



AYURVEDA DHANWANTHARI
MS (AYU) SHALYA TANTRA-SAMANYA

FACULTY OF MEDICAL SCIENCES

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PROGRAMME OUTCOME:

PO1: knowledge about the development of surgery

PO2: knowledge about clinical and diagnostic methods in shalya tantra.

PO3: Knowledge about wound management.

PO4: Knowledge about modern surgery.

PO5: Critical knowledge of the speciality subject.

ost graduate degree AYURVEDA DHANWANTHARI (SHALYA TANTRA)

PROGRAMME SPECIFIC OUTCOME:

_PSO1: Ability to do different types of sandhana karma.

PSO2: Ability to manage different types of wounds.

PSO3: Ability to manage different surgical conditions.

PSO4: Critical knowledge of selected specialities like Anusastra/ Asthi sandhi marma/
Sanghyaharana/ Urology etc.

CURRICULUM STRUCTURE: 3years

First year courses

1	Research Methodology & Biostatistics	
2.16	Shalya Tantra- Samanya	

Second and third year courses

2.16.1	Shalya Tantra Vangmaya
2.16.2	Shalya Tantra Vigyan
2.16.3	Adhunik Shalya Karma
2.16.4	Speciality

SYLLABUS

M.D./M.S.-AYURVEDA PRELIMINARY

PAPER-I

RESEARCH METHODOLOGY AND MEDICAL STATISTICS

PART-A

RESEARCH METHODOLOGY

1 Introduction to Research

Definition of the term research

Definition of the term anusandhan.

Need of research in the field of Ayurveda

2. General guidelines and steps in the research process

Selection of the research problem

Literature review: different methods (including computer database) with their advantages and limitations

Defining research problem and formulation of hypothesis

Defining general and specific objectives

Research design: observational and interventional, descriptive and analytical, preclinical and clinical, qualitative and quantitative

Sample design

Collection of the data

Analysis of data.

Generalization and interpretation, evaluation and assessment of hypothesis.

Ethical aspects related to human and animal experimentation.

Information about Institutional Ethics Committee (IEC) and Animal Ethics Committee (AEC) and their functions. Procedure to obtain clearance from respective committees, including filling up of the consent forms and information sheets and publication ethics.

3. Preparation of research proposals in different disciplines for submission to funding agencies taking EMR-AYUSH scheme as a model.

4. Scientific writing and publication skills.

Familiarization with publication guidelines- Journal specific and CONSORT guidelines.

Different types of referencing and bibliography.

Thesis/Dissertation: contents and structure

Research articles structuring: Introduction, Methods, Results and Discussions (IMRAD)

5. Classical Methods of Research.

Concept of Pratyakshadi Pramana Pariksha, their types and application for Research in Ayurveda.

Dravya-, Guna-, Karma-Parikshana Paddhati

Aushadhi-yog Parikshana Paddhati
Swastha, Atura Pariksha Paddhati
Dashvidha Parikshya Bhava
Tadvidya sambhasha, vadmarga and tantrayukti

6. Comparison between methods of research in Ayurveda (Pratigya, Hetu, Udaharana, Upanaya, Nigaman) and contemporary methods in health sciences.

7. Different fields of Research in Ayurveda
Fundamental research on concepts of Ayurveda

Panchamahabhuta and tridosha.

Concepts of rasa, guna, virya, vipak, prabhav and karma

Concept of prakriti-saradi bhava, ojas, srotas, agni, aam and koshta.

8. Literary Research-

Introduction to manuscriptology: Definition and scope. Collection, conservation, cataloguing.

Data mining techniques, searching methods for new literature; search of new concepts in the available literature. Methods for searching internal and external evidences about authors, concepts and development of particular body of knowledge.

9. Drug Research (Laboratory-based)- Basic knowledge of the following:

Drug sources: plant, animal and mineral. Methods of drug identification.

Quality control and standardization aspects: Basic knowledge of Pharmacopoeial standards and parameters as set by Ayurvedic Pharmacopoeia of India.

Information on WHO guidelines for standardization of herbal preparations. Good Manufacturing Practices (GMP) and Good Laboratory Practices (GLP).

10. Safety aspects: Protocols for assessing acute, sub-acute and chronic toxicity studies. Familiarization with AYUSH guidelines (Rule 170), CDCSO and OECD guidelines.

11. Introduction to latest Trends in Drug Discovery and Drug Development

-Brief information on the traditional drug discovery process

-Brief information on the latest trends in the Drug Discovery process through employment of rational approach techniques; anti-sense approach, use of micro and macro-arrays, cell culture based assays, use of concepts of systems biology and network physiology

-Brief introduction to the process of Drug development

12. Clinical research:

Introduction to Clinical Research Methodology identifying the priority areas of Ayurveda

Basic knowledge of the following:-

Observational and Interventional studies

Descriptive & Analytical studies

Longitudinal & Cross sectional studies

Prospective & Retrospectives studies

Cohort studies

Randomized Controlled Trials (RCT) & their types

Single-case design, case control studies, ethnographic studies, black box design, cross-over design, factorial design.

Errors and bias in research.

New concepts in clinical trial- Adaptive clinical trials/ Good clinical practices (GCP)

Phases of Clinical studies: 0,1,2,3, and 4.

Survey studies -

Methodology, types, utility and analysis of Qualitative Research methods. Concepts of in-depth interview and Focus Group Discussion.

13. Pharmacovigilance for ASU drugs. Need, scope and aims & objectives. National Pharmacovigilance Programme for ASU drugs.

14. Introduction to bioinformatics, scope of bioinformatics, role of computers in biology. Introduction to Data base- Pub med, Medlar and Scopus. Accession of databases.

15. Intellectual Property Rights- Different aspect and steps in patenting. Information on Traditional Knowledge Digital Library (TKDL).

PART-B

MEDICAL STATISTICS

1. Definition of Statistics : Concepts, relevance and general applications of Biostatistics in Ayurveda
2. Collection, classification, presentation, analysis and interpretation of data (Definition, utility and methods)
3. Scales of Measurements - nominal, ordinal, interval and ratio scales.
Types of variables – Continuous, discrete, dependent and independent variables.
Type of series – Simple, Continuous and Discrete
4. Measures of Central tendency – Mean, Median and Mode.
5. Variability: Types and measures of variability – Range, Quartile deviation, Percentile, Mean deviation and Standard deviation
5. Probability: Definitions, types and laws of probability,
6. Normal distribution: Concept and Properties, Sampling distribution, Standard Error, Confidence Interval and its application in interpretation of results and normal probability curve.
7. Fundamentals of testing of hypotheses:
Null and alternate hypotheses, type I and type 2 errors.

