY AND PRACTICAL (Table 2)

Name of the Subject	Details of marks					
	No of papers	Theory	Minimum Theory Mark (50%)	Practical/ Clinical (Including Viva Voce)	Minimum Practical Mark (50%)	Total
<b>First Professional</b>						
1. Siddha Maruthuva Adippadai Thathuvangalum Varalarum [History and Fundamental Principles of Siddha Medicine]	One	100	50	---	--	100
2. Tamil Language	One	100	50	---	---	100
3. Communicative English	One	100	50	---	---	100
4. UyirVedhiyal (Bio Chemistry)	One	100	50	100	50	200
5. MaruthuvaThavaralyal (Medicinal Botany and Pharmacognosy)	One	100	50	100	50	200
6. Nunnuyiriyal (Micro Biology)	One	100	50	100	50	200
<b>Second Professional</b>						
1. Udalkoorugal (Anatomy)	Two	200	100	100	50	300
2. Udalthathuvam (Physiology)	Two	200	100	100	50	300
3. Siddha Maruthuva Mooligai Ariviyal (Siddha Medicinal Herbal Science)	Two	200	100	100	50	300
4. Siddha Maruthuva Kanima, Kanima	Two	200	100	100	50	300

Vethiyal and Siddha Maruthuva Vilangiyal (Siddha Medicinal Geology, Medicinal Chemistry and Medicinal Zoology).						
<b>Third Professional</b>						
1. NoiNaadal - Paper I (Siddha Pathology)	One	100	50	100	50	200
2. NoiNaadal - Paper II (Principles of Modern Pathology)	One	100	50	100	50	200
3.NoI AnugavidhiOzhukkam (Hygiene and Community Medicine including National Health Policies and Statistics).	One	100	50	--	---	100
4. SattamSaarntha MaruthuvamumNanju Maruthuvamum (Forensic Medicine and Toxicology)	One	100	50	100	50	200
5. Research Methodology and Medical Statistics	One	100	50	---	---	100
<b>Final Professional</b>						
1.Maruthuvam (Medicine)	One	100	50	100	50	200
2. Varmam, Puramaruthuvam and Sirappumaruthuvam (Varmam Therapy External Therapy and Special Medicine)	One	100	50	100	50	200
3. Aruvai, TholMaruthuvam (Surgery including Dentistry and Dermatology)	One	100	50	100	50	200
4. Sool, MagalirMaruthuvam (Obstetrics and Gynaecology)	One	100	50	100	50	200
5.Kuzhanthai Maruthuvam (Paediatrics)	One	100	50	100	50	200

## **SCHEME OF EXAMINATIONS**

FIRST PROFESSIONAL B.S.M.S COURSE

Scheme of Examination and Distribution of Marks for First Professional B.S.M.S. course

Sl No	Subject	Details of Maximum Marks			
		Number of papers	Theory	Practical or Clinical (including Viva Voce)	total
1.	Siddha Maruthuva Adippadai Thathuvangalum Varalarum (History and Fundamental Principles of Siddha Medicine)	One	100	-	100
2.	Tamil Language	One	100	-	100
3.	Uyir Vedhiyal (Bio-Chemistry)	One	100	100	200
4.	Maruthuva Thavara Iyal (Medicinal Botany and Pharmacognosy)	One	100	100	200
5.	Nunnuyiriyal (Micro Biology)	One	100	100	200

Marks qualifying for pass:

The minimum marks required for passing the examination shall be fifty percentages (50%) in Theory and fifty percentages (50%) in Practical or Clinical, wherever applicable in each subject.

A candidate obtaining 75 percentages marks in each subject shall be awarded distinction in the subject and 60 and above percentage in each subject shall be awarded as First class in the subject.

The failed student of first Professional shall be allowed to appear in second Professional examination, but the student shall not be allowed to appear in third Professional examination unless the student passes all the subjects of first Professional examination and maximum four chances shall be given to pass first Professional examination within a period of maximum three years.

SECOND PROFESSIONAL B.S.M.S COURSE

Scheme of Examination and Distribution of Marks for

Second Professional B.S.M.S Course

Sl.No	Subject	Details of Maximum Marks			
		Number of papers	Theory	Practical or Clinical (including Viva Voce)	Total
1	Udal Koorugal (Anatomy)	Two	200	100	300
2	Udal Thathuvam (Physiology)	Two	200	100	300
3	Siddha Maruthuva Mooligai Ariviyal (Siddha Medicinal Herbal Science)	Two	200	100	300
4	Siddha Maruthuva Kanima, Kanima Vethiyal and Siddha Maruthuva Vilangiyal (Siddha Medicinal Geology, Medicinal Chemistry and Medicinal Zoology).	Two	200	100	300

Marks qualifying for pass:

The minimum marks required for passing the examination shall be fifty percentages (50%) in Theory and fifty percentages (50%) in Practical or Clinical, wherever applicable in each subject.

A candidate obtaining 75 percentages marks in each subject shall be awarded distinction in the subject and 60 and above percentage in each subject shall be awarded as First class in the subject.

The failed student of second Professional who have passed all the subjects of first professional examination shall be allowed to appear in third Professional examination, but the student shall not be allowed to appear in final professional examination unless the student passes all the subjects of second Professional examination and maximum four chances shall be given to pass second professional examination within a period of maximum three years.

### THIRD PROFESSIONAL B.S.M.S COURSE

#### Scheme of Examination and Distribution of Marks for

#### Third Professional B.S.M.S Course

Sl.No	Subject	Details of Maximum Marks			
		Number of papers	Theory	Practical or Clinical (including Viva Voce)	Total
1	Noi Naadal- Paper I (Siddha Pathology)	One	100	100	200
2	Noi Naadal- Paper II (Principles of Modern Pathology)	One	100	100	200
3	Noi Anugavidhi Ozhukkam (Hygiene and Community Medicine including National Health Policies and Statistics)	One	100	-----	100
4	Sattam Saarntha Maruthuvamum Nanju Maruthuvamum (Forensic Medicine and Toxicology)	One	100	100	200
5	Research Methodology and Medical Statistics	One	100	-----	100

#### Marks qualifying for pass:

The minimum marks required for passing the examination shall be fifty percentages (50%) in Theory and fifty percentages (50%) in Practical or Clinical, wherever applicable in each subject.

