



CURRICULUM, FELLOW IN CARDIOTHORACIC SURGERY, COLLEGE OF SURGEONS OF EAST CENTRAL AND SOUTHERN AFRICA

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ABBREVIATIONS AND ACRONYMS

CCR COSECSA country representative

CURE

ECSAHC East Central and Southern Africa Health Secretariate

PCEA Presbyterian Church of East Africa

ECC. Examinations and Credentials Committee

FGCP Finance and General Purposes Committee

ESRC Education, Scientific and Research Committee

DEFINITIONS

1. College of Surgeons of East Central and Southern Africa: College established in 1999 to advance education, training, examination standards, research and practice in surgical care by increasing the number of appropriately trained, well qualified surgeons and surgically trained general medical officers.
2. Council: Overall regulatory arm of the college responsible for the College policy decisions.
3. CEO: Chief Executive Officer responsible for the day to day running of the College
4. College Committees: The individual standing committees responsible for specific areas of the college functions. These include The Examinations and Credentials Committee (ECC), The Finance and General Purposes Committee (FGCP) and the Education, Scientific and Research Committee (ESRC)
5. Panel Head: Overall coordinator within council for specific courses, in the case of this curriculum, cardiothoracic surgery. Role includes oversight of training of that programme, examination preparation, curriculum review etc.
6. Panel head: Individual on council responsible for development, coordination and examination processes of a specific programme.
7. Website: Official College website, cosecsa.org

1.0 INTRODUCTION

Surgical training in the ECSA region has remained a challenge. In recognition of this the College of Surgeons of East Central and Southern Africa was established in 1999 following an earlier health minister's resolution.

The college operates as a College without borders, training trainees in 10 African countries, namely Ethiopia, Rwanda, Burundi, Uganda, Kenya, Tanzania, Malawi, Zambia, Zimbabwe and Mozambique. In addition the college has satellite training institutions in Gabon, Cameroon, and Swaziland.

Training is conducted in-country, utilising local health facilities and faculty, while examinations are centrally conducted. Quality control is ensured through proper accreditation and international peer monitoring.

One of the main tenants of the COSECSA training programme is to promote access to and excellence in Surgical Care, Training and Research.

In addition to formal clinical training the college has run over 500 training courses in all. These include over 70 faculty Train the Trainer courses, over 290 Basic Surgical Skills, Basic Surgical Sciences, Trauma and Critical Care courses for Membership candidates. Endoscopy, Laparoscopy as well as Leadership, Management and Ethics/Professionalism Courses

To date the college had graduated over two hundred and fifty surgeons and claims to train up to half the surgeons graduating within the region.

Despite this, the current surgical situation is still characterised by manpower shortfalls and maldistribution. Within the region only 5% - 20% of surgical workforce needs are met within the member states and in majority of these, up to 85%, serve the urban centres.

In line with the college vision and as a direct address to the shortfall the College establishes a training programme for cardiothoracic surgery.

1.1 Mission and vision of college of surgeons of east central and southern africa

Mission statement: To increase accessibility of surgical services, especially to African rural populations by standardising and widening access to surgical training, skills and knowledge.

Vision statement: To be a leading organisation in surgical training, standards and research, in our region and beyond. This Vision is focused on positioning COSECSA as a world-class surgical training and research institution.

1.2 Philosophy of college of surgeons of east central and southern Africa

Adopting student centred, collegiate training so as to reach the widest population of trainees in the ECSA region.

1.3 College admission requirements

For admission into master programmes, MCS, candidates must have MBChB or MD or an equivalent as recognised by the ESRC and approved by council.

For admission into the FCS programme candidates must have passed the masters level. Those with a MMed from a recognised institution are admissible into the fellowship programme, subject to review by the ESRC.

1.3.1. Other admission requirements

The College, being a college without borders operates in a number of countries utilised the teaching staff (trainers), and facilities at the selected teaching sites accredited by the College.

All training sites are recognised and registered by the relevant ministries of health in the respective countries. The same applies to the trainers used by the College. All trainers are recruited following submission of relevant documentation for status verification.

Training sites are identified through the country representatives. Once identified sites are accredited and thereafter able to offer training if they meet the college criteria. Training sites are accredited alongside trainers. Requirements to qualify for a training site listed in appendix 1.

