



SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION AND RESEARCH

(A Deemed to be University Declared under Section 3 of UGC Act, 1956)

Comprising Sri DevarajUrs Medical College

[Constituent Unit of Sri DevarajUrs Educational Trust for Backward Classes (Regd.)]

TAMAKA, KOLAR-563103, KARNATAKA, INDIA

Ph: 08152-243009,+91 9448395232Fax: +918152 -243008 E-mail: registrar@sduu.ac.in/office@sduu.ac.in. Website: www.sduu.ac.in

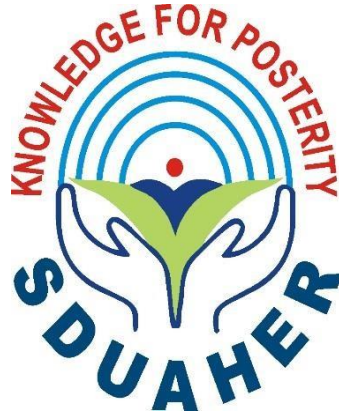
(With effect from 2019-2020 batches)

Competency Based Postgraduate Curriculum for Doctor of Medicine Anatomy


Dean Faculty Of Medicine
Sri Devaraj Urs Academy of Higher
Education & Research, Tamaka, Kolar.

Approved as per BOM-56-2019, (Resolution No-LVI.06) Dated-20/12/2019

REGULATIONS GOVERNING
POST GRADUATE DEGREE PROGRAMMES
CURRICULUM 2019-2020

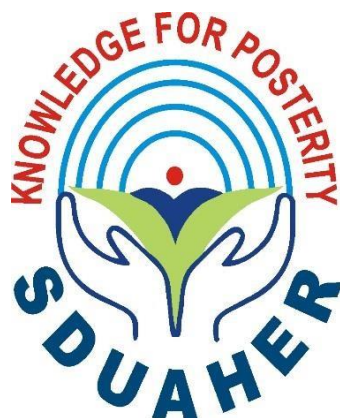


**SRI DEVARAJ URS ACADEMY OF HIGHER
EDUCATION AND RESEARCH**

Comprising Sri Devaraj Urs Medical College
A Deemed To Be University

Declared under section 3 of UGC, Act,1956,
MHRD GOI NO.F,9-36/2006-U.3(A), Dt.25th may 2007
Post box No.62, Tamaka, Kolar-563101, Karnataka, INDIA
Ph:08152-210604,210605,243244:: Fax:08152-243008
Website: www.sduu.ac.in, Email:office@sduu.ac.in/ registrar@sduu.ac.in

REGULATIONS AND CURRICULA
FOR
POST GRADUATE DEGREE PROGRAMMES
IN
MEDICAL SCIENCES
2019-2020



**SRI DEVARAJ URS ACADEMY OF HIGHER
EDUCATION AND RESEARCH**

**Comprising Sri Devaraj Urs Medical College
A Deemed To Be University**

Declared under section 3 of UGC, Act, 1956,
MHRD GOI NO.F,9-36/2006-U.3(A), Dt. 25th may 2007
Post box No. 62, Tamaka, Kolar-563101, Karnataka, INDIA
Ph:08152-210604, 210605, 243244:: Fax: 08152-243008
Website: www.sduu.ac.in, Email: office@sduu.ac.in / registrar@sduu.ac.in

Edition Year: 2020

Published by SDUAHER

VISION:

“UNIVERSITY OF EXCELLENCE - KNOWLEDGE FOR POSTERITY”

MISSION:

1. To be a global centre of excellence for Teaching, Training and Research in the field of Higher education.
2. To inculcate scientific temper, research attitude and social accountability amongst faculty and students.
3. To promote with value based education for the overall personality development and leadership qualities to serve the humanity.

OBJECTIVES:

1. To provide need based infrastructure and facilities to students to become responsible professionals with social commitment and accountability.
2. To implement effectively innovative programs in teaching learning and evaluation.
3. To impart scientific and socio cultural temperament among students to forge national identity and needs.
4. To provide instruction and training in Basic and advanced branches of learning.
5. To provide facilities for research for the advancement and dissemination of knowledge.
6. To undertake extra mural studies, consultancy, extension programmes and field outreach services for the development of society.
7. To collaborate with other Universities, Institutions of excellence and research organizations within the country and outside for the purpose of teaching, training and research.
8. To undertake need based activities for the betterment of socially and educationally backward society.

At a glance this logo is abstract, yet it contains the vital ingredients for an institution like Sri Devaraj Urs Academy of Higher Education and Research, Tamaka, Kolar.

The institution's medical background, Humanitarian values, Compassion,

Approachability, Social Commitment and the subsequent research towards the most precious thing, the human life, is the core theme.

The graphic form of a person in the centre of a bud represents the humanity. It denotes the growing process of life and its existence. And the two hands safeguarding them show the care and a sense of security. It is also capable of holding something within the vast expanse of knowledge by the University for the People's benefit. Hence, the motto "Knowledge for Posterity" is very appropriate and gives a punch in Red. The four light blue half circles (smaller to bigger) depict the unending quest for knowledge and imparting it to a wider horizon, growing higher and higher.

And finally, the whole unit is embedded in a "D" shaped graphic template as background to give it a corporate identity.

COLORS USED:

Deep Blue: Credible, Confident and Dependable. Represents Peace, Tranquility, Stability, Harmony, Trust, Security, Cleanliness and Loyalty

Light Blue: For Sky and Water (color scheme for 4 half circles)

Red: A dominant color for strengths.

Green: For Nature, Health and Generosity. It is cool quality soothes and has great healing powers



SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION AND RESEARCH

Comprising Sri Devaraj Urs Medical College

(A Deemed to be University)

Declared under Section 3 of UGC Act, 1956, MHRD GOI No:F.9-36/2006-U.3 (A) Dt.25th May 2007

TAMAKA, KOLAR-563103, KARNATAKA, INDIA

Ph: 08152-243244, 243009,243160 Fax: 08152-243008 E-mail: registrar@sduu.ac.in/office@sduu.sc.in Website: www.sduu.ac.in

No. SDUAHER/KLR/ ADMN/1322/2020-21

Date:12/10/2020

NOTIFICATION

Sub: Regulations, curricula and syllabi of Postgraduate medical degree programmes in Preclinical, Paraclinical and clinical subjects- reg

Ref.

- I. Proceedings of the Academic Council meetings**
- II. Proceeding of the Board of Management meetings**
- III. MCI notifications**
- IV. SDUAHER notification:**

Academic Council Meetings		Board of Management Meetings	
19 th	17.11.2014	34 th	19.06.2015
21 st	25.04.2015	36 th	04.12.2015
22 nd	18.11.2015	44 th	23.06.2017
27 th	29.04.2017	45 th	09.11.2017
28 th	04.11.2017	48 th	20.06.2018
30 th	05.05.2018	50 th	22.12.2018
31 st	03.11.2018	54 th	06.07.2019
33 rd	04.06.2019	56 th	20.12.2019
34 th	15.11.2019	59 th	09.10.2020
36 th	30.09.2020		

Agenda discussed:

- Objectives of external postings of Post Graduates
- Internal & External postings of PG's with assessment tools
- Minimum marks to be scored in PG theory examinations
- Topics to be included in Forensic medicine and toxicology in paper 4 for PG students
- Work placed based assessment for PG students
- Introduction of Assessment of AETCOM in formative/summative assessment
- Design and development of E-portfolio for all PG's
- Patient handover as common EPA for all departments
- Preparation of Question paper from question bank using software

- Coding of answer booklet by software enabled barcoding
- Development of CBME in PG programmes
- Quarterly formative assessment as an assessment tool for all PGs
- Start course in MD psychiatry
- Implement E- Portfolio of PG's
- Discontinuation of practice for 5th evaluation in PG exam
- Post graduate training programme MCI-PG Medical Education Regulations 2000, amended upto May 2018
- Approval of EPA's as competency based medical training for PG's
- Work placed based assessment as part of quarterly assessment for PG's
- PLO's for all programmes

V. MCI Notifications

- MCI Notification dated 09-12-2009, vide No.MCI.18(1)/2009-Med.55455
- No. MCI-23(1)/2014/Med/153433 Dated 28-01-2015
- MCI Guidelines 2017(CBME based)
- MCI postgraduate medical education regulations 2000 amended upto 2018 (clause 13.2,gazette notification dated 05/04/2018)
- Basic Programme in Biomedical Research(MCI-23(1)/2019-Med./141602 dated 27-08-2019).
- MCI-12(2)/2019-Med.Misc./189334.- Dated:12th February 2020
- MCI-18(1)/2020-Med./121415.-date 16/09/2020- (District Residency Programme' (DRP)

VI. Office Memorandum No. SDUAHER / KLR/ ADMN /8071/2019- 20 Dated 22/06/2019

VII. SDUAHER / KLR/ ADMN /1571/2019-20 dated 12/09/2019

REGULATIONS FOR POST GRADUATE DEGREE PROGRAMME IN MEDICAL SCIENCES

CHAPTER- I

1. Branches of Study

1.1 Postgraduate Degree Programme

The following programmes may be pursued.

A. M.D. (Doctor of Medicine)

1. Anatomy
2. Physiology
3. Biochemistry
4. Pharmacology
5. Pathology
6. Microbiology
7. Forensic Medicine
8. Community Medicine
9. General Medicine
10. Dermatology, Venereology and Leprosy
11. Anesthesiology
12. Paediatrics
13. Radio-Diagnosis
14. Psychiatry

B. M.S. (Master of Surgery)

1. General Surgery
2. Obstetrics and Gynecology
3. Orthopedics
4. Ophthalmology
5. OTO-Rhino-Laryngology

1.2. Eligibility for Admission

1.2.1 MD / MS Degree Programme: A candidate affiliated to this academy and who has passed final year M.B.B.S. examination after pursuing a study in a medical college recognised by the Medical Council of India, from a recognised Medical College affiliated to any other Academy recognised as equivalent thereto, and has completed one year compulsory rotating internship in a teaching Institution or other Institution recognised by the Medical Council of India, and has obtained permanent registration of any State Medical Council will be eligible for admission.

1.2.2 A Candidate seeking admission should have successfully cleared the qualifying examination - NEET (National Eligibility cum Entrance Test) conducted by NBE (National Board of Examination).

1.3. Obtaining Eligibility Certificate by the Academy before making Admission

No candidate will be admitted for any postgraduate degree programme unless the candidate has obtained and produced the eligibility certificate issued by the Academy. The candidate has to make an application to the Academy with the following documents along with the prescribed fee:

1. S.S.L.C Marks card
2. 10+2 Certificate
3. All MBBS Marks Cards
4. Internship Completion Certificate
5. Attempt / Academic certificate
6. Degree Certificate
7. Transfer Certificate
8. Migration Certificate
9. Study/ Bonafide Certificate
10. Character & Conduct certificate
11. MCI Recognized Certificate by college
12. Karnataka Medical Council/State medical council
13. MCC Allotment Letter
14. NEET Admission Ticket
15. NEET Rank card
16. Caste (SC/ST) /OBC certificate (domicile) & Income Certificate
17. Aadhar card of both candidate and parents / sponsors
18. Bond for SR Ship
19. Remaining years fee bond

NOTE: The NRI/NRI Sponsor students have to submit the documents as per the MCC/DGHS Criteria for NRI status

Candidates should obtain the Eligibility Certificate before the last date for admission as notified by the Academy.