A candidate obtaining 75 percentages marks in each subject shall be awarded distinction in the subject and 60 and above percentage in each subject shall be awarded as First class in the subject.

The failed student of third professional who have passed all the subjects of first and second professional examinations shall be allowed to appear in final professional

examination and maximum four chances shall be given to pass third professional examination within a period of maximum three years.

Final PROFESSIONAL B.S.M.S COURSE

Scheme of Examination and Distribution of Marks for

Final Professional B.S.M.S Course

Sl.No	Subject	Details of Maximum Marks			
		Number of papers	Theory	Practical or Clinical (including Viva Voce)	Total
1	Maruthuvam (Medicine)	One	100	100	200
2	Varmam, Puramaruthuvam and Sirappu Maruthuvam (Varmam Therapy, External Therapy and Special Medicine)	One	100	100	200
3	Aruvai, Thol Maruthuvam (Surgery including Dentistry and Dermatology)	One	100	100	200
4	Sool, Magalir Maruthuvam (Obstetrics and Gynaecology)	One	100	100	200
5	Kuzhanthai Maruthuvam (Paediatrics)	One	100	100	200

Marks qualifying for pass:

The minimum marks required for passing the examination shall be fifty percentages (50%) in Theory and fifty percentages (50%) in Practical or Clinical, wherever applicable in each subject.

A candidate obtaining 75 percentages marks in each subject shall be awarded distinction in the subject and 60 and above percentage in each subject shall be awarded as First class in the subject.

Duration of Compulsory Rotatory Residential Internship (C.R.R.I) shall be one year and the student shall be eligible to join the C.R.R.I Programme after passing all the subjects in the Final Professional examinations as per the statutory council regulations.

The student failed in any of the four professional examinations in four chances shall not be allowed to continue his or her studies.

To become eligible for joining the compulsory internship programme, all four professional examinations shall be passed within a period of maximum nine years including all chances as mentioned in 3.3.

### **EXAMINATION DATES, DURATION OF EXAMINATIONS, VIVA and QUESTION PAPERS**

The examination dates will be fixed by the University. The duration of Theory and Practical/ Clinical exams shall be three hours. Question paper pattern and Regulations for Viva-Voce shall be as per the norms of University.

#### **3.4. Papers in each year**

As shown under “3.3 SCHEME OF EXAMINATION SHOWING MAXIMUM AND MINIMUM MARKS”

#### **3.5. Details of theory exams**

Details of theory examinations are as shown in table 2. Duration of each theory exam will be three hours; totally 22 questions in each subject, in which essay type questions – 2 nos ( 2X 10 = 20 marks), short notes- 10 nos ( 10 X 5 = 50 marks) and answer briefly – 10 nos ( 10 X 3 = 30 marks)

#### **3.6 Model question paper for each subject with question paper pattern**

QP. Code: .....

REG: NO:.....

**KERALA UNIVERSITY OF HEALTH SCIENCES  
MODEL QUESTION PAPER**

**FIRST PROFESSIONAL B.S.M.S. DEGREE EXAMINATIONS  
Uyir Vedhiyal (Bio-Chemistry)**

Time : 3hrs  
Marks: 100

Max.

**Answer all the questions.**

**Essays**

**2 x 10 = 20**

1. Draw and explain electron transport chain.
2. Discuss the functions and disorders of Thyroid hormones.

**Short notes**

**10 x 5 = 50**

3. G.T.T.
4. Urea Cycle
5. Principle, technique and application o PCR.
6. Discuss absorption of lipids.
7. Discuss the metabolism of iron.
8. Discuss the functions vitamin A.
9. Discuss tumour markers.
10. Discuss the marker enzymes in the diagnosis of myocardial infarction.
11. Discuss the classification of jaundice.
12. Discuss the mechanism of detoxification.

**Answer briefly:**

**10 x 3 = 30**

13. Gout.
14. Glycosylated Hemoglobin.
15. Name the factors regulating electrolyte balance.
16. Kwashiorkar.
17. Creatinine clearance test.
18. Types of RNA.
19. Name the laboratory tests for the diagnosis of AIDS.
20. Bioinformatics.
21. HDL is called good cholesterol. Justify the statement.
22. Multiple myeloma.

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**KERALA UNIVERSITY OF HEALTH SCIENCES  
MODEL QUESTION PAPER**

**FIRST PROFESSIONAL B.S.M.S. DEGREE EXAMINATIONS**

**Maruthuva Thavara Iyal (Medicinal Botany and Pharmacognosy)**

Time : 3hrs

Max. Marks: 100

**Answer all the questions.**

**Essays:****2 x 10 = 20**

1. Explain the family characters of Umbelliferae and furnish some important medicinal plants employed in Siddha formulations.
2. Define pharmacognosy and definition of different barks used in Siddha system.

**Short Notes:****10 x 5 = 50**

3. Distinguished characters of Solanaceae.
4. Dicot leaf and monocot leaf.
5. Plant tissue culture.
6. Adulteration of herbal drugs.
7. Gymnosperms.
8. Dryopteris
9. Hard resins
10. Pigmentation studies of chlorophyll.
11. What are RET species and mention its conservation methods.
12. Quinoline alkaloid.

**Answer briefly:****10 x 3 = 30**

13. Deliriant poison
14. Xanthophyll
15. 3 medicinal gums
16. Clove.
17. Pneumatophore.
18. Exarch and endarch xylem.
19. Gynostegium and gynostemium.
20. Pencillin.
21. Draw the floral diagram of Zingiberaceae.
22. Merits of Bentham and Hooker's classification.

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QP. Code: .....

REG: NO:.....

**KERALA UNIVERSITY OF HEALTH SCIENCES  
MODEL QUESTION PAPER  
FIRST PROFESSIONAL B.S.M.S. DEGREE  
EXAMINATIONS**

**Nunnuyiriyal (Micro Biology)**

Time : 3hrs

Max. Marks: 100

**Answer all the questions.**

**Essays:**

**2 x 10 = 20**

1. Describe the morphology, pathogenesis and lab diagnosis and prophylaxis of Rabies Virus.
2. Draw the structure of typical bacterial cells and explain.

**Short notes:**

**10 x 5 = 50**

3. Cell involved in the immune system.
4. Opportunistic mycosis.
5. Vaccines.
6. Bacterial Growth curve.
7. Kirby Bauer Method.
8. Hypersensitivity
9. Tuberculin test.
10. Determinants of antigenicity.
11. ELISA.
12. Contribution of Louis pasteur.