Appointment procedures for trainers is through recommendation of country representatives from among the staff within the proposed training facility. This is followed by ratification by council on the recommendation of the ESRC.

A list of accredited teaching sites and the identified trainers are contained in the appendix 2.

1.3.2. Procedure of application for admission into College

Candidates for College programmes are required to register as trainee's formal application forms or the COSECSA website. All completed applications must be received by the first day of March of the first year of training and accompanied by certified copies of MCS certificates or equivalent examination.

1.4 College academic resources

1.4.1. Facilities and equipment's

The College has no teaching facilities or infrastructure of its own but uses the infrastructure at the accredited teaching sites.

Infrastructure used for teaching varies from country to country and from national teaching and referral hospitals (level 6), through mission hospitals up to district level hospital (Level 4-5). All hospitals must confirm availability of a minimum level of facilities as per appendix 1. His information is confirmed during accreditation using accreditation form as per appendix 3.

A sample of facilities available at one of the accredited teaching sites is contained in appendix 4. A full list for specific institutions is available on request.

1.4.2. Reference materials

A vast range of teaching materials are available to our students in the College both as hard copies and as electronic copies.

For trainees stationed at teaching hospitals this equates to reference materials availed at that level.

Many of these reference materials are unique to the individual centres but the College recommends some universal reference material across all the 10 countries

and beyond. A compilation of the recommended reference materials is contained in appendix 7.

1.4.3. Academic staff

The College has no employed academic staff and instead has the services of a wide range of academic staff across all the surgical disciplines within participating country training sites.

These trainers, all qualified and registered specialists in their countries of work, offer their teaching services to COSECSA students pro bono.

A list of accredited COSECSA trainers is contained in the appendix 5.

1.4.4. College Academic organisation

Academic programmes within the College are overseen by Council on recommendations of the three committees.

Council provides overall supervision while formulation, execution and evaluation of programmes is under the Education, Scientific and Research Committee, Examinations and Credentials Committee and Finance and General Purposes Committee respectively.

Administrative support for academic programmes are provided at the Secretariate, located in Arusha, Tanzania, through the College Registrar and the secretariate staff.

1.4.5. Non-academic staff.

Academic staff are supported by three non-academic staff who carry out the administrative work related to training.

The non-academic team is led by the College Registrar assisted by two administrative officers. All three are operational from our headquarters at the ECSAHC in Arusha that houses all the other colleges and the Senate (overseeing functions of all colleges).

1.5 Programmes offered by College of Surgeons of East Central and Southern Africa

The following is a list of the programmes currently offered by the College of Surgeons of East Central and Southern Africa.

1. Fellowship in General Surgery
2. Fellowship in Orthopaedic surgery
3. Fellowship in Plastic Surgery
4. Fellowship in Neurosurgery
5. Fellowship in Urology
6. Fellowship in Ear, Nose & Throat

1.5.1. Programme duration

All the listed programmes have a membership examination after two years of training and thereafter students' pursue their fellowship programme of interest.

With the exception of neurosurgery all fellowships are of three years duration with neurosurgery being four years.

For details of the MCS regulations the reader is referred to the MCS curriculum

1.5.2. Definition of credit hours etc.

For the programmes listed; one (1) unit of study is equivalent to 60 hours of lectures or 90 hours of tutorials, or 120 hours practicals, clinical clerkship/community attachment.

2.0 CURRICULUM FOR FELLOW IN CARDIOTHORACIC SURGERY

2.1 Title of proposed programme

Fellowship in Cardiothoracic Surgery, College of surgeons of East Central and Southern Africa

2.1.2 Mission and vision of the cardiothoracic programme

Increase accessibility of cardiothoracic surgical services, especially to African rural populations by standardising and widening access to training, skills and knowledge. Be a leading organisation in cardiothoracic surgical training, standards and research, in our region and beyond.

2.2 Philosophy of the programme

The programme aims to preparing students for a surgical cardiothoracic career through a student centred programme inculcating critical thinking, desire for impeccable surgical goals, professionalism and research skill development.

2.3 Rationale of the programme

2.3.1. Needs assessment

For this programme, primarily driven by desire from potential student within the region, ECSA, for a cardiothoracic training programme.