A candidate who has been admitted to postgraduate programme should register his / her name in the Academy within a month of admission after paying the registration fee.

1.4. Intake of Students

The intake of students to each programme will be in accordance with the ordinance in this behalf.

1.5. Duration of Study

a) M.D/M.S Degree Programme

The programme of study will be for a period of 3 years consisting of 6 academic terms.

1.6. Method of training

The training of postgraduate for degree will be residency pattern with graded responsibilities in the management and treatment of patients entrusted to his/her care. The participation of the students in all facets of educational process is essential. Every candidate should participate in seminars, group discussions, grand rounds, case demonstration, clinics, journal review meetings, CPC and clinical meetings. Every candidate should participate in the teaching and training programme of undergraduate students. Training includes involvement in laboratory and experimental work and research studies.

1.6.1. Teaching methodology

1.6.1.1 Includes Didactic lectures, small group discussion such as seminars, journal clubs, symposia, reviews and guest lectures for acquiring theoretical knowledge.

1.6.1.2 Bedside teaching, grand rounds, structured interactive group discussions and clinical demonstrations should be the hallmark of clinical/practical learning with appropriate emphasis on e-learning. Student should have hand-on training in performing various procedures and ability to interpret various tests/investigations.

1.6.1.3 Exposure to newer specialized diagnostic/therapeutic procedures concerning her/his subject should be given.

1.6.4 Self-learning tools like assignments and case-based learning should be promoted.

1.6.2. Clinical postings and Rotation of posting

Basic medical sciences students will be posted to allied and relevant clinical departments or institutions. Students working in clinical departments will be posted to basic medical sciences and allied speciality departments or institutions. It should be done as concurrent studies during the 1st year of training Similarly Inter-unit rotation in the department should be done for a period of up to one year. Rotation in appropriate related subspecialties **should not extend for a period exceeding 06 months.** Postings to other specialty departments will be during the second year.

All postgraduates' students pursuing MD/MS in broad specialities shall undergo a compulsory residential rotation of three months in District Hospital / District Health system as a part of the course curriculum. Such rotation shall take place in the 3rd or 4th or 5th semester of the postgraduates programme. This rotation shall be termed as District residency programme and the postgraduate medical student undergoing training shall be termed as a District Resident.

Satisfactory completion of the District Residency shall be an essential condition before the candidate is allowed to appear in the final examination of the respective postgraduate course. The District Residency Programme Coordinator (DRPC) shall issue certificate of satisfactory completion of DRP and report on the performance of the District Resident on a prescribed format to the concerned Medical College and the Government of State/Union Territory. No. MCI-18(1)/2020-Med./121415. – date 16/09/2020

1.6.3. Clinical meetings:

Clinical meetings will be conducted within the department weekly and also inter departmental meetings will be conducted monthly to discuss uncommon/interesting cases.

1.6.4 Log book:

Each student should maintain a logbook and document day to-day activities like documentation of ward work, teaching and learning activities , clinical case discussion, procedures performed , seminars, journal clubs, symposium ,CPC meets, inter-unit/interdepartmental teaching sessions, mortality meets, workshops, CME/conferences .The Log books will be checked and assessed periodically by the faculty members imparting the training. This will in turn be evaluated/assessed by an external reviewer appointed by the Director of PG Studies biannually during the months of July and January. The log book should be preserved and presented at the time of summative examinations conducted by the Academy.

1.6.5 Research activities:

- 1.6.5.1 The student should know the basic concepts of research methodology plan a research project and be able to retrieve information from the library. The student should have a basic knowledge of statistics.
- 1.6.5.2 A postgraduate student of a postgraduate degree programme in broad specialities should present one poster presentation, read one paper at a national/state conference and publish one research paper which should be published /accepted for publication/sent for publication during the period of his postgraduate studies so as to make him eligible to appear at the postgraduate degree examination. MCI Notification No.18(1)/2009/medicine/55455 Dated:09-12-2009
- 1.6.5.3 Department should encourage e-learning activities.

1.6.6 Basic Programme in Biomedical Research:

In order to improve the research skills of post-graduate students, the Board of Governors (BoG) has recommended a uniform research methodology programme across the country, the online programme, “Basic programme in Bio-medical Research”, will be offered by ICMR-National Institute of Epidemiology (ICMR-NIE), Chennai (www.nie.gov.in). The programme will explain fundamental concepts in

Research methodology. This programme is being offered through SWAYAM programme of ministry of human resource development through SWAYAM NPTEL (http://swayam.gov.in/nc_details/NPTEL)

1.6.7 Synopsis and Dissertation:

Every candidate will submit to the Registrar of the Academy in the prescribed proforma, a synopsis containing particulars of proposed dissertation work within six months from the date of commencement of the programme on or before the dates notified by the Academy. The synopsis will be sent through the proper channel.

Such synopsis will be reviewed and the dissertation topic will be registered by the Academy. No change in the dissertation topic or guide will be made without prior approval of the Academy.

Every candidate pursuing MD/MS degree programme is required to carry out work on a selected research project under the guidance of a recognized post graduate teacher. The results of such a work will be submitted in the form of a dissertation.

The dissertation is aimed to train a post graduate student in research methods and techniques. It includes identification of a problem, formulation of a hypothesis, search and review of literature, getting acquainted with recent advances, designing of a research study, collection of data, critical analysis and comparison of results and drawing conclusions.

The dissertation should be written under the following headings:

- Introduction
- Aims or Objectives of study
- Review of Literature
- Material and Methods
- Results
- Discussion
- Conclusion
- Summary
- References
- Tables
- Annexures

The written text of dissertation will be not less than 50 pages and will not exceed 150 pages excluding references, tables, questionnaires and other annexures. It should be neatly typed in double line spacing on one side of paper (A4 size, 8.27" x 11.69") and bound properly. Spiral binding should be avoided. The dissertation will be certified by the guide, Head of the department and Head of the Institution.

Six hard copies of dissertation and one soft copy thus prepared will be submitted to

the Controller of Examination (CoE), six months before final examination on or before the dates notified by the Academy.

The dissertation will be valued by examiners appointed by the Academy. Approval of dissertation work is an essential precondition for a candidate to appear in the Academy examination.

Guide: The academic qualification and teaching experience required for recognition by this Academy as a guide for dissertation work is as per Medical Council of India, Minimum Qualifications for Teachers in Medical Institutions Regulations, 1998. Teachers in a medical college/institution having a total of eight years teaching experience out of which at least four years teaching experience as Assistant Professor with at least one research publication in indexed journals gained after obtaining post graduate degree will be recognized as post graduate teachers. (No.MCI- 12(2)/2019-Med.Misc./189334.- Dated: 12th February 2020)

Co-guide: may be included provided the work requires substantial contribution from a sister department or from another medical institution recognized for teaching/training by Sri Devaraj Urs Academy /Medical Council of India. The co- guide will be a recognized post graduate teacher of Sri Devaraj Urs Academy.

Change of guide: In the event of a registered guide leaving the college for any reason or in the event of death of guide, guide may be changed with prior permission from the academy.

1.6.8 Journal Club:

Journal club will be conducted once a week. All the PG students are expected to attend and actively participate in discussion and enter the relevant details in the log book. Further, every candidate must make a presentation from the allotted journal(s), selected articles, at least four times a year and a total of 12 presentations in three years. The presentations would be evaluated using check lists and would carry weightage for internal assessment (See checklist - I in Chapter V). A time table with names of the student and the moderator should be announced periodically, (Quarterly).

1.6.9 Subject Seminar:

Subject seminar will be conducted once a week. All the PG students are expected to attend and actively participate in discussion and enter the relevant details in the log book, Further, every candidate must present selected topics at least four times a year and a total of 12 seminar presentations in three years. The presentations would be evaluated using check lists and would carry weightage for internal assessment (See checklist-II in Chapter V). A timetable for the subject with names of the student and the moderator should be announced periodically, (Quarterly).

1.6.10 Student Symposium:

Student Symposium as an additional inter departmental programme will be conducted periodically, once in three months. The evaluation may be similar to that described for subject seminar.

1.6.11 Ward Rounds:

Ward rounds are service or teaching rounds.

- i. *Service Rounds:* Postgraduate students and Interns will do every day for the care of the patients. Newly admitted patients should be worked up by the PGs and presented to the seniors the following day.
- ii. *Teaching Rounds:* Every unit will have 'grand rounds' for teaching purpose. A diary should be maintained for day to day activities by the students. Entries of (i) and (ii) should be made in the Log book.

1.6.12 Clinico-Pathological Conference:

CPC will be conducted once in two months for all post graduate students. Presentation will be done by rotation. If cases are not available due to lack of clinical postmortems, it could be supplemented by published CPCs.

1.6.13 Inter Departmental Meetings:

These will be conducted once a month. These meetings will be attended by post graduate students and relevant entries must be made in the Log Book.

1.6.14 Teaching & Learning Skills:

Post graduate students must teach under graduate students (Eg. medical, nursing) by taking demonstrations, bed side clinics, tutorials, lectures etc.

Assessment is made using a checklist by surgery faculty as well as students. (See model checklist -III in Chapter V). Record of their participation should be documented in the Log book. Training of post graduate students in Educational Science and Technology is recommended.

Further, all postgraduate students are required to attend at least about 35 hours of didactic lecture as notified by the individual departments.

1.6.15 Entrustable Professional Activity:

EPAs are units of professional practice, defined as tasks or responsibilities to be entrusted to the unsupervised execution by a trainee once he or she has attained sufficient specific competence. EPAs are independently executable, observable, and measurable in their process and outcome, and therefore, suitable for entrustment decisions. The Entrustable professional activity (EPA) concept allows faculty to make competency-based decisions on the level of supervision required by trainees. The Academy has identified few such EPA's for all students in various degree programme. These are:

1. EPA 1: Gather a history and perform a physical examination

2. EPA 2: Prioritize a differential diagnosis following a clinical encounter
3. EPA 3: Recommend and interpret common diagnostic and screening tests
4. EPA 4: Obtain informed consent for tests and / or procedures
5. EPA 5: Recognize a patient requiring urgent or emergent care and initiate evaluation and management
6. EPA 6: Give or receive a patient handover to transition care responsibility
7. EPA 7: Undertake complete patient monitoring including the preoperative and post-operative care of the patient.
8. EPA 8: Provide basic and advanced lifesaving support services in emergency situations
9. EPA 9: Collaborate as a member of an inter-professional team
10. EPA 10: Perform general procedures of a physician
11. EPA 11: Enter and discuss orders and prescriptions
12. EPA 12: Prepare a comprehensive discharge summary.
13. EPA 13: Form clinical questions and retrieve evidence to advance patient care.

However in addition to these common EPA's individual departments are advised to develop their own EPA's.

1.7. Continuing Medical Education (CME):

Every PG student must attend at least 2 CME programmes either at state/regional /zonal/national levels.