Tests of significance: Parametric and Non-Parametric tests, level of significance and power of the test, 'P' value and its interpretation, statistical significance and clinical significance

8. Univariate analysis of categorical data:

Confidence interval of incidence and prevalence, Odds ratio, relative risk and Risk difference, and their confidence intervals

9. Parametric tests: 'Z' test, Student's 't' test: paired and unpaired, 'F' test, Analysis of variance (ANOVA) test, repeated measures analysis of variance

10. Non parametric methods: Chi-square test, Fisher's exact test, McNemar's test, Wilcoxon test, Mann-Whitney U test, Kruskal – Wallis with relevant post hoc tests (Dunn)

11. Correlation and regression analysis:

Concept, properties, computation and applications of correlation, Simple linear correlation, Karl Pearson's correlation co-efficient, Spearman's rank correlation.

Regression- simple and multiple.

12. Sampling and Sample size computation for Ayurvedic research:

Population and sample. Advantages of sampling, Random (Probability) and non-random (Non-probability) sampling. Merits of random sampling. Random sampling methods- simple random, stratified, systematic, cluster and multiphase sampling. Concept, logic and requirement of sample size computation, computation of sample size for comparing two means, two proportions, estimating mean and proportions.

13. Vital statistics and Demography: computation and applications - Rate, Ratio, Proportion, Mortality and fertility rates, Attack rate and hospital-related statistics

14. Familiarization with the use of Statistical software like SPSS/Graph Pad

PRACTICAL

I. RESEARCH METHODOLOGY

PRACTICAL NAME

1. Pharmaceutical Chemistry

Familiarization and demonstration of common lab instruments for carrying out analysis as per API

2. Awareness of Chromatographic Techniques

Demonstration or Video clips of following:

Thin-layer chromatography (TLC).

Column chromatography (CC).

Flash chromatography (FC)

High-performance thin-layer chromatography (HPTLC)

High Performance (Pressure) Liquid Chromatography (HPLC)

Gas Chromatography (GC, GLC)

3. Pharmacognosy

Familiarization and Demonstration of different techniques related to:-

Drug administration techniques- oral and parenteral.

Blood collection by orbital plexuses puncturing.

Techniques of anesthesia and euthanasia.

Information about different types of laboratory animals used in experimental research

Drug identification as per API including organoleptic evaluation

4. Pharmacology and toxicology

Familiarization and demonstration of techniques related to pharmacology and toxicology

5. Biochemistry (Clinical)

Familiarization and demonstration of techniques related to basic instruments used in a clinical biochemistry laboratory – semi and fully automated clinical analyzers, electrolyte analyzer, ELISA- techniques, nephelometry.

Demonstration of blood sugar estimation, lipid profiles, kidney function test, liver function test. HbA1, cystatin and microalbumin estimation by nephelometry or other suitable techniques.

Interpretation of the results obtained in the light of the data on normal values.

6. Clinical Pathology

Familiarization and demonstration of techniques related to basic and advanced instruments used in a basic clinical

pathology lab. Auto cell counter, urine analyzer, ESR, microscopic examination of urine.

7. Imaging Sciences

Familiarization and demonstration of techniques related to the imaging techniques.

Video film demonstration of CT-Scan, MRI-scan and PET-scan.

8. Clinical protocol development

II. MEDICAL STATISTICS

Practical hours:20

Statistical exercise of examples from Topic number 4, 5, 8-12, 14, 15.

Records to be prepared.

Distribution of marks (practical):

Instrumental spotting test

– 20 marks

Clinical protocol writing exercise on a given problem

– 20 marks

Records:	
Research methodology	-10 Mark
Medical statistics	-10 marks
Viva- Voce	-40 Marks

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Drug Survey by Mayaram Uniyal

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Relevant portions of Ayurvedic Samhitas and other texts

Drug research and development:

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12- Jaju B.P.: Pharmacological Practical Exercise Book, Jaypee Brothers, New Delhi.

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Clinical Evaluation:

CDSCO, Good Clinical Practices For Clinical Research in India, Schedule Y (Amended Version – 2005), <http://cdsco.nic.in/html/GCP1.html>
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Suhaskumar Shetty- Medical statistics made easy

M.S.-AYURVEDA PRELIMINARY

16.SHALYA TANTRA – SAMANYA

General Surgery

PART A

Etymology and definition of Shalya Tantra.

Scope and importance of Shalya Tantra.

Study of Sushruta Samhita Sutra Sthana.

Study of modern surgical clinical methodology.

Applied anatomy, physiology and surgical pathology of common surgical conditions including relevant Ayurvedic aspect.

Applicability of Shat Kriyakala in the pathogenesis of surgical diseases.

Applicability of Prakriti in understanding the causes and role of treatment in surgical diseases.

Applicability of basic principles of Ayurveda in Rogi Pariksha (Trividha, Shadvidha, Ashtavidha and Dashavidha Pariksha) and latest investigations.

Concept of Rakta according to Sushruta.

Introduction of clinical and diagnostic methods in Shalya Tantra - X-rays, U.S.G., Endoscopies (for diagnostic and treatment purposes), MRI, CAT scanning and other recent diagnostic tools.

Concept and applicability of Sadhya-Asadhya (Prognosis) - Arishtha lakshana.

Knowledge of life saving drugs.

Emergency conditions and its management.

Diagnosis and management of Pranashtha Shalya.

PART B

Yantra and Shastra – Surgical Instruments - Ancient and recent advances.

Sterilization – methods and types.

Basic knowledge of Sangyahan – Anaesthesia - Types, methods, indications, contraindications, complications and its management.

Concept of Trividha Karma – Purva, Pradhana and Pashchat.

Ashtavidha Shastra Karmas.

Bandhana Karma – Ancient and recent advances.

Kshara Karma – Introduction, types, method of various preparations like Kshara, Kshara Varti, Kshara Pichu and applications.

Kshara Sutra – Method of preparation, standardization and applications.

Agnikarma – Introduction, types and applications.

Raktamokshana – Introduction, types and applications.

Application of Panchakarma therapy in surgical practice.

Scope of Pathya-Apathya in the management of surgical diseases.

PRACTICAL

Content:-

Hospital duties in OPD, IPD, OT and casualty

Case record – 25 cases

Surgical cases - observation/performing- 10 cases

Knowledge of instruments required in surgical practices.

