The following shall be the titles of the papers in each subject: SCHEME

(1) KAYACHIKITSA			Marks		Total Marks
S.No.	Paper	Subject	Theory	Practical	
		First Year			
1.	Paper I Preliminary	Research Methodology & Medical Statistics (Part 1&2)	100 (60+40)	100	200
2.	Paper 2	Kayachikitsa	100	100	200
		Final Year (Third year)			
3.	KC Paper 1	Fundamentals of Kayachikitsa	100		100
4.	KC Paper 2	Samanya Roga Chikitsa	100	-	100
5.	KC Paper 3	Vishishta Roga Chikitsa	100	-	100
6.	KC Paper 4	Advances in Kayachikitsa	100		100
7	KC	Kayachikitsa		100	100

(2)

DRAVYA GUNA VIGYAN					
S.No.	Paper	Subject	Marks		Total Marks
			Theory	Practical	
		First Year			
1.	Paper-I Preliminary	Research Methodology & Medical Statistics (Part 1&2)	100 (60+40)	100	200
2.	Paper2 DG	Dravya guna vigyan	100	100	200
		Final Year (Third year)			
3.	DG Paper 1	Naam rupa vigyan	100		100
4.	DG Paper 2	Guna karma vigyanana	100	-	100
5.	DG Paper 3	Prayog vigyan	100	-	100
6.	DG Paper 4	Nighantu vigyan	100		100
7.	DG	Dravya guna vigyan		100	100

Syllabus:

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SYLLABUS FOR POST GRADUATE COURSE IN AYURVED AS PER CCIM, NEW DELHI

M.D.(AYURVEDA) PRELIMINARY - PAPER-I

RESEARCH METHODOLOGY AND MEDICAL STATISTICS

PART-A

RESEARCH METHODOLOGY

Introduction to Research

A. Definition of the term research
B. Definition of the term anusandhan
C. Need of research in the field of Ayurveda

General guidelines and steps in the research process

A. Selection of the research problem
B. Literature review: different methods (including computer database) with their advantages and limitations
C. Defining research problem and formulation of hypothesis
D. Defining general and specific objectives
E. Research design: observational and interventional, descriptive and analytical, preclinical and clinical, qualitative and quantitative
F. Sample design
G. Collection of the data
H. Analysis of data.
I. Generalization and interpretation, evaluation and assessment of hypothesis.
J. Ethical aspects related to human and animal experimentation.
K. 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.

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

Scientific writing and publication skills.

a. Familiarizationwith publication Guidelines-Journal specific and CONSORT guidelines
b. Different types of referencing and bibliography.

c. Thesis/Dissertation: contents and structure
d. Research articles structuring: Introduction, Methods, Results and Discussions (IMRAD)

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

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

Different fields of Research in Ayurveda

a. Fundamental research on concepts of Ayurveda
b. Panchamahabhuta and tridosha.
c. Concepts of rasa, guna, virya, vipak, prabhav and karma
d. Concept of prakriti-saradi bhava, ojas, srotas, agni, aam and koshtha.

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.

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).

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

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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.

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.

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

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

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

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PART–B 40 marks

MEDICAL STATISTICS Teaching hours: 80

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
6. **Probability**: Definitions, types and laws of probability,
7. **Normal distribution**: Concept and Properties, Sampling distribution, Standard Error, Confidence Interval and its application in interpretation of results and normal probability curve.
8. **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
9. **Univariate analysis of categorical data:**
   Confidence interval of incidence and prevalence, Odds ratio, relative risk and Risk difference, and their confidence intervals
10. **Parametric tests:** 'Z' test, Student's 't' test: paired and unpaired, 'F' test, Analysis of variance (ANOVA) test, repeated measures analysis of variance
11. **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)
12. **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.
13. **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
14. **Vital statistics and Demography**: computation and applications - Rate, Ratio, Proportion, Mortality and fertility rates, Attack rate and hospital-related statistics
15. **Familiarization with the use of Statistical software** like SPSS/Graph Pad

PRACTICAL 100 marks

RESEARCH METHODOLOGY Teaching hours: 120

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. Pharmacology

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: 20Statistical exercises of examples from Topic number 4, 5, 8-12, 14, 15Records to be prepared.

