AMRITA VISHWA VIDYAPEETHAM

AYURVEDA DHANWANTHARI

MS (AYU) SHALAKYA –SAMANYA

FACULTY OF MEDICAL SCIENCES

Table of Contents

Programme Outcomes

P01- Ability to identify a disease.

P02- To develop skills to communicate effectively with the patients.

P03- To develop the ability to plan appropriate treatment for the patient.

P04- To become aware of the Ethics of medical practice towards the patients and colleagues.

P05- To become competent to order appropriate investigative methods judiciously.

P06- To develop an attitude of self-directed and lifelong learning.

P07- To develop the ability to use different formulations available in the market and also to formulate various new combinations of medicines/ drugs according to the need of the patient.

P08- To get an in depth knowledge about the literature available about Shalakya Tantra.

Programme Specific Outcomes

PS01- Competency to collect detailed history, perform physical examination and make clinical diagnosis.

PS02- Competency to perform relevant investigative and diagnostic procedures and interpret them to reach a final diagnosis.

PS03- Ability to develop a comprehensive treatment plan for the patient, involving both Panchakrma procedures and Kriya kalpas.

PS04- Ability to recognize conditions that may be outside the area of the speciality/ competence and refer them to an appropriate specialist.

PS05- Ability to document case details and become competent in basic concepts of research methodology.

PS06- To develop communication skills to explain the management and prognosis of a disease to the patient and relatives.

CURRICULUM STRUCTURE: 3years

First year courses

Course code with name

1	Research Methodology & Biostatistics
2.20	Shalakya Netraroga

Second and third year courses

2.20.1	Netra roga samanya
2.20.2	Shiro-nasa-karna and kantharogas
2.20.3	Mukha danta roga
2.20.4	Vishishta chikitsa vigyan

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 koshtha.

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, Kruskall – 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

REFERENCE BOOKS:-

Pharmacognosy:

Aushotosh Kar “Pharmacognosy & Pharmacobiotechnology” New Age International Publisher. Latest Edition. New Delhi.

Drug Survey by Mayaram Uniyal

Fahn A (1981). Plant Anatomy 3rd Edition Pergamon Press, Oxford

Kokate, CK., Purohit, AP, Gokhale, SB (2010). Pharmacognosy. Nirali Prakashan. Pune.

Kokate, CK., Khandelwal and Gokhale, SB (1996). Practical Pharmacognosy. Nirali Prakashan. Pune.

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Wallis- TE (2011)- reprint. Practical Pharmacgonosy (Fourth Edition) Pharma Med Press, Hyderabad.

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Pharmaceutical chemistry, quality control and drug standardization:

Ayurvedic Pharmacopoeia of India. Part I- volume 1 to 8 and Part II- volume 1to 3. Ministry of Health and Family Welfare. Controller of Publication. Govt of India. New Delhi.

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HPTLC- Fingerprint atlas of Ayurvedic Single Plant Drugs mentioned in Ayurvedic Pharmacopoeia Vol-III and IV. CENTRAL COUNCIL FOR RESEARCH IN AYURVEDA AND SIDDHA. New Delhi.

Kapoor, RC (2010). Some observations on the metal based preparations in Indian System of Medicine. Indian Journal of Traditional Knwoledge. 9(3): 562-575

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Laboratory Guide for- The Analysis of Ayurved and Siddha Formulations – CCRAS, New Delhi.

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Srivastav VK and Shrivastav KK. Introduction to Chromatography (Theory and Practice)

Stahl E., Thin Layer Chromatography - A Laboratory Handbook, Springer Verlag, Berlin.

Sukhdev Swami Handa, Suman Preet Singh Khanuja, Gennaro Longo and Dev Dutt Rakesh (2008). Extraction Technologies for Medicinal and Aromatic Plants -INTERNATIONAL CENTRE FOR SCIENCE AND HIGH TECHNOLOGY- Trieste,

Biochemistry and Laboratory techniques:

Asokan P. (2003) Analytical Biochemistry, China publications,

Campbell, P.N and A.D .Smith, Biochemistry Illustrated, 4th ed, Churchill Livingstone.

David Frifelder. W. H. Freeman. (1982). Physical Biochemistry by; 2 edition

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Harold Varley. Practical Clinical Bio-chemistry

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GradWohl, Clinical Laboratory-methods and diagnosis, Vol-I

Clinical Biochemistry -Sabitri Sanyal, Clinical Pathology, B.I.Churchill Livingstone (P) Ltd, New Delhi.2000.

Satyanarayanan,U. Essentials of Biochemistry, Books and allied(P) Ltd.2002

Zubay, G.L. Biochemistry, W.M.C. Brown Publishers, New York 1998.

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Petter Laake, Haakon Breien Benestad and Bjørn Reino Olsen. (2007). Research Methodology in the Medical and Biological sciences. Academic Press is an imprint of Elsevier, 84 Theobald's Road, London WC1X 8RR, UK. ISBN: 978-0-12-373874-5

Relevant portions of Ayurvedic Samhitas and other texts

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Research guidelines for evaluating the safety and efficacy of herbal medicines. (1993). . WHO- (Regional Office for the Western Pacific – Manila) ISBN 92 9061 110 3 (NLM Classification: WB 925).