Ayurvedic diagnostic and therapeutic procedures.

Fluid therapy and blood transfusion.

Contraception and sterilizations.

Pre-operative, operative and post operative procedures.

Distribution of marks (practical):

1. Case records of 25 Patients in detail	20 marks
2. Bedside clinical case taking-	
Long case	20 marks
Short case	10 marks
3. Identification of instruments, X-ray etc	15 marks
4. Medical procedures	15 marks
5. Viva voce	20 marks

REFERENCE BOOKS:-

Sushruta Samhita

Ashtanga Sangraha

Ashtanga Hridaya

Charaka Samhita

The Surgical instruments of the Hindus - Girindranath Mukhopadhyaya

Shalya Tantra Samuchchaya - Pandit Ramadesh Sharma

Shalya Vigyan (Part 1-2) - Dr. Surendra Kumar Sharma

Shalya Samanvaya (Part 1-2) - Vd. Anantaram Sharma

Shalya Pradeepika - Dr. Mukund Swaroop Verma

Soushruti - Dr. Ram Nath Dwivedi

Clinical Shalya Vigyan - Dr. Akhilanand Sharma

Bhagna Chikitsa - Dr. Prabhakar Janardhan Deshpande

Kshara sutra management in anorectal ailments - Dr. S.K. Sharma, Dr. K.R.Sharma
and Dr. Kulwant Singh.

Anorectal diseases in Ayurveda - Dr. Sizoria and Dr. Praveen Kumar Chowdary.

Adhunik Shalya Chikitsa Siddanta - Dr. Katil Narshingham Udupa

Agnikarma Technology Innovation - Dr. P.D. Gupta

Shalya Tantra Ke Siddhant - Dr. K.K.Takral
Recent advances in the management of
Arshas /Haemorrhoids - Dr. P. Hemantha Kumar

Arsha Evum Bhagander Mein sutra Avacharan- Vd. Kanak Prasad Vyas

Recent advances in Kshara Sutra - Dr. M. Bhaskar Rao
Leech application in Ayurveda - Dr. M. Bhaskar Rao
Kshara Sutra - Dr. S.N.Pathak
Shalya Shalakyta Tantra - Vd. S.G. Joshi
Surgical ethics of Ayurveda - Dr. D.N. Pande
Text book of Surgery - Sabistan
Operative Surgery - Rob and smith

Bailey and Love's Short Practice of Surgery - Norman.S. Williams, Charles.V.

Mann and R.C.G. Russell

Fractures and Joint Injuries - Watson-Jones
Text books of Operative Surgery - Farquharsons'
Principles of Surgery - Schwartz
Emergency Surgery -Hamilton Bailey's
Surgical pathology - Willing Worth
Clinical methods in surgery - S. Das
Textbook of Operative Surgery - S. Das
Shalya Vigyan (Sachitra) - Anantram Sharma
Anushastra Karma - Dr. D.N. Pande
Concept of Vrana is Ayurveda - Dr. Lakshman Singh
Significance for Poorva Karma in Surgical Patient - Dr. Lakshman Singh
Sangyahan Prakash - Dr. D.N. Pande
A concise Text Book of Surgery - S. Das
A manual on Clinical Surgery - S. Das

A System of Surgical Diagnosis	- T.N. Patel
A Practical Guide to Operative Surgery	- S. Das
Drugs and Equipment for Anaesthesia	- Arun kumar
Manual of Surgical Instruments	- M.M. Kapur
Ward Procedures	- Patel Mansukh. B
Recent trends in the management of Arshas / Haemorrhoids	- Dr. P. Hemantha Kumar
Primary Anaesthesia	- Maurice King
Synopsis of Anaesthesia	- Lee
Clinical Anatomy/ Surgical Anatomy	- John E.Skandalakis
Surgical Instruments of the Hindus	- Girindharnath Mukopadyay
Outline of Orthopedics	- John Crawford Adams and David Hamblen. L
Outline of Fracture	- John Crawford Adams
Recent trends in the management of Bhagandara / Fistula-in-ano	- Dr. P. Hemantha Kumar
Principles and Practice of Agnikarma	- Dr. Anand Kumar and Dr. Kanchan Shekokar.
Manipal Manual of Surgery	- Dr. Rajgopal Shenoy

M.S.-AYURVEDA PRELIMINARY

17.SHALYA - KSHARA KARMA AVUM ANUSHASTRA KARMA

(Para Surgical Procedure including Minimal invasive Surgery)

PAPER-II

PART A

1. Etymology and definition of Shalya Tantra.
2. Scope and Importance of Shalya Tantra.
3. Study of Sushrut Samhita Sutra Sthana 1- 46 chapters.
4. Study of modern surgical clinical methodology.
5. Applied anatomy, physiology and surgical pathology of common surgical conditions including relevant Ayurvedic aspect.
6. Applicability of Shat Kriyakala in the pathogenesis of surgical diseases.
7. Applicability of Prakriti in understanding the causes and role of treatment in surgical diseases.
8. Applicability of basic principles of Ayurveda in Rogi Pariksha (Trividha, Shadvidha, Ashtavidha and Dashavidha Pariksha) and latest investigations.
9. Concept of Rakta according to Sushruta.
10. Introduction of clinical and diagnostic methods in Shalya Tantra - X-rays, U.S.G., Endoscopies (for diagnostic and treatment purposes), MRI, CAT scanning and other recent diagnostic tools.
11. Concept and applicability of Sadhya-Asadhya- Prognosis – Arishtha Lakshana.
12. Knowledge of life saving drugs.
13. Emergency conditions and its management.
14. Diagnosis and management of Pranastha Shalya.

PART B

1. Yantra and Shastra – Surgical Instruments - Ancient and recent advances.
2. Sterilization – methods and types.
3. Basic knowledge of Sangyahn – Anaesthesia - Types, methods, indications, contraindications, complications and its management.
4. Concept of Trividha Karma – Purva, Pradhana and Pashchat.
5. Ashtavidha Shastra Karmas.
6. Bandhana Karma – Ancient and recent advances.

7. Kshara Karma – Introduction, types, method of various preparations like Kshara, Kshara Varti, Kshara Pichu and applications.
8. Kshara Sutra – Method of preparation, standardization and applications.
9. Agnikarma – Introduction, types and applications.
10. Raktamokshana – Introduction, types and applications.
11. Application of Panchakarma therapy in surgical practice.
12. Scope of Pathya-Apathya in the management of surgical diseases.