This was compounded by the presence of only two active training programmes, namely Ethiopia, University of Addis Ababa and Kenya, University of Nairobi. Both of which are not able to meet regional needs. Other units, Zimbabwe, Tanzania, and Uganda it is hoped they will also add to the potential training pool in the near future.

Regional unmet need for cardiothoracic surgery as a discipline is acute and the programme will be more than welcome. This hopefully will reduce the high numbers of patient from this region currently seeking treatment elsewhere.

2.3.2. Stakeholder involvement

The principle desire driving formulation of this programme was requests from students due to a lack of similar training programme or inadequate available placements in their region.

Nevertheless, there is a great unmet need in the delivery of cardiothoracic services in the region as a whole with over 15 million affected by rheumatic heart disease

alone. With only 160 units in the whole of Africa, with majority in South Africa and Egypt, there is a great unmet need.

Various institutions have stated support for the programme in discussions with government officials.

2.3.3. Justification for programme need

The regional cardiothoracic unmet needs are high. In Africa as a whole there are about four hundred cardiac surgeons. This number is inadequate to meet the needs of a population of one billion people. Africa has a shortfall of about 6,000 cardiothoracic surgeons (ideal set at 1:155,000 population).

This programme will go some way in attempting to alleviate this shortfall.

2.4 Goals of the programme

The aim of this programme is to addressing the current shortfall in cardiothoracic services in the region.

2.5 Expected learning outcomes of the programme

At the end of the programme trainees will be expected to be able to;

1. Demonstrate a good working knowledge and understanding of cardiothoracic surgical needs and practice in the east central and southern Africa region.
2. Demonstrate appropriate psychomotor and research skills relevant to the region's needs.
3. Apply acquired surgical skills in a professional and compassionate manner.
4. Advance cardiothoracic research within the region.

2.6 Mode of programme delivery

Programme will be run as a full time, residency programme primarily located at the point of employment of the trainee. In situations where expertise or equipment is lacking, students may rotate at a suitable facility of periods as agreed with the programme panel head.

All taught course units covered will consist of,

- Lectures, as didactic teachings either as faculty delivered as well as student lead lectures. Visiting faculty will from time to time be invited to give selected teaching sessions.
- Clinical work, within the wards, operating theatres, clinics and other clinical areas as appropriate. All clinical work shall be recorded in the form of log books.
- Tutorials and seminars.
- Clinical conferences for discussion of interesting cases.
- Journal clubs
- Dissertation clinics
- Grand rounds
- Morbidity mortality meetings.
- Self-directed learning.

2.6.1. Course structure

Syllabus details below for the Fellowship, commencing in the third year of study.

Regulations for years one and two are the common MCS regulations, common regulations for years one and two, obtainable from the secretariate on request.

Year three*

Course Code	Course Title	Credit Hours
TCS 300	Principles of Cardiothoracic Surgery I	1080
TCS 301	Principles of Cardiothoracic Surgery II	1080
TCS 302	General Thoracic Surgery	1080
TOTAL		3240*

Year four

Course Code	Course Title	Credit Hours
TCS 400	Surgery for Acquired Cardiovascular Disease	1080
TCS 401	Cardiothoracic Trauma	1080
TOTAL		3240

Year 5

Course Code	Course Title	Credit Hours
TCS 500	Surgery for Congenital Cardiovascular Disease	3240
TOTAL		3240

2.7 Academic regulations

2.7.1. Admission requirements

All candidates for the cardiothoracic fellowship are required to register as trainees. Applications must be made on formal application forms available from the country representative (CCR) or the COSECSA website. All completed applications must be received by the first day of March of the first year of training and accompanied by certified copies of MCS certificates or equivalent examination.

Academic

Candidates for the fellowship programme should normally possess MCS (ECSA) certificate. (For MCS curriculum details please refer to the MCS documentation).

Training Posts

Candidates will have to have spent three years in recognised supervised training posts. Posts are recognised as medical facilities both by the College and the local country regulatory bodies.

* Years one and two are common MCS courses and can be found in the MCS curriculum

* Included call duties and weekend calls

All three years will be spent in the speciality of cardiothoracic surgery. Six months of the three years may be spent on elective outside the designated training site in a post that has been prospectively agreed with the Examination Scientific and Credentialing (ESC) and the Education Scientific and Research Committees.

Forms to be fill in for attachment to each training post are provided for each candidate from the website.

