



FIACTA: Course Curriculum, Syllabus, Examination pattern

Indian College of Cardiac Anaesthesia (ICCA)

(Academic body under the aegis of Indian Association of Cardiovascular Thoracic Anaesthesiologists-IACTA)

One of the objectives of the IACTA has been to promote education and training in the field of cardiac anaesthesia. This was considered very important looking at the shortage of qualified cardiac anaesthesiologists in the country. Therefore, with the aim of increasing the number of qualified and trained cardiac anaesthesiologists so that the quality of care improves further, it was decided to start a 2 year fellowship course (FIACTA, fellowship of IACTA) in cardiac anaesthesia. The FIACTA was started in 2006 by the Education and Research Committee of IACTA (IERC). The IERC has been discontinued and replaced by The Indian College of Cardiac Anaesthesia (ICCA) in 2015. It has been bestowed with the responsibility of carrying out all the educational activities under the aegis of IACTA.

Duration of the Fellowship: 2 academic years

Basic qualification for admission: MD / DNB Anaesthesiology

FIACTA centers: Accredited by ICCA / IACTA

FIACTA course: Consists of theory and practice of Cardiothoracic Anaesthesia

Goals and Objectives of FIACTA

1. To produce qualified cardiac anaesthesiologists with the expertise to manage patients (adults and children) undergoing cardiothoracic and vascular surgery. To impart knowledge and skill in the field of cardiothoracic and vascular anaesthesia including the postoperative intensive care management of both adult and pediatric cardiac surgical patients.
2. To impart the knowledge and skill to perform the procedures such as percutaneous tracheostomy and bronchoscopy.
3. To impart knowledge related to the conduct of cardiopulmonary bypass and the pharmacokinetics and pharmacodynamics during cardiopulmonary bypass.
4. To impart knowledge and skills related to the anaesthetic management of patients undergoing various procedures in the cardiac catheterization laboratory.
5. To impart knowledge and skills to perform transesophageal echocardiography in adult and pediatric cardiac surgical patients.
6. To impart knowledge and skills related to the anaesthetic and postoperative management of patients undergoing major vascular surgical procedures.
7. To impart knowledge and skills for conducting a scientific inquiry and provide orientation to the principles of research methodology and epidemiology.
8. To impart knowledge related to the setting up of an independent cardiac anaesthesia unit catering to cardiothoracic and vascular surgery and intensive care unit and catheterization laboratory.

9. To impart basic skills of teaching students at various levels of medicine.
10. To impart attitude and communication skills to function as an efficient team leader and a member.
11. To impart attitude and communication skills to deal with patients and their relatives.

SYLLABUS

General

1. History of cardiac anaesthesia,
2. Natural history of cardiac, vascular and pulmonary diseases
3. Diagnosis, preoperative evaluation and preparation for surgery

Basic Sciences

Anatomy

- Embryological development of heart & great vessels, and other thoracic structures. Basic and correlative anatomy of heart, lungs and vessels.

Physiology

- Cardiac cycle, cardiac output & determinants of cardiac output, cardiac failure, coronary circulation and autonomic nervous system, hemodynamics, cardiac electrophysiology
- Pulmonary circulation, physiology of lung functions, acid-base balance, pulmonary function tests, physiology of one-lung-ventilation, ventilation-perfusion mismatch
- Physiology during extracorporeal circulation, assisted circulation
- Body water, oxygen transport, shock, hypothermia
- Blood coagulation, hematology, perioperative physiology of liver, kidney and brain

Pathophysiology

Heart failure, congenital defects, acquired cardiac and pulmonary diseases, immunology, one-lung ventilation

Pharmacology

- Pharmacology of drugs acting on heart, lungs, vessels and vital organs: inotropes & vasopressors, cardiac glycosides, diuretics, beta-blockers, calcium channel blockers, anti-arrhythmic agents, drugs for ischemic heart diseases
- Pharmacological principles: pharmacodynamics, pharmacokinetics, drug distribution, elimination etc.
- Inhalational and intravenous anesthetic agents, muscle relaxants, narcotics, analgesics, sedatives and premedicants
- Drugs acting on tracheobronchial tree, pulmonary circulation and parenchyma
- Antibiotics
- Applied pharmacological concepts

Physics

- Gas laws, gas cylinders, laminar flow, fluid dynamics
- Physics of anesthetic machines, vaporizers
- Basic physics of ventilators
- Physics of ultrasound
- Equipment: Computer application, equipment in operating room, equipment for transporting a sick patient on ventilator