PRACTICAL

Content :-

Hospital duties in OPD, IPD, OT and casualty

Case record – 25 cases

Parasurgical cases - observation/performing- 10 cases

Knowledge of instruments required in parasurgical practices.

Ayurvedic diagnostic and therapeutic procedures.

Fluid therapy and blood transfusion.

Pre-operative, operative and post operative procedures.

Distribution of marks (practical):

- | | |
|--|----------|
| 1. Case records of 25 Patients in detail | 20 marks |
| 2. Bedside clinical case taking- | |
| Long case | 20 marks |
| Short case | 10 marks |
| 3. Identification of instruments, X-ray etc. | 15 marks |
| 4. Medical procedures | 15 marks |
| 5. Viva voce | 20 marks |

REFERENCE BOOKS :-

Sushruta Samhita	
Ashtanga Sangraha	
Ashtanga Hridaya	
Charaka Samhita	
The Surgical instruments of the Hindus	- Girindranath Mukhopadhyaya
Shalya Tantra Samuchchaya	- Pandit Ramadesh Sharma
Shalya Vigyan (Part 1-2)	- Dr. Surendra Kumar Sharma
Shalya Samanvaya (Part 1-2)	- Vd. Anantaram Sharma
Shalya Pradeepika	- Dr. Mukund Swaroop Verma
Soushruti	- Dr. Ram Nath Dwivedi
Clinical Shalya Vigyan	- Dr. Akhilanand Sharma
Bhagna Chikitsa	- Dr. Prabhakar Janardhan Deshpande
Kshara sutra management in anorectal ailments and Dr. Kulwant Singh.	- Dr. S.K. Sharma, Dr. K.R.Sharma
Anorectal diseases in Ayurveda	- Dr. Sizoria and Dr. Praveen Kumar Chowdary.
Adhunika Shalya Chikitsa Siddanta	- Dr. Katil Narshingham Udupa
Agnikarma Technology Innovation	- Dr. P.D. Gupta
Shalya Tantra Ke Siddhant	- Dr. K.K.Takral
Recent advances in the management of Arshas / Haemorrhoids	- Dr. P. Hemantha Kumar
Arsha Evum Bhagander Mein sutra Avacharan	- Vd. Kanak Prasad Vyas
Recent advances in Kshara Sutra	- Dr. M. Bhaskar Rao
Leech application in Ayurveda	- Dr. M. Bhaskar Rao
Kshara Sutra	- Dr. S.N.Pathak
Shalya Shalaky Tantra	- Vd. S.G. Joshi
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Emergency Surgery	-Hamilton Bailey's
Surgical pathology	- Willing Worth
Clinical methods in surgery	- S. Das
Textbook of Operative Surgery	- S. Das
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Anushastra Karma	- Dr. D.N. Pande
Concept of Vrana is Ayurveda	- Dr. Lakshman Singh
Significance for Poorva Karma in Surgical Patient	- Dr. Lakshman Singh
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A concise Text Book of Surgery	- S. Das
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A Practical Guide to Operative Surgery	- S. Das
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Manual of Surgical Instruments	- M.M. Kapur
Ward Procedures	- Patel Mansukh. B
Recent trends in the management of	- Dr. P. Hemantha Kumar
Arshas / Haemorrhoids	
Primary Anaesthesia	- Maurice King
Synopsis of Anaesthesia	- Lee
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Surgical Instruments of the Hindus	- Girindharnath Mukopadyay
Outline of Orthopedics	- John Crawford Adams and David
Hamblen. L	
Outline of Fracture	- John Crawford Adams
Recent trends in the management of	- Dr. P. Hemantha Kumar
Bhagandara / Fistula-in-ano	
Principles and Practice of Agnikarma	- Dr. Anand Kumar and

Dr. Kanchan Shekokar.

Manipal Manual of Surgery

- Dr. Rajgopal Shenoy

4. SHALYA TANTRA - SAMANYA

PAPER - I Shalya Siddhanta – Fundamentals of Surgery

1. Sushruta's contributions in surgical concepts and practices.
2. Knowledge of Dosha, Dhatu and Mala Vigyan and their importance in surgical diseases.
3. Significance and importance of Rakta as the Chaturth Dosha.
4. Yantras and Shastras – Surgical Instruments - Ancient and recent advances.
5. Trividha Karma – Purva, Pradhana and Pashchat Karma and its Importance.
6. Asepsis and Antisepsis.
7. Nirjantukarana – Sterilization – Various methods for surgical equipments, laparoscopes, linen and Operation theatre.
8. Surgical infections – Sepsis, Tetanus and Gas gangrene.
9. Care of patients suffering from Hepatitis, HIV-AIDS, STD and other associated infectious diseases.
10. Ashtavidha Shastra Karma – Critical knowledge and their application in surgical practice.
11. Suturing materials, appropriate use of sutures, drains, prosthetic, grafts and surgical implants.
12. Concept of Marma and their clinical application.
13. Shock - Its varieties and management.
14. Raktasrava / Haemorrhage – Types, Clinical features and Management.
15. Concept of Raktastambhana –Haemostasis.
16. Vranasopha – Inflammation and Vidradhi - Abscess
17. Granthi – Cyst and Arbuda – Benign and malignant Neoplasm – Concept of Oncogenesis and genetics of cancer.
18. Gulma and Udara Roga.
19. Kshudra Roga.
20. Fluid, electrolyte, Acid Base Balance and Nutrition
 - i. Introduction of physiology of fluids and electrolytes.
 - ii. Dehydration and over hydration.

- iii. Specific electrolyte loss, Acidosis, Alkalosis, Symptomatology and Management.
- iv. Electrolyte changes in specific surgical conditions and their management.
- v. Plasma volume expanders and their use in surgical condition.
- vi. Various replacement fluids in surgery, mode of administration and complications.
- vii. Nutrition – Indications, types, mode of administration and complications.
- 21. Blood Transfusion – Blood groups, compatibility, Indications, Contraindications and complications with management.
- 22. Knowledge of antibiotics, analgesics, anti-inflammatory and emergency drugs in surgical practice.

