

SYLLABUS

M.D.Ay. SANGYAHARAN-ANESTHESIOLOGY

Duration- 3 years

PAPER – I

Sangyahanana Siddhant

History of anaesthesia in ancient and modern literature. Rogi-Roga pariksha- pre anesthetic assessment and Pre anesthetic preparations. Knowledge of Yantra-Shastra- Update knowledge of Monitors, Machine and equipments-Ventilators, Medical gas supply, Gas law, Vaporisers, Flow meters, breathing systems, Corbondioxide absorbers, suction machine. Electrical fire and explosion hazards, Pollution of operation theatre, Sterilization of O.T. machine and Equipments. Physics related to Sangyahanana, Principles of Anesthesia & Sangyahanana.

Applied aspects of anatomy, Physiology and Pathology of –

Cardiovascular System-Heart and Autonomic nervous system, Monitoring of Blood pressure, Microcirculation, Rakta and Raktadhana (blood and transfusion and component therapy). Intravenous fluid therapy. Hematology- Anemia, Leukemia, Coagulopathy and Haemoglobinopathy. Immunology related to anaesthesia. Fluid Electrolyte and Acid-Base balance. Oxygen therapy.

Respiratory System- Anatomy of upper airway-Nose, pharynx, larynx, Tracheo-bronchial system, Mechanics of respiration, Ventilation/Perfusion matching, Lung volumes and capacities in relation to age. Lung function test- Bed side and laboratory test for various pulmonary diseases.

Nervous system-Spinal cord and nerves, CSF, Cranial nerves, Autonomic nervous system- Sympathetic and Parasympathetic system, Neuromuscular junction, Nerve plexuses, Thermoregulation. Physiology of Sleep and its disorders, Memory and its disorders.

Endocrinology related to anaesthesia- Endo and exocrinal glands, their functions and disorders – pituitary, Thyroid, parathyroid, adrenal, pancreas.

Anatomy and pathophysiology of Musculoskeletal systems – atrophy and hypertrophy of muscles.

Hepatobiliary system- Liver function test, Portal hypertension, mechanism of drug detoxification in liver, Hepatic failure. Pathophysiology of Nausea and vomiting.

Renal System –Renal function test, pathophysiology of renal function- Acute and chronic renal failure.

Pathophysiology, Genitourinary systems. Clinical importance of vital organs (Marma).

Concept of Agni and Metabolic disorders – Obesity, Protein energy malnutrition, Diabetes, hypo/Hyperglycemia, keto acidosis.

Knowledge of disorders like unmada, mada, murecha, sanyasa and stabdhatta (Cardiac arrest / heart block) etc. Concept of Pranaptyagamana - Methods to revive the consciousness back. Knowledge of medical jurisprudence in anesthesia. Method of Hypnotism, Acupressure, Acupuncture, TENS, Behavioral Therapy. Concept of pain and anesthesia in ancient and modern literature. Methods to relieve pain. Procedures of alleviation therapy and their importance. Concept of palliative care. Basic research methodology and statistics.

PAPER - II

Sangyahanana Bhesaja Vigyan

Pharmacology of – Drugs used for premedication- Anticholinergics, Anti emetics, sedatives, Analgesics, Antiinflammatory, Tranquillizers and Hypnotics, anticonvulsants.

Pharmacology of - Local anesthetic drugs .

Pharmacology of General anesthetic drugs- Inhalational anesthetics- Halothane, Isoflurane ,Savoflurane, Intravenous anesthetics- Ketamine, Thiopentone, Propofol, Etomidate, Muscle relaxants-Depolarizing and Nondepolarising.

Pharmacology of Reversal drugs-Neostigmine and Pyredostigmine.

Gases used in anaesthesia –Nitrous oxide, Cyclopropane, Corbon dioxide.

Drug interaction in anaesthesia practice .Pharmacology of drugs used in emergency- cardiac stimulant, respiratory stimulant, Vasopressures. Hypersensitivity , Anaphylaxis and its management.

Drugs and measures used for Poorva Karma, Pradhankarma and Pashchatkarma in sangyahan .

Pharmacology of herbal drugs used as - Medhya ,Manoddyvegahara, Rejuvenative, Hridayottejaka, Hridayavasadaka, Shwasottejaka, Shwasavasadaka Avasadahara, Nidrajanaka, Shothahara, Vedanahara and Vedanasthapaka, Chhardihara, Mutrajanana .

Pharmacology of Immunomodulator drugs used in Palliative care - Guduchi, Ashwagandha, Brahmi ,Shankhushpi, Madhuyasthi, Shunthi etc. Drugs used in aromatherapy.

PAPER - III

Vishishta Sangyahanana – Applied Anesthesia

Definition and types of anaesthesia.