Clinical Sciences*Monitoring*

- Invasive & Non-Invasive monitoring techniques for pre-, intra- & post-operative periods. a) Understanding of basic concepts of monitoring b) Indications, cost effectiveness, complications c) Equipment usage & knowledge of accessories
- Coagulation monitoring
- Respiratory, neurological monitoring, neuro-muscular monitoring

Adult and Pediatric cardiac diseases

- Preoperative evaluation, intraoperative anesthetic & postoperative management of all types of congenital, adult cardiac, thoracic and vascular diseases including re-do surgery

Management of Cardiopulmonary Bypass, hypothermia techniques, myocardial protection, hemodilution, cerebral, renal, hepatic protection, Various types of Circulatory assist devices

*Thoracic Anaesthesia and One Lung Ventilation**Intensive Care Management**Intraoperative Transesophageal Echocardiography*

- Principles of ultrasound, knobology, evaluation of LV / RV systolic and diastolic function, valvular heart diseases, CAD, aortic diseases, prosthetic valves, congenital heart diseases, hemodynamic assessment

Cardiac Intensive care management

Ventilatory care: general principles, modes of ventilation, weaning from ventilation

*Renal failure and dialysis***Allied sciences**

Cardiac surgery: surgical techniques, CPB techniques

Cardiology and radiology

statistics

Equipment maintenance

CURRICULUM OF FIACTA COURSE

The FICTA course is designed to train the candidates in the field of cardiovascular and thoracic anaesthesiology with the intention of enabling them to conduct anaesthesia in patients (adults and children) undergoing cardiovascular and thoracic surgery. In addition the candidates should be conversant with the postoperative intensive care provided to these patients. After successful completion of the course, the candidate should be competent to function as a consultant / faculty in cardiovascular and thoracic anaesthesia. He should be able to carry out and conduct applied research in the field of cardiac anaesthesia, and should be capable of planning and setting up an independent cardiac anaesthesia unit that can perform cardiovascular and thoracic surgery and intensive care and catheterization laboratory procedures.

SELECTION OF CANDIDATES

Eligibility of candidates:

- a) A postgraduate qualification (MD / DNB in Anaesthesia) from a recognized university / national board
- b) Those who join for 3-year cardiac anesthesia programs like DM / DNB or FNB / PDCC (2 year courses) can enroll for FIACTA course at the beginning of their course
- c) *Those who have passed DM/FNB/DNB/ PDCC (2-year duration) can apply directly for FIACTA examination by paying the FIACTA examination and FIACTA registration fee*

The duration of the course is two years in a recognized center.

Teaching Methods:

During the period of training, the candidate will function as a senior resident and shall be given a gradually increasing responsibility (initially under supervision) so that he acquires enough experience to manage simple day to day operations and their intensive care management independently.

The work of the candidate shall be supervised on a day to day basis by the consultants / faculty of the department. His posting should be regulated in such a way that he gets enough exposure to the various types of surgical procedures, monitoring techniques, postoperative intensive care, catheterization laboratory procedures, and other related clinical areas as defined in this curriculum. In addition, the candidate shall be exposed to clinical demonstrations, seminars, workshops, and journal club.

The major components of the curriculum shall be:

- Theoretical knowledge
- Practical/ clinical skills
- Communication skills and attitude
- Training in research, presentations, publications

Monitoring / mentoring of Teaching & Learning Activities

<i>Activity</i>	<i>Periodicity</i>	<i>Method</i>
Journal clubs	Monthly	Faculty and Peer review
Seminars	Bi monthly	Faculty and Peer review
Theory Knowledge	Six monthly	Written tests
Clinical performance	Six monthly	Clinical exam
Procedures	Monthly	Log book
Research & Presentation	Six monthly	Logbook & Faculty peer view

Preferred Period of Posting in Various Units (24 months)

Adult Cardiac Operation theatre & ICU : 15 months

Pediatric Cardiac Operation theatre & ICU : 6 months

Cath Lab, MRI, CT room anesthesia : 2 months

Research, Visit another center of excellence : 1 month (Optional)

For ICU training, continuous posting there for a definite period is recommended

List of Procedures to be performed:

Procedure	Under Supervision (minimum)	Independently (minimum)
Radial / Femoral artery cannulation	20	100
Subclavian vein/ Internal jugular vein cannulation	20	100
Transesophageal Echocardiography	50	25
PA Catheter insertion	10	15
Fiberoptic Bronchoscopy	10	5
Percutaneous Tracheotomy	5	5
Neuraxial blocks such as Epidurals	10	25