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

13- Kulkarni S.K.: Hand Book of Experimental Pharmacology, Vallabh Prakashan, New Delhi

14- Ravindran R.: X-Pharm (Software), Indian Journal of Pharmacology, JIPMER, Pondicherry.

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Mehdi, B and Prakash A. (2010). Biostatistics in Pharmacology. Practical Manual in experimental and clinical pharmacology. 1st Edition. New-Delhi: Jaypee brothers Medical Publishers

Rao, NSN and Murthy, NS. (2008) 2nd Edition. Applied statistics in health sciences. Jaypee Brothers Medical Publishers (P) Ltd. Bengaluru, New Delhi.

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Suhas Kumar Shetty- Medical statistics made easy

M.S.-AYURVEDA PRELIMINARY

20. SHALAKYA - NETRA ROGA

(Ophthalmology)

PART-A

Shalakya Tantra Parichaya, Itihas and Pradhanyam.

Netra Sharir and related Marmas

Study of Dosha, Dhatu, Mala and Srotas in context to Netra chikitsa.

Updated knowledge of Agropaharaniya in Netra chikitsa- incorporating sterilization, Sangyaharana (Anaesthesia).

Basic pharmacology of common drugs required in ocular diagnostic and therapeutic procedures.

Vrana Siddhanta-Trividha Shopha, Shuddha-Ashuddha Vrana, Vrana Srava, Vrana Bandha, Vranitopasana in context to Netra chikitsa.

Swasthavritta related to Netra.

Chaturvidha Chikitsa Siddhanta and Raktamokshana in Netra chikitsa.

Applied knowledge of various Kriyakalpas and other therapeutic procedures related to Netra chikitsa.

Role of Panchkarma in Netra chikitsa.

Netra Chikitsa Upayogi Vishishta Yoganam, Guna, Karma prayog gyanam of most common classical Yogas.

PART-B

Applied anatomy and physiology of eye, its adnexa and visual pathway.

Clinical methods of eye examination.

Application of various aids and techniques in the examination of eye viz Tonometry, direct Ophthalmoscopy, Perimetry, Refraction and Slit Lamp examination with their interpretation.

Fundamentals of optics and refraction.

Applied aspects of Aetio-Pathogenesis, clinical features, prognostic and therapeutic principles in Netra Roga Chikitsa along with Pathya-Apathya and their contemporary knowledge.

Common ocular emergencies and their management.

Applied aspects of Yantra and Shastra in Netra Chikitsa along with modern ophthalmic surgical instruments and equipments.

Knowledge of rules, regulations and medico legal aspects of ophthalmic practice including eye donation, eye banking and corneal grafting.

Knowledge of handling of biomedical waste.

PRACTICAL

Contents:

Clinical posting in OPD/IPD/Kriyakalpa Kaksha & OT

Clinical case presentation (10 cases)

Case record (20 cases)

Hands on training in Kriyakalpa

Distribution of marks (practical):

Case Record - 20 Marks

Bed side examination

Long case - 20 Marks

Short case - 10 Marks

Kriyakalpa procedure - 15 Marks

Identification of specimens and Instruments - 15 Marks

Viva-voce - 20 Marks

REFERENCE BOOKS:-

1 Charka Samhita with commentaries

2 Sushrut Samhita and vaghbhata with commentaries

3 Astanga hridaya and Astanga sangraha with commentaries

4 Madhava nidan with commentaries

5 Bhavaprakasha with commentaries

6 Sarangadhara Samhita with commentaries

7 Sahstrayoga Sangraha

8 Relevent part of Chakradhatta, Bhel Samhita, Harita Samhita

9 Shalakya Tantra - Ramanath Dwivedi

10 Shalakya Tantra - R.C. Chaudhary

11 The Actions and uses of Indigenous Ophthalmic Drugs - N.Srikanth

12 Clinical Examination of Ophthalmic Cases - Agarwal and Gupta

13 Alder's Physiology of the Eye and Clinical Applications - Cotlier, St. Louis

14 Disease of the Lens and Vitrous, Glaucoma and Hypotony - Duke Elder, St. Louis

15 A Text Book of Ophthalmology - Ahmed E.

16 A Text book of clinical ophthalmology - Dhanda

17 Modern Ophthalmology - Dutta, L.C. Jaypee Brothers

18 Manual of the Diseases of the Eye - May,C.and Worth,C. Bailliere Tindal and Castell

19 Ophthalmology – Principles and Concepts - Newell, F.W., C.V. Mosby Co., St. Louis.

20 Ocular Differential Diagnosis - Roy Fedrick Hamptn Lea and Febiger

21 Clinical Ophthalmology - Smith, R.Verghese Company

22 Abrahm Manual of Refraction - Duke and Elder

23 Hand Book of ophthalmology - B.M. Chaterjee

24 Hand Book of ophthalmology - Khurana

25 Clinical ophthalmology - Kanski

26 Parsons Diseases of Eye

27 Stallard's Eye Surgery

M.S.-AYURVEDA PRELIMINARY

21. SHALAKYA- DANTA AVUM MUKHA ROGA

(Dentistry and Oral Disease)

PAPER-II

PART-A

Shalakya Tantra Parichaya, Itihas avum Pradhanyam.

