THE TAMILNADU Dr.M.G.R. MEDICAL UNIVERSITY,

No.69, Anna Salai, Guindy, Chennai – 600 032.

D.M/ M.Ch
SUPER SPECIALTY DEGREE COURSE

SYLLABUS AND CURRICULUM

2017-2018

M.Ch - CARDIO VASCULAR AND THORACIC SURGERY

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY, CHENNAI
Syllabus – M.Ch. CARDIO VASCULAR AND THORACIC SURGERY

AIM & OBJECTIVE:

The syllabus for M.Ch., (Cardiovascular and Thoracic Surgery) Course should comprehensively cover all the subjects in Cardiovascular and Thoracic Surgery during 3 years of study period. The student who undergoes the course should have an exposure to all the facets of Cardiovascular and Thoracic Surgery and develop adequate knowledge and skill to treat the patients competently after acquiring the degree.

THEORY SYLLABUS

- Applied Anatomy and Developmental Anatomy of the chest wall, diaphragm; Pleura, Lungs, Mediastinum, Oesophagus, Heart, Pericardium, Great Vessels and its branches, Congenital Cardio-vascular and Thoracic anomalies.

- Applied Physiology – Respiration, Pulmonary function tests, Blood Pressure, Cardiac cycle, Cardiac output, Production of heart sounds and murmurs, Physiology of Extracorporeal Circulation and Hypothermia, Cardiac metabolism, Acid base balance, Fluid and Electrolytes Balance, Physiology of Oesophagus, Gastro Oesophageal reflux.

- Applied Pathology-- Thoracic injuries, Chest wall tumours, Emphysema, Pleural tumours, Pulmonary suppuration, Congenital anomalies of Great Vessels, Benign strictures of Oesophagus, Cancer of Oesophagus, Achalasia Cardia, Oesophagitis, Diaphragmatic hernia, Cardiac tumours, Pulmonary Embolism.

- Applied Bacteriology – Thoracic infection, Pulmonary infections, Bacterial and fungal endocarditis, infections during open heart surgery, intra thoracic infection and nosocomial infection / HIV in cardiac and pulmonary disease.

- Clinical examination and management including chest injuries, chest deformities and tumours of the chest wall.

- Infection of the pleura and tumours of the pleura.

- Pulmonary tuberculosis, lung abscesses, bronchiectasis, lung cysts and lung tumours, techniques and complication of pulmonary resections, mediastinal tumours.

- Congenital anomalies of Oesophagus.

- Foreign body in Oesophagus, Benign strictures of Oesophagus

- Peptic Oesophagitis, Hiatus Hernia, Cancer of Oesophagus and Diaphragmatic hernia.
- Diseases of the Pericardium, Myocardium and endocardium, Rheumatic heart

diseases, Diseases of the conducting system of the heart, coronary diseases. Congenital cyanotic and acyanotic heart disease. Syndromes associated with congenital heart disease. Aneurysm of great vessels / dissection.

- Detailed knowledge of the treatment of all cardiac, vascular and thoracic surgery problems.

- Detailed and technical knowledge of intra thoracic aortic diseases of varied Etiology

- Detailed knowledge of extra corporeal circulation and recent developments like ECMO.

- Detailed knowledge of Recent Advances in Cardiac Surgery – Heart Transplant, Heart Lung Transplant, Myocardial revascularization, Laser surgery, Robotic surgery – Computer Aided surgical developments – Genetic Engineering in Cardiac Disease Treatment, Total Artificial heart , Ventricular assist device, Stem Cell Research, Cardiac arrythmia surgeries.

- Video assisted Thoracic Surgery:- Principles, Indications, Techniques and complications

- Minimally Invasive cardiac surgery.