Distribution of Marks:

1. Instrumental spotting test	– 20 marks
2. Clinical protocol writing exercise on a given problem	– 20 marks
3. Records:	
4. Research methodology	-10 Marks
5. Medical statistics	-10 marks
6. Viva- Voce	-40 Marks

PAPER 2

M.D.-AYURVEDA PRELIMINARY
KAYACHIKITSA (Genral Medicine)

PAPER-II **Theory- 100 marks**

PART A **50 marks**

1.Understanding of fundamental concepts of Kayachikitsa like Vriddhi and Kshaya of Dosha, Dushya, Mala with Amshaamsha Kalpana. Srotodushti, Khavaigunya, Agni, Ama (Saama and Nirama Dosha, Dhatu & Mala). Aavarana, Rogamarga, Ashayapakarsha, Dosha Gati, Kriyakala. Aushadha Sevana Kala, Anupana, Pathya-Apathya and their scientific relevance during health and disease.

2. Detailed knowledge of Rogi Roga Pariksha including detailed history taking and systemic examination of patient. Clinical implementation of Dwividha Pariksha, Trividha Pariksha, Chaturvidha Pariksha, Panchavidha Pariksha, Shadvidha Pariksha, Ashtavidha Pariksha, Dashvidha Parikshya Bhavas and Prakrityadi Dashvidha Pariksha.

3. Principles of Kayachikitsa in disease management including Shodhana, Shamana and Naimittika Rasayana.

4. Introduction of the basic principles of Modern medicine, Homeopathy, Unani, Siddha, Tibetan Medicine, Yoga and Naturopathy and their relevance in light of the basic principles of Ayurvedic medicine.

PART B **50 marks**

1. Chikitsa Siddhanta of Pranavaha, Annavaha, Udakavaha, Rasadi Dhatuvaha, Malavaha & Manovaha Srotovikara.

2. Emergency medicine: Acute Severe Asthma, pulmonary oedema, myocardial infarction, cerebro-vascular accidents, water and electrolyte imbalance, haemorrhage, syncope, seizure, coma, hyperpyrexia, hypertensive encephalopathy.

3. Knowledge of conducting various medical procedures like infusions, tapping, lumbar puncture, Ryle's tube insertion, catheterization, tractions, water seal drainage, Cardio Pulmonary Ressucitation.

4. Basic knowledge of underlying principles of ECG, TMT, echo cardiography, vascular doppler studies, EEG, EMG, X-Ray, USG, CT scan, MRI, PET and their interpretation.

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5. Knowledge of common Ayurvedic formulations and preparations used in treatment:

Churna- Triphala, Sitopaladi, Lavanbhaskara, Hingvashtaka, Avipattikara, Gangadhara, Shaddharana, Sudarshana, Panchasakara, Ajmodadi.

Kashaya- Dashamula, Rasnasaptaka, Asanadi, Pathyadi, Phalatrikadi, Punarnavashtaka, Gojivhadi, Mahamanjishthadi, Drakshadi Kashaya.

Asavas-Arista- Amritarishta, Kanakasava, Chitrakasava, Saraswatarishta, Ashwagandharishta , Chandanasava.

Vati- Sanjivani, Chandraprabha, Agnitundi, Chitrakadi, Khadiradi, Vyoshadi, Shankha Vati, Shiva Gutika.

Guggula-Kalpana-Triphalaguggula, Kaishoraguggula, Trayodashangaguggula, Simhanadaguggula, Yogarajaguggula, Gokshuradi guggula, Kanchanaraguggula.

Rasaushadhi- Tribhuvanakirti Rasa, Arogyavardhini Rasa, Shwasakuthara Rasa, Rasamanikya Rasa, Smritisagara Rasa, Lakshmivilasa Rasa, Sutshekhara Rasa, Pravala Panchamrita Parpati, Hemagarbhapottali Rasa.

Taila- Mahanarayana Taila, Pindataila, Prasarinyadi Taila, Ksheerabala Taila, Brihat Saindhavadi Taila, Panchaguna Taila, Amritadi Taila, Marichyadi Taila, Mahamasha Taila.

Ghrita- Mahatriphaladi Ghrita, Brahmi Ghrita, Panchtikta Guggulu Ghrita, Sukumara Ghrita, Dadimadya Ghrita, Kantakari Ghrita, Kalyanaka Ghrita.

Lehya- Chyavanaprasha Avaleha, Kushmanda Avaleha, Ashwagandha Avaleha, Agastya Hareetaki Rasayana, Drakshavaleha, Vasavaleha, Amrita-Bhallataka Rasayana.