Mukhasharir.

Study of Dosha, Dhatu, Mala and Srotas in context to Danta and Mukha Roga.

Agropaharaniya in Danta and Mukha Roga incorporating sterilization, Sangyaharana and diagnostic and therapeutic pharmacological agents.

Vrana Siddhanta-Trividha Shopha, Shuddha-Dushta Vrana, Vrana Bandha and Vranitopasana in relation to Danta and Mukha Roga.

Swasthavritta related to Danta and Mukha Roga.

Chaturvidha Chikitsopaya (Bheshaja-Shastra-Kshara-Agni) Siddhanta and Raktamokshana related to Danta and Mukha Roga.

Applied knowledge of various Kriyakalpa and other therapeutic procedures related to Danta and Mukha Roga.

Role of Panchkarma in Danta and Mukha Roga.

Mukha and Danta Chikitsopayogi Aushadha Kalpana Parijnanam e.g. Dashana Samskara Manjana, Shwetamanjana, Vajradanta Manjana, Khadiradi Vati, Irimedadi Taila, Peetaka Churna, Kalaka Churna, Nimbadi Churna and Bhadramustadi Vati.

PART-B

Applied orodental anatomy and physiology.

Clinical methods adopted in orodental practices.

Knowledge of advanced diagnostic techniques, equipments and tests of importance in orodental practices with their interpretations.

Classification, aetiopathogenesis, clinical features and therapeutics of Oshtha, Danta, Dantamula, Jihva, Talu and Sarvasar Mukharogas in the light of modern knowledge.

Basics of Sandhana Vidhi in Mukha and Danta Roga.

Applied aspect of Dysphagia, Manyastambha, Hanumoksha, Apachi (Cervical Lymphadenopathy) and Herpes.

Handling of biomedical waste.

PRACTICAL

Contents:

Clinical posting in OPD, IPD, Kriyakalpa Kaksha and OT.

Clinical case presentation (10 cases).

Case record (20 cases).

Hands on training in Kriyakalpa.

Distribution of marks (practical):

Case Record - 20 Marks

Bed side examination

Long case - 20 Marks

Short case - 10 Marks

Kriyakalpa procedure - 15 Marks

Identification of specimens, radiograph and instruments - 15 Marks

Viva-voce - 20 Marks

Reference Books

1. Sushrut Samhita - -Dalhana

2. Useful Portion of Charak Samhita-Ashtang Samgraha -Ashtang Hridaya

3. Useful portion of Laghutrayi related to Danta and Mukha Roga

4. Shalakya Vijnanam - Ravindra Chandra Chaudhary

5. Nimi Tantra - Ramanath Dwivedi

4. Dental Anatomy Histology - Dr. S.I. Bhalajhi

5. Essentials of Preventive and Community Dentistry -Dr. Soben Peter

6. Complete Denture Prosthodontics - Dr. J.J. Manappallil

7. Orthodontics the Art and Science - Dr. S.I. Bhalajhi

8. Text book of Pediatric Dentistry - Dr. S.G. Damle

9. Text book of Oral and Maxillofacial surgery -Dr. Vinod Kapoor

10. Clinical Periodontology - Dr. B.R.R. Varma

11. Anatomy for Dental Students - Inderveer Singh

12. Clinical Periodontology - Carranza , Newman

13. Operative Dentistry - M A Marzouk

14. Oral and maxilofacial surgery secrets - A.Omar Abubaker

15. Killey and Kay's Outline of Oral Surgery - Girdon R Seward

16. Clinical Dentistry - Ivor G. Chestnut , John Gibson

17. Synopsis of Oral Pathology - S N Bhaskar

18. Oral Pathology - Stone

M.S.-AYURVEDA PRELIMINARY

22. SHALAKYA- SHIRO-NASA- KARNA- AVUM KANTHA ROGA

(ENT & HEAD & Neck Disease)

PRACTICAL

PART A

Shalakya Tantra Parichaya, Itihas and 'Pradhanya'. Establishment of 'superiority of Shiras' among all the organs. Determination and importance of the verse 'Nasa hi Shirso Dvaram'.

Shiro-Nasa- Karna- Avum Kantha Shariram and knowledge of related Marmas.

Study of Dosha- Dhatu-Mala and Srotas in context of Shiro-Nasa- Karna- Avum Kantha Chikitsa.

Agropaharaniya in Shiro-Nasa- Karna- Avum Kantha Chikitsa including sterilization and anesthesia.

Basic pharmacology of common modern drugs used in diagnostic and therapeutic procedures related to Shiro-Nasa- Karna- Evum Kantha Chikitsa.

Vrana Siddhanta- Trividha Shopha, Shuddha- Dushta Vrana, Vrana Bandha and Vranitopasan in context of Shiro-Nasa- Karna- Avum Kantha Chikitsa.

Swasthavritta related to Shiro-Nasa- Karna- Avum Kantha.