Methods and types of local anesthesia-Indications,contra indications,complications and their management. Techniques of different Nerve blocks for anaesthesia and Pain management.

Regional anaesthesia- Technique and Types – Lumber subarachnoid block, Epidural and Caudal anaesthesia, Intra venous regional anaesthesia- Biers block ,indications, contra indications, complications and their management.Plexus and Nerve blocks for Upper and lower limb.

General anesthesia- Different methods of General anesthesia and practical knowledge of instruments used in anesthesia. Complications of various types of anaesthesia and their management. Endotracheal intubation - indications, contra indications, complications and their management. Methods of anesthesia in laparoscopic , Endoscopic and Laser surgeries.

Specific methods of anesthesia in- General Surgeries, Pediatric, Orthopedic, Gynecological and Obstetrical, Cardiothoracic, Neurological, Ophthalmic ,ENTand Dental surgery. Anaesthesia in Day care / OPD patients.knowledge of ICU and ICU patient care. Complication of anesthesia morbidity and mortality,medicolegal aspects.

Method and monitoring of anesthesia in following conditions -

Diabetes mellitus, Hypertension and other cardiac diseases, Jaundice, Anemia, Asthma and other respiratory diseases , Thyroid disorders, Inherited metabolic diseases, Obesity, Burn, Renal diseases, Myasthenia Gravis, Pulmonary kochs and Geriatric Patients.

Management of acute and chronic pain .Peri operative pain management.WHO regimn for Cancer pain management.Ablative Nerve block.

Arrangement and out door set-up for relieving pain. Principles of Intensive Care ,Special care of critically ill patients,Nosocomial infections detection and prevention.Modern O.T. and ICU set up and supply of gases .Trauma care management. CCPR-basic and advance Life Support.

Concept of pashchat karma – Post anaesthetic care in anesthesia. Nutrition, psychological support to patients and their family members. Specific knowledge of modern science in the field of anesthesia.

PAPER - IV

Sangyahanana Vangmaya – Literary, Research And Development

Shisyopanayan, Vishikhanupravesha, Agropaharaniya- Concept of purvakarma in practice of anesthesia Applied portion of Ayurveda specially Sushrutha Samhita, Charak Samhita and Ashtang Hridaya. Shatkriyakala and determination of Dosh, Dhatu, Mata and Prakriti. Modern books of anesthesia. History of anesthesia and its development. Instruments for anesthesia in modern and ancient era and their development. Contribution of different Acharyas in the development of anesthesia. Depiction of importance of anesthesia in Ayurved. Method of Panchakarma

Reference Books

1. Sushrut Samhita -Dalhana Commentary
2. Charak samhita
3. Ashtang Hridayam
4. Practice of Anaesthesia -Churchils Davidson
5. Anaesthesia -Renald D. Miller
6. Synopsis of Anesthesia -Alfred Lee
7. Anaesthesia -Colins
8. Other Up-to-date reference books and Journal's available
9. Sangyahan Prakash -Dr. D.N. Pande
10. Agni karma-Technological Innovation -Dr. P.D. Gupta
11. Practice of Anesthesia and Resuscitation -Dr. P.K. Gupta et al
12. Essentials of Anesthesiology -Prof. A.K. Paul
13. Clinical Anesthesia -Prof. A.K. Paul
14. Anu shastra karma - Dr. D.N. Pande

2 years P.G. Diploma in Sangyahan – Anesthesiology

Degree: Diploma in Sangyahan –D.A. (AY.) [Diploma in Anesthesiology-Ay.]

First Year – paper –I -100 marks

Basic science related to Sangyahan (anesthesia): Sangyahan Sidhant

Part- A-50 marks

1. History and Development of Sangyahan and anesthesiology.
2. Nirukti and Definition of sangyahan.
3. Shishyopanayan (Induction).
4. Vishikhnupravesha(Internship).
5. Agropaharaniya (Preanaesthetic Measures)
6. Knowledge of Yantra – Shastra
7. Dosh – Dhatu – Mala and Prakriti in Sangyahan.

8. Kshatkriyakala.
9. Rog. Rogi priksa (Examination of patients)
10. Marma and Snayu,
11. Knowledge of Unmad, Murchha, Sanyas.
12. Poorva Karma - Snehan, Swedan, Vaman, Veerechen and Basti..
13. Sanjeevan Vidhi
14. The relevant parts of Ayurvedic classics especially Sushruta, Charak and Astang hridaya.

