Syllabus for Siddha Maruthuva Arignar (BSMS) Course

3rd Professional BSMS

NOI NAADAL PAPER – I

(PRINCIPLES OF SIDDHA PATHOLOGY)

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; 10 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,
6. **Naadi**: [Page No. 82-107, 124-156, 167-195, Text Book S. No. 1; 15 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; 5 Hrs]

9. Ennvagai Thervukal, [Page No. 269-272, 282-325, Text Book S. No. 1; 10 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 Therayar.

[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).

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<tr>
<th>Sl. No.</th>
<th>Topics</th>
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<tr>
<td>1.</td>
<td>Suram</td>
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<td>Mukkadaippu</td>
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<td>Athi Kurathi Azhal Noi</td>
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<td>Peruvayiru</td>
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<td><strong>Siru Neer Noigal</strong></td>
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<td>Siruneer Arukkal Noi</td>
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<td>20.</td>
<td>Vaatha Noigal</td>
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<td>21.</td>
<td>Piththa Noigal</td>
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<td>22.</td>
<td>Kabha Noigal</td>
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<td>Keel Vaatham</td>
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**PRACTICALS**

**Major:**

- Clinical applications of Three Humours (Vaatham, Piththam, Kabham)
- Interpretation of Enn vagai Thervukal
- Examination of Ezhu Udal Thathukkal

**Minor:**

- Manikkadai Nool
- Neerkkuri and Neikkuri
- Clinical applications of individual humours
- Clinical applications of individual Udal Thaathu
- Clinical applications of Enn vagai Thervu
TEXT BOOK


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.


4. Periya Gnana Kovai -- Dhasa vayu's Pancheeharanam

5. Dr.Kannan Rajaram  B.S.M.S, ATSVS Siddha Medical College, Munchirai
   1. 2008 Varma Maruthuvam
   2. 2008 Atharam thoondum muraikalum Noi kanippum
   3. 2007 Varma Maruthuvathin Adipadaikal
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NEW DELHI

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NOI NADAL PAPER- II
(Principles of Modern Pathology including Clinical Pathology)

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

4. Immunopathology, [10 hrs]

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. Haemotology [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]
   Diabetis, Obesity, Hypertension COPD, Jaundice, Arthritis and Ill effects of radiation etc.

CLINICAL PATHOLOGY
1. Haematology
2. Examination of Sputum for AFB.
3. Examination of Urine
4. Examination of Faeces
5. Blood smear examination
6. Widal Test
7. Vaginal Smear.
8. Serological test- VDRL – Elisa Test – Hbs Ag, RA factor – ASO Titre
9. Skin – Skin clipping procedure.
11. Radiology

Practicals:

Histopathology slides & specimens (minimum 10 nos.)
Liver-fatty, cirrhosis & carcinoma
Lung – Tuberculosis, Bronchitis, Bronchiectasis & carcinoma
Stomach – Gastritis, Ulcer & carcinoma
Uterus & Ovary – Endometritis, PCOD, Fibroid, Ovarian cyst & carcinoma.
Fibro adenoma breast
Colloidal Goiter
Osteoclasstoma
Other slides
**Haematology slides**

- Iron deficiency Aneamia
- Acute Myeloid leukemia
- Chronic Myeloid leukemia
- Acute lymphoblastic leukemia
- Chronic lymphoblastic leukemia

**Radiology**

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

**Text Books:**

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SATTAM SARNTHA MARUTHUVAMUM NANJU MARUTHUVAMUM

(Forensic Medicine and Toxicology)

SATTAM SARNTHA MARUTHUVAM (Forensic Medicine)

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

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)

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)


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


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


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 the accused & victim to be noted – 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 test between

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) **Virginy** : (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.


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

Signs of delivery the living – Sign 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 – Rule to follow by the physician – Procedures – Criminal abortion – complications – Cause of death.

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

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.

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


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

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


NANJU MARUTHUVAM (TOXICOLOGY)

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


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

Organic Acids: Carbolic Acids-Oxalic acid.

Strong Alkalis: Sodium, Potassium, Ammonium Hydroxides and Carbonates

Section: 3 Irritant Poisons


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

Metals: Arsenic Compounds-Antimony-Lead-copper-Mercury compounds-zinc

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)

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)


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


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 Purpurea. (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-poisioning due to Micro organisms( Bacteria,Protozoa,fungus) - Botulism-poison due to chemical - Vegetable Origin ( Lythyrus Sativus, Rye, Oats, Barely, Ground nut, Argemone Mexicana, Mushrooms, Ulunthu, Thuvarai, kadali, motchai, Cocconut, Banana fruit, Jack fruit, Bombax Malbaricum, Naval kottai, Sivaran 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-
Practical Examination Scheme

(Spotters Identification, Microscope Examination, Certificates, Age Estimation)

Time 3 Hours                                          Marks: 20x2=40

Topics:


Microscope Findings: Stains, Animal and Human Hairs, Semen, Blood, Fibers etc. (Practical work - 10 hours).

Photos: Injury Cases, Burning, Drowning, Hanging, Strangulation. (Practical work -20 hours)

Weapons: Knife, Stone, Ligature, Stick, Blunt and Sharp edged weapons, Fire arms (Practical work - 20 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:


Reference Books:


Central Council of Indian Medicine
New Delhi

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NOI Anugavithi Ozhukkam
(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)

Chapter - 6 (Hours - 2)
Modern house and vaasthu, Modern Construction Technique 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, Thachayanam, Uttama, Mathima, Athama Kaala Ozhukam.

CHAPTER – 9 (Hours - 5)

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)


CHAPTER – 15 (Hours - 2)

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:


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)


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, 21st 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.
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RESEARCH METHODOLOGY AND MEDICAL STATISTICS

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. Pre requisite 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
- AYUSH GCP guidelines
- 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


• 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
• Siddhaliterature and Pharmaco vigilance
• Difficulties in Pharmacovigilance (Re challenging & 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
   Private Limited, New Delhi,2010

Sources for Reference:

2. Becoming a Successful Clinical Trial Investigator by Dr.P.K. Julka DNA Press 2nd 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)