**Answer briefly:**

**10 x 3 = 30**

13. Chemical agents of sterilization.
14. Flagella.
15. Differential media.
16. Nosocomial infection.
17. Mycotoxicosis.
18. SARS.
19. Bacteriophages.
20. PUO
21. VDRL test.
22. Psittacosis.

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**KERALA UNIVERSITY OF HEALTH SCIENCES  
MODEL QUESTION PAPER**

**FIRST PROFESSIONAL B.S.M.S. DEGREE EXAMINATIONS**

**Siddha Maruthuva Adippadai Thathuvangalum Varalarum (History and Fundamental Principles of Siddha Medicine)**

Time : 3hrs

Max. Marks: 100

***Answer all the questions.***

**Essays:****2 x 10 = 20**

1. Define Thathuvam. Explain Ninety Six Thathuvangal.
2. What are the basic properties of a Drug? Explain in detail with proper examples.

**Short Notes:****10 x 5 = 50**

3. Iymbootha kolgai
4. Explain study of Cosmic Play.
5. Write the differences among Ayan, Ari and Aran.
6. Explain the quotations of Thirumoolar concepts about Uyir.
7. Siddharin manimahudam.
8. Classification of Azhal.
9. Differences between Pathi and Pasu.
10. Specialities of Siddhars .
11. Tamil sangam.
12. Kayakarpam

**Answer Briefly:****10 x 3 = 30**

13. Kanmangal
14. Samsaari seevangel
15. Pulippani
16. Preservation of Palm leaf manuscripts.
17. Qualities of good physician.
18. Write any three poems from Thirikural – Marunthu Athikaram.
19. Marana Prayogam.
20. Propthi.
21. What is meant by Salvation? What are ways to attain Salvation?
22. Various forms of Sakthi.

**MODEL QUESTION PAPER**  
**FIRST PROFESSIONAL B.S.M.S. DEGREE EXAMINATIONS**  
**TAMIL LANGUAGE (தமிழ் மொழி)**

எல்லா வினாக்களுக்கும் விடை எழுதவேண்டும்

காலம் 3 மணி நேரம்

மதிப்பெண்-100

கட்டுரை வரைக:

(2 x 10 = 20)

1. பிரம்மமூனி, கோரக்கர் பற்றிய செய்திகளைத் தொகுத்து எழுதுக.
2. இயங்கும் பொருட்கள் மற்றும் இயங்காப் பொருட்கள் குறித்து கட்டுரை வரைக.

குறிப்பு வரைக:

(10 x 5 = 50)

3. திருமூலரைப் பற்றி எழுதுக.
4. கொன்றை வேந்தன் பாடலிலிருந்து முதல் ஐந்து அடிகளை எழுதுக.
5. அகத்தியரைப் பற்றி எழுதுக.
6. "ஐம்பூதம்- அறுசுவை தொடர்பு" பற்றி பாடலை எழுதுக.
7. "உடல் ஐம்பூதக் கூறுபாட்டையும் உடைய தெளல்" என்றும் பாடலைத் தருக.
8. சட்டமூனி சித்தர் பற்றி எழுதுக.
9. கடல் கோளுக்கு முன்பிருந்த குமரிநாடு பற்றி எழுதுக.
10. தேரையர் யார்?
11. பட்டுக்கோட்டை கல்யாண சந்திரத்தின் பாடலின் சிறப்பு என்ன?
12. தமிழில் மொழி பெயர்க்க.

- a)  $Rm^2 Hx E$ ம் 1-p. (I saw an elephant.)
- b)  $Ah^2 C5r Fg$  1-nA. (He didn't see me yesterday.)
- c)  $Rm^2 Cu$   $JocebnA$   $Fleqpw$ . (I will definitely pass in this Examination.)
- d)  $AhA$   $Fqenp$   $jpknXw$   $tNmZn$  p. (She had asked me a book.)
- e)  $Akqhw$   $tXm$   $qnmA$   $tUm$   $sd$   $ImW$   $Ww$ . (When you feel illness consult a doctor)

சிறுகுறிப்பு வரைக:

(10 x 3 = 30)

13. 'படகு' -என்றும் பாடலை எழுதுக.
14. 'அவரைக்காய்' -இச்சொல்லில் வரும் எழுத்துக்களால் வேறு புதிய சொற்களை உருவாக்குங்கள்.
15. "நூலைச் சிறுநூலும் பாகத்....." என்றும் பாடலை எழுதுக.
16. பிறமொழிச் சொற்களை நீக்கி தமிழ்ச் சொற்களைப் பயன்படுத்தி எழுதுக.
  - a) மல்லை முகத்திற்கு ஒளி தரும்.
  - b) கொடியில் அழகான புஷ்பங்கள் பூத்துள்ளன.
17. ஆசிரியரும் மாணவரும் வெளியூரில் சந்திப்பது போல் ஒரு கற்பனை உரையாடல் எழுதுக.
18. புலி பாய்த்தது; ஆடு ஓடியது. (பன்மை வாக்கியமாக மாற்றுக்)
19. மாணவர்கள் பந்தாட்டத்தில் வெற்றி பெற்றார்கள்.(நிகழ் காலத்தில் மாற்றுக்.)
20. யுகிமூனி என்ற சித்தரைப் பற்றி எழுதுக.
21. 'மருந்து' எனும் அதிகாரத்தில் வரும் ஏதேனும் மூன்று திருக்குறட்பாக்களை எழுதுக.
22. பதினாள்கு வேகங்கள் எவை?

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QP code:.....

Reg. No.....

**SECOND PROFESSIONAL B.S.M.S. DEGREE EXAMINATIONS**  
MODEL QUESTION PAPER  
**SIDDHA MARUTHUVA MOOLIGAI ARIViyAL (SIDDHA**  
**MEDICINAL HERBAL SCIENCE)**

- Answer all the questions.

Time : 3hrs

Max. Marks: 100

**Essay:**

[2 x 10 = 20]

1. Discuss about the parts used, taste, action and general properties of tree Thengu.
2. What is Diuretic action and explain it with five suitable examples.

**Short Notes:**

[10 x 5 = 50]

3. Nuna in the treatment of Mantham.
4. Gruels (Kanji) – type & uses.
5. Parangipattai
6. Nervalam – purification & antidote.
7. Naabi – types, action, general properties.
8. Nellimulli
9. Kazharchikodi
10. Kariabolam
11. Sambeeram
12. Ettipoisoning and Ettikottaiuppu.