1.8. Conferences:

Attending conferences is optional. However it has to be encouraged. All students are encouraged to attend conferences (at state/national/international levels) to enable them to make paper/poster presentations, which is a mandatory requirement to fulfill before appearing for final examinations.

1.9. Attendance, Progress and Conduct:

- A candidate pursuing degree programme will work in the concerned department of the institution for the full period as a full time student. No candidate is permitted to run a clinic/laboratory/nursing home while studying postgraduate programme.
- Academic term of 6 months will be taken as a unit for the purpose of calculating attendance. The candidate should have 80% attendance in each academic term of 6 months.

- Every student will attend symposia, seminars, conferences, journal review meetings, grand rounds, CPC, case presentation, clinics and lectures during each year as prescribed by the department and not absent himself / herself from work without valid reasons.
- Every candidate is required to attend a minimum of 80% of the training during each academic term of the post graduate programme. Provided further, leave of any kind will not be counted as part of academic term without prejudice to minimum 80% attendance of training period every term.
- All the candidates joining the Post Graduate training programme will work as 'Full Time Residents' during the period of training and will attend not less than 80% (Eighty percent) of the imparted training during each academic term. Including assignments, full time responsibilities and participation in all facets of the education process.
- Any student who fails to complete the programme in the manner stated above will not be permitted to appear for the Academy Examinations.
- A Postgraduate student of a postgraduate degree programme would be required to present one poster presentation, to read one paper at a national/state conference and to present one research paper which should be published / accepted for publication/sent for publication during the period of postgraduate studies so as to make him eligible to appear at the postgraduate degree examination.

Ref: As MCI Notification dated 09-12-2009, vide No.MCI.18 (1)/2009- Med.55455 and Para No.4.

Procedure for defaulters:

Every department will have a committee containing Head of the department and PG guides to review such situations. The defaulting candidate is counseled by the guide and head of the department. In extreme cases of default the departmental committee may recommend that defaulting candidate be withheld from appearing the examination, if she/he fails to fulfill the, requirements in spite of being given adequate chances to set himself or herself right.

2 Monitoring Progress of Studies:

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring will be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using checklists that assess various aspects. Checklists are given in Chapter V.

The learning outcomes to be assessed should include:

- Personal Attitudes,
- Acquisition of Knowledge,
- Clinical and operative skills,
- Teaching skills and
- Dissertation.

a. Personal Attitudes:

The essential items are:

- Caring attitudes
- Initiative
- Organisational ability
- Potential to cope with stressful situations and undertake responsibility
- Trustworthiness and reliability
- To understand and communicate intelligibly with patients and others
- To behave in a manner which establishes professional relationships with patients and colleagues
- Ability to work in team
- A critical enquiring approach to the acquisition of knowledge

The methods used mainly consist of observation. It is appreciated that these items require a degree of subjective assessment by the guide, supervisors, self, peers, faculty from the unit and nurses. (Multi source feedback MSF) checklist XII

b. Acquisition of Knowledge:

The methods used comprise of

2.1 Log book: (Check List - XIII Chapter - V)

'Log Book' which records participation in various teaching / learning activities by the students. The number of activities attended and the number in which presentations are made must be recorded. The log book will periodically be validated by the supervisors. Some of the activities are listed. During the training period, the post graduate student should maintain a Log Book indicating various teaching / learning activities, duration of the postings/work done in Wards including super specialty, OPDs and Casualty. This should indicate the specified number of cases for clinical discussion, procedures and operations observed, assisted and performed / presented seminars and review articles from various journals in inter- unit/inter departmental teaching sessions.

The purpose of the Log Book is to:

- Help maintain a record of the work done during training,
- Enable Consultants to have direct information about the work; intervene if necessary,
- Use it to assess the experience gained periodically.

The log book will be used to aid the internal evaluation of the student.

The Log books will be checked and assessed periodically, monthly basis by guide / head of the unit/ head of the department and biannually by external reviewer.

Procedure for defaulters:

Every department will have a committee to review such situations. The "defaulting candidate is counseled by the guide and head of the department. In extreme cases of default the departmental committee will recommend that defaulting candidate be withheld from appearing the examination, if she/he fails to fulfill the requirements in spite of being given adequate chances to set himself or herself right

2.2 Journal Review Meeting (Journal Club):

The ability to do literature search, in depth study, presentation skills, and use of audio-visual aids are to be assessed. The assessment is made by faculty members and peers attending the meeting using a checklist (see Model Checklist -I, in Chapter V)

2.3 Seminars/Symposia:

The topics will be assigned to the student well in advance to facilitate in depth study. The ability to do literature search, in depth study, presentation skills and use of audio-visual aids will be assessed using a checklist (see Model Checklist -II, Chapter V)

2.4 Clinico'-Pathological conferences:

This will be a multidisciplinary case study of an interesting case to train the candidate to solve diagnostic and therapeutic problems by using an analytical approach. The presenter(s) are to be assessed using a check list similar to that used for seminar.

2.5 Surgical Audit:

Periodic morbidity and mortality meeting must be held. Attendance and participation in these must be insisted upon. This may not be included in assessment.

2.6 Clinical skills

Day to Day work: Skills in outpatient and ward work will be assessed periodically. The assessment should include the candidates' sincerity and punctuality, analytical ability and communication skills (see Model Checklist -V, Chapter V). – Mini CEX (Model check list VII, Chapter V)

2.7 Clinical meetings (Clinical Presentations) :

Candidates should periodically present cases to his peers and faculty members. This should be assessed using a check list (see Model checklist V, Chapter V).

2.8 Clinical and Operative skills:

The candidate will be given graded responsibility to enable learning by apprenticeship. The performance is assessed by the guide by DOPS (Model check list VI, Chapter V). Particulars are recorded by the student in the log book.

2.9 Teaching skills:

Post graduates are required to teach undergraduate medical students and paramedical students, if any (*as a part of Post graduate training*). This performance should be based on assessment by the faculty members of the department and from feedback from the undergraduate students (See Model checklist III, Chapter V) - Microteaching Pedagogy (Model check list VIII, Chapter V)

2.10 Dissertation in the Department:

Periodic presentations must be made in the department. Initially the topic selected is to be presented before submission to the Academy for registration and again before finalization for critical evaluation and before final submission of the completed work (See Model Checklist IX & X, Chapter V)

2.11 Periodic tests:

The concerned departments will conduct quarterly tests. The final test will be held three months before the final examination. The tests may include written papers, practical's / clinical and viva voce. Records and marks obtained in such tests will be maintained by the Head of the Department and sent to the Academy, when called for.

2.12 Work diary / Log Book-

Every candidate will maintain a work diary and record his/her participation in the training programmes conducted by the department such as journal reviews, seminars, etc. Special mention must be made of the presentations by the candidate as well as details of clinical or laboratory procedures, if any conducted by the candidate.

2.13 Records:

Monthly and quarterly reviews of records, log books and marks obtained in tests will be maintained by the Head of the Department and will be made available to the Academy, when called for.

3. ASSESSMENT:

3.1 Formative Assessment

It is essential to monitor the learning progress of each candidate through **continuous appraisal and regular assessment**. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring to be done by the staff of the department based on participation of students in various teaching /learning

activities. It may be structured and assessment be done using checklists that assess, various aspects. This includes assessment of patient care, procedural & academic skills, interpersonal skills, professionalism, self-directed learning and ability to practice in the system.

Checklists are given in Chapter-V

Assessment during the MS/MD training should be based on:

Assessment at end of rotation (Quarterly Postgraduate Student's Appraisal Form) by the Unit Head. The student to be assessed periodically as per categories listed in **Postgraduate Student Appraisal Form** (See Model checklist-X, Chapter V).

Multisource Feedback (MSF) - Quarterly

MSFs should be obtained quarterly from:- 2 from faculty of the unit/department; 2 from peers posted in the unit; 2 from interns, 2 from staff nurses from the areas attached to the unit, 2 from patient/patient relative. (Checklist XII - Chapter V)

Periodic assessment -The Quarterly tests may include written papers (theory), practical's / clinical and viva voce.

Quarterly Postgraduate Student's Appraisal Form (See Model checklist-X I, Chapter V).

- Journal based/ recent advances learning
- Patient based or Skill based learning
- Self-directed learning and teaching
- Departmental & interdepartmental learning activity
- External & Outreach activities/ Continuing Medical Education (CME)
- Attendance, Progress and Conduct

A candidate pursuing degree programme should work in the concerned department of the institution for the full period as a full time student. No candidate is permitted to run a clinic/laboratory/nursing home while studying postgraduate programme.

Academic term of 6 months will be taken as a unit for the purpose of calculating attendance. Every student will attend symposia, seminars, conferences, journal review meetings, grand rounds, CPC, case presentation, clinics and lectures during each year as prescribed by the department and not absent himself / herself from work without valid reasons.

Every candidate is required to attend a minimum of 80% of the training during each academic term of the post graduate programme. Provided further, leave of any kind will not be counted as part of academic term without prejudice to minimum 80% attendance of training period every term.

All the candidates joining the Post Graduate training programme will work as 'Full Time Residents' during the period of training and will attend not less than 80% (Eighty percent) of the imparted training during Academic Term of 6 months including assignments, full time responsibilities and participation in all facets of the education process.

Any student who fails to complete the programme in the manner stated above will not be permitted to appear for the Academy Examinations.

A Postgraduate student of a postgraduate degree programme in broad specialities/super specialities would be required to present one poster presentation, to read one paper at a national/state conference and to present one research paper which should be published / accepted for publication/sent for publication during the period of postgraduate studies so as to make him eligible to appear at the postgraduate degree examination.

Ref: As MCI Notification dated 09-12-2009, vide No.MCI.18 (1)/2009-Med.55455 and Para No.4.

Procedure for defaulters:

Every department should have a committee containing Head of the department and PG guides to review such situations. The defaulting candidate is counseled by the guide and head of the department. In extreme cases of default the departmental committee may recommend that defaulting candidate be withheld from appearing the examination, if she/he fails to fulfill the, requirements in spite of being given adequate chances to set himself or herself right.

3.2 Scheme of examinations

Summative assessment

The summative examination would be carried out as per the Rules given in POSTGRADUATE MEDICAL EDUCATION REGULATIONS, 2000 and amended up to 2018. (The Clause 14 under the heading "EXAMINATION" shall be substituted in terms of Gazette Notification published on 05.04.2018).

The examination will be in three parts:

3.2.1 DISSERTATION

Every post graduate student will carry out work on an assigned research project under the guidance of a recognized Post Graduate Teacher, the result of which will be written and submitted in the form of a dissertation. Work for writing the dissertation is aimed at contributing to the development of a spirit of enquiry, besides exposing the candidate to the techniques of research, critical analysis, acquaintance with the latest advances in medical science and the manner of identifying and consulting available literature. Dissertation will be submitted at

least six months before the Theory and Clinical / Practical examination. The dissertation will be examined by a minimum of three examiners; one internal and two external examiners, who will not be the examiners for Theory and Clinical examination. A candidate will be allowed to appear for the Theory and Practical/Clinical examination only after the acceptance of the dissertation by the examiners.