PAPER – II Vishishta Shalya Vigyana - Shalya Tantra Speciality

1. Yogya Vidhi - Practical and Experimental training
 - i. Practice of surgical procedures on different models.
 - ii. Training of Laproscopic and Endoscopic procedures.
2. Vrana – Wound management
 - i. Management of Nija Vrana, Agantuja Vrana, Dushta Vrana and Nadi Vrana.
 - ii. Vrana Chikitsa – Shasti upakramas, Pathya-apathya .
 - iii. Types and Management of Dagdha Vrana - Burns and scalds.
 - iv. Infection of hands and foot, Diabetic wound, Prameha Pidaka – Diabetic carbuncle and its management.
 - v. Management of Pressure ulcers, Venous ulcers and other chronic non-healing ulcers.
 - vi. Gangrene and its management.
3. Mutra Roga – Urological diseases.
 - i. Anatomical and physiological knowledge of kidney, ureter, urinary bladder, prostate, seminal vesicles, urethra and penis.
 - ii. Investigations of Mutravaha Srotas – Urinary tract.
 - iii. Aetiopathogenesis and surgical procedures of Ashmari – Urinary stone diseases.
 - iv. Kidney and ureter – Clinical presentation, Investigations and Management of Congenital anomalies, Trauma, Infection, Neoplasm, Hydronephrosis,

Hydroureter and Haematuria.

v. Urinary bladder - Clinical presentation, Investigations and Management of

Congenital anomalies, Trauma, Infection, Neoplasm, Diverticulum, Vesicovaginal fistula, Atony, Schistosomiasis, Urinary diversions, Retention of urine

– Mutraghata and Mutrakruccha.

vi. Urethra - Clinical presentation, Investigations and Management of Congenital

anomalies – Hypospadias, Epispadias, Posterior urethral valve, Trauma,

Infection, and Neoplasm.

vii. Prostate and seminal vesicles – Benign and malignant enlargement of

prostate, Prostatitis, Prostatic abscess and Calculi.

viii. Penis – Clinical presentation, Investigations and Management of Congenital

anomalies , Trauma, Infection, Phimosis, Paraphimosis, Peyronie’s disease

and Neoplasm.

ix. Testis and scrotum - Clinical presentation, Investigations and Management

of Congenital anomalies, Ectopic testis, Trauma, Infection, Neoplasm,

Testicular torsion, Hydrocele, Varicocele, Spematocele, Chylocele, Pyocele,

Haematocele, Epididymal cyst and Fournier’s gangrene.

x. Renal failure – Causes, Diagnosis, Investigations and Management.

4. Asthi roga and Marma Chikitsa - Orthopaedics

i. Anatomy and physiology of bone.

ii. Diseases of Asthi / Bone and Sandhi / Joints – Congenital, Degenerative,

Infective, Metabolic and Neoplastic Disorders of Bones and Joints.

iii. Aetiopathogenesis, treatment along with surgical procedures of

Bhagna - Fracture, Sandimoksha - Dislocation and bone grafting.

iv. Diseases of Spine, vertebral column and spinal cord.

PAPER – III Adhunik Shalya Karma - Modern surgery

1. Fundamentals of modern surgery and treatment of surgical disorders including surgical anatomy, physiology and pathology.

2. Diagnosis and Surgical treatment of head and spine injury, thoracic trauma and abdominal trauma. Blast injuries and Management

3. Diagnosis and Surgical management of neck disorders e.g. salivary glands, thyroid,

Thyroglossal cyst and Fistula, Branchial cyst and fistula, Cystic hygroma and Lymphadenopathies.

4. Diagnosis and Surgical management of breast diseases, Benign and Malignant breast tumours.

5. Diagnosis and Surgical measures of diseases of Gastrointestinal system -

i. Oral cavity - Oral ulcers, Oral cancer, Precancerous conditions, Submucosal fibrosis, Leukoplakia, Cleft lip and palate, Lip tumours, Mucosal cyst, Nasopharyngeal cancer, Tongue ulcer and cancer.

ii. Oesophagus - Oesophageal varices, Dysphagia, Neoplasm, Strictures and Gastro oesophageal reflux.

iii. Stomach and duodenum –Congenital anomalies, Injuries, Inflammation, Ulcer, Neoplasm, Pyloric stenosis, Acute dilatation ,Hiatus hernia and Foreign bodies.

iv. Pancreas - Congenital anomalies, Acute and Chronic pancreatitis, Calculi Neoplasm and Cysts of pancreas.

v. Peritoneum, Omentum, Mesentery, Retroperitoneal Space – Peritonitis, Abscess, Neoplasm, Mesenteric cyst, Torsion of mesentery, Vascular thrombosis, Retroperitoneal cyst and Fibrosis.

vi. Abdominal mass - Diagnosis and Management.

vii. Small intestine - Congenital anomalies, Inflammation, Ulcer, Neoplasm, Stenosis, Injuries, Foreign bodies, Diverticuli, Peutz-jeghers syndrome, Chron's disease, Carcinoid tumours, Enteric perforation and Intestinal fistula.

viii. Large intestine - Congenital anomalies, Inflammation, Ulcer, Neoplasm, Stenosis, Injuries, Foreign bodies, Diverticuli, Faecal fistula, Amoebiasis and Familial polyposis coli.

ix. Caecum and Vermiform appendix- Appendicitis, Appendicular abscess, Appendicular mass, Perforation, Carcinoid Tumor and other Neoplasm.

x. Gastrointestinal bleeding – Haemetemesis, Malaena, Haemobilia, Bleeding per anum - Causes, Diagnosis and Management.

xi. Rectum and anal canal - Diagnosis and Surgical management of Congenital Anomalies, Inflammation, Ulcer, Neoplasm, Stenosis, Prolapse, Haemorrhoids,

Fistula-in-ano, Fissure-in-ano, Anorectal Abscess, Incontinence, Injuries, Foreign bodies, Sacrococcygeal Teratomas and Pilonidal sinus .

6. Umbilicus and abdominal wall – Congenital anomalies, Umbilical infections, Sinus, Neoplasm, Abdominal dehiscence, Divarication of recti, Desmoid tumor and Melaney's gangrene.

7. Diagnosis and surgical measures of diseases of Hepatobiliary system -

i. Liver – Abscess, Cyst - Hydatid cyst, Primary and Secondary malignant tumours, Portal Hypertension and Budd-Chiari Syndrome.

ii. Gall bladder and Bile duct - Congenital anomalies, Acute and Chronic Cholecystitis, Cholelithiasis, Neoplasm, Cholangitis, Stenosis, Choledocholithiasis, Choledochal cyst and Cholangiocarcinoma.

iii. Spleen – Splenomegaly and Splenic Injury.