**Answer Briefly**

[10 x 3 = 30]

13. ThetranLegium
14. Thuthuvelai – Samoolam&Karpam
15. Name any five plants having three tastes.
16. NilavembuKudineer
17. NeeradimuthuNei
18. Mention the other name and botanical name of Maamuni, Aegaaravalli and YanaiVanangi.
19. MurukkanVithaiMathirai
20. Anti dote for KorakkarMooli
21. PaavanaKadukkai
22. Name any five plants used as anti –diabetic.

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**KERALA UNIVERSITY OF HEALTH SCIENCES**  
**SECOND PROFESSIONAL B.S.M.S. DEGREE EXAMINATIONS**  
MODEL QUESTION PAPER  
**Siddha Maruthuva Kanima, Kanima Vethiyal and Siddha**  
**Maruthuva Vilangiyal ( Siddha Medical Geology, Medicinal**  
**Chemistry and Medicinal Zoology)**

*Answer all the questions.*

Time: 3hrs

Max. Marks: 100

**Essay:**

**Essay:**

[2x10=20]

1. Explain the purification and parpam preparation of 'Lingam' with their adjuvants, indications and 'puranadai' (special treatment).
2. Describe about the general properties, actions, purification and parpam preparation of 'Ayam' with its 'naalalavu' (drug regimen) and 'patthiyam' (diet regimen).

**Short Notes:**

[10x5=50]

3. Role of 'Abragam' in the treatment of 'idumarunthu' (philtre) and poisonous bites.
4. Sarvavidaarikuligai.
5. Toxicity and antidotal methods of 'Vellaipaadaanam'.
6. Role of 'Thaalagaparpam' on 'seethasuram'.
7. Leech application technique.
8. Various origin concepts of 'Amber' (ambergris) and its originality tests.
9. Kottaanelumbuparpam.
10. Sarvasurakuligai.
11. Removal techniques of 'sattai' and 'thodam' from mercury.
12. Navaneethaparpam.

**Answer Briefly:**

[10x3=30]

13. Types of 'kaantham'.
14. Purification of 'muttaiodu' (egg shells).
15. Kandilvennai.
16. Raamapaanam.
17. Panjakouviyam.
18. Kilinjilmezhu.
19. Originality tests for 'komoothirasilaasatthu'.
20. Perandaparpam.
21. Ghandhagathylam.
22. Gowrimezhugu.

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**KERALA UNIVERSITY OF HEALTH SCIENCES**  
**SECOND PROFESSIONAL B.S.M.S. DEGREE EXAMINATIONS**  
 MODEL QUESTION PAPER  
UDAL KOORUGAL (ANATOMY) PAPER –I

- **Answer all the questions**
- **Draw adequate diagrams**

Time : 3hrs

Max. Marks: 100

**Essay**

[2 x 10 = 20]

1. Describe the knee joint in the following heading:-  
 articular surfaces,  
 capsule and ligaments  
 relations  
 movements and its applied anatomy.
2. Discuss in detail anatomy of atypical cervical vertebra.

**Short Notes:**

[10 x 5 = 50]

3. Diaphragm
4. Anterior abdominal wall muscles
5. Typical rib
6. Sternum
7. Ligaments of vertebral column with applied anatomy
8. Ankle joint
9. Hyoid bone
10. Atypical thoracic vertebra.
11. Ischiorectal fossa
12. Difference between male and female pelvis and measurement of female pelvis

**Answer Briefly:**

[10 x 3 = 30]

13. Posterior abdominal wall muscles
14. Rectus sheath
15. Atlanto – occipital joint
16. Name the ligaments of T.M. joint and hip joint
17. Draw sacrum both surfaces with muscle attachment
18. Name the muscles of palate and its nerve supply
19. Name the muscles of pharynx and its nerve supply
20. Name the muscles of tongue, functions and nerve supply
21. Atypical lumbar vertebra
22. Draw hip bone anterior view.

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QP. Code: .....

REG: NO:.....

**KERALA UNIVERSITY OF HEALTH SCIENCES**  
**SECOND PROFESSIONAL B.S.M.S. DEGREE EXAMINATIONS**  
MODEL QUESTION PAPER  
UDAL KOORUGAL (ANATOMY) PAPER –II

- **Answer all the questions**
- **Draw adequate diagrams**

Time : 3hrs

Max. Marks: 100

**Essay:**

[2 x 10 = 20]

1. Explain the formation, situation, branches and applied anatomy of brachial plexus and median nerve in detail.
2. Describe the origin, functional components, branches and applied anatomy of facial nerve.

**Short Notes:**

[10 x 5 = 50]

3. Draw the plan of sacro coccygeal plexus
4. Draw the plan of cervical plexus
5. Draw the plan of lumbar plexus
6. Pharynx with applied anatomy
7. Larynx with applied anatomy
8. Trachea with applied anatomy
9. Parotid gland
10. Optic nerve
11. Femoral nerve
12. Posterior tibial nerve

**Answer Briefly:**

[10 x 3 = 30]

13. Visual pathway
14. Pupillo dilator pathway
15. Pupillary constrictor pathway
16. Parasympathetic pathway to submandibular and sublingual salivary gland
17. Parasympathetic pathway to lacrimal gland
18. Olfactory nerve
19. Spinal accessory nerve
20. Hypoglossal nerve
21. Musculocutaneous nerve
22. Motor and sensory supply of ulnar nerve

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QP. QP. Code: .....

REG: NO:.....

**KERALA UNIVERSITY OF HEALTH SCIENCES**

**SECOND PROFESSIONAL B.S.M.S. DEGREE EXAMINATIONS**

**MODEL QUESTION PAPER**

**UDALTHATHUVAM (PHYSIOLOGY) PAPER I**

**Answer all the questions**

**Draw diagrams wherever necessary**

Time:3hrs

Maxmark:100

**Essay:**

**(2x10=20)**

1. Discuss in detail about respiratory sheath
2. Explain about intellectual sheath

**Short Notes:**

**(10x5=50)**

3. Pitham functional varieties
4. Features of kapha temperament
5. PithaNadi
6. VathakaphaNadi
7. Phychophysical Centers
8. Charactors of NadiNadai
9. Physiological role of Vatham
10. Ten important sites of Nadi
11. KaphaPithaNadi
12. Guru Nadi

**(10x3=30)**

**Answer Briefly:**

13. Prasakam
14. Ananthamayakosam
15. Nadi ratio
16. Devathathan
17. Predominant locations &Kapham
18. BhoothaNadi
19. Tharpakam
20. Ambrosia/Amritham
21. Definition of ThonthaNadi
22. Viyanan

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QP. Code: .....