2.7.1.1. *Regulations on credit transfers in the programme*

Credit transferee shall only be applicable for the clinical stages of the MCS training (clinical section).

Credit transfer shall only be considered for clinical rotations, from accredited sites and on production of a verified logbook.

Exemption from the MCS examinations may be given to those who have passed an equivalent examination such as MMed (Surgery) of one of the constituent countries of the ECSCA community, or Fellowship of the Royal Colleges of Surgeons of England, Scotland, Ireland, Australia, or South Africa.

2.7.1.2. *Admission procedure*

A prescribed registration fee should be payable on registration. On registration the trainee shall receive a:

- i. Copy of the examination regulations and syllabus
- ii. Log book
- iii. List of recognised hospitals and approved courses
- iv. Assessment forms to be filled in at the end of every training post by the trainee and the supervising consultant.
- v. Recommended reading list for the relevant examination
- vi. An application form to sit the examination
- vii. Registration number which remains unique to the candidate

2.7.1.3. *Course structure and duration*

Following MCS, specialty training in cardiothoracic surgery shall be a full time, three year residency programme. The maximum duration of the course shall be six years.

All courses are compulsory

A unit of study shall be 60 hours of lectures or 90 hours of tutorials or 120 hours of practicals, clinical clerkship/community attachment.

Clinical coverage outside official working hours (call duties) shall on average be two calls per week and one weekend call in a month (80 hours). To complete the course, candidates are expected to undertake a minimum of 60 hours a week of clinical work (on calls, clinics, ward work, theatres).

A Candidate exceeding the prescribed maximum duration of the course without valid reason shall be discontinued on recommendation of the Examination and Credentials Committee (ECC)

With appropriate reasons, and written application, temporary withdrawal may be granted from the programme for six months, renewable once. Temporary withdrawal greater than a year will result in discontinuation from the programme.

2.7.1.4. *Discontinuation from the programme*

A candidate may be discontinued from the programme under the following circumstances.

- Voluntary withdrawal in writing to the ECC.
- On medical grounds, with the approval by the Council, candidate is found to be academically unfit to continue.
- If candidate contravenes the ethical code expected of a medical practitioner. Relevant national regulations may be referred to.

2.7.2 Course requirements

2.7.2.1. *Class attendance/attachment*

The college expects that all candidates must attend at least 80% of prepared teaching sessions by the training site. In addition trainee must take courses included in the online courses organised by the College.

2.7.2.2. *Trainer obligations*

Trainer roles shall include, but not be limited to the following areas;

- Be available to students for teaching, consultation and mentoring.
- Serve the primary role of facilitating learning of students.
- Adequately prepare for all teaching assignments
- Demonstrate cardiothoracic surgical skills to students
- Provide reading and learning materials/references in a timely fashion.
- Supervise tutorials, ward rounds, grand rounds, morbidity mortality meeting and other teaching sessions.
- Preparation of examinations and assessments in a timely fashion.
- Marking or grading of examinations and assessments in a timely fashion.
- Provide facilitative feedback to students on their continued progress and all assessments.
- Coordinate curriculum audit and review processes.
- Liaise with the head of department and dean on matters relating to the programme.

2.7.2.3 *Trainee obligations*

Shall include, but not limited to;

- To attend teaching sessions as stipulated.
- Commit themselves to the learning process and avoid distractions not directly related to the processes.
- Submit all assignments as required.
- Advise teaching staff beforehand if unable to attend classes or submit an assessment.
- Be familiar with the contents of the COSECSA regulations and abide by them.
- Treat student peers and any facilitators with respect.
- Student moonlighting during the training programme is not permitted.

2.7.3. Student assessment policy/criteria

Student assessment policy indicates progressive student assessments must be assessed on a regular basis of at least quarterly.

Assessments shall consist of internal progressive assessments at the end of each session as well as mandatory prescribed internet courses.

Assessments must be holistic and include cognitive, psychomotor and attitude assessments.

All assessments must be fed back to the student within a week of the assessment taking place and discussions must be documented with a signed note.

Review of assessment of trainees work prior to final examinations will be conducted by the panel head cardiothoracic. On satisfactory assessment at this stage trainees will be allowed to sit examinations.

2.7.4. Grading system

Similar to all medical programmes the final degree shall have no grading.