PRACTI CAL — 100 marks

Content:- Daily hospital duties in OPD, IPD and casualty

Bed-side case taking – 25 patients

Distribution of marks (practical):

1. Case records of 25 Patients in detail 20 marks

2. Bedside clinical case takingLong case 20 marks

	Short case	10 marks
3. Medical procedures/laboratory work		15 marks
4. Instruments and spotting		15 marks
5. Viva voce		20 marks

REFERENCE BOOKS

Charak Samhita -Cakrapanidutta commentry

Sushrut Samhita -with all available commentaries.

Ashtang Samgraha –Indu commentary

Ashtang Hridaya –Arundutta and Hemadri commentry

Cikitsadarsha - Pandit Rajesvardutta Shastri

Kayachikitsa - Ramaraksha Pathak

Rog Pariksha Vidhi - Priyavrat Sharma

Panchakarma Vigyan - Haridas Sridhar Kasture

Ayurved Nidan Chikitsa Siddhanta - Prof. R.H.Singh.

Kayachikitsa Vol. I-IV. - Prof. Ajay Kumar

Davidson's Principles and Practice of Medicine.

API Text Book of Medicine.

Harrison's Text Bok of Medicine.

Cecil Text Book of Medicine.

Relevant texts of concerned subjects.

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M.D.-AYURVEDA PRELIMINARY

2. DRAVYAGUNA VIGYANA

(Materia Medica & Pharmacology)

PAPER-II **Theory 100 Marks**

PART – A **50 marks**

1. Panchamahabhuta siddhanta, Samanya Vishesha siddhanta, Tridosha siddhanta. Extensive study on classifications of Dravya as described in Brihattrayi.
2. Applied aspects of Rasa, Guna, Virya, Vipaka and Prabhava
3. Applied aspects of Aushdha karma with reference to Sharngadhara and Bhavaprakasha
4. Importance of Namarupa vigyan and concept of basonyms and synonyms of Dravyas
5. Applied knowledge of Bhaishajya Prayoga (marga, kalpana, matra, anupana, sevan, kala etc.)

PART – B **50 marks**

6. Basic principles of Desha pravichara, Dravya sangrahana (collection), Samrakshana (preservation)
7. Evolution of Dravyaguna vigyan with special emphasis on Nighantus
8. Prashasta bheshaj lakshana

9. Profound knowledge on applied aspects of Agrya aushadha
10. Methodology of studying controversial, pratinidhi (substitute), apamishrana (adulterant) and unidentified dravya
11. Pharmacognosy and its relevance in Dravyaguna vigyan
12. An integrated study of Charakokta Bheshaj pariksha and scientific method of drug evaluation with special reference to quality, safety and efficacy
13. Brief knowledge and importance of clinical pharmacology
14. General principles of various good cultivation practices, collection practices, storage practices and manufacturing practices
15. Pharmacovigilance and ADR issues
16. Knowledge on the Ayurvedic Pharmacopoeia of India, The Formulary of India and international pharmacopoeias

PRACTICAL 100marks

Contents:

1. Field visits for the Identification of important classical medicinal plants (Minimum two visits to neighboring forest areas)
2. Macroscopic and microscopic identification of minimum two plants of each of prayojyanga (useful parts of plants)
3. Preliminary study of pharmacoepial standards (API) of minimum 5 plants
4. Minimum two experiments on Animals.

Distribution of marks (Practical)

1. Herbarium sheets -10 Marks
2. Practical of macroscopic and microscopic identification of prayojyanga (one part of the plant) -30 Marks
3. Practical record book of pharamcopoeial standards and animal experimentations -10 Marks
4. Spotting -30 Marks
5. Viva-Voce -20 Marks.