REG: NO:.....

**KERALA UNIVERSITY OF HEALTH SCIENCES**  
**SECOND PROFESSIONAL B.S.M.S. DEGREE EXAMINATIONS**  
MODEL QUESTION PAPER  
**UDAL THATHUVAM (PHYSIOLOGY) PAPER II**  
**Answer all the questions**  
**Draw diagrams wherever necessary**

Time:3hrs

Max marks 100

**Essay:**

**(2x10=20)**

1. Explain menstrual cycle in detail.
2. Explain cardiac cycle in detail.

**Short Notes:**

**(10x5=50)**

3. Diabetes mellitus
4. Endocrine functions of kidney
5. Thyroxine
6. Frohlich syndrome
7. Disorders of posterior pituitary gland
8. Auditory defects and test for hearing
9. Olfactory pathway
10. Functions of internal ear
11. Renin angiotensin mechanism
12. Prostrate gland

**Answer Briefly:**

**(10x3=30)**

13. Sertoli cells
14. Angina pectoris
15. Syncope
16. Abnormalities of olfactory sensation
17. Virilism
18. Leptin
19. Classification of hemorrhage – names only
20. Dysgeusia
21. Classification of murmur
22. Permanent sterility (Sterilization)

QP code:.....

Reg. No.: .....

**KERALA UNIVERSITY OF HEALTH SCIENCES**  
**III PROFESSIONAL B.S.M.S DEGREE EXAMINATIONS**  
**MODEL QUESTION PAPER**

NOI NADAL- PAPER 1 (SIDDHA PATHOLOGY)

Time : 3 hrs

Marks : 100

Quote poems wherever necessary.

Answer all the questions.

**Essay:**

(2X 10 = 20)

1. Explain – formation of Naadi and its variations in their mathirai.
2. Discuss Gunmam – Synonym, Iyal, Noivarumvazhi, Murkurigunangal, Pothukurigunangal, classifications, MukkutraVerupadu, NadiNadai, Curable & Incurable types.

**Short notes:**

(10 X 5 = 50)

3. Elaborate the tastes and its value in the therapeutical aspect.
4. Discuss the complications of the disease “Perumkazhichal”.
5. Effects of controlling “kottavi”.
6. Avathai - 10
7. IlaippuNoi
8. SadhasivaPancheekaranam.
9. Manikadainool procedure & its measurements depicting incurability and death.
10. Aetiology of suram
11. Examination of sparisam and its incurable presentations.
12. Neikuri examination, curable & incurable presentations.

**Write briefly:**

(10X3 = 30)

13. Directions of messenger and its interpretations.
14. Days suitable for medications.
15. Types of Ninakazhichal.
16. TharunaSuram.
17. Characters of Urine.
18. Udalvanmai
19. ThamaragaNoi – Pothukurigunangal.
20. Incurable thondaNaadis.
21. Character of disease “Sobai”.
22. Neikuri using Mother’s milk.

QP code:

Reg. No.: .....

**KERALA UNIVERSITY OF HEALTH SCIENCES**  
**III PROFESSIONAL B.S.M.S DEGREE EXAMINATIONS**  
**MODEL QUESTION PAPER**

NOI NADAL- PAPER II (PRINCIPLES OF MODERN PATHOLOGY)

Time : 3 hrs

Marks : 100

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Quote poems wherever necessary.

Answer all the questions.

**ESSAY:**

(2X 10 = 20)

1. Write in detail about chemical mediators of inflammation.
2. Define Anaemia, clinical features, classification, pathogenesis, laboratory investigations.

**SHORT NOTES:**

(10 X 5 = 50)

3. Apoptosis.
4. Sideroblastic anemia
5. Pathologic diagnosis of cancer.
6. Pathogenesis of oedema.
7. Type III hypersensitivity reactions.
8. Fracture healing
9. Glycogen storage diseases.
10. Clostridial diseases.
11. Thrombocytopenia.
12. Types of examples of autoimmune diseases.

**WRITE BRIEFLY:**

(10X3 = 30)

13. Common immunohistochemical stains for tumour.
14. Whooping cough.
15. Screening test for blood coagulation.
16. Complications of blood transfusion.
17. Rabies.
18. Sjogren's syndrome.
19. Mechanisms of graft rejection.
20. Dysplasia.
21. Types of immunity.
22. Name some bacterial disease.

QP code:

Reg. No.: .....

**KERALA UNIVERSITY OF HEALTH SCIENCES**  
**III PROFESSIONAL B.S.M.S DEGREE EXAMINATIONS**

**MODEL QUESTION PAPER**

**NOI ANUGAVIDHI OZHUKKAM**  
**(HYGIENE AND COMMUNITY MEDICINE INCLUDING NATIONAL HEALTH POLICIES & STATISTICS)**

Time : 3hrs

Max. Marks:100

Quote poems wherever necessary.

Answer all the questions.

**Essay:** [2 x 10 = 20]

1. Write in detail about water purification in modern system and Siddha system
2. Explain briefly about the ways to lead a disease free life as said by theriyar.

**Short notes:** [10 x 5 = 50]

3. Breathing exercise.
4. Disposal of dead bodies
5. Prevention and control of malaria
6. Perumpozhuthu
7. Food borne disease and prevention
8. Types of ghee
9. Panchakarphavithi
10. Write about space fire.
11. Benefits of physical exercises
12. Seasonal regimen (KarKalam and KothirKalam)

**Answer Briefly:** [10 x 3 = 30]

13. Utharayanam
14. Chlorination
15. Dairy farming
16. Ambalam
17. Three types of food
18. Well water
19. Cold stress
20. NMEP
21. Mumps
22. AathanaKalam

QP code:

Reg. No.: .....