3.2.2. THEORY

There will be four question papers, each of three hours duration. Each paper will consist of ten questions each question carrying 10 marks, so the total marks for each paper will be 100. Questions on recent advances maybe asked in any or all the papers. The examinations will be organised on the basis of 'Grading' or 'Marking system' to evaluate and to certify candidate's level of knowledge, skill and competence at the end of the training. The Clause 14 under the heading "EXAMINATION" shall be substituted in terms of Gazette Notification published on 05.04.2018 and the same is as under:-

Obtaining a minimum of 40% marks in each theory paper and not less than 50% cumulatively in all the four papers for degree examinations and three papers in diploma examination. Obtaining of 50% marks in Practical examination shall be mandatory for passing the examination as a whole in the said degree/diploma examination as the case may be. Obtaining a minimum of 50% marks in 'Theory' as well as 'Practical' separately will be mandatory for passing examination as a whole. The examination for MS/MD will be held at the end of 3rd academic year.

3.2.3. Clinical / Practical and viva voce Examination

Clinical examination will be conducted to test the knowledge, skills, attitude and competence of the post graduate students for undertaking independent work as a specialist/Teacher, for which post graduate students will examine a minimum one long case and two short cases.

The Oral examination will be thorough and will aim at assessing the post graduate student's knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the specialty, which form a part of the examination.

Assessment may include Objective Structured Clinical Examination (OSCE) Oral/Viva-voce examination needs to assess knowledge on X-rays, instrumentation, operative procedures. Due weightage should be given to Log Book Records and day to-day observation during the training.

ALLOTMENT OF MARKS

THEORY	MARKS ALLOTMENT	MAXIMUM MARKS	
PAPER-I	10 X 10	100	400
PAPER-II	10 X 10	100	
PAPER-III	10 X 10	100	
PAPER-IV	10 X 10	100	

<u>CLINICALS/ PRACTICALS</u>		200
<u>VIVA VOCE</u>	<u>80</u>	100
<u>PEDAGOGY</u>	<u>20</u>	
TOTAL		700

3.2 Examiners:

There will be at least four examiners in each subject. Out of them two will be external examiners and two will be internal examiners. The qualification and teaching experience for appointment as an examiner will be as laid down by the Medical Council of India. No person will be appointed as internal examiner in any subject unless he/she has three years' experience as recognized PG teacher in the concerned subject. For external examiners he/she should have minimum six years of experience as recognized PG teacher in the concerned subject.

3.2.4 Criteria for declaring as pass in Academy Examination:

A candidate should score minimum 40% marks in each theory paper and not less than 50% marks cumulatively in all the papers in postgraduate degree/diploma, to be declared as pass in the examinations. A candidate shall secure not less than 50% marks in each head of passing which shall include (1) Theory, (2) Practical including clinical and viva voce examination. A candidate securing less than 50% of marks as described above shall be declared to have failed in the examination. (No. MCI-23(1)/2014/Med/153433 Dated 28-01-2015) A failed candidate may appear in any sub-subsequent examination upon payment of fresh fee to the Registrar of the University.

3.2.5 Declaration of distinction:

A successful candidate passing the Academy examination in first attempt will be declared to have passed the examination with distinction, if the grand total aggregate marks are 75 percent and above. Distinction will not be awarded for candidates passing the examination in more than one attempt.

3.2.6 Number of Candidates per day.

The maximum number of candidates for practical/clinical and viva-voce examination will be as under: MD / MS Programme: Maximum of 8 per day

4. ELIGIBILITY CRITERIA FOR APPEARING FOR EXAMINATIONS 4.1 ATTENDANCE

All the candidates joining the Post Graduate training programme will work as 'Full Time Residents' during the period of training and will attend not less than 80% (Eighty percent) of the imparted training during Academic Term of 6 months including assignments, full time responsibilities and participation in all facets of the education process.

- Every student will attend all teaching programmes during each year as prescribed by the department and not absent himself / herself from work without valid reasons
- Every candidate is required to attend a minimum of 80% of the training during each academic year of the post graduate programme. Provided further, leave of any kind will not be counted as part of academic term without prejudice to minimum 80% attendance of training period every term.
- Any student who fails to complete the programme in the manner stated above will not be permitted to appear for the Academy Examinations.

4.2. PROGRESS AND CONDUCT

- Every student will attend symposia, seminars, conferences, journal review meetings, grand rounds, CPC, case presentation, clinics and lectures during each term as prescribed by the department and not absent himself / herself from work without valid reasons.
- Every candidate is required to attend a minimum of 80% of the training during each academic term of the post graduate programme. Provided further, leave of any kind will not be counted as part of academic term without prejudice to minimum 80% attendance of training period every term.

4.3. RESEARCH ACTIVITIES-PAPER/POSTER/PUBLICATIONS

- A Postgraduate student of a degree programme in broad speciality would be required to present one poster presentation, to read one paper at a national/state conference and to present one research paper which should be published / accepted for publication/sent for publication during the period of postgraduate studies so as to make him eligible to appear at the postgraduate degree examination. Ref: As MCI Notification dated 09-12-2009, vide No.MCI.18 (1)/2009-Med.55455 and Para No.4.
- It is mandatory for all postgraduate students to undergo training in online programme in "Basic Programme in Biomedical Research" Which should be completed by the end of second semester .Not completing the programme will make them ineligible for appearing for the final academy examinations.(MCI-23(1)/2019-Med./141602 dated 27-08-2019).

4.4 DISSERTATION

Every post graduate student will carry out work on an assigned research project under the guidance of a recognised Post Graduate Teacher, the result of which will

be written and submitted in the form of a dissertation. Dissertation will be submitted at least six months before the Theory and Clinical / Practical examination. The dissertation will be examined by a minimum of three examiners; one internal and two external examiners, who will not be the examiners for Theory and Clinical examination. A candidate will be allowed to appear for the Theory and Practical/Clinical examination only after the acceptance of the dissertation by the examiners.

4.5 District Residency Programme

All postgraduates students pursuing MD/MS in broad specialties shall undergo a compulsory residential rotation of three months in District Hospital / District Health system as a part of the course curriculum. Such rotation shall take place in the 3rd or 4th or 5th semester of the postgraduates programme. This rotation shall be termed as District residency programme and the postgraduate medical student undergoing training shall be termed as a District Resident.

Satisfactory completion of the District Residency shall be an essential condition before the candidate is allowed to appear in the final examination of the respective postgraduate course. The District Residency Programme Coordinator (DRPC) shall issue certificate of satisfactory completion of DRP and report on the performance of the District Resident on a prescribed format to the concerned Medical College and the Government of State/Union Territory. No. MCI-18(1)/2020-Med./121415. – date 16/09/2020

Procedure for defaulters:

Every department should have a committee containing Head of the department and PG guides to review such situations. The defaulting candidate is counseled by the guide and head of the department. In extreme cases of default the departmental committee may recommend that defaulting candidate be withheld from appearing the examination, if she/he fails to fulfill the, requirements in spite of being given adequate chances to set himself or herself right.

CHAPTER II
**GOALS AND GENERAL OBJECTIVES OF POSTGRADUATE MEDICAL
EDUCATION PROGRAM**

GOALS:

The goal of postgraduate medical education will be to produce a competent specialist and/or a medical teacher:

- i. Who will recognize the health needs of the community, and carry out professional obligations ethically and in keeping with the objectives of the national health policy;
- ii. Who will have mastered most of the competencies, relating to the specialty, that are required to be practiced at the secondary and the tertiary levels of the health care delivery system;
- iii. Who will be aware of the contemporary advances and developments in the discipline concerned;
- iv. Who will have acquired a spirit of scientific inquiry and is oriented to the principles of research methodology and epidemiology; and
- v. Who will have acquired the basic skills in teaching of the medical and paramedical professionals.

GENERAL OBJECTIVES:

At the end of the postgraduate training in the discipline concerned the student will be able to:

- i. Recognize the importance of the concerned specialty in the context of the health need of the community and the national priorities in the health sector.
- ii. Practice the specialty concerned ethically and in step with the principles of primary health care.
- iii. Demonstrate sufficient understanding of the basic sciences relevant to the concerned specialty.
- iv. Identify social, economic, environmental, biological and emotional determinants of health in a given case, and take them into account while planning therapeutic, rehabilitative, preventive and promotive measures/strategies.
- v. Diagnose and manage majority of the conditions in the specialty concerned on the basis of clinical assessment, and appropriately selected and conducted investigations.
- vi. Plan and advice measures for the prevention and rehabilitation of patients suffering from disease and disability related to the specialty.
- vii. Demonstrate skills in documentation of individual case details as well as morbidity and mortality data relevant to the assigned situation,
- viii. Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behavior in accordance with the societal norms and expectations.
- ix. Play the assigned role in the implementation of national health programmes, effectively and responsibly.

- x. Organize and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or the field situation.
- xi. Develop skills as a self-directed learner, recognize continuing educational needs; select and use appropriate learning resources.
- xii. Demonstrate competence in basic concepts of research methodology and epidemiology, and be able to critically analyse relevant published research literature.
- xiii. Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.
- xiv. Function as an effective leader of a health team engaged in health care, research or training.

STATEMENT OF THE COMPETENCIES

Keeping in view the general objectives of postgraduate training, each disciplines will aim at development of specific competencies, which will be defined and spelt out in clear terms. Each department will produce a statement and bring it to the notice of the trainees in the beginning of the programme so that he or she can direct the efforts towards the attainment of these competencies.

COMPONENTS OF THE PG CURRICULUM

The major components of the PG curriculum will be:

- Theoretical knowledge
- Practical/clinical Skills
- Training in Thesis.
- Attitudes, including communication.
- Training in research methodology.

Source: Medical Council of India, Regulations on Postgraduate Medical Education, 2006 and 2008.

COMPETENCY BASED POSTGRADUATE TRAINING PROGRAMME FOR M.D. ANATOMY

Preamble:

The purpose of PG education is to create specialists who would provide high quality health care and advance the cause of science through research & training. These guidelines would help to achieve a uniform level of training of MD Anatomy to post graduate students throughout the country. The student, after undergoing the training, should be able to deal effectively with the needs of the medical community and should be competent to handle all problems related to the specialty of Anatomy and recent advances in the subject.

The post graduate student should also acquire skills in teaching anatomy to medical and para-medical students and be able to integrate teaching of Anatomy with other relevant subjects, while being aware of her/his limitations.

M. D. ANATOMY

I. GOAL:

The postgraduate program(M.D. in Anatomy) should enable a medical graduate to become a competent specialist, acquire knowledge and skills in educational technology for teaching medical and health sciences and conduct research in bio- medical sciences.

After completing the three year program in MD Anatomy the student should have achieved competence in the following:

1. Knowledge of Anatomy: Acquire competencies in gross and surface anatomy, neuro-anatomy, embryology, genetics, histology, radiological anatomy, applied aspects and recent advances of the above mentioned branches of anatomy to clinical practice.

2. Practical and Procedural skills: Acquire mastery in dissection skills, embalming, tissue preparation and staining and museum preparation.

