KRISHNA INSTITUTE OF MEDICAL SCIENCES "DEEMED TO BE UNIVERSITY", KARAD

Accredited By NAAC with 'A' Grade

DEPARTMENT OF ANATOMY

Curriculum implemented by statutory body (MCI/NMC)
For M.D. Anatomy Programme and Anatomy course

Programme name: - MD Anatomy **Course name: I, II, III, and IV.**

Code Number: - 1201 **Course Code: - 1201-11, 1201-12, 1201-13, 1201-14**

M.D. (Anatomy)

A. Goal-

To prepare the postgraduate student to become an exemplary teacher and a research scientist per excellence. To achieve this goal, the postgraduate student in Anatomy should be given an overall exposure to the subject, teaching methodologies and a sound grounding in research technologies.

B. Learning Objective –

To achieve this goal, the following objective must be fulfilled –

I. Cognitive Domain -

At the end of three years of postgraduate training the student should be able to –

1. Describe the cross anatomy of the human body and correlate the knowledge of structure and function.
2. Describe the microanatomy including cytology of various structures of the human body and compare the knowledge of microstructure with function and interpret it accordingly.
3. Interpret the anatomical basic of symptoms and signs of clinical conditions, diagnostic procedures and treatment modalities.
4. Describe the development aspects of human body and interpret the development basis of various congenital anomalies.
5. Describe the neuro anatomy in its entirety and interpret the neuroanatomical basis of various clinical conditions.
6. Explain various aspects of genetics and describe genetic basis of disorders and principles of genetics counseling.
7. Explain and interpret radiological anatomy and sectional anatomy of the human body as studied by various imaging techniques.
8. Comprehend surface and living anatomy of the human body.
9. Relate forensic anatomy to the study with medico legal aspects of bone in particular.
10. Explain the general principles of Anatomy Act and Transplant of human Organ Act.
11. Explain the process of embalming.

12. Comprehend ethical aspects of biomedical research.
13. Comprehend the basis of disposal of biomedical waste.
14. Comprehend horizontal integration of various subdivisions of anatomy with relevant physiology and biochemistry.

II. Psychomotor Domain –

At the end of the training, the student should be able to –

1. Dissect and demonstrate various parts of adult human body.
2. Demonstrate surface landmarks and living anatomy pertaining to muscle power, testing of nerves and palpating vessels.
3. Dissect and demonstrate various parts of a fetus.
4. Prepare tissue blocks, perform H & E staining and is able to explain the principles of the following special stains – silver nitrate, periodic acid Schiff, Osmic acid, Masson trichome, Verhe off and Ocean stains.
5. Prepare and deliver lectures on various topics of human anatomy using audio – visual adis.
6. Operate computers so as to prepare documents, tables, charts, and projection slides.
7. Identify research topics; carry out research and prepare a dissertation on a topic.
8. Present paper / poster in conference.
9. Set undergraduates theory question paper, evaluate students and able to compute results including internal assessment marks.

III. Affective Domain –

At the end training the student should be able to -

1. Co-operate with and react and respond in a cordial manner in his / her interaction with peers, superiors and subordinates.
2. Project a cheerful person to the student.
3. Inspire the students to reach greater heights.
4. Arouse an element of curiosity and wonder in the minds of students.
5. Maintain a log book (Appendix – I)
6. Develop a healthy personality and a liking and respect for the subject.

C. Course Description –

I. Eligibility -

As per the guidelines of Medical Council of India and affiliated university.

II. Duration – 3 Years.

III. Desirable Qualities –

The student should have an aptitude for teaching and reasonable command over spoken and written English Language.

IV. Detail Training –

The P.G. students would be a resident in the department for 3 years. The time plan and the proposed division of curriculum will be on the following lines.

First Year of Residency –

1. A student should complete – Gross Anatomy part with at least dissection of one body.
2. Should attend all U.G. Lectures.
3. Part ending examination.
4. Collection of data and bibliography.

Research –

1. Should complete Histology, embryology and neuroanatomy,
2. Completion of journals of Histology.

Second Year of Residency –

During Vacation

Research –

Starting the work on thesis by the beginning of second year of residency with the aim to complete the data collection and analysis by the end of second year.

Teaching –

From middle of IInd year the P.G. students in Anatomy should be capable of giving lectures for the entire batch of students.

Start teaching embryology and Genetics in small groups after microteaching Sessions.

Should be conversant with the use of various audiovisual adis.

Presentation in Journal club.

Presentation in seminars / Symposia at the departmental and institutional level.

Third Year of Residency -

Research –

i. Completion of Dissertation

ii. Presentation of paper in conference (optional but desirable)

iii. Writing articles for publication.

Teaching –

i. Full fledged lectures, lecture – demonstration, small group teaching.

ii. Seminars / Symposia.

iii. Journal Club.

Dissection –

Exercise in window – dissection of various regions.

Syllabus

1. Postgraduate curriculum shall include the entire undergraduate curriculum as with modifications as under-

   Level 1 & 2 of U.G. curriculum will become level 1 of P.G. curriculum will include current trend and recent advances in the concerned topic and historical aspects.