8. Diagnosis and surgical measures for disorders of Artery, Vein, Ligaments, Muscles and Tendons.

9. Diagnosis and surgical management of Hernias – Inguinal, Femoral, Umbilical, Incisional, Abdominal wall and other hernias.

10. Endoscopic procedures - Oesophagogastroduodenoscopy, Sigmoidoscopy and Colonoscopy.

11. Diagnostic and therapeutic laparoscopy.

12. Anaesthesia - Definition, Types, Anesthetic agents, Indications, Contraindications, Procedures, Complications and management.

PAPER –IV Shalya Vangmaya – Shalya literature, Research and Development

1. Thorough study of the Sushruta Samhita including other relevant portions of Brihatrayee and Laghutrayee.

2. Knowledge and importance of Surgical Audit.

3. Medico legal issues – Understanding the implications of acts of omission and commission in practice. Issues regarding Consumer Protection Act, medical profession, national health policy - Implications in a medico-legal case like accidents, assaults etc.

4. Surgical ethics including Informed consent.

5. Knowledge of different type of experimental Surgical Model for Research in Surgery.

6. Sandhana Karma – Plastic reconstructive and cosmetic surgery.

Fundamentals of Sandhana Karma –

- i. Karna Sandhana – Auroplasty
- ii. Nasa Sandhana – Rhinoplasty
- iii. Ostasandhana – Cheiloplasty
- iv. Grafts and Flaps – Techniques and applications.
- v. Vascular anastomosis and grafts.

7. Anushalya Karma – Parasurgical procedures

- i. Kshara Karma, Kshara Sutra, Agnikarma and Raktamoskhana.

Pattern of Practical examination 100 Marks

1. Case record (25) -10 Marks
2. Short case -10 Marks
3. Long case -20 Marks
4. Identification of specimen / radiograph and Instruments -20 Marks
5. Thesis Presentation - 20 Marks
6. Viva-voce -20 Marks

Reference Books

1. Sushruta Samhita
2. Ashtanga Sangraha
3. Ashtanga Hridaya
4. Charaka Samhita
5. The Surgical instruments of the Hindus - Girindranath Mukhopadhyaya
6. Shalya Tantra Samuchchaya - Pandit Ramadesh Sharma
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10. Sushruti - Dr. Ram Nath Dwivedi
11. Clinical Shalya Vigyan - Dr. Akhilanand Sharma
12. Bhagna Chikitsa - Dr. Prabhakar Janardhan
Deshpande

- 13.Kshara sutra management in anorectal ailments - Dr. S.K. Sharma, Dr. K.R.Sharma and Dr. Kulwant Singh.
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- 15.Adhunika Shalya Chikitsa Siddanta - Dr. Katil Narshingham Udupa
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- 20.Recent advances in Kshara Sutra - Dr. M. Bhaskar Rao
- 21.Leech application in Ayurveda - Dr. M. Bhaskar Rao
- 22.Kshara Sutra - Dr. S.N.Pathak
- 23.Shalya Shalakya Tantra - Vd. S.G. Joshi
- 24.Surgical ethics of Ayurveda - Dr. D.N. Pande
- 25.Text book of Surgery - Sabistan
- 26.Operative Surgery – Rob and smith
- 27.Bailey and Love’s Short Practice of Surgery - Norman.S. Williams, Charles.V. Mann and R.C.G. Russell
- 28.Fractures and Joint Injuries - Watson-Jones
- 29.Text books of Operative Surgery - Farquharsons’
- 30.Principles of Surgery - Schwartz
- 31.Emergency Surgery -Hamilton Bailey’s
- 32.Surgical pathology - Willing Worth
- 33.Clinical methods in surgery - S. Das
- 34.Textbook of Operative Surgery - S. Das
- 35.Shalya Vigyan (Sachitra) - Anantram Sharma
- 36.Anushastra Karma - Dr. D.N. Pande
- 37.Concept of Vrana is Ayurveda - Dr. Lakshman Singh
- 38.Significance for Poorva Karma in Surgical Patient - Dr. Lakshman Singh

- 39.Sangyahan Prakash - Dr. D.N. Pande
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- 43.A Practical Guide to Operative Surgery - S. Das
- 44.Drugs and Equipment for Anaesthesia - Arun kumar
- 45.Manual of Surgical Instruments - M.M. Kapur
- 46.Ward Procedures - Patel Mansukh. B
- 47.Recent trends in the management of Arshas / Haemorrhoids - Dr. P. Hemantha
Kumar
- 48.Primary Anaesthesia - Maurice King
- 49.Synopsis of Anaesthesia - Lee
- 50.Clinical Anatomy/ Surgical Anatomy - John E.Skandalakis
- 51.Surgical Instruments of the Hindus - Girindharnath Mukopadyay
- 52.Outline of Orthopedics - John Crawford Adams and David
Hamblen. L
- 53.Outline of Fracture - John Crawford Adams
- 54.Recent trends in the management of Bhagandara / Fistula-in-ano - Dr. P. Hemantha
Kumar
- 55.Principles and Practice of Agnikarma - Dr. Anand Kumar and Dr.
Kanchan Shekokar.
- 56.Manipal Manual of Surgery - Dr. Rajgopal Shenoy