3. Training skill in Research Methodology: Acquire skills in teaching, research methodology, epidemiology & basic information technology. Acquire knowledge in the basic aspects of Biostatistics and research methodology. Has knowledge to plan the protocol of a thesis, carry out review of literature, execution of research project

and preparation of report. Has ability to use computer applications Microsoft office, Internet, Searching scientific databases (e.g. PubMed, Medline, Cochrane reviews).
Acquire skills in paper & poster preparation, writing research papers and Thesis.

4 Professionalism, attitude and communication skills: Develop honest work ethics and empathetic behaviour with students and colleagues. Acquire capacity of not letting his/her personal beliefs, prejudices, and limitations come in the way of duty. Acquire attitude and communication skills to interact with colleagues, teachers and students.

5. Teaching Anatomy: Practice of different methods of teaching-learning.

6 Problem Solving: Demonstrate the ability to identify applied implications of the knowledge of anatomy and discuss information relevant to the problem, using consultation, texts, archival literature and electronic media. Demonstrate the ability to correlate the clinical conditions to the anatomical, embryological and hereditary factors. To critically analyse conflicting data and hypothesis.

SUBJECT SPECIFIC COMPETENCIES:

At the end of the program, the student should have acquired following competencies:

A. Cognitive domain

1. Describe gross anatomy of entire body including upper limb, lower limb, thorax, abdomen, pelvis, perineum, head and neck, brain and spinal cord.
2. Explain the normal disposition of gross structure, and their interrelationship in the human body. She/he should be able to analyse the integrated functions of organs systems and locate the site of gross lesions according to deficits encountered.
3. Describe the process of gametogenesis, fertilization, implantation and placenta formation in early human embryonic development along with its variation and applied anatomy.
4. Demonstrate knowledge about the sequential development of organs and systems along with its clinical anatomy, recognize critical stages of development and effects of common teratogens, genetic mutations and environmental hazards.
5. Explain the principles of light, transmission and scanning, compound, electron, fluorescent and virtual microscopy.

6. Describe the microscopic structure of various tissues & organs and correlate structure with functions as a prerequisite for understanding the altered state in various disease processes.
7. Describe structure, number, classification, abnormalities and syndromes related to human chromosomes.
8. Describe important procedures in cytogenetics and molecular genetics with its application.
9. Demonstrate knowledge about single gene pattern inheritance, intermediate pattern and multiple alleles, mutations, non-mendelian inheritance, mitochondrial inheritance, genome imprinting and parental disomy.
10. Describe multifactorial pattern of inheritance, teratology, structure gene, molecular screening, cancer genetics and pharmacogenetics.
11. Demonstrate knowledge about reproduction genetics, assisted reproduction, prenatal diagnosis, genetic counseling and ethics in genetic.
Explain principles of gene therapy and its applied knowledge.
12. Describe immune system and cell types involved in defense mechanisms of the body. Also explain gross features, cytoarchitecture, functions, development and histogenesis of various primary and secondary lymphoid organs in the body.
13. Demonstrate knowledge about common techniques employed in cellular immunology and histocompatibility testing.
14. Demonstrate applications of knowledge of structure & development of tissue organ system to comprehend deviations from normal.
15. Demonstrate knowledge about recent advances in medical sciences which facilitate comprehension of structure function correlations and applications in clinical problem solving.
16. Explain collection, maintenance and application of stem cells and principles of organ donation from recently dead bodies.
17. Demonstrate knowledge about surface marking of all regions of the body.
18. Able to interpret various radiographs of the body, normal CT Scan, ultrasound and MRI.
19. Demonstrate knowledge about different anthropological traits and use of related instruments.
20. Demonstrate knowledge about outline of comparative anatomy of whole body and basic human evolution
21. Demonstrate knowledge about identification of human bones, determination of sex, age, and height for medico legal application of anatomy

B. Affective domain

1. Demonstrate self-awareness and personal development in routine conduct. (*Selfawareness*)
2. Communicate effectively with peers, students and teachers in various teaching learning activities. (*Communication*)
3. Demonstrate
 - a. Due respect in handling human body parts & cadavers during dissection. (*Ethics & Professionalism*)
 - b. Humane touch while demonstrating living surface marking in subject/patient. (*Ethics & Professionalism*)
4. Acquire capacity of not letting his/her personal beliefs, prejudices and limitations come in the way of duty.
5. Appreciate the issues of equity and social accountability while exposing students to early clinical exposure. (*Equity and social accountability*)

C. Psychomotor domain

- a. Identify, locate and demonstrate surface marking of clinically important structures in the cadaver and correlate it with living anatomy.
- b. Acquire mastery in dissection skills, embalming, tissue preparation, staining and museum preparation.
- c. Locate and identify clinically relevant structures in dissected cadavers.
- d. Locate and identify cells & tissues under the microscope.
- e. Identify important structures visualized by imaging techniques, specifically radiographs, computerized tomography (CT) scans, MRI and ultrasonography.
- f. Demonstrate various movements at the important joints and actions of various groups of muscles in the human body.
- g. Demonstrate anatomical basis of common clinical procedures expected to be performed by a basic medical doctor.
- h. Demonstrate different methods of teaching-learning and make presentations of the subject topics and research outputs.

II. OBJECTIVES:

At the end of the program, the Postgraduates in Anatomy shall be able to

1. Demonstrate comprehensive knowledge and understanding of gross and microscopic structure of human body and acquire skills to dissect and perform various histological and histo-chemical techniques.
2. Comprehend normal disposition, interrelationships, functional and applied anatomy of the various structures of the body.

3. Describe development of human body to provide an anatomical basis for understanding the structure and correlate with functions both in health and in disease presentations.
4. Acquire knowledge of general and systemic embryology including genetic inheritance and sequential development of organs and systems.
5. Recognize critical stages of development and the effects of common teratogens, genetic mutations and environmental hazards.
6. Explain developmental basis of major variations and abnormalities.
7. Aware of contemporary advances and developments in Anatomy and related bio-medical field.
8. Demonstrate competence in basic concepts of research and acquire a spirit of enquiry in research.
9. Critically evaluate published research literature.
10. Recognize continuing educational needs and develop skills as a self-directed learner.
11. Select and use appropriate learning resources and teaching techniques as applicable for teaching and evaluation of medical and allied health science students.
12. Acquire knowledge relating to latest invasive and non-invasive techniques like X-rays, C.T. Scan, M.R.I., Ultrasound and their interpretation in healthy and disease conditions.
13. Learning the methodology, techniques of embalming, preservation of cadavers and museum techniques.
14. Knowledge and interpretation of Anatomy Act as in existence.

AETCOM

1. Demonstrate self-awareness and self-appraisal in routine conduct
2. Function as an effective member in health care, research and training.
3. Communicate effectively with peers, students and teachers in various teaching, learning activities. Exhibit interpersonal behavior in accordance with social norms and expectations.
4. 4. Demonstrate a. Due respect in handling human body parts & cadavers during dissection.
5. b. Demonstration of surface anatomy in the subject/ patient in a professional
6. manner.
7. Acquire capacity of not letting his/her personal beliefs, prejudices and limitations come in the way of duty.
8. Appreciate the issues of equity and social accountability while exposing students to early clinical exposure. Carryout professional obligations ethically and in keeping with objectives of National Health Policy.

**YEAR- WISE ENTRUSTABLE PROFESSIONAL ACTIVITIES FOR MD
ANATOMY POST GRADUATES**

Sl. No	EPA	COMPETENCY DOMAINS					EXPECTED LEVEL OF COMPETENCY				MS F	ASSESSMENT
		MK	PB LI	SBP	P	ISC	LEVEL I	LEVEL II	LEVEL III	LEVEL IV		
1	1	Yes	No	No	No	No	3months	---	---	---	F/P	NA
2	2	Yes	No	No	No	No	3months	---	---	---	F/P	NA
3	3	Yes	No	No	No	No	3months	---	---	---	F/P	NA
4	4	Yes	No	No	No	No	3months	---	---	---	F/P	NA
5	5	Yes	No	No	No	No	3months	---	---	---	F/P	NA
6	6	Yes	No	No	No	No	3months	---	---	---	F/P	NA
7	7	Yes	Yes	Yes	Yes	Yes	6months	18months	24months	33months	F/P	DOPS, MSF, OSPE, DOAP
8	8	Yes	Yes	Yes	Yes	Yes	6months	18months	24months	33months	F/P	DOPS, MSF, OSPE, DOAP
9	9	Yes	Yes	Yes	Yes	Yes	6months	18months	24months	33months	F/P	DOPS, MSF, OSPE, DOAP
10	10	Yes	Yes	Yes	Yes	Yes	6months	18months	24months	33months	F/P	DOPS, MSF, OSPE, DOAP
11	11	Yes	Yes	Yes	Yes	Yes	6months	18months	24months	33months	F/P	DOPS, MSF, OSPE, DOAP
12	12	Yes	Yes	Yes	Yes	Yes	6months	18months	24months	33months	F/P	DOPS, MSF, OSPE, DOAP
13	13	Yes	Yes	Yes	Yes	Yes	6months	18months	24months	33months	F/P	DOPS, MSF, OSPE, DOAP
14	14	Yes	Yes	Yes	Yes	Yes	6months	18months	24months	33months	F/P	DOPS, MSF, OSPE, DOAP
15	15	Yes	Yes	Yes	Yes	Yes	6months	18months	24months	33months	F/P	DOPS, MSF, OSPE, DOAP

Competency Domains

MK- Medical Knowledge, PBLI- Problem Based Learning and Improvement , SBP – Systems Based Practice, P – Professionalism, ISC- Interpersonal and communication skills

Levels of Competency

Level I – knowledge only, can observe supervision, Level II – can do under direct supervision, Level III- Can do under indirect supervision, Level IV – can do independently, Level V – has expertise to teach others

Multisource Feedback (MSF): Faculty/Peers

Assessment: DOPS / OSPE/ DOAP

1. EPA 1: Gather a history and perform a physical examination
2. EPA 10: Recognize a patient requiring urgent or emergent care and initiate evaluation and management
3. EPA 11: Obtain informed consent for tests and/or procedures
4. EPA 3: Recommend and interpret common diagnostic and screening tests

5. EPA 2: Prioritize a differential diagnosis following a clinical encounter
6. EPA 6: Patient handover

EPA's identified in the department of Anatomy are:

EPA 7: Procurement, Embalming and Preservation of human cadavers.

EPA 8: Preparation of paraffin blocks and section cutting and mounting.

Hematoxylin and Eosin staining of tissue sections.

EPA9: Pedigree charts for study of patterns of inheritance

EPA 10: Window dissection of important regions. Preparation of specimens for museum with display a) soft parts, b) models

EPA 11 Processing hard tissues, decalcification of bones, block making and sectioning, preparation of ground sections of

Calcified bones. Special staining techniques

EPA 12 Karyotyping and its Interpretation

EPA 13: Discussions on clinical problems with anatomical justification EPA

14: Special staining techniques

EPA 15: Banding techniques (G and C). Chromosomal Analysis

EPA 7: Procurement, Embalming and Preservation of human cadavers

Characteristics of EPA : Executable independently, observable, measurable, essential to profession, reflects competencies, focused tasks

Setting : Classroom setting, Dissection setting

Description : This EPA includes the following:

- a brief historical review of the history of embalming
- describing the anatomical techniques
- Chemicals used for embalming and preservation purposes.
- Several approaches to evaluating embalming methods, their suitability for biomechanical testing, antimicrobial properties, histological appearance, and usability.
- Documentation/ Record keeping.