PART B- 50 MARKS

1. Knowledge and practical application of essential investigations related to Anesthesia practices- Blood, urine, Stool, X-Ray, ECG, Ultra Sonography, CT Scan And MRI etc.
2. Applied Anatomy and Physiology of Respiratory, Cardiovascular. Nervous System, Hepatorenal system, musculo skeletal and endocrine system.
3. Fluid and Electrolyte Balance
4. Blood and component therapy.
5. Principles of Gaseous exchange.
6. Principles of preanaesthetic assessment and premedication in anaesthesia
7. Shock and its management.
8. Knowledge of anesthesia apparatus and equipment.
9. Breathing systems & monitoring devices.
10. Ethics & values in Sangyahan Practices – consequences and importance.
11. Medico legal aspect in the practices of Anaesthesia.

First Year – paper –II-100 marks

Pharmacology - related to Anesthesia with Ayurvedic and modern concept including recent advances.

(Sangyahanopayogi Bhaishjya Vigyanam)

Part- A-50 marks

Pharmacology & clinical application of –

1. Medhya Dravyas – Brahmi, Vacha, Aswagandha, Sankhpuspi, Jatamansi, Guduchi, Madhuyasthi & Jyotismati etc.
2. Vadanahar dravya- Rasna, Eranda, Nirgundi, Bhrigraj, Parijhat, Sigrum, Kadamb, Padmak, Guggulu, Bhanga, Ahiphen and Godanti etc.
3. Swapnajanan (Nidrajanan) Dravya
4. Chhardihar Dravya
5. Hridayottjak Dravya.
6. Kasahara Dravya.
7. Sanjeevan Dravya

Part B-50 marks

1. **Pharmacology of** Local anesthetics, General anesthetics, Muscle Relaxant, Reversal Drugs.
2. **Pharmacology of** Drugs used in premedication.
3. **Pharmacology of** acting on autonomic nervous system, central nervous system, cardio vascular system, respiratory system & endocrine system.
4. **Pharmacology of** drugs used as Antidepressants, Cardiac Stimulants & Respiratory Stimulants.
5. **Pharmacology of** drugs used in emergency.

6. Analgesics – Narcotic and Non narcotic
Practical and viva -100 marks

Diploma Course in Sangyahan
D.A. (AY.) , Diploma in Anesthesiology –Ay.

Second Year – Paper –I -100 marks
Techniques of Anaesthesia - Sangyahan Vidhayah

Part- A-50 marks

TYPE OF ANESTHESIA-Local, Regional and General Anaesthesia, Techniques and types. The instruments and equipments useful in these techniques, Special technique of anaesthesia in pediatrics, orthopedics, Gynecology and Obstetrics, Cardiothoracic, Neurosurgery, Plastic surgery, Eye and E.N.T. Surgery, Accident in Anaesthesia.

PartB-50 marks

Management of Anaesthesia technique in following conditions

Diabetes, High Blood Pressure, Jaundice, Anemia, Respiratory diseases, Thyroids, infections, Burns, Renal failure, musculoskeletal disorders , Pulmonary Tuberculosis Geriatrics, Laparoscopic cholecystectomy, Herniotomy, and Appendectomy etc.

Second Year – paper –II -100 marks

Second Year - Paper – II

Pain and Palliative Care – Vedanaharan Avum Upshami Chikitsa

PartA-50 marks

Concept of Pain in Ayurved, Pain pathway, Pain management by drugs and other methods e.g. Accupressur, Acupuncture, Aroma Therapy, Magnet Therapy, Panchkarma etc. Jalaukavacharan and Agni Karma, Siravyadha, their Principles, Materials and methods with indications and contra indications. Upshami Chikitsa (Palliative care)- Methods and importance.

PartB-50 marks

Saghan Chikitsa (intensive care) – establishment and management of I.C.U./C.C.U./H.D.U./ Critical care unit.

Critical care medicine

Monitoring & resuscitation (CCPR).

Post Anesthetic care.

Pain Clinic setup.

Recent advances in the field of **Pain management, Palliative Care, Sangyahan & Anesthesiologist.**

Practical and viva -100 marks

Note as per gazette notification dated: 14.07.2010 – A Project work on the subject.

1st Year

PRACTICAL MARKS (Distribution)-100 marks

- | | | |
|-------------|---|----------|
| 1. MCQ | - | 20 marks |
| 2. Spotting | - | 20 marks |

3. Viva Voce - 60marks

2nd year

PRACTICAL MARKS (Distribution)-100 marks

Project work presentation	-	20 marks
Short case	-	15 marks
Long case	-	25 marks
Viva voce	-	40 marks

Note: final result will be declared as pass/fail (separately in theory & practical).

Pass- 50% or above in Theory and Practical Separately.