15. SHALYA – KSHARA EVUM ANUSHASTRA KARMA

PAPER - I Shalya Siddhanta – Fundamentals of Surgery 100 Marks

1 Sushruta’s contributions in surgical concepts and practices.

2 Knowledge of Dosha, Dhatu and Mala Vigyan and their importance in surgical diseases.

3 Significance and importance of Rakta as the Chaturth Dosha.

4 Yantras and Shastras – Surgical Instruments - Ancient and recent advances.

- 5 Trividha Karma – Purva, Pradhana and Pashchat Karma and its Importance.
- 6 Asepsis and Antisepsis.
- 7 Nirjantukarana – Sterilization – Various methods for surgical equipments, laparoscopes, linen and Operation theatre.
- 8 Surgical infections – Sepsis, Tetanus and Gas gangrene.
- 9 Care of patients suffering from Hepatitis, HIV-AIDS, STD and other associated infectious diseases.
- 10 Ashtavidha Shastra Karma – Critical knowledge and their application in surgical practice.
- 11 Suturing materials, appropriate use of sutures, drains, prosthetic, grafts and surgical implants.
- 12 Concept of Marma and their clinical application.
- 13 Shock - Its varieties and management.
- 14 Raktasrava / Haemorrhage – Types, Clinical features and Management.
- 15 Concept of Raktastambhana –Haemostasis.
- 16 Vranasopha – Inflammation and Vidradhi - Abscess
- 17 Granthi – Cyst and Arbuda – Benign and malignant Neoplasm – Concept of Oncogenesis and genetics of cancer.
- 18 Gulma and Udara Roga.
- 19 Kshudra Roga.
- 20 Fluid, electrolyte, Acid Base Balance and Nutrition
 - a. Introduction of physiology of fluids and electrolytes.
 - b. Dehydration and over hydration.
 - c. Specific electrolyte loss, Acidosis, Alkalosis, Symptomatology and Management.
 - d. Electrolyte changes in specific surgical conditions and their management.
 - e. Plasma volume expanders and their use in surgical condition.
 - f. Various replacement fluids in surgery, mode of administration and complications.
 - g. Nutrition – Indications, types, mode of administration and complications.
- 21 Blood Transfusion – Blood groups, compatibility, Indications, Contraindications and complications with management.
- 22 Knowledge of antibiotics, analgesics, anti-inflammatory and emergency drugs in

surgical practice.

PAPER – II Vishista Anushastra Karma 100 Marks

1. Kshara Karma and Prayoga – Therapeutic Chemical Cauterization.

i. Introduction of different types of Kshara, Method of preparation, Standardization, pH value, Application, Complications and its management.

ii. Surgical Anatomy and Physiology of Anus and Rectum.

iii. Arshas - Nidana, Purvarooopa, Roopa, Samprapti, Prakara and Chikitsa.

iv. Haemorrhoids - Aetio-pathogenesis, types and its surgical management.

v. Knowledge of different methods of treating Haemorrhoids - Rubber band ligation, D.G.H.A.L, Radiofrequency, Ablation, Cryo-surgery, Cautery, Laser, Infrared coagulation and other advanced techniques.

vi. Bhagandara - Nidana, Samprapti, Prakara, Doshanusarachikitsa, Knowledge and application of Kshara Sutra.

vii. Fistula-in-ano - Definition, Aetio-Pathogenesis, Types, Diagnostic methods and its Surgical, Para Surgical Management including knowledge of Fibrin Glue, Advanced Flap Therapies and other recent techniques.

viii. Parikartika - Nidana, Samprapti and its Chikitsa.

ix. Fissure-in-ano - Aetio-pathogenesis, types and its surgical management.

x. Sannirudhaguda and its Chikitsa.

xi. Anal Stenosis - Aetio-pathogenesis and its surgical management.

xii. Gudavidradhi - Nidana, Purvarooopa, Roopa, Samprapti, Prakara and its Chikitsa.

xiii. Anorectal abscesses – Aetio- pathogenesis, types, complications and its surgical management.

xiv. Gudagatashalya – Diagnosis and its Management.

xv. Foreign body in rectum and anal canal - Method of diagnosis and its management.

xvi. Congenital Anorectal disorders and its surgical management.

xvii. Gudaarbuda and Granthi and its Chikitsa.

xviii. Anorectaltumour - Types and its surgical management.

2. Agnikarma – Therapeutic cauterization

i. Introduction, definition and importance of Agnikarma.

ii. Agnikarma - Poorva, Pradhana and Paschat karma, various substances and Shalakas

used for Agnikarma and their indications, contra-indications and complications.

iii. Diagnosis and management of Oil burn, Dhumopaghata, Ushnavata, Sunburn, Frost bite and Electric burn.

iv. Knowledge of modern thermal equipment - Diathermy, Laser therapy, microwave, Ultracission technique, Cryo Technique and its uses.

v. Effect of Agnikarma on skin, muscle tissue, nerves, metabolism, blood circulation and infective lesions.

3. Raktamokshana – Bloodletting Procedures

i. Introduction and importance of Raktamokshana.

ii. Indication and contraindication of Raktamokshana.

iii. Justification of usage of different types of Raktamokshana in various therapeutic applications.

iv. Different types of Raktamokshana – Sastrakritha - Siravyadhana, Prachana and Asastrakritha - Shringa, Jaluka, Alabu and Ghati.

v. Jalauka - Nirukti, Paryaya, Bhedha, Sangrahana, Samrakshana, Jalaukavacharana Vidhi - Poorva, Pradhana and Paschat karma.

vi. Knowledge of Leeches - Morphology, Anatomy, Physiology, Bio-chemical effects of its various constituents present in its saliva.

vii. Rakta- Importance, Formation, Panchabhoutikatva, RaktaSthana, Guna, Prakurta Karma and Rakta Sara Purashalakshanas. Suddha and Dushta Rakta Lakshanas. Rakta Pradoshaja Vyadhis.

PAPER – III Adhunik Shastra Karma - Modern Surgery 100 Marks

1. Fundamentals of modern surgery and treatment of surgical disorders including surgical anatomy, physiology and pathology.

2. Diagnosis and surgical measures for disorders of vein, artery, ligaments, joints and muscles.

3. Diagnosis and Surgical management of neck disorders e.g. salivary glands, thyroid tumours, etc.

4. Diagnosis and Surgical management of breast diseases.

5. Diagnosis and surgical management of traumatic disorders - Head injury, thoracic and abdominal trauma.

6. Diagnosis and surgical management of diseases of Gastrointestinal system- stomach, pancreas, peritoneum, omentum, mesentery, retroperitoneal space, small intestine, large intestine and vermiform appendix.
7. Diagnosis and surgical management of Proctological disorders.
8. Diagnosis and surgical measures of diseases of Hepatobiliary system - Liver, gall bladder, bile ducts and spleen.
9. Diagnosis and surgical management of diseases of Urogenital system.
10. Diagnosis and surgical management of diseases of scrotum and testis. – Hydrocele, Ectopic testis and Undescended testis.
11. Diagnosis and surgical management of Hernias – Inguinal, femoral, umbilical, incisional, abdominal wall and other hernias.
12. Endoscopic procedures – Oesophagogastroduodenoscopy, Sigmoidoscopy and Colonoscopy.
13. Diagnostic and therapeutic laparoscopy.
14. Anaesthesia - Definition, Types, Anaesthetic agents, Indications, Contraindications, Procedures, Complications and Management.