**KERALA UNIVERSITY OF HEALTH SCIENCES**  
**III PROFESSIONAL B.S.M.S DEGREE EXAMINATIONS**  
**MODEL QUESTION PAPER**

SATTAM SAARNTHA MARUTHUVAMUM NANJU MARUTHUVAMUM  
(Forensic Medicine and Toxicology)

Time : 3 hrs

Marks : 100

Answer all Questions:

**I. Essay:**

(2X10 = 20)

1. Define injury – Classify and explain mechanical injuries, grievous injury.
2. Explain the acute and chronic poisoning by Mercury and Lead with Siddha treatment.

**II. Short notes:**

(10X5 = 50)

3. Nitric acid poisoning.
4. Finger prints and its medico legal importance.
5. Dying declaration.
6. Exhumation.
7. Differentiate true insanity and feigned insanity.
8. Methods of procuring criminal abortion.
9. Poisonous mushrooms.
10. Opium poisoning.
11. Explain toxic effects of Organo phosphorous compounds.
12. Phosphorous poisoning.

**III. Write briefly:**

(10X3 = 30)

13. Rule of Nine.
14. Postmortem
15. Diatoms.
16. Universal antidote.
17. Precipitate labour.
18. Penal erasure.
19. Cocaine bugs.
20. Sulphur poisoning.
21. Differentiate poisonous and non poisonous snake.
22. Neuro lathyism.

QP code:.....

Reg. No.: .....

**KERALA UNIVERSITY OF HEALTH SCIENCES**  
**III PROFESSIONAL B.S.M.S DEGREE EXAMINATIONS**  
**MODEL QUESTION PAPER**  
**RESEARCH METHODOLOGY AND MEDICAL STATISTICS**

Time : 3 hrs

Marks : 100

Answer all the questions

**Essays:** (2×10=20)

1. Write about designing a research protocol with a model template of protocol.
2. Write essay on Tabulation- Diagrams (Bar charts, Histogram, Pie charts, Pictogram)- Statistical maps

**Short notes:** (10×5=50)

3. Types of research
4. Problems encountered by researchers in India
5. SWOT analysis of AYUSH research
6. Cross-sectional study
7. Authentication and standardization of Siddha drugs
8. Composition of IEC
9. Phases of clinical trial
10. Measures of Central Tendency and Dispersion
11. Statistical averages
12. Qualitative and quantitative data

**Answer briefly:** (10×3=30)

13. Research process in flow chart
14. *Alavaigal* and its interpretation with contemporary research
15. Sources of literary review
16. AYUSH GCP
17. Blinding
18. Traditional methods to identify the quality of *Parpam* (White calx)
19. Toxicity studies
20. Pharmacovigilance
21. Probability
22. Chi-square test

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QP Code.....

Reg. No.....

**KERALA UNIVERSITY OF HEALTH SCIENCES  
FINAL PROFESSIONAL BSMS EXAMINATIONS  
MODEL QUESTION PAPER**

**MARUTHUVAM (MEDICINE)**

Duration: 3 Hours

Marks: 100

**Answer all questions**

**Essay:**

**(2 X 10 = 20)**

1. Gunmam- definition, aetiological factors, classification, mukkutram variations and treatment
2. Causative factors, types, mukkutram variations, nadi nadai and management of Eraippu noi

**Shorts notes:**

**(10x 5 = 50)**

3. Pitha keelvayu
4. External treatment for Sura noi
5. Classifications of Manjal noi
6. Treatment for Vanthi noi
7. Distinguish between Nina kazhichal and Kaduppu kazhichal
8. Signs and symptoms of Neerizhivu noi and treatment
9. Treatment and pathyam for Kalladaippu noi
10. Clinical features and investigations of Hypothyroidism
11. Give a note on Lifestyle disorders
12. Aetiology and treatment of Ulaimanthai

**Answer briefly:**

**(10 X 3 = 30)**

13. Curable and incurable varieties of Oodhal noi
14. Synonyms of Elaippu noi, Oozhi noi and Peruvayiru
15. Complications and investigations of AIDS
16. Preventive medicines for Ammai noi
17. Line of treatment of Veluppu noi
18. Patcha vatham
19. Manthara kasam and Pakka manthara kasam
20. Theilneer
21. Treatment for Surabangam
22. Types of Sanni noi

QP Code.....

Reg. No.....

**KERALA UNIVERSITY OF HEALTH SCIENCES  
FINAL PROFESSIONAL BSMS EXAMINATIONS  
MODEL QUESTION PAPER**

**VARMAM, PURAMARUTHUVAM AND SIRAPPU MARUTHUVAM  
(VARMAM THERAPY, EXTERNAL THERAPY AND SPECIAL MEDICINE)**

Duration: 3 Hours

Marks: 100

**Answer all questions**

**Essays:**

**(2×10=20)**

1. Pranayamam
2. Padu Varmam – 12: location, Signs & symptoms, Naazhigai (time limit), manipulation technique and medicines

**Short notes:**

**(10×5=50)**

3. Sirappu Karpam for Eye diseases, Nasal blockage (Vathaprashtam), Dhanur Vayu, Polyuria and Jaundice
4. Thodu Varmam in the upper limb
5. Delusion and hallucination
6. Discuss the types of Valippu Noi
7. Treatment for Echil Kirigai, Silethuma Kirigai, Moodu Kirigai
8. Thokkanam
9. Fracture types
10. Tuberculosis of Spine
11. Shoulder dislocation
12. Parkinsonism

**Answer briefly:**

**(10×3=30)**

13. Sarvangasanam
14. Types of Muppu.
15. Adangal in Varma science
16. Kirisathu Kiyalam
17. Treatment for Unmatham
18. Nasiyam (nasal drops)
19. Steam and fume therapy
20. Diagnostic criteria for Rheumatoid arthritis
21. Osteomyelitis
22. Cerebellar ataxia

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QP Code.....

Reg. No.....

**KERALA UNIVERSITY OF HEALTH SCIENCES  
FINAL PROFESSIONAL BSMS EXAMINATIONS  
MODEL QUESTION PAPER**

**ARUVAI, THOL MARUTHUVAM (SURGERY INCLUDING DENTISTRY AND DERMATOLOGY)**

Time: 3hrs.