2. **Additional Topics to be covered.**

   a. Embalming techniques.

   b. Microanatomy.

      -Principles and types of Electron microscopy – TEM, SEM.

      -Identification of various cell organelles and their EM appearance.

      a. Embryology - Stem Cell.

b. Genetics – Exposure to various DNA technologies including cell culture, Karyotyping, Polymerase Chain Reaction (PCR) and Flurorescemt- in – situ – Hybridization (FISH).

c. Neuroanatomy – Limbic system and Reticular System – Details.

d. Clinical Anatomy – Application of anatomical knowledge to explain the anatomical basis of various clinical symptoms and sign, diagnostic – Procedure and treatment modalities.

e. Imaging Modalities – I) Radiology II) Ultrasonography (USG) - Principles of USG, Orientation of anatomical organs in various USG plates. Structures as seen in 2 – D echocardiography axes used and orientation of heart in various axes in 2 – D echocardiography. III) PET scan – Principles.

f. Forensic Anatomy – Estimation of age and sex.

i. With reference to bones including ossification.

ii. With reference to radiology pictures.

g. Cross – sectional Anatomy and its correlation to C. T. scan image and MRI images.

h. Comparative vertebrate Anatomy – Basic outline as given in 'Embryology' by H. Boyd.

i. Anthropology – Basic Principles and Anthropology and in Gray's Anatomy is sufficient.

Evaluation –

Formative – Internal assessment based on –

1. Teaching – to be evaluated based on a given proforma (Appendix II).
2. Dissection.
3. Journals. Microanatomy and
4. Examinations.

The candidate should submit logbook, Microanatomy and Gross anatomy journals at the time of University examination.

3. List of Recommended Books -

I. Textbooks -

1. Cunningham's Manual of Practical Anatomy – Latest editions of Vol. I, II, III.
2. Regional and Applied Anatomy – R. J. Last.
3. Clinical Anatomy for Medical student -Rechardsnell.
4. Synopsis of Surgical Anatomy - Mc Gregor.
5. Functional Histology – Whether, Burkit.
6. Longman's Medical Embryology.
7. Embryology by Keith Moore.
8. Clinical Neuroanatomy – Snell.
9. The Human Nervous System - Murray Barr, John Kieman.
10. Genetics by Emery.

11. Human Genetics - S. D. Gangane.
12. Essential of Human Genetics by Bhatnagar, Kothati and Mehta.
13. Cross – sectional anatomy by Bo, Meehan and Kruger.
14. Principles of General anatomy by A. K. Datta.
15. Textbook of anatomy by Inderbirsing.

II. Reference books –

1. Gary's Anatomy
2. Clinical Anatomy – NMS Series.
3. Anatomy for Surgeons – Henry Hollinshead.
4. Surgical anatomy – Harold Ellis.
5. Bailey's Textbook of Microscopic Anatomy.
6. Embryology – Boyd and Mossman.
7. Clinically oriented anatomy – Keith Moore.
8. Atlas of Human Histology - Di flore.
9. Tissues of the Human Body by Le Gros Clerk.
10. Genetics by Thompson and Thompson.
11. History of Anatomy – Charles Singer.
12. History of Anatomy Indian Medicine – Kutumbiah.
13. Dorlands Medical Dictionary

III. Journals –

Journal of Clinical Anatomy.

1. Surgical and Radiological Anatomy.
2. Journal of Anatomy
3. Development Dynamics
4. Anatomical Record
5. Journal of Anatomical Society of India.

Scheme of Exam.

Theory – 4 Papers (100 x 4 = 400)

Paper 1 – Upper Extremity & Thorax including embryology. Histology & Applied, General Anatomy.

Paper 2 – Inferior Extremity. & Abdomen, Pelvis and Perineum including including embryology, Histology & Applied and General embryology.

Paper 3 – H. N. F. & Brain including Embryo. Histo. General Histology

Paper 4 – Full question on Genetics, Full questions on Applied. S N on Radiology, Recent advances, Embalming & museum techniques, Anthropometry.

Practicals: –

The marks distribution is modified and more weightage is given for dissection.

The Marks Distribution will be as follows: (Total = 400)

Dissection-	100
Histology-	50
Histology cutting sectioning & staining-	50
Micro-teaching-	40
Soft parts-	60
Hard Parts-	40
Radiology-	20
Embryology Models-	20
Journal-	05
Surface Anatomy living & Marking -	15

Theory Paper Pattern

Long Answer Question	30 Marks
Long Answer Question	30 Marks
Short Answer Questions	40 Marks

M. D. Anatomy

Paper I: - Upper Extremity & Thorax including embryology,

Histology & Applied, General Anatomy.

Paper II: - Inferior Extremity & abdomen, Pelvis and Perineum

Including embryology, Histology &

Applied and General embryology.

Paper III: - H.N.F. & Brain including Embryology, Histology, and General Anatomy.

Paper IV: - Full question on Genetics, Full questions on Applied SN on

Radiology, Recent advances, Embalming & museum techniques, Anthropometry.