Competencies required: This EPA requires an integration of the following competencies, each further compartmentalized in several milestones:

<p><i>Medical knowledge</i></p>	<p><i>Ability to demonstrate knowledge of :</i></p> <ul style="list-style-type: none"> • Demonstrates knowledge of essential anatomy, physiology, indications, contraindications, risks, benefits for each procedure. • Correctly performs procedure on multiple occasions over time • Uses universal precautions and aseptic technique consistently • Knows and takes steps to mitigate complications of 	<p>Assessment Method- IA Test theory OSPE, DOPS, DOAP</p>
---------------------------------	---	--

	<p>procedures and occupational hazards</p> <ul style="list-style-type: none"> Disposal of biomedical waste 	
<i>Communication skills</i>	<p><i>Ability to demonstrate skills of :</i></p> <ul style="list-style-type: none"> Counselling the attendants of the deceased during body donation Interacting appropriately with team and peer group 	Seminars and Journal Club, DOPS
<i>Professionalism</i>	<p><i>Ability to demonstrate the following attributes:</i></p> <ul style="list-style-type: none"> Behaving appropriately Ethical and compassionate handling of cadavers and respecting the values of families who have donated the bodies to the medical field 	DOPS
<i>System-based practice</i>	<p><i>Ability to demonstrate continued behavior of :</i></p> <ul style="list-style-type: none"> Safe handling of cadavers 	DOPS
<i>Practice-based learning</i>	<p><i>Ability to demonstrate skills of :</i></p> <ul style="list-style-type: none"> Identification of areas of deficiency and improvement by self-learning Constant updating self on recent advances Identification of new challenges and zest to find their solutions Identify probable areas of research and report conduct the same Obtain feedback from peers 	DOPS

EPA 8: Preparation of paraffin blocks and section cutting and mounting. Hematoxylin and Eosin staining of tissue sections

Characteristics of EPA : Executable independently, observable, measurable, essential to profession, reflects competencies, focused tasks

Setting : Classroom setting, Histology lab

Description : This EPA includes the following:

- A brief historical review of the history of histotechniques
- Describing the histotechniques
- Chemicals used for the histotechniques

- Several approaches to evaluating histological methods
- Documentation/ Record keeping

Competencies required : This EPA requires an integration of the following competencies, each further compartmentalized in several milestones:

<i>Medical knowledge</i>	<p><i>Ability to demonstrate knowledge of :</i></p> <ul style="list-style-type: none"> • Demonstrates knowledge of essential anatomy, physiology, indications, contraindications, risks, benefits for each procedure. • Correctly performs procedure on multiple occasions over time • Uses universal precautions and aseptic technique consistently. • Knows and takes steps to mitigate complications of procedures and occupational hazards • Disposal of biomedical waste 	<p>Assessment Method- IA Test theory OSPE, DOPS</p>
<i>Patient care</i>	<p><i>Ability to demonstrate skills of :</i></p> <ul style="list-style-type: none"> • Demonstrating the ability to perform the psychomotor skills to safely and efficiently perform the procedure successfully • Documents the procedure 	OSPE, DOPS
<i>Communication skills</i>	<p><i>Ability to demonstrate skills of :</i></p> <ul style="list-style-type: none"> • Interacting appropriately with team members 	Seminars and Journal Club, DOPS
<i>Professionalism</i>	<p><i>Ability to demonstrate the following attributes:</i></p> <ul style="list-style-type: none"> • Behaving appropriately • Ethical and compassionate handling of tissues 	DOPS
<i>System-based practice</i>	<p><i>Ability to demonstrate continued behavior of :</i></p> <ul style="list-style-type: none"> • Safe handling of tissues 	DOPS
<i>Practice-based learning</i>	<p><i>Ability to demonstrate skills of :</i></p> <ul style="list-style-type: none"> • Identification of areas of deficiency and improvement by self-learning • Constant updating self on recent advances • Identification of new challenges 	DOPS

	<p>and zest to find their solutions</p> <ul style="list-style-type: none"> • Identify probable areas of research and report conduct the same • Obtain feedback from peers 	
--	---	--

EPA9: Pedigree charts for study of patterns of inheritance

Characteristics of EPA : Executable independently, observable, measurable, essential to profession, reflects competencies, focused tasks

Setting : Classroom setting

Description : This EPA includes the following:

- a) to study the inheritance of genes in humans
- b) analyze the pattern of inheritance of a particular trait throughout a family
- c) To determine genotypes, identify phenotypes, and predict how a trait will be passed on in the future.
- d) To determine how certain alleles are inherited: whether they are dominant, recessive, autosomal, or sex-linked.
- e) Documentation/ Record keeping

Competencies required : This EPA requires an integration of the following competencies, each further compartmentalized in several milestones:

<i>Medical knowledge</i>	<p><i>Ability to demonstrate knowledge of :</i></p> <ul style="list-style-type: none"> • the type of inheritance pattern in the family can be studied with respect to particular trait or the disease which is carried on to next generation. • The inheritance pattern from the parents to offsprings • to find the recessive and dominant type of traits 	<p>Assessment Method-</p> <p>IA Test theory OSPE, DOPS</p>
<i>Patient care</i>	<p><i>Ability to demonstrate skills of :</i></p> <ul style="list-style-type: none"> • Demonstrating the ability to identify the patterns of inheritance • Documents the pattern of inheritance 	<p>OSPE, DOPS</p>
<i>Communication skills</i>	<p><i>Ability to demonstrate skills of :</i></p> <ul style="list-style-type: none"> • Interacting appropriately with team members. 	<p>Seminars and Journal Club, DOPS</p>

<i>Professionalism</i>	<i>Ability to demonstrate the following attributes:</i> <ul style="list-style-type: none"> • Behaving appropriately 	DOPS
<i>Practice-based learning</i>	<i>Ability to demonstrate skills of :</i> <ul style="list-style-type: none"> • Identification of areas of deficiency and improvement by self-learning • Constant updating self on recent advances • Identification of new challenges and zest to find their solutions • Identify probable areas of research and report conduct the same • Obtain feedback from peers 	Theory and OSPE

EPA 10: Window dissection of important regions. Preparation of specimens for museum with display a) soft parts, b) models

Characteristics of EPA : Executable independently, observable, measurable, essential to profession, reflects competencies, focused tasks

Setting : Classroom setting, Dissection setting

Description : This EPA includes the following:

- describing the regional anatomy
- the procedures of museum techniques
- Preparation of models/charts
- Documentation/ Record keeping.

Competencies required : This EPA requires an integration of the following competencies, each further compartmentalized in several milestones:

<i>Medical knowledge</i>	<i>Ability to demonstrate knowledge of :</i> <ul style="list-style-type: none"> • Demonstrates knowledge of essential anatomy, physiology, indications, contraindications, risks, benefits for each procedure. • Correctly performs procedure on multiple occasions over time • Uses universal precautions and aseptic technique consistently • Knows and takes steps to mitigate complications of procedures and occupational hazards • Disposal of biomedical waste 	Assessment Method- IA Test theory OSPE, DOPS
<i>Communication</i>	<i>Ability to demonstrate skills of :</i> <ul style="list-style-type: none"> • Counselling the attendants of the deceased during body donation 	Seminars and

<i>skills</i>	• Interacting appropriately with team and peer group	Journal Club, DOPS
<i>Professionalism</i>	<i>Ability to demonstrate the following attributes:</i> <ul style="list-style-type: none"> • Behaving appropriately • Ethical and compassionate handling of cadavers and respecting the values of families who have donated the bodies to the medical field 	DOPS
<i>System-based practice</i>	<i>Ability to demonstrate continued behavior of :</i> <ul style="list-style-type: none"> • Safe handling of soft parts 	DOPS
<i>Practice-based learning</i>	<i>Ability to demonstrate skills of :</i> <ul style="list-style-type: none"> • Identification of areas of deficiency and improvement by self-learning • Constant updating self on recent advances • Identification of new challenges and zest to find their solutions • Identify probable areas of research and report conduct the same • Obtain feedback from peers 	DOPS

EPA 11 Processing hard tissues, decalcification of bones, block making and sectioning, preparation of ground sections of

Calcified bones. Special staining techniques

Characteristics of EPA : Executable independently, observable, measurable, essential to profession, reflects competencies, focused tasks

Setting : Classroom setting, Histology lab

Description : This EPA includes the following:

- a brief historical review of the history of histotechniques
- to describe the histotechniques
- Chemicals used for the histotechniques
- Several approaches to evaluating histological methods
- To describe the various stages of tissue processing
- To describe the decalcification and dehydration technique
- To Describe the Paraffin wax embedding
- To describe the process of block making
- To describe H & E Staining techniques
- To describe special stains
- To describe the fixation of museum specimens
- To describe the storage of specimens and museum jars
- Museum techniques- plastination technique(forced impregnation)
- To describe labelling of specimens and & Cataloguing
- Documentation/ Record keeping

Competencies required : This EPA requires an integration of the following competencies, each further compartmentalized in several milestones:

<i>Medical knowledge</i>	<p><i>Ability to demonstrate knowledge of :</i></p> <ul style="list-style-type: none"> • Demonstrates knowledge of essential anatomy, physiology, indications, contraindications, risks, benefits for each procedure. • Correctly performs procedure on multiple occasions over time • Uses universal precautions and aseptic technique consistently. • Knows and takes steps to mitigate complications of procedures and occupational hazards • Disposal of biomedical waste 	<p>Assessment Method- IA Test theory OSPE, DOPS</p>
<i>Patient care</i>	<p><i>Ability to demonstrate skills of :</i></p> <ul style="list-style-type: none"> • Demonstrating the ability to perform the psychomotor skills to safely and efficiently perform the procedure successfully • Documents the procedure 	<p>OSPE, DOPS</p>
<i>Communication skills</i>	<p><i>Ability to demonstrate skills of :</i></p> <ul style="list-style-type: none"> • Interacting appropriately with team members. 	<p>Seminars and Journal Club, DOPS</p>
<i>Professionalism</i>	<p><i>Ability to demonstrate the following attributes:</i></p> <ul style="list-style-type: none"> • Behaving appropriately • Ethical and compassionate handling of tissues 	<p>DOPS</p>
<i>System-based practice</i>	<p><i>Ability to demonstrate continued behavior of :</i></p> <ul style="list-style-type: none"> • Safe handling of tissues 	<p>DOPS</p>
<i>Practice-based learning</i>	<p><i>Ability to demonstrate skills of :</i></p> <ul style="list-style-type: none"> • Identification of areas of deficiency and improvement by self-learning • Constant updating self on recent advances • Identification of new challenges and zest to find their solutions • Identify probable areas of research and report conduct the same • Obtain feedback from peers 	<p>DOPS</p>

EPA 12 Karyotyping and its Interpretation

Characteristics of EPA : Executable independently, observable, measurable, essential to profession, reflects competencies, focused tasks

Setting : Classroom setting

Description : This EPA includes the following:

- To study the procedure of karyotyping in humans
- To study important procedures in cytogenetics and molecular genetics with its application analyze the pattern of inheritance of a particular trait throughout a family.
- To determine how certain alleles are inherited: whether they are dominant, recessive, autosomal, or sex-linked.
- Documentation/ Record keeping

Competencies required : This EPA requires an integration of the following competencies, each further compartmentalized in several milestones:

<i>Medical knowledge</i>	<i>Ability to demonstrate knowledge of :</i> Describe structure, number, classification, abnormalities and syndromes related to human chromosomes.	Assessment Method- IA Test theory OSPE, DOPS
<i>Patient care</i>	<i>Ability to demonstrate skills of :</i> <ul style="list-style-type: none"> • Demonstrating the ability to identify the normal karyotype. • Demonstrating the ability to identify the chromosomal aberrations. • Related Syndromes. 	OSPE, DOPS
<i>Communication skills</i>	<i>Ability to demonstrate skills of :</i> Interacting appropriately with team members.	Seminars and Journal Club, DOPS
<i>Professionalism</i>	<i>Ability to demonstrate the following attributes:</i> <ul style="list-style-type: none"> • Behaving appropriately 	DOPS
<i>Practice-based learning</i>	<i>Ability to demonstrate skills of :</i> <ul style="list-style-type: none"> • Identification of areas of deficiency and improvement by self-learning • Constant updating self on recent advances • Identification of new challenges and zest to find their solutions • Identify probable areas of research and report conduct the same • Obtain feedback from peers 	Theory and OSPE

EPA 13: Discussions on clinical problems with anatomical justification

Characteristics of EPA : Executable independently, observable, measurable, essential to profession, reflects competencies, focused tasks

Setting : Classroom setting, Dissection setting

Description : This EPA includes the following:

- To describe the regional anatomy and correlating with the clinical problems.
- Documentation/ Record keeping.

Competencies required : This EPA requires an integration of the following competencies, each further compartmentalized in several milestones:

<i>Medical knowledge</i>	<i>Ability to demonstrate knowledge of :</i> <ul style="list-style-type: none"> • Demonstrates knowledge of regional anatomy and correlating with the clinical problems. • Step wise approach to solving clinical problems. 	Assessment Method- IA Test theory OSPE, DOPS, PBL
<i>Communication skills</i>	<i>Ability to demonstrate skills of :</i> <ul style="list-style-type: none"> • Interacting appropriately with team and peer group 	Seminars and Journal Club, DOPS
<i>Professionalism</i>	<i>Ability to demonstrate the following attributes:</i> <ul style="list-style-type: none"> • Behaving appropriately 	DOPS
<i>System-based practice</i>	<i>Ability to demonstrate continued behavior of :</i> <ul style="list-style-type: none"> • Preparation of clinical scenarios topic wise involving all the systems. 	DOPS
<i>Practice-based learning</i>	<i>Ability to demonstrate skills of :</i> <ul style="list-style-type: none"> • Identification of areas of deficiency and improvement by self-learning • Constant updating self on recent advances • Identification of new challenges and zest to find their solutions • Identify probable areas of research and report conduct the same • Obtain feedback from peers 	DOPS

EPA 14: Special staining techniques

Characteristics of EPA : Executable independently, observable, measurable, essential to profession, reflects competencies, focused tasks

Setting : Classroom setting, Histology lab

Description : This EPA includes the following:

- a brief historical review of the history of histotechniques
- to describe the histotechniques
- Chemicals used for the histotechniques
- Several approaches to evaluating histological methods
- To describe the various stages of tissue processing

- To describe the decalcification and dehydration technique
- To Describe the Paraffin wax embedding
- To describe the process of block making
- To describe special stains
- Documentation/ Record keeping

Competencies required : This EPA requires an integration of the following competencies, each further compartmentalized in several milestones:

<i>Medical knowledge</i>	<p><i>Ability to demonstrate knowledge of :</i> Demonstrates knowledge of essential anatomy, physiology, indications, contraindications, risks, benefits for each procedure.</p> <ul style="list-style-type: none"> • Correctly performs procedure on multiple occasions over time • Uses universal precautions and aseptic technique consistently. • Knows and takes steps to mitigate complications of procedures and occupational hazards • Disposal of biomedical waste 	<p>Assessment Method- IA Test theory OSPE, DOPS</p>
<i>Patient care</i>	<p><i>Ability to demonstrate skills of :</i></p> <ul style="list-style-type: none"> • Demonstrating the ability to perform the psychomotor skills to safely and efficiently perform the procedure successfully • Documents the procedure 	<p>OSPE, DOPS</p>
<i>Communication skills</i>	<p><i>Ability to demonstrate skills of :</i></p> <ul style="list-style-type: none"> • Interacting appropriately with team members. 	<p>Seminars and Journal Club, DOPS</p>
<i>Professionalism</i>	<p><i>Ability to demonstrate the following attributes:</i></p> <ul style="list-style-type: none"> • Behaving appropriately 	<p>DOPS</p>
<i>System-based practice</i>	<p><i>Ability to demonstrate continued behavior of :</i></p> <ul style="list-style-type: none"> • Procurement of special stains and maintenance of stock • Quality assurance of special stains. 	<p>DOPS</p>
<i>Practice-based learning</i>	<p><i>Ability to demonstrate skills of :</i></p> <ul style="list-style-type: none"> • Identification of areas of deficiency and improvement by self-learning • Constant updating self on recent advances • Identification of new challenges and zest to find their solutions • Identify probable areas of research and report conduct the same • Obtain feedback from peers 	<p>DOPS</p>

EPA 15: Banding techniques (G and C). Chromosomal Analysis

Characteristics of EPA : Executable independently, observable, measurable, essential to profession, reflects competencies, focused tasks

Setting : Classroom setting

Description : This EPA includes the following:

- Demonstration of knowledge about reproduction genetics, assisted reproduction, prenatal diagnosis, genetic
- Counselling and ethics in genetics.
- To determine how certain alleles are inherited: whether they are dominant, recessive, autosomal, or sex-linked.
- Explain principles of gene therapy and its applied knowledge.
- Documentation/ Record keeping

Competencies required : This EPA requires an integration of the following competencies, each further compartmentalized in several milestones:

<i>Medical knowledge</i>	<i>Ability to demonstrate knowledge of :</i> . Reproduction genetics, assisted reproduction, prenatal diagnosis, genetic counselling and ethics in genetics. . Banding techniques (G and C)	Assessment Method- IA Test theory OSPE, DOPS
<i>Communication skills</i>	<i>Ability to demonstrate skills of :</i> Interacting appropriately with team members.	Seminars and Journal Club, OPS
<i>Professionalism</i>	<i>Ability to demonstrate the following attributes:</i> • Behaving appropriately	DOPS
<i>Practice-based learning</i>	<i>Ability to demonstrate skills of :</i> • Identification of areas of deficiency and improvement by self-learning • Constant updating self on recent advances • Identification of new challenges and zest to find their solutions • Identify probable areas of research and report conduct the same • Obtain feedback from peers	Theory and OSPE

III. OUTLINE OF PROGRAM CONTENTS:

THEORY:

1. History of Anatomy

2. General Anatomy
3. Elements of Anatomy
4. Gross Human Anatomy including Cross Sectional Anatomy and Applied Anatomy
5. Principles of Microscopy and Histological techniques.
6. General and Systemic Histology
7. General, and Systemic Embryology including Growth, Development and Teratology
8. Neuro Anatomy
9. Surface Anatomy
10. Radiological Anatomy including Principles of newer techniques and interpretation of CT scan, Sonography and MRI
11. Human Genetics
12. Museum Techniques, embalming techniques including medico legal aspects, and knowledge of Anatomy Act
13. Medical ethics
14. Recent Advances in Anatomy
15. To incorporate PBL training under different sections during PG training.

PRACTICAL SCHEDULE:

1. During the program-the PG students should dissect the entire human cadaver
 2. They should embalm and maintain the record of embalming work done
 3. They should prepare and mount at least 10 museum specimens
 4. Histology – Collection of tissues, fixing, block making, section cutting: use of different types of microtomes and preparation of general and systemic slides and staining the slides.
 - Haematoxylin& Eosin stain –
 - i. Preparation of stains
 - ii. Staining techniques
- Knowledge of special staining techniques like Silver Nitrate, PAS staining, Osmium Tetroxide, Van Gieson etc.
 - Embryo (Chick embryo) mounting and serial sections of embryo – should be taken, stained with Haematoxylin& Eosin.
 - Knowledge of light Microscope and electron microscope
 - Detailed microscopic study of all the tissues (General and Systemic slides)

IV. METHOD OF TRAINING:

- The candidates shall attend all the Undergraduate Theory and Practical Classes regularly (for one batch of students). After the submission of the synopsis of the dissertation, selective posting of the student shall be made to

the relevant (related) clinical or para clinical department for a period of two months in the afternoon session.

- All the students shall be posted to Genetics and Radio diagnosis department wherever facilities are available during the 4th Academic term of the program.
- At the end of the posting, a certificate has to be obtained from the concerned heads of the departments for satisfactory learning.
- During three years of the program, the Postgraduate students shall take part in teaching undergraduate students in gross anatomy, histology, tutorials, *group* discussions and seminars.

V. SEMINARS & JOURNAL REVIEW MEETINGS

- The post graduate students should actively participate in departmental seminars and journal reviews. A record showing the involvement of the student shall be maintained. A diary and a log book have to be maintained. Seminars and journal review are suggested and to be conducted alternately once in every 15 days.
- The Log book will be reviewed by an external reviewer assigned by Director, Post Graduate Studies.
- The Post Graduate student has to attend CPC once in two months.

VI. MAINTENANCE OF RECORD OF WORK DONE

A diary showing each day's work has to be maintained by the candidate, which shall be submitted to the head of the department for scrutiny on the first working day *of* each month.

- A practical record of work done in Histology and Gross Anatomy with an emphasis on cross sectional Anatomy has to be maintained by the candidate and duly scrutinized and certified by the head of the department and to be submitted to the external examiner during the final examination.
- A list of the seminars and journal clubs that have been attended and participated by the students has to be maintained which will be scrutinized by the head of the department.
- Two presentations in conference to be made mandatory, during PG program.
- Two publications are mandatory for eligibility to appear for final examination.

VII. PERIODICAL ASSESSMENT AND PROGRESS REPORT

The post graduate students have to be assessed quarterly by conducting written, practical and viva voce examination. The assessment will be based also on participation in seminars, journal review and performance in the teaching and use of teaching aids and progress in dissertation work.

The assessment will be done by all the recognized P.G. teachers of the department and the progress record will be maintained by the head of the department.

VIII. DISSERTATION WORK

During the program of study every candidate has to prepare a dissertation individually, on a selected topic under the direct guidance and supervision of a recognized postgraduate teacher as per MCI regulations.