FIACTA REGISTRATION OF CANDIDATES

To be eligible to present him or herself for this fellowship, the candidate must present evidence of following minimum requirements:

1. Candidates need to apply to the recognized FIACTA centers of their choice directly and then register for the course
2. The course of study shall be for a period of 2 academic years

3. The list of FIACTA centers and their contact details are available on the IACTA website or from the ICCA / IACTA office
4. The FIACTA recognized center should appoint the candidate based on the interview to be trained under the FIACTA certified teacher
5. The candidate needs to fill up the FIACTA registration form upon joining the course and mail it to the ICCA office. The form can be downloaded from the IACTA website: www.iacta.co.in
6. The fee for registration for FIACTA course is Rs 10,000. This should be paid to the ICCA office at the time of enrolment. Further, the candidate will have to pay the examination fee of Rs 10,000 at the time of applying for the examination. Those who have passed DM/FNB/DNB/PDCC (2-year duration) can apply directly for FIACTA examination by paying the examination fee of Rs 10000 with a registration fee of only Rs 2000
7. Candidate must become a life member of IACTA. Membership form is available in IACTA website
8. Fee can be remitted as demand draft/cheque/cash/NEFT. The details are available on the website. The FIACTA registration form and the fee should reach the ICCA office before 30th September
9. The candidates shall be paid a salary/stipend as per the rules of the institute/hospital where they are appointed. This should not be different from the salary/stipend that is paid to any other similarly qualified employees (senior residents) of that institute/hospital
10. No hospital, institute or individual may levy any direct or indirect fee to a candidate in relation to the FIACTA course
11. Appointment letter from the institute/hospital with the candidate's details should also be mailed to the ICCA office.
12. Advertisement for applications, appointments and registrations for the course must be completed before 30th September every year
13. A recognized FIACTA center should be doing a minimum of 400 cardiothoracic surgeries per year and a certified FIACTA teacher can have two FIACTA candidates per year

ASSESSMENT OF CANDIDATES

- A. Candidates should be assessed at 6 monthly intervals by the teacher to ensure that adequate progress is made in the teaching and training.
- B. *Logbook*: A specified logbook shall be maintained by the candidate under the supervision of concerned teacher that will track the attainment of specified competencies in cardiac anaesthesia. The logbook will have the data on the cases managed, procedures performed, academic presentations etc. The format of the logbook can be obtained from the ICCA office or IACTA website. Candidates who have completed their DM / FNB and have a log book that is required for their primary examination, can present that as a log book for the FIACTA examination

Periodic tests: The concerned department shall conduct tests every six months. The final test may be held three months before the final FIACTA examination. The tests should include written papers, practical and viva voce. Records and marks obtained in such tests will be maintained by the head of the department

- C. *Research*: Candidates should be encouraged to undertake at least one project during the course
- D. *Publication/Presentation*: It is desirable that every FIACTA candidate publishes at least one article in an indexed peer reviewed journal like Annals of Cardiac Anaesthesia. Presentation in the national/regional conferences should be encouraged

EXIT EXAMINATION PATTERN

At the end of two years, FIACTA examination will be conducted by ICCA across multiple centers in the country. The examination is spread over two days, usually the second Saturday and Sunday of August every year. Please look at the website for updates on the examination.

Theory examination

The Question booklet contains:

- 50 multiple choice questions (MCQ) = 50 marks
- 10 Short notes = 100 marks

Total theory marks = 150 Marks

Practical examination

- Long Case = 100 marks
- Short cases = 100 marks (50x2 cases)
- Table viva = 100 marks (50 x 2 tables)

Table 1: X-ray, ECG, TEE Table 2: Equipments, Drugs, ABG

- Academics = 50 marks (Log book, Scientific presentations, Publications)

Total Practical marks = 350 marks

Total marks (Theory + Practical) = 500 marks

Candidates need to secure 50% marks in both theory and practical separately to be declared as passed

LIBRARY FACILITIES OF A FIACTA CENTER

The center should have access to at least two journals each of:

- Cardiovascular thoracic anaesthesia
- Cardiac surgery
- Critical care medicine

And Standard text books on

- Cardiac anaesthesia
- Transesophageal echocardiography
- Pediatric cardiac anaesthesia
- General critical care