Chaturvidha Chikitsopaya (Bheshaja- Shastra-Kshar -Agni) and Raktamokshan related to Shiro-Nasa-Karna- Evum Kantha Chikitsa.

Applied knowledge of various therapeutic modalities like Shirobasti, Shirodhara, Shirovirechana, Nasya, Karna Pooran, Karna Dhoopan, Kaval, Gandusha etc.

Role of Panchkarma in Shiro-Nasa- Karna- Avum Kantha Chikitsa.

PART B

Shiras- Applied anatomy and physiology of skull and intracranial contents. Clinical methods and knowledge of common diagnostic equipments, procedures and their interpretation. Classification, etiopathogenesis, clinical features, prognostic considerations and therapeutics of Shiras and Kapaal Rogas in the light of modern knowledge.

Nasa - Applied anatomy and physiology of nose and paranasal sinuses. Clinical methods and knowledge of common nasal diagnostic equipments, procedures and their interpretation. Classification, etiopathogenesis, clinical features, prognostic considerations and therapeutics of Nasa Rogas in the light of modern knowledge.

Karna- Applied anatomy and Physiology of ear and related structures. Clinical methods and knowledge of common aural diagnostic equipments, procedures and their interpretation. Classification, etiopathogenesis, clinical features, prognostic considerations and therapeutics of Karna Rogas in the light of modern knowledge.

Kantha - Applied anatomy and physiology of throat. Clinical methods and knowledge of common pharyngeal and laryngeal diagnostic equipments, procedures and their interpretation. Classification, etiopathogenesis, clinical features, prognostic considerations and therapeutics of Kanthagata Rogas in the light of modern knowledge.

Contents:

Clinical posting in OPD, IPD, Kriyakalpa Kaksha and OT.

Clinical case presentation (10 cases).

Case record (20 cases).

Hands on training in Kriyakalpa.

Distribution of marks (practical):

Case Record - 20 Marks

Bed side examination

Long case - 20 Marks

Short case - 10 Marks

Kriyakalpa procedure - 15 Marks

Identification of specimens and Instruments - 15 Marks

Viva-voce - 20 Marks

REFERENCE BOOKS:-

Sushrut Samhita

Charak Samhita

Ashtang Hridaya

Ashtang Samgraha

Laghutrayi

Modern books related to ENT disorder

Diseases of Nose Throat and Ear - Bhargav Shah

Diseases of Nose Throat and Ear, Head and Neck EB Edr.

A Textbook of otorhinololaryngology - Scott Browns editions.

Text book of Ear Nose Throat diseases – Dhingra

Textbook on ENT – Mohd. Maqbool

Logan Turner's book on ENT

Ballengers text book of ENT

Kumin's text book of ENT

Rob Smith's book of ENT surgery

Paprella's book of ENT

Hazarika's text book on ENT

Books on examination of ENT

Audiology Anirwan Biswas

Kurt's Audiology

Books on Speech therapy

AYURVEDA DHANWANTRI-SHALAKYA - NETRA ROGA

PAPER- I Netra Rog Vangmaya

1. Available literature of Netra roga vigyana in Brihattrayi, Laghuttrayi, Yogaratnakar, Chakradutta, Bhel Samhita, Harita samhita and Kashyap samhita.

2. Critical analysis of the available literature of netra roga vigyana in the above given classics e.g. Puyalasa and Vatahata Vartma In Sushruta samhita and Vagabhat samhita.

3. Unique/ specific contribution of different classics, Acharyas and commentators in the development of Netra roga vigyana.

4. Analytical determination of subjects related to eye disorders in ancient and modern literatures.

5. Update chronological development of Netra roga vigyana right from Vedic period.

6. Update chronological development of Ophthalmology.

PAPER- II Ayurvediya Netra Rog Vigyan

1. Enumeration and classification of Netra Rogas.

2. Descriptive knowledge of etiology, pathogenesis, prodomal symptoms, clinical features, complications and prognosis of pakshma -vartma- sandhi- - shuklaKrishna- dristi & sarvagata rogas along with exogenous eye diseases available in Ayurvedic classics. Medical and surgical Management of the above diseases with special skill development in Ashtavidha shastra & Trividha Anushastra chikitsa related to Netra roga.

3. Netra kriya kalpa procedures like seka, ashchyotana, vidalaka, pindi, tarpan, putapaka & anjana and their practical application and analysis based on ocular pharmacology. Standard operative procedures for Kriyakalpas including Aushada kalpanas.

4. Study of nayanabhighata and , its management and prevention.

5. Knowledge of preventive and community ophthalmology along with national programme for control of blindness and role of Ayurveda.

6. Ayurvedic Concept of Congenital, developmental and neoplastic diseases of netra.

PAPER – III Adhunik Netra Rog Vigyan

1. Knowledge and application of current diagnostic techniques and equipments and therapeutics in Ophthalmology.

2. Detailed study of refractive errors along with defects of accommodation and their management.

3. Detailed knowledge of classification, etiology, pathogenesis, signs and symptoms, differential diagnosis, prognosis and complications of diseases of eye orbit, lacrimal apparatus, lids, conjunctiva, cornea, sclera, uveal tract, lens, vitreous, retina, optic nerve and visual pathway with comprehensive knowledge of their medical and surgical management.