“A recognized PG guide is a teacher in a medical college or institution having a total of 8 yrs. teaching experience out of which at least 4 yrs. of teaching experience as Assistant Professor with at least one research publication in indexed journals gained after obtaining post graduate degree shall be recognized as PG teacher”

The suggested time schedule for dissertation work is:

1. Preparation work for dissertation synopsis including pilot study and submission of the synopsis to the Academy within 6 months from the commencement of program or as per the dates notified by the Academy from time to time.
2. Data collection for dissertation and writing the dissertation
3. The candidates shall report the progress of the dissertation work to the concerned guide periodically and obtain clearance for the continuation of the dissertation work.
4. Submission of the dissertation six months prior to the final examination or as per the dates notified by the Academy from time to time.

REGISTRATION OF DISSERTATION TOPIC

Every candidate shall submit a synopsis in the prescribed proforma for registration of dissertation topic by the Academy after it is scrutinized by Director, PG studies. The synopsis shall be sent to within the first 6 months from the commencement of the program or as notified by the Academy in the calendar of events to the Director, PG studies.

SUBMISSION OF DISSERTATION

The dissertation shall be submitted to the Controller of Examination of the Academy six months prior to the final examination or as notified in the calendar of events. Approval of the dissertation by the panel of examiners is a prerequisite for a candidate to appear for the Academy examination.

SCHEME OF EVALUATION

A. THEORY

The written examination consists of four papers, with maximum marks of 100 for each paper. Each paper will be of three hours duration.

PAPER - I

Gross Human Anatomy

General Anatomy History

of Anatomy **PAPER - II:**

Embryology

Comparative Anatomy
Principles of Physical Anthropology

PAPER - III:

Histology - General & Systemic
Histological, museum and embalming techniques.
Human Genetics

PAPER - IV:

Applied Anatomy
Neuro-anatomy
Cross Sectional Anatomy & Newer Imaging Techniques
Recent advances in Anatomy

Each Theory paper consists of:

Long Essay Questions - 10 x 10 = 100 Marks

Total = 100 Marks

Questions on recent advances may be asked in any or all papers.

**B.PRACTICAL - MAX. 200 GROSS ANATOMY -100, HISTOLOGY -100.
GROSS ANATOMY**

To dissect the human cadaver in 3 hours and display for discussion the allotted dissection exercise:

Distribution of Marks.

Surface Anatomy - 10

Dissection - 40

Discussion - 50

Total 100 Marks

HISTOLOGY

1.	Identification and discussion of 10 stained sections which includes Neuroanatomy, Embryology and Human Genetics	10 x 4 = 40 marks
	i) Preparation of a paraffin block	10 marks
	ii) Taking serial sections from blocks provided	10 marks
	iii) Staining of given section with H & E and discussion	20 marks
	Discussion on Histological techniques	20 marks
	Total	100 marks

C. VIVA VOCE

1. This includes all the components of the syllabus along with Specimens, skiagrams, including newer imaging techniques, bones and models including one problem solving exercise and discussion on dissertation topic submitted for the examination

= 80 Marks

2. Pedagogy: Demonstration of teaching skills / techniques = 20 Marks

Total = 100 Marks

Maximum marks for	Theory	Practical's	Viva-Voce	Total
M.D.Anatomy Examination	400	200	100	700

X.RECOMMENDED BOOKS AND JOURNALS

GROSS ANATOMY:

1. Williams Peter. Gray's, **Anatomy** – 40th Edition Churchill Living Stone.
2. McMinn R.M.H. Last's, **Anatomy** - 8th Edition ELBS, 1990.
3. Basmajain V.John and Slonecker E. Charles, **Grants Method of Anatomy**, 11th Edition,
 1. Williams and Wilkins 1989
 2. 4...Hollinshed.W.Henry, **Anatomy for Surgeon's** - 4th Edition, Harper and Raw Publishers,
 3. 1985.
 4. DUPLESSIS and Gagdecker Lee McGregor's, **Synopsis of Surgical Anatomy** - 12th Edition, K.M. Varghese Company, 1986.
 5. Snell.S.Richard, **Clinical Anatomy for Medical Students** - 3rd& 5th Edition, Little Brown and Company, 1985.
 6. GrantBoileao. J£. **An Atlas of Anatomy** - 5th Edition, Little Brown and Company, 1984
 7. Graggs Hall E.C.B., **Anatomy as a basis for clinical medicine** - 2nd Edition Williams and
 8. Williams, 1990 (\$ 32.73).
 9. McMinn M.H. Robert, **McMinn's Functional and Clinical Anatomy** - 1st Edition Mosbu Publications, 1995.
 10. McMinn R.M.H. **Last's Anatomy Regional & Applied** - 9th Edition, 1994 Churchill Living Stone
 11. A.K.Datta, **Textbook of Anatomy Vol. I, II & III** - 4th Edition, 1997 Current Books International.
 12. Legross Clerk, **Tissues of the Body** - 6th Edition, 1980 Oxford Academy Press.
 13. Keith& Moore, **Clinically Oriented Anatomy** - 3rd Edition, 1992 Williams *and*. Wilkins.
 14. Swamy I.B., Human Anatomy, Vol. I-H and EL

HISTOLOGY

1. Cormack. H. David, **Ham's Text Book of Histology** - 9th Edition, J.B. Lippincott Company, 1987.
2. Copenhaver M. Wilfred Etal, **Bailey's Text Book of Histology**, 17th Edition William and Wilkins, 1978.
3. Difiore. S. H. Mariano, **Atlas of Human Histology** - 5th Edition, Lea Febiger Publishers, 1985.
4. Junqueira .C. Luis Etal, **Basic Histology** - 2nd Edition, Large Medical Publication 1971.
5. Drury R.A.B., Wallington E.A. Carlton's, **Histological Technique** - 5th Edition Oxford Academy, Preces, 1980.
6. Cullings ,**Histological Technique** - 3rd Edition, 1994 Butterworth's.
7. John D Bancroft, **Manual of Histological Technique** - 1st Edition 1984 Churchill Livingstone.
8. Michael H Ross, **Histology - A Text & Atlas** - 3rd Edition, 1985 William - *Wilkins*.
9. Bloom and Falet, Text Book of Histology
10. Principles and Techniques in histology, microscopy and photomicrography-D R.Singh

EMBRYOLOGY:

1. Hamilton W.J. and Mossman H.W., **Human Embryology** -4th Edition, Williams and Wilkins Company, 1972.
2. Sadler T.W., **Langman's Medical Embryology** - 5th & 7th Edition, Williams and Wilkins Company, 1995.
3. A.K. Datta, Essentials of Human Anatomy, **Human Embryology** - 2nd Edition, Current Books International, 1991.
4. Moore Persaud, **The Developing Human** - 6th Edition, 1998 W.B.Saunders Company.
5. Larsen, **Human Embryology** - 2nd Edition, 1997 Churchill Livingstone
6. Arey - Developmental Anatomy.
1. 7. John Lankman, Embryology for Medical Students

NEURO ANATOMY:

1. Everett N.B., **Functional Neuroanatomy** - 6th Edition, Lee and Febigger, 1971.
2. Chusid .G. Joseph, **Correlative Neuroanatomy and Functional Neurology** - 16th Edition, Lange Medical Publication, 1976.
3. A.K. Datta (Neuroanatomy), **Essentials of Human Anatomy** - 1st Edition, Current Books International, 1997.
4. Snell .S. Richard, **Clinical Neuroanatomy for Medical Students**, - 4th Edition, Lippincott - Raven, 1982.
5. Parent Andre, Carpenter's Neuroanatomy - 9th Edition, Williams and Wilkins, 1996.

6. Inderbir Singh, **Neuroanatomy** - 5th Edition, 1997 Jaypee Brothers Medical Publications.

COMPARATIVE ANATOMY:

1. Banks Histology and Comparative Organology - A Text & Atlas - Edition L 974.
2. Wolstenhome, Taste & Smell in Vertebrates - Edition 1970.
3. Embryogenesis in Mammals CIBA foundation - Edition 1976.
4. George C. Kent, Comparative Anatomy of the Vertebrates - 3rd Edition. 1983 Mc. Graw Hill Book Company.
5. Romer, Vertebrate Body - 5th Edition 1978 V.B.Saunders Company

PHYSICAL ANTHROPOLOGY:

1. Harrison, Human Biology An Introduction to Human, Evolution and Growth - 2nd Edition, 1970.
2. Poirie, Fossil Man, 1973

EMBALMING TECHNIQUES:

1. Jayavelu T., Embalming Techniques, Churchill Livingston.
2. Ansari M.C., Embalming.
3. Embalming –Principles and Legal Aspects byAjmani.

MUSEUM TECHNIQUES

1. Tompsett RH, Anatomical Techniques.
2. Edwards JJ, Medical Museum Techniques, Oxford University Press.

GENETICS:

1. Robert F Mueller, Emery's Elements of Medical Genetics- 9th Edition, 1995 Churchill Livingstone.
2. Nora and Frazer, Medical Genetics Principles-1974 Lee & Gebiger, Philadelphia.
3. Freidman, NMS Genetics -2nd Edition, 1996
4. Alfred G KudsonJR., Genetics & Disease-McGraw Hill Book Company N.Y.,
5. Thomas D .Gelehrtar, Principles of Medical Genetics – 2nd Edition, 1990 William and Wilkins.
6. J.M.Conner MA Ferguson Smith –Essentials of Medical Genetics-BlackwellScientific publications.

JOURNALS:

1. Journal of Anatomical Society of India.
2. Journal of Anatomy.
3. Acta Anatomica
4. American Journal of Anatomy
5. American Journal of Physical Anthropology
6. Journal of Morphology, Embryology.
7. Anatomical Record
8. American Journal of Medical Genetics.
9. Annual Review of Genetics.

ADDITIONAL READING:

1. Compendium of recommendations of various committees on Health and Development (1943-1975). DGHS, 1985 Central Bureau of Health Intelligence, Directorate General of Health Services, min. of Health and Family Welfare, Govt, of India, NirmanBhawan, New Delhi. P - 335.
2. National Health Policy, Min. of Health & Family Welfare, NirmanBhawan, New Delhi, 1983
3. Santosh Kumar, The elements of Research, writing and editing 1994, Dept, of Urology, JIPMER, Pondicherry
4. Srinivasa D K etal, Medical Education Principles and Practice, 1995. National Teacher Training Centre, JIPMER, Pondicherry
5. Indian Council of Medical Research, "Policy Statement of Ethical considerations involved in Research on Human Subjects", 1982, I.C.M.R, New Delhi.
6. Code of Medical Ethics framed under section 33 of the Indian Medical Council Act, 1956. Medical Council of India, Kotla Road, New Delhi.
7. Francis C M, Medical Ethics, J P Publications, Bangalore, 1993.
8. Indian National Science Academy, Guidelines for care and use of animals in Scientific Research, New Delhi, 1994.
9. Internal National Committee of Medical Journal Editors, Uniform requirements for manuscripts submitted to biomedical journals, N Engl J Med 1991; 424-8
10. Kirkwood B R, Essentials of Medical Statistics, 1st Ed., Oxford: Blackwell Scientific Publications 1988.
11. M-hajufi B K, Methods in Bio statistics for medical students, 5th Ed. New Delhi, Jay pee Brothers Medical Publishers, 1989.
12. Raveendran B Gitanjali, A Practical approach to PG dissertation, New Delhi, J P Publications, 1998.