11. KAYACHIKITSA

Theory- 400 Marks (100 Each)
Practical and Viva-Voce - 100 Marks

PAPER- I **100 Marks**

FUNDAMENTALS OF KAYACHIKITSA

1. Rogi-Roga Pariksha: Nidan Panchak, Trividha pariksha, Ashtavidhapariksha, Dashvidhapariksha in the light of recent advances. Clinical methods-Detailed history taking and patient examination, Shadang pariksha (Systemic examination) as per ayurveda and recent advances.
2. Interpretation of investigations: ECG, Echo cardiography, TMT, Spirometry, X-ray, USG, CT-Scan, MRI, EEG, EMG, Etc in different pathological conditions.
3. Detailed Knowledge of Principles of Chikitsa in Ayurveda. Classification of Rogas, Types of Chikitsa. Principles and practices of Rasayana and Vajikarna.
4. National Health Programmes/NRHM and prospective role of Ayurveda services and therapeutics in them with special reference to Kayachikitsa.
5. Medical ethics, Common laws and regulations applicable to clinical practice.
6. Elaborate knowledge of undertaking common medical procedures like Ryle's tube feeding, tapping, transfusions, catheterization, tractions, nebulizations, lumber puncture, etc.
7. Ayurveda Dietetics: Importance of Pathya, Apathya and Anupana.
8. Drug-drug interactions and adverse drug reactions, Iatrogenic disorders.

PAPER – II **100 Marks**

SAMANYA ROGA CHIKITSA

Nidana/ Chikitsa including Nidana Parivarjana, Pathya, Apathaya, Chikitsa siddhanta, Shamana, Shodhana, Panchakarma, Rasayana and Atyayika Chikitsa (Anupana, Drug/Non-drug) as per Ayurvedic and conventional therapeutics of following Srotogata vyadhi including Kshaya, Vriddhi srotodushti janya vyadis such as:

1. Pranavahasrotas: Shwasa, Hikka, Kasa, Rajayakshma, Hridroga, Parshwashoola, Urakhshata, Svarabheda.
   Cardio-respiratory system: Bronchitis, Bronchiectasis, Bronchial asthma, COPD, Cor-pulmonale, Pneumonias, Occupational lung diseases, Pulmonary tuberculosis, Congenital Heart disorders, IHD, RHD- Valvular diseases, Cardiac failures, Cardiomyopathy, Pericarditis, Endocarditis, Hypertension.
2. Annavahasrotas: Agnimandya, Ajirna, Aruchi, Amadosha, Amlapitta, Chhardi, Shoola, Grahani. Gastrointestinal disorders: GERD, APD, Malabsorption Syndrome.
3. Udakavahasrotas: Trishna, Shotha, Udararoga, water and electrolyte imbalance
4. Rasavaha srotas: Jwara, Amavata, Pandu, Madatyaya, Anaemias, Rheumatoid arthritis.
5. Raktavaha Srotas: Raktapitta, Kamala, Vatarakta, Kushtha, Kshudraroga, Sheetpitta, Udarda, Kotha, Visarpa, Shvitra. Haemopoeitic disorders, Bleeding and Coagulation disorders, Leukaemias, Thrombocytopenia, Disorders of Bone Marrow, Hepatobiliary disorders, Hepatitis, Cirrhosis, Cholecystitis, Liver abscess, Jaundice, Dermatological disorders, Parasitic, Infective, Allergic, Autoimmune skin disorders such as Psoriasis, Eczemas.
6. Mamsa-Medovahasrotas: Medoroga, Sthaulya, Prameha, Galaganda, Gandamala, Urustambha, Diabetes mellitus, Obesity.
7. Asthi-Majja vahasrotas: Asthikshaya, Sandhigatavata, Osteoarthritis, Osteopenia, Osteoporesis.
8. Shukravahasarotas: Such as Klaivya, Dwajabhanga, Impotence.
9. Mutravahasrotas: Mutrakricchra, Mutraghata, Ashmari, Urinary disorders: UTI, Lithiasis, ARF, CRF, Uraemia, BPH.
10. Purishvaha srotas: Atisara, Pravahika, Anaha, Adhamana, Krimi, Udavarta, Diarrhoeas, Dysentery, Ulcerative colitis, IBS, Intestinal Worm infestation.

PAPER – III **100 Marks.**

VISHISHTA ROGA CHIKITSA

Comprehensive knowledge of Nidan Panchak- etiology, demography, pathogenesis, symptomatology, complications, investigations, diagnosis and drug/non-drug management of following diseases as per Ayurveda/ Conventional therapeutics:

1. Vata-Vyadhi:- Pakshavadha, Ekangvata Ardhanga Vata, Sarvanga Vata, Ananta Vata, Gata Vata, Gridhrasi, Ardita, Akshepaka, Apatantraka, , Vishvachi, Avabahuka, Avarana, Urustambha.
   Musculoskeletal disorders: Myopathies, Muscular dystrophies, Lumbago
   Neurological disorders: Neurodegenerative disorders like Alzeimer's, Parkinsonism, CVA, Neuropathies, Facial palsy, G B Syndrome, Motor Neuron Diseases, Epilepsy, Sciatica.
2. Sankramakroga: Sheetala, Masoorika, Updansha, Phiranga, Gonorrhea, Chancroids, Syphilis.
3. Manasa vyadhi:- Unmada, Apasmara, Atatvabhinivesha, Mada, Moorcha, Sanyasa.
   Common psychiatric disorders: Classification of psychiatric ailments. Disorders of thought like Schizophrenia. Disorders of Mood like Mania, Depression. Neurosis, personality disorders, psychosexual disorders.
4. Metabolic disorders: Gout, Dyslipidaemia, Atherosclerosis, Metabolic Syndrome.
5. Endocrinal disorders: Disorders of Pituitary, Thyroid, Adrenal Medulla, Reproductive hormones.
6. Parasitic/Infective/Communicable disorders: Shlipada, Filariasis, Vishama Jvara, Malaria, Manthara Jwara, Enteric Fever, Dengue, Chickenpox, Measles, Influenza, Kalaazar, Mumps, Rabies, Poliomyelitis, Plague, Meningitis, Encephalitis, Chikungunya, HIV/AIDs, Common worm infestations.
7. Neoplastic disorders and their management strategies. Role of Ayurvedic medicines in cancer care including palliative care.
8. Autoimmune diseases: Myopathies, Rheumatic fever, SLE.
9. Common poisonings and their management like Insecticide/Pesticide poisoning, Snake poisoning, Vegetable and chemical poisoning, Substance abuse.
10. Janapadodhvamsa Vikara:- Environmental diseases Causes, Impact on human health and their management.
11. Ashtonindhataya Prusha and their clinical relevance.

PAPER – IV **100 Marks.**

ADVANCES IN KAYACHIKITSA

Critical care medicine, Management of medical emergencies, ICU services, Field medical services

1. Hospital management strategies, Infrastructure, use of IT technology, essential manpower, equipment, Patient care, management and coordination with contemporary health institutions and field institutions.
2. National Health Campaigns of AYUSH and components under NRHM.
3. Clinical Research in Kayachikitsa and its application in clinical medicine as per new evidence base in different systemic disorders.
4. New emerging health challenges and ayurvedic medicines: Chikangunya, HIV/AIDs, Swineflu, Chickenflu, Dengue, Restless leg syndrome, Sick building syndrome, Fibromyalgia.
5. Role of Ayurveda in immune-protection, immuno-modulation and in management of other allergies and immunological disorders.
6. Indications and importance of Organ transplantation, Ethical and legal issues involved.
7. Knowledge of Geriatric care and terminal care medicine.
8. Basic knowledge of Gene therapy, Stem cell therapy, Genetic modeling and chromosomal disorders in different disease conditions.

9. Radio-isotopes, disease and tumor markers in diagnosis and assessment of therapy.
10. Scope and methods of independent and collaborative research in Kayachikitsa.
11. Disaster management strategies.
12. Application of advances in Rasayana and Vajikarana therapies
13. Application of emerging trends in Panchakarma in medical management.
14. Physical medication and rehabilitation.

PRACTICALS - **100 Marks**

Practicals shall be held to evaluate the patient care, diagnostic and treatment expertise of the student. It should also be taken as a chance to evaluate the clinical skills.

Publication of One Scientific paper based on Thesis Research preferably in indexed journal is essential. Should have taken minimum 20 Theory and Practical classes of BAMS in concerned subject.

Clinical Ability Evaluation-60 Marks based on

1. Case records of 40 IPD Patients in Detail — 10 Marks
2. Long case History-1: — 20 Marks
3. Short Case history-1 : — 10 Marks
4. Medical procedures demonstration — 20 Marks.
5. **Academic Competence evaluation**- 40 Marks based on:
   a. Viva — 30 Marks.
   b. Teaching and communication skills/**Thesis presentation in PPT /:** — 10 Marks.