4. Ocular trauma , its emergencies and management.

5. Ocular motility disorders and their medical and surgical management

6. Neurological and systemic disorders affecting the eyes and their management.

PAPER – IV Recent Advances in Netra Chikitsa & Ophthalmology.

1. Update advances in the development of Ayurvedic drug formulations, therapeutic procedures and treatments of Netra roga.

2. Advanced technologies in the diagnosis of eye diseases.

3. Advanced technologies & techniques in the medical & surgical management of Netra roga.

4. Advanced management and technologies in Ophthalmology.

5. Detailed study of recent research works on chakshushya dravyas.

6. Comparative and critical study of modern advances in surgical techniques over the surgical methods described in Ayurvedic classics

Pattern of practical/Clinical training

1. Posting in OPD,IPD,OT & Kriya kalp Kaksha.

2. Case presentation ,clinical discussion, Seminars & Work shops.

3. Skill development in Ashtavidha shastra karma, Trividha Anushastra Karma and Modern Ophthalmic Surgical procedures viz lid surgery, pterygium surgery, cataract surgery, squint surgery, glaucoma surgery, DCR & DCT ect.

Methods of Training

• Intensive integrative training would be imparted to scholars in understanding the classical Ayurvedic aspects with an emphasis of critical comparative interpretation.

• Mandatory participation of scholars in seminars, group discussions, clinical demonstrations , journal review meetings, case study, continuing education activities and research clinical projects.

• During the first year course the emphasis would be laid to impart adequate knowledge on fundamental aspects and their applications, with a focus on latest diagnostic tools , instrumentations and laboratory procedures. Practical orientation and hospital based clinical training is an integral part of the curriculum all through.

• In the second year ,training would stress upon extending the knowledge on techniques and imparting skill for surgical performaqnce, ophthalmic procedure based therapies, surgical/para surgical procedures so that the scholar is able to perform ophthalmic surgical procedures like Ashtavidha shastra karma, Trividha Anushastra Karma and Modern Ophthalmic Surgical procedures viz lid surgery, pterygium surgery, cataract surgery, squint surgery, glaucoma surgery, DCR & DCT ect independently.

• In the third year the scholar should concentrate on the clinical work and research work based on the dissertation.

• The participation of the scholars in all the aspects of educational process is mandatory.

• Hospital postings – The student has to work for 6 terms of resident posting is compulsory out of which first 2 postings will be as a junior resident and the next four postings will be as a senior resident.

• The student should also develop in the academic work of the department.

Pattern of Practical Examination 100 Marks

1. Bed side examination

Short Case 2 of 10 marks each -20 Marks

Long Case -20 Marks

2. Identification of specimen / Instrument / Radiograph -10 Marks

3. Thesis Presentation / Viva -10 Marks

4.Teaching skill -10 Marks

5. Viva Voce -30 Marks

Reference Books

1. Charka Samhita with commentaries

2. Sushrut Samhita and vaghbhata with commentaries

3. Astanga hridaya and Astanga sangraha with commentaries

4. Madhava nidan with commentaries

5. Bhavaprakasha with commentaries

6. Sarangadhara Samhita with commentaries

7. Sahstrayoga Sangraha

8. Relevent part of Chakradhatta, Bhel Samhita, Harita Samhita

9. Shalakya Tantra - Ramanath Dwivedi

10 Shalakya Tantra - R.C. Chaudhary

11 The Actions and uses of Indigenous Ophthalmic Drugs - N.Srikanth

12 Clinical Examination of Ophthalmic Cases - Agarwal and Gupta

13 Alder's Physiology of the Eye and Clinical Applications - Cotlier, St. Louis

14 Disease of the Lens and Vitrous, Glaucoma and Hypotony - Duke Elder, St. Louis

15 A Text Book of Ophthalmology - Ahmed E.

16 A Text book of clinical ophthalmology - Dhanda

17 Modern Ophthalmology - Dutta, L.C. Jaypee Brothers

18 Manual of the Diseases of the Eye - May,C. and Worth, C.Bailliere Tindal and Castell

19 Ophthalmology – Principles and Concepts - Newell, F.W., C.V. Mosby Co., St. Louis.

20 Ocular Differential Diagnosis - Roy Fedrick Hamptn Lea and Febiger

21 Clinical Ophthalmology - Smith, R.Verghese Company

22 Abrahm Manual of Refraction - Duke and Elder

23 Hand Book of ophthalmology - B.M. Chaterjee

24 Hand Book of ophthalmology - Khurana

25 Clinical ophthalmology - Kanski

26 Parsons Diseases of Eye

27 Stallard's Eye Surgery

19.AYURVEDA DHANWANTRI- SHALAKYA - SHIRO- NASAKARNA EVUM KANTHA ROGA

PAPER – I Shiro- Nasa- Karna - Kantha Roga Vigyan Maulik Siddhanta and Vangmaya

1. Detailed study of Shalakyatantra from Bruhat trayee, Laghutrayee, Kashyap samhita, Yoga ratnakar, Chakradutta, Bhel samhita , Harita samhita and other granthas.