Bioethics

1. Respect human life and the dignity of every individual
2. Refrain from supporting or committing crimes against humanity and condemn all such acts
3. Treat the sick and injured with competence and compassion and without prejudice and apply the knowledge and skills when needed.
4. Protect the privacy and confidentiality of those for whom we care and breach that confidence only when keeping it would seriously threaten their health and safety or that of others
5. Work freely with colleagues to discover, develop, and promote advances in medicine and public health that ameliorate suffering and contribute to human well being
6. Educate the public about present and future threats to the health of humanity
7. Advocate for social, educational and political changes that ameliorate suffering and contribute to human well being.
8. Teach and mentor those who follow us, for they are the future of our caring profession.

CLINICAL TRAINING

The students will be trained in parent department during the three year course. Postings in related departments will be as follows:

1) Cardiology –1 month
2) Vascular surgery--- 1 month
3) Other institutions (for advanced procedures0 - 1 month

During II year, students are encouraged to undergo special postings for learning new advanced techniques / Procedure / Skills in institutions of higher repute where the requisite facilities are available without affecting the duties of the parent department.

SKILL TRAINING REQUIREMENTS

The student must have acquired certain surgical skills in a structured manner during the three year period of his course. These skills will be achieved by either assisting at the surgery or performing the surgery under the supervision of the teacher.

I year

Should have assisted at the following surgeries	Should have performed the following surgeries
Valve replacement/ repair	Sternotomy
Congenital heart surgery	Pleurocentesis
Coronary artery bypass grafting	Pericardiocentesis
LUNG resection	Intercostal Drainage
Decortication	Thoracotomy
Pericardectomy	Saphenous vein harvesting

II year

Should have assisted at the following surgeries	Should have performed the following surgeries
Beating heart Coronary artery bypass grafting	Atrial septal defect repair
Minimally invasive Cardiac surgery	Mitral Valve Replacement
Video- assisted Thoracic surgery	Proximal coronary anastomosis
Aneurysm repair	Bronchoscopy
	Internal mammary/Radial artery harvesting
	Traumatic lung injury repair

III year

Should have assisted at the following surgeries	Should have performed the following surgeries
Complex congenital heart surgery for Tetralogy of Fallot/ Transposition of Great Arteries	Aortic/ Double Valve Replacement
Bentall procedure	Distal coronary anastomosis
Multiple Valves Replacement	Lung resection
Redo Cardiac surgery	Decortication
	Vascular repair

TEACHING METHODOLOGY

1. Planning session with entire Faculty and students – once in a week
2. OP – 1 to 3 days/week
3. Ward rounds - 3 days/week
4. Per-operative teaching sessions - 2 days/week
5. Classroom lectures - thrice a week
6. Video teaching session - once in a week
7. Journal reading - once in a week
8. Symposium - once in a week
9. Guest lecture - once in 2 months
10. CME Program- once a month

RESEARCH WORK

- The candidate is introduced to the field of research in Cardiovascular and Thoracic surgery; both at clinical and laboratory level.
- The candidate will be trained in the ability to
- Frame a research question.
- Plan a study to answer the question.
- Collect the relevant information and
- Evaluate appropriately the collected data to draw a conclusion.
- The candidate should become conversant with the reporting of these results as a research paper, in journals and as a presentation in conferences.
- The activities would consist of:
- Planning and organizing relevant studies to be submitted as a Research paper at the end of the course.
- Students should compulsorily attend Research Methodology workshop conducted by the University within first six months of M.Ch Course.

LOG BOOK:

The Postgraduate student of a Postgraduate Degree Course in Super specialties shall maintain Log Book of the work carried out by them and the training programme undergone during the period of training including details of surgical operations assisted or done independently by them.

The Log Book shall be checked and assessed by the faculty members imparting the training.

Periodical evaluation of Log Book to be done by the Head of the Department as per 52nd SAB.