Closed marking system shall be used for this programme and consist of;

- Good pass >60%
- Pass 50 to 60
- Fail <50%

2.7.5. Examination regulations

Candidates who are registered as trainees (see §2 above) may sit the examination at the end of their third year of FCS training provided that they have completed 36 months of training by that time. Application for the examination must be made by the first day of March on the year of the examination. Candidates should submit a completed examination application form to the CCR, or register online. All registration fees must be paid. On receipt of the form and the fee, candidates will be informed of the precise times, dates and venue for the examinations.

By applying to the examination a candidate agrees to be bound by the rules and regulations of the College. A copy may be obtained from the Arusha office.

If a candidate withdraws from an exam more than 12 weeks before the exam is due, then the fee can be transferred to the next exam date. Fees will not normally be returned if the candidate withdraws permanently, unless due to special circumstances as determined by the College.

Candidates must pass the examination within four years of their first attempt. After this they will not be allowed to resit. A total of four attempts only will be allowed.

Examination Format and Conduct

The standards of the examination will be set by the examination committee. A panel of examiners will be chosen by the examination committee from amongst Fellows of the College for the examination.

A register of examiners will be kept by the chairman of the examination committee. An examination board will be constituted for each diet of examinations, comprising the chairman of the examination committee, two members from each examination panel and at least one external examiner. The role of the external examiner(s) is to:

- a) Moderate the written question papers
- b) Assist with the examination of candidates
- c) Assist with any pass/fail vivas
- d) Provide external independent assessment of the examination
- e) Report on the conduct of the examination to the examination committee

The exam comprises written, clinical and oral parts

The written FCS-CTh (ECSA) exam will comprise two, three (3), hour papers and an OSCE.

- The first paper will consist of single best answer multiple choice questions
- The second paper will consist of extended matching and/or short answer questions

Written examinations may be held in any of the countries of the region where the trainee is located. In exceptional circumstances the examination committee may approve an examination site outside the region. The written examinations are held simultaneously on the first Wednesday of September, at a recognised examination centre with impartial invigilation.

The examination papers will be set by members of the examination committee and independently moderated by an external examiner. They will be sent to COSECSA administration office in Arusha by first day of March and will be stored confidentially there. One copy per candidate will then be sent by courier or secure delivery to a named country representative at all sites that are holding examinations 2-3 days before they are held.

After the examination, CCR will make photocopies of the candidates' completed exam scripts for safekeeping, and send the originals by courier or secure delivery to the relevant panel chairman. Marking of the examination paper will be coordinated by the panel chairman.

The clinical and oral part of the examination will comprise the following:

All oral examination (viva) which will take place approximately 3 months after the multiple choice exam, in a country and at a site designated by the college. There will be two 30 minute oral examinations.

A clinical OSCE examination which will take place at the same time and at the same site as the oral. This will comprise six 20 minute stations.

Candidates have to pass the clinical and oral sections of the examination in order to pass overall. If a candidate scores a mean of 49% in one section and has over 50% in the other section then he or she will be given a pass/fail viva. The chairman of the examination panel will select two examiners, excluding those who had failed the candidate, together with an external examiner, to conduct this viva.

The chairman of the examination panel will endeavour to minimise the chance of a candidate being examined by an examiner from his or her own country.

The panel of examiners will give the results to the examination board who will meet on the day of examination. The board will then approve the results on behalf of Council and publish them.

For each candidate who fails the exam, the panel will allocate a Fellow of the College (usually a member of the panel) who will communicate with the candidate and offer advice as may be indicated. Details of marks will not be given. If a candidate fails his clinical and oral examination then he may attempt the clinical and oral examination for a maximum of two more years without having to rewrite the written examination.

Appeals against results must be made in writing to the Council within 60 days of the completion of the examination. The President of the College will then appoint an impartial committee to investigate the appeal, and require a written report to be filed by the Chairmen of the examinations panel and board. The Appeals committee will then take all considerations and its own findings into account and recommend a decision which will remain final and binding.

E-Log Book

Student surgical operations shall be recorded real time on a surgical electronic logbook containing a chronological list of all diagnostic, operative procedures and follow ups, performed during training. All procedures must be electronically countersigned by the supervising consultant.

A satisfactory mark of 50%, or more, is required for the logbook in order to sit the final examinations.