2. Comparative and critical study of rogas explained by various granthas.

3. Syntactical derivation, definition and importance of the word "Shalakya". Sequential development and history of science of ear, nose, throat and Shiras disorders. Establishment of "Superiority of shiras' among the organs. Determination and importance of the verse 'Nasa Hi Shiraso Dvaram'. Syntactical derivation and the synonyms of the words Karna, Nasa, Kantha, Shiras etc.

4. Descriptive knowledge of the anatomy and Physiology of ear, nose, throat and Shiras as per ancient and modern science.

5. Examination of the ear, nose, kantha and shira as per Ayurveda and modern science.

6. Common etiology of ear, nose, throat and shiras disorders, their pathogenesis, prodormal symptoms, classification, clinical features and general treatment.

7. Importance of shaman and sodhana therapy in ear, nose, throat and shira disorders with general introduction to local therapeutic procedures of ear nose and throat and shira e.g. kaval, gandusha etc.

8. Detailed applied knowledge of recent advanced diagnostic and therapeutic techniques and equipments (Yantra and Shastra) used for ENT and Shira disorders.

9. General knowledge of 'vrana bandhana' (bandaging of wounds) and applied bandage in ear etc.

10. Update chronological development of ENT from Vedic period.

11. Study of essential modern drugs, anaesethic agents of diagnostic and surgical importance.

PAPER – II Ayurvediya Shiro – Nasa - Karna - Kantha Roga Vigyan

1. Examination of the ear, nose, throat and shira patients.

2. Karna-Nasa –Kantha –and Shira rogas samkhya samprapti, descriptive knowledge of

etiology, pathogenesis, prodromal symptoms, classification, clinical features, UpasayaAnupsaya(prognostic measures) sadhyasadhyatwa and, complications of ear disorders described in the classics of Ayurved. Detail description along with practical orientation of their management.

3. Nasa rogas samkhya samprapti, descriptive knowledge, etiology, pathogenesis, prodomal symptoms, classification, clinical features, Upasaya-Anupsaya (prognostic measures), sadhyasadhyatwa and complications of nasal diseases described in the classics of Ayurved. Detail description along with practical orientation of their treatment.

4. Kantha rogas samkhyasamprapti, descriptive knowledge about etiology, pathogenesis, prodromal symptoms, classification, clinical features, Upasaya- Anupsaya (prognostic measures),sadhyasadhyatwa and complications of kantha diseases described in the classics of Ayurved. Detail description along with practical knowledge of treatment.

5. Shira and Kapala (cranial vault) disorders samkhya samprapti, descriptive knowledge, etiology, pathogenesis, prodromal symptoms, classification, clinical features, UpasayaAnupsaya (prognostic measures) and complications of Shira and kapala diseases described in the classics of Ayurved. Detail description along with practical knowledge of treatment.

PAPER – III Adhunika Shiro- Nasa- Karna - Kantha Roga vigyan

1. Descriptive knowledge of instruments and recent equipments available for diagnosis of ear – nose – throat – head disorders along with their practical application.

2. Descriptive knowledge of etiology, pathogenesis, clinical features, differential diagnosis, classification along with complications of different ear – nose- throat and

head disorders. Detail knowledge of the treatment (including conservative and surgical) of the above mentioned disorders.

3. Imaging in ENT and Head disorders, detailed knowledge of LASERS, radiotherapy, chemotherapy and other recently advanced treatment modalities like speech therapy, cochlear implant, rehabilitation of the deaf and mute, etc. related to ear – nose – throat – and head disorders.

4. Management of emergencies in ENT and head disorders.

PAPER – IV Shiro- Nasa- Karna -Kantha Roga Vigyan Shalya Chikitsa

1. Knowledge of agropaaharniya and d trividha karma i.e pre operative, operative and post operative measures. Knowledge of eight types of surgical procedures (Astavidha Sasthra Karma) and post operative care of the patient with respect to ENT disorders (Vranitopasaniya).

2. Practical knowledge of updated surgical procedures in ear – like constructive surgery of external and middle ear,excision of pre auricular sinus, Tympanoplasty, Mastoidectomy, Stapedectomy, Endolymphatic sca surgery, Facial nerve decompression surgery, Cochlear implant, etc with their complications and their management.

3. Nose – Septo-rhinoplasty, SMR, Functional Endoscopic sinus surgery,Caldwell luc surgery, Antral puncture,Antral lavage,Turbinectomy,Polypectomy, Various surgical procedures done for malignancy of Nose and paranasal sinuses,Young's surgery,etc

4. Throat - Adenoidectomy, Tonsillectomy, Surgical procedures for pharyngeal abscesses, cauterization of pharyngeal wall granulations, tracheostomy, vocal cord surgery, surgery of vocal cord paralysis, management of laryngeal trauma, laryngectomy,etc.

5. General introduction of four treatment procedures like Bheshaj– Kshar – Agni– Shastra and Raktavsechana with their applied aspects in ear nose throat and shiro disorders . Chaturvidha upakrama in raktasandhan vidhi related to ear nose throat and head disorders. Haemostatic management in ENT.