The Evaluation of the candidates in both theory and practical aspects will help the candidate in the improvement of his/her knowledge skills & attitude**.**

-- **COMPETENCY ASSESSMENT:**

Overall:

1. Communication / Commitment / Contribution / Compassion towards patients and Innovation	-	10 Marks
2. Implementation of Newly learnt techniques	-	10 Marks
3. Documentation of case sheets / discharge Summary / Review	-	10 Marks
4. Number of cases presented in Clinical Meetings/ Journal Clubs / Seminars / Papers presented in Conference.	-	10 Marks
5. No. Of Medals/ Certificates won in the conference / Quiz competitions and other academic meetings with details.	-	10 Marks
Total		50 Marks

Assessment	I	- February	-	First Year
	II	- August	-	First Year
	III	- February	-	Second Year
	IV	- August	-	Second Year
	V	- February	-	Third Year
	VI	- May	-	Third Year

VIVA INCLUDING COMPETENCY ASSESSMENT – 100 Marks (50+50)

THEORY EXAMINATION

Paper I	Basic Sciences
Paper II	Thoracic and Cardiovascular Surgery I
Paper III	Thoracic and Cardiovascular Surgery II
Paper IV	Recent Advances in Cardiovascular and Thoracic Surgery

Each paper will Contain:

1. Essay questions	(2)	-	2 X 15 =	30 Marks
2. Short Notes	(10)	-	10 X 7 =	70 Marks
Total				100 Marks

CLINICAL EXAMINATION:

Particulars	Time for candidate to examine the cases	Time for examiners to question the candidates	Maximum Marks
Long Case	1 Case x 60 Minutes	60 Minutes	100
Short Case	2 Cases x 15 Minutes	30 Minutes	100
Ward Rounds	3 Patients x 10 Minutes	30 Minutes	100
OSCE	5 Stations x 3 Minutes	15 Minutes	50
Viva Voce		15 Minutes	100
Log Book			50
		Total	**500**

As per Medical Council of India Post Graduate Medical Education regulations 2000 (amended upto 10th August 2016)clause **13.9, A Postgraduate student of a Postgraduate degree Course in broad specialties/ Super Specialties 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 his Postgraduate studies so as to make him eligible to appear at the Postgraduate Degree Examination.**

Apart from Poster/Oral paper presentation in National/State conferences, the Research paper published by the candidate in the University Journal of Medical Sciences will be considered as equivalent to the Research Paper as mentioned in 13.9. clause. Case Reports can also be published in University Journal of Medical Sciences but case reports will not be considered as Research Paper.

The candidate can also present Research Paper as per Clause 13.9 of Post Graduate Education Regulation 2000, and if the article sent for publication by the candidate as primary author or corresponding author which has not yet been published/accepted for publication, the candidate should submit a letter from the HOD, stating that the article sent for publication is of publishable merit and the proof of the Research Article submitted to the Journal for publication should be sent to the university forwarded through the HOD[as per 53rd SAB]

The student can submit articles for the University journal anytime from the time of registration till 6 months prior to theory examination.

OSCE: 5 stations

1. Clinical photograph of clinical scenario
2. Pathological specimen
3. Clinical photograph or video of Operative surgery

4. Radiological image- chest x-ray, CT scan, Angiogram
5. Surgical instruments and disposable items

REFERENCE BOOKS

- Surgery of the chest. Sabiston and Spencer
- Cardiac Surgery. Kirklin- Barrat Boyes
- Paediatric Cardiac Surgery. Constantine Mavroudis, Carl Backer
- Surgery for Congenital Heart defects. J. Stark, M. DeLeval
- Cardiac Surgery Operative Techniques. Doty and Doty
- Cardiopulmonary Bypass Principles and Practice. Glenn. Gravlee, Richard F. Davis, Joe R. Utley
- General Thoracic Surgery. Thomas W. Shields, Joseph Locicero, Ronald D. Ponn

****Note:** The editions are as applicable and the latest editions shall be the part of the syllabi.

JOURNALS

- Indian journal of thoracic and cardiovascular surgery
- The Annals of Thoracic surgery
- The journal of thoracic and cardiovascular surgery
- European journal of cardiothoracic surgery

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