Reference Books:

1. Relevant portions of Brihattrayi and Laghutrayi with commentaries
2. Cikitsadarsha - Pandit Rajeshvar Dutta Shastri
3. Kayachikitsa - Ramaraksha Pathak
4. Rog Pariksha Vidhi - Priyavrat Sharma
5. Panchakarma Vigyan - Haridas Sridhar Kasture
6. Ayurvediya Nidana- Chikitsa Siddhanta - Prof. R.H.Singh.
7. Kayachikitsa Vol. 1 and 2 - Prof. R.H.Singh.
8. The Holistic Principles of Ayurvedic Medicine - Prof. R.H.Singh.
9. Essentials of Kayachikitsa -II, Vol. 1 - Dr. Aruna
10. Kayachikitsa Vol. I-IV. - Prof. Ajay Kumar
11. Panchakarma Therapy - Prof.R.H.Singh
12. Panchakarma Illustrated - Prof.G.Shrinivasa Acharya
13. Practice of Ayurvedic Medicine(Kayachikitsa) - Prof.A.K.Tripathi
14. Nidanachikitsa Hastamalaka - Prof. R.R.Desai
15. Clinical Methods in Ayurveda - Prof. K.R. Srikantamurthy
16. Aushadhi Gunadharma Shastra - Gangadhar shastri Gune
17. Introduction to Kayachikitsa - Prof. C. Dwarakanath
18. Samprapti lakshnanayoh Sambandhah - Prof.Sadashiv Sharma
19. Nidana Panchak - Prof.S.C.Dhyani
20. Kayachikitsa - Prof.S.C.Dhyani
21. Davidson's Principles and Practice of Medicine.
22. API Text Book of Medicine.
23. Harrison's Text Book of Medicine.
24. Cecil Text Book of Medicine.
25. Relevant texts of concerned subjects.

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4. DRAVYAGUNA VIGYAN

PAPER-I Namarupa Vigyana **100 marks**

1. Importance of Namagyana of Dravya, origin of Namarupagyana of Aushadhi in Veda, etymological derivation of various names and synonyms of Aushadhi.
2. Rupagyana in relation to Aushadhi. Sthula and Sukshma description (Macroscopic and Microscopic study) of different parts of the plant.
3. Synonyms of dravyas(aushadha and Ahara) mentioned in Vedic compendia, Brihatrayee, Bhavaprakasha and Rajanighantu.
4. Basonyms, synonyms and distinguish morphological characteristic features of medicinal plants listed in Ayurvedic Pharmacopoeia of India(API).
5. Knowledge of Anukta dravya (Extrapharmacopial drugs)with regards to namarupa.
6. Sandigdha dravya(Controversial drugs) vinischaya.
7. Knowledge of biodiversity, endangered medicinal species.
8. Knowledge of TKDL, Introduction to relevant portions of Drugs and cosmetic act, Magic remedies Act, Intellectual Property Right (IPR) and Regulations pertaining to Import and Export of Ayurvedic drugs.
09. Knowledge of tissue culture techniques
10. Knowledge of Genetically Modified Plants

PAPER –II Guna Karma Vigyan **100 marks**

1. Fundamental principles of drug action in Ayurveda and conventional medicine.
2. Detailed study of rasa-guna- virya- vipaka-prabhava and karma with their applied aspects and commentators (Chakrapanidatta, Dalhana, Arunadatta, Hemadri and Indu) views on them.
3. Comprehensive study of karma as defined in Brihatrayee & Laghutrayee
4. Detailed study of Guna and Karma of dravyas listed in API and Bhavaprakasha Nighantu along with current research review.
5. Detailed study of aharadravya/ ahara varga ascribed in Brihatrayee and various nighantus along with Kritanna varga.
6. Pharmacologycal principles and knowledge on drugs acting on various systems.
7. Basic knowledge on experimental pharmacology for the evaluation of - analgesic, anti pyretic, anti inflammatory, anti diabetic, anti hypertensive, hypo lipidemic, anti ulcer, cardio protective, hepatoprotective, diuretics, adaptogens, CNS activites.
8. Knowledge on Heavy metal analysis, pesticidal residue and aflatoxins
9. Knowledge on evaluation of anti microbial and antimycotic activities.

PAPER – III Prayogavigyana **Marks 100**

1. Bhaishjya Prayog Siddhant [Principles of drug administration] - Bhaishajya Marga (routes of drug administration), Vividha Kalpana (Dosage forms), Principles of Yoga Vijnan(compounding), Matra (Dosage), Anupana (Vehicle), Aushadha grahankal (Time of drug administration), Sevankal avadhi (duration of drug administration), Pathyapathya (Dos' /Donts' /Contraindications), complete Prescription writing (Samagra Vyavastha patraka).
2. Samyoga- Viruddh Sidhanta and its importance
3. Amayika prayoga (therapeutic uses) of important plants ascribed in as well as Brihattrayee, Chakradutta, Yoga ratnakara and Bhavaprakasha.
4. Knowledge of Pharmaco-vigilance in Ayurveda and conventional system of medicine.