Successful completion of the logbook, as stipulated in College operational manuals, will be required before sitting for the end of year examinations.

Examination pass mark

The examination pass mark shall be 50%

Only those passing the written paper shall be called for the clinical examination.

Those failing the examination (written, clinical or both), in a given year may resist the examination when next offered.

2.7.6. Moderation of examinations

All examination paper shall be reviewed by the external examiner. Preparation of examination papers is the responsibility of the programme leader. Following preparation, papers are sent to a designated external examiner. Appointment of external examiner shall be by Council on recommendation of the ECC committee.

External moderation shall take place at least four months before the written examination.

2.7.6.1. Examination Schedule

Year three examinations

Course Code	Course Title	Papers
TCS 300	Principles of Cardiothoracic Surgery I	2 x 3 hrs paper 1 x OSCE clinical Viva
TCS 301	Principles of Cardiothoracic Surgery II	2 x 3 hrs paper 1 x OSCE clinical Viva
TCS 302	General Thoracic Surgery	2 x 3 hrs paper 1 x OSCE clinical Viva

Year four examinations

Course Code	Course Title	Papers
TCS 400	Surgery for Acquired Cardiovascular Disease	2 x 3 hrs paper 1 x OSCE clinical Viva
TCS 401	Cardiothoracic Trauma	2 x 3 hrs paper 1 x OSCE clinical Viva

Year five examinations

Course Code	Course Title	Papers
TCS 500	Surgery for Congenital Cardiovascular Disease	2 x 3 hrs paper 1 x OSCE clinical Viva

2.7.7. Graduation requirements

To qualify for graduation a candidate must have successfully completed all examinations.

Graduation ceremonies are held once a year in any of the member countries on a rotational basis.

2.7.8. Examination malpractices and irregularities.

Invigilators during examination shall prior to commencement of examination advise all candidates on the consequences of examination irregularities or malpractice. Upon noticing, or a strong suspicion of, any malpractice must immediately consult with co-invigilators and also advise the candidate that such an incident has been noted.

All evidence relating to the incident must be confiscated, photographed etc. as appropriate to the case.

Within eight hours, the incident must be reported in writing to the panel head, cardiothoracic and the ECC, with all relevant evidence. Both invigilators and the concerned student are expected to make independent written reports.

A committee selected from members of the ECC and ESRC shall make a final decision on the case and inform council.

2.7.9 Disciplinary action.

Disciplinary action for examination irregularity, malpractice is exclusion from the programme.

2.7.10. Mode of appeal.

Trainees wishing to make appeals either for examination malpractice/irregularities or marking may do so in writing to the College Registrar. The appeal must contain enough detail to warrant the appeal being considered.

Any appeal must be made within a week of release of the official examination results or release of an irregularity/malpractice decision.

If found to have merit the case shall be referred to the ECC for deliberation.

2.7.9 Classification of degree.

Fellowship in Cardiothoracic Surgery, College of surgeons of East Central and Southern Africa shall not be classified.

2.7.10. Dissertation/thesis

The College does not currently expect students to undertake a dissertation as part of the training process.

2.8 Course evaluation

The courses shall be evaluated through a number of methods. Responsibility for course evaluation shall be through the panel head and all evaluation reports forwarded to the ECC and ESRC for onward discussion by council.

2.8.1. Student evaluation.

At the end of each course a formal trainee evaluation of the course shall be conducted on a structured questionnaire containing both open and closed ended

questions. Evaluation shall include assessment of student opinion on course content, delivery and assessments.

Data collection shall be by the course coordinator in the respective centre and result sent to the panel head for compilation.

Information gathered shall be analysed and fed back to students and council.

2.8.2 Trainer evaluation.

Similar to the above, a training evaluation of all aspects of the training process shall be undertaken through structured questionnaires. Assessments shall be carried out by student as well as peer review. In the case of students, these shall be presented to student prior to the final examination.

2.8.3 Programme evaluation.

Overall programme evaluation shall be undertaken annually with a curriculum review five yearly. The latter shall take into consideration individual course assessments, reference materials, teaching facilities, trainers and examiners.

2.8.4 Mentorship evaluation.

Each training centre shall set up mentorship programmes to help trainees in their studies.

Programmes shall assign specific trainees to trainers with trainees having the option to change mentors if not satisfied.