PAPER – IV ShalyaVangmaya 100 Marks

1. Thorough study of the Sushruta Samhita including other relevant portions of Brihatrayee and Laghutrayee.
2. Knowledge and importance of Surgical Audit.
3. Value of research and teaching in surgery.
4. Medico legal issues - Understanding the implications of acts of omission and commission in practice. Issues regarding Consumer Protection Act, medical profession, national health policy - Implications in a medico-legal case like accidents, assaults etc.
5. Surgical ethics including Informed consent.
6. Knowledge of different type of experimental Surgical Model for Research in Surgery.

Pattern of Practical examination 100 Marks

7. Case record (25) -10 Marks
8. Short case -10 Marks
9. Long case -20 Marks

10. Identification of specimen / radiograph and Instruments -20 Marks

11.Thesis Presentation -20 Marks

12.Viva-voce -20 Marks

Reference Books

57.Sushruta Samhita

58.Ashtanga Sangraha

59.Ashtanga Hridaya

60.Charaka Samhita

61.The Surgical instruments of the Hindus - Girindranath Mukhopadhyaya

62.Shalya Tantra Samuchchaya - Pandit Ramadesh Sharma

63.Shalya Vigyan (Part 1-2) - Dr. Surendra Kumar Sharma

64.Shalya Samanvaya (Part 1-2) - Vd. Anantaram Sharma

65.Shalya Pradeepika - Dr. Mukund Swaroop Verma

66.Soushruti - Dr. Ram Nath Dwivedi

67.Clinical Shalya Vigyan - Dr. Akhilanand Sharma

68.Bhagna Chikitsa - Dr. Prabhakar Janardhan

Deshpande

69.Kshara sutra management in anorectal ailments - Dr. S.K. Sharma, Dr. K.R.Sharma
and Dr. Kulwant Singh.

70.Anorectal diseases in Ayurveda - Dr. Sizoria and Dr. Praveen
Kumar Chowdary.

71.Adhunika Shalya Chikitsa Siddanta - Dr. Katil Narshingham Udupa

72.Agnikarma Technology Innovation - Dr. P.D. Gupta

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74.Recent advances in the management of - Dr. P. Hemantha Kumar
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75.Arsha Evum Bhagander Mein sutra Avacharan - Vd. Kanak Prasad Vyas

76.Recent advances in Kshara Sutra - Dr. M. Bhaskar Rao

77.Leech application in Ayurveda - Dr. M. Bhaskar Rao

78.Kshara Sutra - Dr. S.N.Pathak

79.Shalya Shalakya Tantra - Vd. S.G. Joshi

- 80.Surgical ethics of Ayurveda - Dr. D.N. Pande
- 81.Text book of Surgery - Sabistan
- 82.Operative Surgery - Rob and smith
- 83.Bailey and Love's Short Practice of Surgery - Norman.S. Williams, Charles.V. Mann and R.C.G. Russell
- 84.Fractures and Joint Injuries - Watson-Jones
- 85.Text books of Operative Surgery - Farquharsons'
- 86.Principles of Surgery - Schwartz
- 87.Emergency Surgery -Hamilton Bailey's
- 88.Surgical pathology - Willing Worth
- 89.Clinical methods in surgery - S. Das
- 90.Textbook of Operative Surgery - S. Das
- 91.Shalya Vigyan (Sachitra) - Anantram Sharma
- 92.Anushastra Karma - Dr. D.N. Pande
- 93.Concept of Vrana is Ayurveda - Dr. Lakshman Singh
- 94.Significance for Poorva Karma in Surgical Patient - Dr. Lakshman Singh
- 95.Sangyahan Prakash - Dr. D.N. Pande
- 96.A concise Text Book of Surgery - S. Das
- 97.A manual on Clinical Surgery - S. Das
- 98.A System of Surgical Diagnosis - T.N. Patel
- 99.A Practical Guide to Operative Surgery - S. Das
100. Drugs and Equipment for Anaesthesia - Arun kumar
101. Manual of Surgical Instruments - M.M. Kapur
102. Ward Procedures - Patel Mansukh. B
103. Recent trends in the management of - Dr. P. Hemantha Kumar
Arshas / Haemorrhoids
104. Primary Anaesthesia - Maurice King
105. Synopsis of Anaesthesia - Lee
106. Clinical Anatomy/ Surgical Anatomy - John E.Skandalakis
107. Surgical Instruments of the Hindus - Girindharnath Mukopadyay
108. Outline of Orthopedics - John Crawford Adams and David

Hamblen. L

109. Outline of Fracture - John Crawford Adams

110. Recent trends in the management of - Dr. P. Hemantha Kumar
Bhagandara / Fistula-in-ano

111. Principles and Practice of Agnikarma - Dr. Anand Kumar and
Dr. Kanchan Shekokar.

112. Manipal Manual of Surgery - Dr. Rajgopal Shenoy

COURSE OUTCOME

CO1: The students could be able to know the contribution of Sushruta to the field of surgery

CO2: knowledge of surgical skill on both system of medicine, modern surgical technique and ayurvedic methods of surgery along with the conservative management will be practiced by the students

CO3: students will be able to perform all para surgical techniques of ayurveda along with they will be able to accuare the knowledge of its management.

CO4: knowledge of anesthesia its use misuse complications, use of antibiotics its adverse effect and juridicious administration of scheduled H drugs.

CO5: surgical ethics, audit and the legal aspects of surgical practice.

EVALUATION SCHEME

(1) The post-graduate degree course shall have two examinations in the following manner, namely:-

(a) the preliminary examination shall be conducted at the end of one academic year after admission;

(b) the final examination shall be conducted on completion of three academic years after the admission to postgraduate course;

(c) examination shall ordinarily be held in the month of June or July and November or December every year;

(d) for being declared successful in the examination, student shall have to pass all the subjects separately in Preliminary examination;

(e) the student shall be required to obtain minimum fifty per cent. marks in practical and theory subjects separately to be announced as pass;

(f) if a student fails in preliminary examination, he shall have to pass before appearing in the final examination;

(g) if the student fails in theory or practical in the final examination, he can appear in the subsequent examination without requiring to submit a fresh dissertation;

(h) the subsequent examination for failed candidates shall be conducted at every six months interval; and

(i) the post-graduate degree shall be conferred after the dissertation is accepted and the student passes the final examination.

(2) The examination shall be aimed to test the clinical acumen, ability and working knowledge of the student in the practical aspect of the specialty and his fitness to work independently as a specialist.

(3) The clinical examination shall be judge the competence of the student in Ayurveda and scientific literature of the specialty.

(4) The viva-voce part of the practical examination shall involve extensive discussion on any aspect of subject or specialty.