5. Knowledge of clinical pharmacology and clinical drug research as per GCP guide lines.
6. IKnowledge of Pharmacogenomics

PAPER- IV **100 marks**

1. Etymology of nighantu, their relevance, utility and salient features.
2. Chronological history of the following Nighantus with their authors name, period and content- Paryaya ratnamala, Dhanvantari nighantu, Hridayadipika nighantu, Ashtanga nighantu, Rajanighantu, Siddhamantra nighantu, Bhavaprakasha nighantu, Madanpala nighantu, Rajavallabha nighantu, Madhava Dravyaguna, Kaiyadeva nighantu, Shodhala nighantu, Saligram nighantu, Nighantu ratnakara, Nighantu adharsha and Priya nighantu
3. Detailed study Aushadha kalpana mentioned in Sharangadhara samhita and Ayurvedic Formulary of India (AFI).
4. General awareness on poshaka ahara(Nutraceuticals),Varnya(cosmoceuticals), food addictives, Excipients etc.
5. Knowledge of plant extracts, colors, flavors and preservatives.
6. Review of important modern works on classical medicinal plants published by Govt of India, department of AYUSH and ICMR.

Syllabus of the Practical training of part two M.D. (Ayu) - Dravyaguna

Practical:-

Study tours:

Field identification of medicinal plants through at least three local Dravyaguna study tours within the state and one study tour out of state. Preparation of minimum 50 herbarium sheets, along with raw drug either from field, of plants be collected during study tours.

1. **Evaluation of Crude drugs:**
   Macro and microscopic methods of examining five drugs of each of different useful parts of plants, including their powders.
2. **Phytochemical evaluation of raw material:**
   Quantitative standards like foreign matter, extractive (water and alcohol), ash value, acid insoluble ash and TLC separation of various parts of minimum two plants of Ayurvedic Pharmacopoeia of India.
3. **Yoga vijnana :**
   Preparation of two yoga of each kalpana of Ayurvedic Formulary of India:
4. **Pharmacology:**
   - ✓ Rasa nirdharana by Taste Threshold method of minimum one drug for each of rasas.
   - ✓ Observation of animal experimentation models (both in vitro and in vivo)- 05 models for possible rasadi gunas.
5. **Clinical**
   - ✓ Regular clinical training in the hospital for submission of Single Aushadhi Prayoga (Single drug trial/ Clinico-pharmacological studies.)
   - ✓ Survey for Amayika prayoga of aushadhi(Pharmaco epidemiology) for studying their role in clinical practice in contemporary period -observational study-minimum.
6. **Dissertation**
   A Dissertation, as per the approval of Departmental Research Committee/Competent Committee for the purpose, be prepared under the guidance of approved supervisor

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in Dravyaguna and submitted 6 months before the final examination. The approval of Dissertation shall be essential before appearing the final examinations.

7. **Method of practical training – Posting for minimum one month in each of the following units -**
   - ✓ Quality control laboratory of nearest pharmacy/institution for crude drug identification, adulterants and substitutes & understanding standardization techniques.
   - ✓ Experimental pharmacology laboratory for developing skills in animal experimentation
   - ✓ Regular clinical training in the Teaching hospital for studying Ekala Aushadhi Prayoga & Adverse drug reactions(ADR).
8. Post Graduate Scholar is expected to present minimum two scientific papers in National / international seminars during the course of study
9. Post Graduate Scholar is expected to publish / get accepted at least one paper in indexed/ peer reviewed journal under the supervision of guide.

Pattern of Practical Examination- **Total =200 marks**

1. Herbarium	- 10 Marks
2. Pharmacognosy practical record	- 10 Marks
3. Pharmacology practical record	- 10Marks
4. Clinical records record	- 10 Marks
5. Practical examination(Identification of green and raw drugs, microscopic examination, Ekala aushadha pariksha	- 60 Marks
6. Thesis Presentation	- 20Marks
7. Viva voce	- 80 Marks

Reference books -

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