Marks: 100

**Answer all the questions**

**Essay :**

**(2 x 10 = 20)**

1. Write an essay on Pavuthiram
2. Give a detail account on Filariasis

**Short notes :**

**(10 x 5 = 50)**

3. Vedhu
4. Kandamalai
5. Treatment for Naakku Putru
6. Surgical treatment for Pitha Kasam
7. Karappan
8. Hydrocele.
9. Benign Prostatic Hypertrophy
10. Burns.
11. Tonsillitis
12. Scabies

**Write briefly:**

**(10 x 3 = 30)**

13. Ottradam
14. Treatment of Silaippun
15. Amaram
16. Padarthamarai
17. Kaaram
18. Classification of Aneurysms.
19. Caries tooth
20. Phymosis.
21. Metabolic acidosis
22. Classification of ulcers

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QP Code.....

Reg No.....

**KERALA UNIVERSITY OF HEALTH SCIENCES  
FINAL PROFESSIONAL BSMS EXAMINATIONS  
MODEL QUESTION PAPER**

**SOOL, MAGALIR MARUTHUVAM (OBSTETRICS AND GYNAECOLOGY)**

Duration: 3 Hours

Marks: 100

**Answer all questions**

**Essay:**

**(2 X 10 = 20)**

1. Hypertensive disorders of pregnancy
2. Explain Maladu

**Shorts notes:**

**(10x 5 = 50)**

3. Soothagavali
4. Stages of cancer of cervix
5. Maternal changes due to pregnancy
6. PCOD
7. Tubal pregnancy
8. Placenta previa
9. Mechanism of normal labour
10. Menstrual cycle
11. Lactation
12. Objective signs of diagnosis of pregnancy

**Answer briefly:**

**(10 X 3 = 30)**

13. Types of pregnancy
14. Diagnosis of pregnancy- first stage
15. Any three contraceptive methods
16. Foetal and maternal circulation
17. Development of embryo according to Siddha aspect
18. Dyspareunia
19. Postpartum pituitary necrosis
20. Role of hormones in pregnancy
21. Subjective signs of pregnancy
22. Difference between primigravida and multigravida

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QP Code.....

Reg. No.....

**KERALA UNIVERSITY OF HEALTH SCIENCES  
FINAL PROFESSIONAL BSMS EXAMINATIONS  
MODEL QUESTION PAPER**

**KUZHANTHAI MARUTHUVAM (PAEDIATRICS)**

Duration: 3 Hours

Marks: 100

**Answer all questions**

**Essay:**

**(2 X 10 = 20)**

1. Write about Kanam and its classifications, treatment with modern aspect
2. Explain Suram and its classification and treatment with modern aspect

**Shorts notes:**

**(10x 5 = 50)**

3. Protein Energy Malnutrition
4. Purakarana noikal
5. Immunization schedule
6. Mile stones
7. Mumps
8. Malabsorption syndrome
9. Cerebral palsy
10. Down's syndrome
11. Sanni noi
12. Kakkuvan noi

**Answer briefly:**

**(10 X 3 = 30)**

13. Amaram
14. Kiranthi
15. APGAR SCORE
16. Maalai kann
17. Worms infestation
18. Kaamalai
19. Fallot's tetralogy
20. Kazhichal
21. Muscular dystrophy
22. Cushing's syndrome

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### 3.7 Internal assessment component

Minimum three internal examinations shall be conducted during each phase of B.S.M.S course. Average of the better of two performances shall be calculated for internal assessment of theory, practical/ clinical and viva voce in which final assessment examination is university Model examination and is compulsory. Minimum marks required for internal assessment is 35%. Internal Assessment mark of a subject shall not exceed the class average of 75%. Securing minimum 35% of internal assessment marks are mandatory for gaining eligibility for appearing examinations only. This shall not be considered for awarding pass to the subject concerned.

The following facts may be taken into consideration in determining class work in the subject:-

Regularity in attendance b) Periodical tests and c) Practical work.

### 3.8 Details of practical/clinical practicum exams

As shown under 3.3 SCHEME OF EXAMINATION SHOWING MAXIMUM AND MINIMUM MARKS (Table 2)

### 3.9 Number of examiners needed (Internal & External) and their qualifications

There shall be one Internal Examiner and one External Examiner appointed for each subject/paper or as per the norms existing in the University. Teaching faculties who possessed with minimum three years of teaching experience after obtaining Post Graduation degree shall be appointed as Internal/ External examiner or as per the statutory council regulations.

### 3.10 Details of viva: division of marks

As shown under 3.3 SCHEME OF EXAMINATION SHOWING MAXIMUM AND MINIMUM MARKS (Table 2)

## 4 INTERNSHIP

### 4.1 Eligibility for internship

Duration of Compulsory Rotatory Residential Internship (C.R.R.I) shall be one year and the student shall be eligible to join the C.R.R.I Programme only after passing all the subjects in the Final Professional examinations as per statutory council regulations.

To become eligible for joining the compulsory internship programme, all four professional examinations shall be passed within a period of maximum nine years including all chances as mentioned in 3.3.

### 4.2 Details of Internship Training

(1) Duration of Compulsory Rotatory Internship shall be one year and the student shall be eligible to join the compulsory internship programme after passing all the subjects from first to the final professional examinations and the internship programme shall be start after the declaration of the result of final professional examination.

(2) The Internship Programme and time distribution shall be as follows:-

- (a) The interns shall receive an orientation regarding programme details of internship programme, in an orientation workshop, which shall be organised during the first three days of the beginning of internship programme and a work book shall be given to each intern, in which the intern shall enter date wise details of activities undertaken by him during his training;
- (b) Every intern shall provisionally register himself with the concerned State Board or Council and obtain a certificate to this effect before joining the internship program;
- (c) The daily working hours of intern shall be not less than eight hours;
- (d) Normally one-year internship programme shall be divided into clinical training of six months in the Siddha hospital attached to the college and six months in Primary Health Centre or Community Health Centre or Rural Hospital or District Hospital or Civil Hospital or any Government Hospital of modern medicine:

Provided that where there is no provision or permission of the State Government for allowing the graduate of Siddha in the hospital or dispensary of modern medicine, the one-year internship shall be completed in the Hospital of Siddha College.