6. Removal of foreign bodies in the ear nose throat and shira as per Ayurveda and modern science.

7. Karna-Sandhan Nasa-Sandhan, fundamental and applied aspects of Ayurveda.

Methods of Training

• Intensive integrative training would be imparted to scholars in understanding the classical Ayurvedic aspects with an emphasis of critical comparative interpretation.

• Mandatory participation of scholars in seminars, group discussions, clinical demonstrations , journal review meetings, case study, continuing education activities and research clinical projects.

• During the first year course the emphasis would be laid to impart adequate knowledge on fundamental aspects and their applications, with a focus on latest

diagnostic tools , instrumentations and laboratory procedures. Practical orientation and hospital based clinical training is an integral part of the curriculum all through.

• In the second year ,training would stress upon extending the knowledge on techniques and imparting skill for surgical performaqnce, ENT procedure based therapies, surgical/para surgical procedures so that the scholar is able to perform ENT surgical procedures independently.

• In the third year the scholar should concentrate on the clinical work and research work beased on the dissertation.

• The participation of the scholars in all the aspects of educational process is mandatory.

• Hospital postings – The student has to work for 6 terms of resident posting is compulsory out of which first 2 postings will be as a junior resident and the next four postings will be as a senior resident.

• The student should also develop in the academic work of the department.

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Pattern of Practical Examination:

1. Case Record(25) -10 Marks
2. Bed side examination

Long Case -20 Marks

Short Case -10 Marks

3. Identification of specimen / Instrument / Radiograph -10 Marks
4. Thesis Presentation -25 Marks
5. Viva Voce -25 Marks

Reference Books

1. Sushrut Samhita
2. Charak Samhita
3. Ashtang Hridaya
4. Ashtang Samgraha
5. Laghutrayi
6. Modern books related to ENT disorder
7. Diseases of Nose Throat and Ear - Bhargav Shah

8. Diseases of Nose Throat and Ear, Head and Neck EB Edr.

9. A Text book of otorhinololaryngology - Scott Browns editions.

10.Text book of Ear Nose Throat diseases – Dhingra

11.Text book on ENT – Mohd. Maqbool

12.Logan Turner's book on ENT

13.Ballengers text book of ENT

14.Kumin's text book of ENT

15.Rob Smith's book of ENT surgery

16.Paprella's book of ENT

17.Hazarika's text book on ENT

18.Books on examination of ENT

19.Audiology Anirwan Biswas

20.Kurt's Audiology

21.Books on Speech therapy

20. AYURVEDA DHANWANTRI-SHALAKYA - DANTA EVUM MUKHA ROGA

PAPER – I Danta evum Mukha Roga – Ayurveda Siddhanta and Vangmaya

1. Etymology, definition and importance of the word 'Shalakya', History and development of the science of oral and dental diseases. Etymology and synonyms of the word 'Mukha' and 'Danta'. Ancient and recent knowledge of anatomy of oral cavity and teeth along with the knowledge of salivary glands.

2. Detailed study of Oral cavity and gustatory physiology.

3. Oral hygiene, Social aspect of oral hygiene, preventive measures in oral cavity diseases, general etiology, pathogenesis, prodromal symptoms, clinical features and general management of oral cavity diseases.

4. Agropaharaniya, knowledge of purva, pradhan and pashchat karma. Study of Ashta Vidha Shastra Karmas in relation to Danta and Mukha Roga.

5. Applied and detailed study of therapeutic measures for oral and dental disorders, like Kavala, Gandusha, Dhumapana, Nasya, Murdhtaila Mukhalepa and Pratisarana and their definition, types, indications, contraindications, procedure, features of proper,excess, deficient application and their management.

6. Importance of shodhan and shaman treatment in oral and dental diseases and

knowledge of common recipes useful in oral and dental diseases.

7. General introduction of four types of treatment (Bheshja, Shastra, Kshara, Agni). Detail description of Anushastra karma; their practical knowledge in oral and dental diseases.

8. Analytical determination of related subjects of danta-mukha disorders available in ancient and modern commentaries of different Samhita.

PAPER – II Ayurvediya Danta evum Mukha Rog Vijnana

1. Examination of oral cavity, periodontia and teeth. Teeth eruption and its systemic disturbances in a child, Classification, Number of teeth along with detail knowledge of abnormal tooth eruption. Dental disorders in paediatric age group, their prevention and treatment.

2. Danta gata rogas - Dental diseases detailed in the classics of Ayurved; their etiology, pathogenisis, prodromal symptoms, clinical features, complication and applied approach in the treatment of dental diseases.

3. Detailed study of etiology, pathogenesis, prodromal-symptoms, clinical features, complications and prognosis of diseases of the Danta-Mula Gata Roga (gumperiodontia) as detailed in the classics of Ayurved. Practical approach/orientation in Treatment of the periodontal diseases.

4. Oshtha (lip), Jihva (tongue) and Talu (palate) Rogas, detailed study of etiology, pathogenesis, prodromal - symptoms, clinical features, complications and, prognosis. Detailed description of their treatment along with practical orientation.