2.9 Management and administration of the programme

The direct day to day administrations of the programme shall be by the cardiothoracic panel head using guidelines from the relevant committees and council.

2.10. Course coding

Course coding shall utilise three alpha and three numeric characters.

The first character of the alpha characters signify the programme, and the last two the course. For the numeric the first is the year of study and second the sequence of the programme

For this programme the course code shall resemble TCS 100 as per above description.

2.11 Degree awarded.

The degree awarded shall be, Fellowship in Cardiothoracic Surgery, College of surgeons of East Central and Southern Africa, FCS-CTh (ECSA).

3 COURSE DESCRIPTION

3.1 TCS 300. Principles of Cardiothoracic Surgery I

Title of the course: TCS 300. Principles of Cardiothoracic Surgery I

Purpose of the course: Introduce trainees to principles and primary skills in cardiothoracic surgery.

Expected learning outcomes of the course:

Course content: Cardiovascular Embryology, Surgical Anatomy of the Lung and Chest Wall, Surgical Anatomy of the Heart and Blood Vessels, Radiological Anatomy of the coronary Arteries, Structural /Functional Diagnosis of Congenital Heart disease, Pulmonary Physiology and Assessment of Pulmonary Function, Cardiovascular Physiology, Pathology of Coronary Atherosclerosis, Pathology of heart valves, Pathogenesis of Malformations, Cardiopulmonary Bypass (CPB), Myocardial Preservation, Cardiovascular Pharmacology, Blood Conservation in Cardiac Surgery, Diagnostic and Therapeutic Procedures in Cardiac Surgery

Mode of delivery of the course: the course shall be delivered through a number of modalities including;

- i. Didactic lectures and tutorials.
- ii. Assignments and case studies.
- iii. Self-directed learning.
- iv. Ward, theatre and clinic work
- v. Electronic discussion groups and online course materials.
- vi. Self-directed learning.
- vii. Skills laboratory demonstrations for practical aspects of surgical anatomy.

Instructional materials and/or equipment:

- i. Recommended reading materials listed
- ii. Wards and theatres
- iii. LCD projectors
- iv. Skills laboratory
- v. Computers

Course assessment:

Modalities of assessment will include;

- i. Continuous Assessment Tests.
- ii. Attendance.
- iii. Final examinations.
- iv. Course evaluation by students.
- v. Student Assignment of academic staff.
- vi. Stakeholder evaluation

Student skill assessment will include trainee evaluation for the following; Assessment of the critically ill surgical patient, Interpretation critical care charts and documentation, Management of fluid balance and circulating volume, Pain control, Wound management, Management of surgical drains, Antimicrobial policy and prescribing

Cardiopulmonary resuscitation (ALS), Practical use of inotropes and vasoactive drugs, Use of intra aortic balloon pump, Treatment of cardiac arrhythmias, Use of cardiac pacing, Airway management, Understanding of ventilatory techniques and methods, ecognition, evaluation and treatment of multiorgan dysfunction (level as

indicated), Arterial cannulation, Central venous cannulation, Intra aortic balloon pump insertion, Intra aortic balloon pump timing and management, Tracheostomy Fibreoptic bronchoscopy, Chest aspiration, Chest drain insertion, Chest drain management, Surgical re-exploration for bleeding or tamponade

Core reading materials of the course:

Books;

- i. Bojar M. Manual of Perioperative Care in Adult Cardiac Surgery. Wiley-Blackwell; 5 edition. ISBN-13: 978-1444331431

Journals;

- i. Journal of Vascular Surgery.
- ii. Journal of Cardiothoracic Surgery.
- iii. European Association Cardiothoracic Surgeons.
- iv. Annals of Vascular Surgery,
- v. Annals of Thoracic Surgery.
- vi. The Journal of Thoracic and Cardiovascular Surgery, Operative Techniques in Thoracic and Cardiovascular Surgery.
- vii. Seminars in Thoracic and Cardiovascular Surgery.
- viii. Seminars in Thoracic and Cardiovascular Surgery.
- ix. Pediatric Cardiac Surgery Annual.