(3) The clinical Training of six or twelve months, as case may be, in the Siddha hospital attached to the college shall be conducted as follows:-

Sl.No.	Departments	Distribution of six months	Distribution of twelve months
(i)	Maruthuvam	Forty-five days	Three months
(ii)	Varmam, Puramaruthuvam and Sirappumaruthuvam	Forty-five days	Three months
(iii)	Aruvai, Thol Maruthuvam	One month	Two months
(iv)	Sool, Magalir Maruthuvam	One month	Two months
(v)	Kuzhanthai Maruthuvam	Fifteen days	One month
(vi)	Avasara Maruthuvam	Fifteen days	One month

(4) Six months training of interns shall be carried out with an object to orient and acquaint the intern with the National Health Programme and the intern shall undertake such training in one of the following institutes, namely:-

- (a) Primary Health Centre;
- (b) Community Health Centre or District Hospital;
- (c) Any recognised or approved hospital of modern medicine;
- (d) Any recognised or approved Siddha hospital or dispensary:

The concerned Government may recognise all the above institutes mentioned in clauses (a) to (d) for taking training by interns.

(5) Detailed Guidelines for internship programme.- The guidelines for conducting the internship clinical training of six or twelve months in the Siddha Hospital attached to the college and the intern shall undertake the following activities in the respective department as shown below:-

- (a) Maruthuvam- The duration of internship in this department shall be one and half month or three months with following activities:-

(i) all routine works such as case taking, investigations, diagnosis and management of common diseases by Siddha medicine;

(ii) routine clinical pathology work such as haemoglobin estimation, complete haemogram, urine analysis, microscopic examination of blood parasites, sputum examination, stool examination, neerkuri, neikuri mala parisodhanai, interpretation of laboratory data and clinical findings, and arriving at a diagnosis;

- (iii) training in routine ward procedures and supervision of patients in respect of their diet, habits and verification of medicine regime;
- (b) Varmam, Puramaruthuvam and Sirappumaruthuvam- The duration of internship in this department shall be one and half month or three months and intern shall be practically trained to acquaint with the following activities:-
- (i) location of types of Varmam points;
  - (ii) diagnosis of various pathological conditions due to application of Varmam procedures and techniques;
  - (iii) procedures of Ilakkumuraigal with internal or external medication;
  - (iv) various Puramaruthuvam procedures and techniques with special emphasize on Thokkanam;
  - (v) fractures and dislocations and their management;
  - (vi) geriatric care (Moopiyal);
  - (vii) management of psychiatric cases (Ula Pirazhvu Noi); and
  - (viii) kayakarpam (Rejuvenation therapy and yogam);
- (c) Aruvai and Thol Maruthuvam- The duration of internship in this department shall be one month or two months and intern shall be practically trained to acquaint with the following activities:-
- (i) diagnosis and management of common surgical disorders according to Siddha principles;
  - (ii) management of certain ailments such as fractures and dislocations;
  - (iii) practical training of aseptic, antiseptics techniques and sterilization;
  - (iv) intern shall be involved in pre-operative and post-operative managements;
  - (v) practical use of anesthetic techniques and use of anesthetic drugs;
  - (vi) radiological procedures, clinical interpretation of X-ray, Intra Venous Pyelogram, Barium meal, Sonography and Electro Cardio Gram;
  - (vii) examinations of eye, ear, nose, throat and other parts of the body with the supportive instruments;
  - (viii) surgical procedures and routine ward techniques such as-
    - (a) suturing of fresh injuries;
    - (b) dressing of wounds, burns, ulcers and similar ailments;
    - (c) incision of abscesses;
    - (d) excision of cysts;

- (e) venesection; and
  - (f) application of Kaaranool in ano-rectal diseases;
  - (ix) procedures like Anjanam, Nasiyam, Attaividal at Out-Patient Department level;
  - (x) diagnosis and management of common dental disorders; and
  - (xi) training in Blood Bank and transfusion procedures;
- (d) Sool, Magalir Maruthuvam- The duration of internship in this department shall be one month or two months and intern shall be practically trained to acquaint with the following activities:-
- (i) antenatal and post-natal problems and their remedies; antenatal and post-natal care;
  - (ii) management of normal and abnormal labours; and
  - (iii) minor and major obstetric surgical procedures;
- (e) Kuzhantai maruthuvam- The duration of internship in this department shall be fifteen days or one month and intern shall be practically trained to acquaint with following activities:-
- (i) care for new born child along with immunisation programme; and
  - (ii) important pediatric problems and their management;
- (f) Avasara maruthuvam (Casualty)- The duration of internship in this department shall be fifteen days or one month and intern shall be practically trained to acquaint with the following activities:-
- (i) identification of casualty and trauma cases and their first line management; and
  - (ii) procedure for referring such cases to the identified hospitals.

#### **4.3 INTERNSHIP TRAINING IN PRIMARY HEALTH CENTRE OR RURAL HOSPITAL OR DISTRICT HOSPITAL OR CIVIL HOSPITAL OR ANY GOVERNMENT HOSPITAL OF MODERN MEDICINE:**

During the six months internship training in Primary Health Centre, Community Health Centre or District Hospital or any recognized or approved hospital of Modern Medicine or Siddha Hospital or Dispensary, the interns shall-

- (i) get acquainted with the routine of the Primary Health Centre and maintenance of their records;
- (ii) get acquainted with the routine working of the medical or non-medical staff of Primary Health Centre and be always in contact with the staff in this period;

(iii) get familiarized with the work of maintaining the relevant register like daily patient register, family planning register, surgical register and take active participation in different Government Health Schemes or Programmes; and

(iv) participate actively in different National Health Programmes implemented by the State Government.

#### **4.4 INTERNSHIP TRAINING IN RURAL SIDDHA DISPENSARY OR HOSPITAL**

During the six months internship training in Rural Siddha dispensary or Hospital, interns shall-

(i) get aquatinted with the diseases more prevalent in rural and remote areas and their management; and

(ii) involve in teaching of health care methods to rural population and also various immunization programmes.

#### **4.5 ASSESSMENT**

After completing the assignment in various Sections, the interns have to obtain a completion certificate from the head of the Section in respect of their devoted work in the Section concerned and finally submit to the Principal or Head of the institute so that completion of successful internship can be granted.

#### **4.6 Model of Internship Mark Lists**

No marklist for Interns.

Internship completion certificate: Issued from the concerned Institution

#### **4.7 Extension rules**

No leave will be permitted during internship period. If an intern takes leave in his/her internship period, that period shall be compensated in the same department during extension period. Only after completion of extension period, the intern may be granted with Internship completion certificate by the head of the institution

### **5. ANNEXURES**

#### **5.1 Check Lists for Monitoring**

Log Book , Seminar Assessment etc. to be formulated by the curriculum committee of the concerened Institution.