5. Sarvasara Mukharogas (Generalized oral diseases) available in ayurvedic classics. Detailed study of etiology, pathogenesis, prodromal-symptoms, clinical features, complications, prognosis and management of mukha rogas along with practical orientation.

6. Knowledge of Dantabhighata (dental trauma) and Mukhabhighata (oral injury) along with diagnostic and referral skills.

PAPER – III Adhunik Danta evum Mukha Rog Vijnana

1. Detail study of etiology, pathogenesis, clinical features, classification and complication of various oral and dental diseases available in literature of Modern sciences. Detail study of their recent available medical therapeutics.

2. Detail description of diagnostic technology in the diagnosis of oral and dental disease.

3. Study of essential modern drugs, anaesthetic agents of diagnostic and surgical importance.

4. Descriptive Knowledge of up-to-date available modern instruments and their application for examination, diagnosis and management of oral, periodontal and dental diseases.

5. Up-to-date knowledge of applied and available surgical procedures indicated in various dental diseases like tooth extraction, RCT, Dental filling, filling materials, tooth fixation and tooth implants etc.

6. Systemic Effects of oral, periodontal and dental diseases.

PAPER – IV Danta evum Mukha Rog Vijnana & Dentistry

1. Jaalandhara Bandha, its importance and application in Tooth extraction without anaesthesia.

2. Vishishta Upadanta parikalpana (Dental Material and Prosthesis).

3. Recent Research studies and advanced clinical applications of Kriya Kalpas in Danta and Mukha Rogas.

4. Detailed study of recent available medical therapeutics and Research studies in Dental and oral cavity disorders.

5. Adavnced diagnostic technology in Dentistry and oral pathology.

6. Benign and malignant tumors of Oral Cavity, their management and role of Ayurveda in Such conditions.

7. Useful conducts for treatment of oral and dental diseases with study of related medicolegal aspects.

Methods of Training

• Intensive integrative training would be imparted to scholars in understanding the classical Ayurvedic aspects with an emphasis of critical comparative interpretation.

• Mandatory participation of scholars in seminars, group discussions, clinical demonstrations, journal review meetings, case study, continuing education activities and research clinical projects.

• During the first year course the emphasis would be laid to impart adequate knowledge on fundamental aspects and their applications, with a focus on latest diagnostic tools , instrumentations and laboratory procedures. Practical orientation

and hospital based clinical training is an integral part of the curriculum all through.

• In the second year, training would stress upon extending the knowledge on techniques and imparting skill for surgical performance, Dental procedure based therapies, surgical / para surgical procedures so that the scholar is able to perform Dental surgical procedures independently.

• In the third year the scholar should concentrate on the clinical work and research work based on the dissertation.

• The participation of the scholars in all the aspects of educational process is mandatory.

• Hospital postings – The student has to work for 6 terms of resident posting is compulsory out of which first 2 postings will be as a junior resident and the next four postings will be as a senior resident.

• The student should also develop in the academic work of the department.

Pattern of Practical Examination:

1. Bed side examination

Short Case 2 of 10 marks each -20 Marks

Long Case -20 Marks

2. Identification of specimen / Instrument / Radiograph -10 Marks

3. Thesis Presentation / Viva -10 Marks

4. Teaching skill -10 Marks

5. Viva Voce -30 Marks

PG Final Year Syllabus-86

Reference Books

1. Sushrut Samhita - Dalhana

2. Useful Portion of Charak Samhita-Ashtang Samgraha -Ashtang Hridaya

3. Useful portion of Laghutrayi related to Danta and Mukha Roga

4. Shalakya Vijnanam - Ravindra Chandra Chaudhary

5. Nimi Tantra - Ramanath Dwivedi

4. Dental Anatomy Histology - Dr. S.I. Bhalajhi

5. Essentials of Preventive and Community Dentistry -Dr. Soben Peter

6. Complete Denture Prosthodontics - Dr. J.J. Manappallil

7. Orthodontics the Art and Science - Dr. S.I. Bhalajhi

8. Text book of Pediatric Dentistry - Dr. S.G. Damle

9. Text book of Oral and Maxillofacial surgery -Dr. Vinod Kapoor

10. Clinical Periodontology - Dr. B.R.R. Varma

11. Anatomy for Dental Students - Inderveer Singh

12. Clinical Periodontology - Carranza , Newman

13. Operative Dentistry - M A Marzouk

14. Oral and maxilofacial surgery secrets - A.Omar Abubaker

15. Killey and Kay's Outline of Oral Surgery - Girdon R Seward

16. Clinical Dentistry - Ivor G. Chestnut , John

Gibson

17. Synopsis of Oral Pathology - S N Bhaskar

18. Oral Pathology – Stone

COURSE OUTCOME

CO1: Netra rachana shariram and Kriya Sharira with eye examination and basic instruments

CO2: details knowledge about sandhi, vartma ,sukla ghata rogas and its managements

CO3: details knowledge about drishti , sarva aksi ghata roga and its treatment with modern aspects

CO4: know about the importance of siras, nasa rogas , karna with its managements

CO5: detail knowledge about modern surgical techinque in ophthalmology and ENT

EVALUATATION 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.