Fail- Below 50% either in theory or practical

Reference Books –

1. Sushrut Samhita -Dalhana Commentary
2. Charak samhita
3. Ashtang Hridayam
4. Practice of Anaesthesia -Churchills Davidson
5. Anaesthesia -Renald D. Miller
6. Synopsis of Anesthesia -Alfred Lee
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13. Clinical Anesthesia -Prof. A.K. Paul
14. Anu shastra karma - Dr. D.N. Pande

One Years P.G. Certificate Course in Ayurvedic Pain Management

Aims and Object:

1. To introduce and equip the International Traditional System of Medicine with practice of Ayurvedic system of Medicine.
2. To integrate Ayurved with other system of Medicine existing in all over the world.
3. To produce the experts in Pain Management and also to produce the expertise for Research & Development in Pain Management.

Duration of the Course:

The period of training for obtaining a Certificate shall be one completed year including the examination period.

Eligibility Criteria: (Only for foreign nationals)-

Every foreign student selected for admission to **One Years P.G. Certificate Course in Ayurvedic Pain Management** shall possess a recognized Traditional/Modern Medical Degree or Diploma.

Syllabus and Curriculum of the Course:

Shall consist of one years training. Total tenure of the course will be of one completed years including final examination period.

Nomenclature of the Course: One Years P.G. Certificate Course in Ayurvedic Pain Management

Examination: Examination shall consist of theory, clinical, practical and oral.

- a. **Theory:** There shall be two theory papers.
- b. **Clinical:** Clinical examination of the subject shall be conducted to test/aimed at assessing the knowledge.
- c. **Oral:** The oral examination shall be thorough and shall aim at assessing the candidate's knowledge and competence about the subject, investigative procedures, therapeutic techniques and other aspects of the specialty which shall form a part of examination.

The candidate shall secure not less than 50% marks in each head of passing which shall include Theory, Practical including Clinical and Viva – Voce examinations.

Number of examinations: There will be only **one examination at the end of course which will be conducted by University.**

Age Limits:

Minimum 22 Years and Maximum 45 Years

Mode of selection of Students- Interview & counseling.

Admission Capacity: Minimum 1 and Maximum 3.

Medium of Instruction –English.

Course Fee- 5000 Dollar for other than SARC country Per Year.

- 4000 Dollar for SARC country Per Year.

Syllabus:

Paper I Principles of Ayurved Related to Pain Management - 100 Marks

Concept of Pain in Ayurved, Dosh – Dhatu – Mala and Prakriti.

Kshatkriyakala, Rog. Rogi priksha (Examination of patients).

Poorva Karma - Snehan, Swedan, Vaman, Veerechen and Basti..

Marma and Snayu.

Pain pathway, Pain management by drugs and other methods e.g. Aroma Therapy,

Panchkarma, Anushasta Karma- Jalaukavacharan and Agni Karma,

Siravyadha.

Principles, Materials and methods with indications and contra indications of Agnikarma & Jalaukavacharan.

Paper II Technique of Pain Management

100 Marks

Pain Clinic setup.

Recent advances in the field of **Pain management** Vadanahar dravya- Rasna, Eranda, Nirgundi, Bhrigraj,

Parijhat, Sigru, Kadamb, Padmak, Gugglu, Bhanga, Ahiphen and Godanti etc.

Analgesics – Narcotic and Non narcotic.

Agnikarma: Introduction, type, instrument and equipments as per modern system and

Ayurveda. Fundamentals, importance, method of application, duration, various materials used for Agni

Karma. Indications, contraindications and complications of Agni karma

Raktamokshana- a. Introduction, type, instruments and equipment as per modern system and Ayurved.

b. Fundamentals, importance, methods of application, duration, various materials used for Raktamokshana, Indications, contraindications and complications of Raktamokshana.

c. Causes of Vitiation of Rakt Dosha and Rakta dustijanya, Vikaras.

d. Type of bloodletting and determination of appropriate amount of blood loss in bloodletting and relation to diseases and patients.

e. Methods of Raktastambana – Haemostasis.

f. Introduction of leeches, Varieties, importance, Methods of applications and maintenance of leeches.

Practical and Viva

100 Marks

Participation in U.G.Course:

IIIrd B.A.M.S.

Paper – I -PART – B – 30 Marks

Sangyahaarana– Anaesthesia - Definition, Types, anesthetic agents, indications, contraindications, procedures, complications and management.

Fluid, electrolyte and Acid Base Balance, Nutrition –

Introduction to physiology of fluids and electrolytes

Dehydration and over hydration,

Specific electrolyte losses and symptomatology and management of Acidosis, Alkalosis and Acid balance.

Electrolyte changes in specific diseases like pyloric stenosis, intestinal obstruction and anuria.

Various replacement fluids in surgery, mode of administration and complications.

Nutrition – pre-operative, post-operative and intravenous alimentation.

Blood Transfusion –Blood groups, components, compatibility, indications, contraindications and complications with management.

Knowledge of antibiotics, analgesics, anti-inflammatory and emergency drugs in surgical practice.

Pain management and palliative care

Shock and its management – C.C.P.R.