Recommended reference materials:

Books

- i. Frank Sellke, Pedro J. del Nido, Scott J. Swanson. Sabiston and Spencer Surgery of the Chest: 2-Volume Set. Elsevier, 9th Edition. ISBN-13:978-0323241267.
- ii. John H. Lemmer Jr., Gus J. Vlahakes John H. Lemmer, Gus J. Vlahakes. Handbook of Patient Care in Cardiac Surgery. Lippincott Williams & Wilkins Handbook Series. Dec 21, 2009. ISBN-13:978-078177385.
- iii. David Yuh, Luca Vricella, Stephen Yang, John R. Doty. Johns Hopkins Textbook of Cardiothoracic Surgery. John Hopkins medicine. Second Edition 2nd Edition. ISBN-13:978-0071663502
- iv. Siavosh Khonsari and Colleen Flint Sintek. Cardiac Surgery: Safeguards and Pitfalls in Operative Technique. Lippincott Williams & Wilkins,US; 4Rev Ed edition. ASIN: B00CF6A3EK.
- v. Mark Ferguson. Thoracic Surgery Atlas. ISBN-13:978-0721603254
- vi. Christopher K. Zarins, Bruce L. Gewertz. Atlas of Vascular surgery. Elsevier. 2nd edition. ISBN-13:978-1437722253
- vii. V Bhattacharya and G Stansby. Postgraduate vascular surgery: the candidate's guide to the FRCS. Cambridge Medicine, 1st Edition. ISBN-13:978-0521133524

- viii. Robert L. Kormos, Leslie W. Miller. Mechanical Circulatory Support: A Companion to Braunwald's Heart Disease. Elsevier Health Sciences, 2011. 1st Edition. ISBN-13:978-1416060017.
- ix. Linda B. Mongero, James R. Beck. On Bypass: Advanced Perfusion Techniques (Current Cardiac Surgery). Humana Press. ISBN-13:978-1588296368.
- x. Todd E. Rasmussen, W. Darrin Clouse, Britt H. Tonnessen. Handbook of patient care in vascular diseases. Lippincott Williams & Wilkins Handbook Series. 5th edition. ISBN-13:978-0781781350.
- xi. Ronald Dalman. Operative Techniques in Vascular Surgery, Walters Kluwer health 2015. ISBN-13:860-1423657684.
- xii. Jack L. Cronenwett, K. Wayne Johnston. Rutherford's Vascular Surgery. 2-Volume Set, Elsevier. 8th Edition. ISBN-13:978-1455753048, 2014.

3.2 TCS 301. Principles of Cardiothoracic Surgery II

Title of the course: TCS 301. Principles of Cardiothoracic Surgery II

Purpose of the course: Advance trainees understanding of principles and primary skills in cardiothoracic surgery and research application in cardiothoracic surgery.

Expected learning outcomes of the course:

Course content: Peripheral Vascular Surgery: Atherosclerosis, Ischaemic limb, Aneurysmal disease, Venous thrombosis and embolism, Hyper-hypo coagulable state, Chronic venous insufficiency, Arteriography, Vascular CT scanning, Magnetic Resonance Angiography, Vascular ultrasound, Varicose veins, Mesenteric ischaemia, Carotid body tumours. Research methods in cardiothoracic surgery: Critical surgical literature appraisal, Scientific method and statistics as applied to surgery, Informed consent, Ethical aspects of surgical practice, Genetic aspects of surgical disease

Mode of delivery of the course: the course shall be delivered through a number of modalities including;

- i. Didactic lectures and tutorials.
- ii. Assignments and case studies.
- iii. Self-directed learning.
- iv. Ward, theatre and clinic work
- v. Electronic discussion groups and online course materials.
- vi. Self-directed learning.
- vii. Skills laboratory demonstrations for practical aspects of surgical anatomy.

Instructional materials and/or equipment:

- i. Recommended reading materials listed
- ii. Wards and theatres
- iii. LCD projectors
- iv. Skills laboratory
- v. Computers

Course assessment:

Modalities of assessment will include;

- i. Continuous Assessment Tests.
- ii. Attendance.
- iii. Final examinations.
- iv. Course evaluation by students.
- v. Student Assignment of academic staff.
- vi. Stakeholder evaluation

Student skill assessment will include trainee evaluation for the following; Vascular suture/anastomosis, Approach to/control of infra-renal aortic, iliac and femoral arteries, Control of venous bleeding, Balloon thrombo-embolctomy, Amputations of the lower limb, Fasciotomy, Primary operation for varicose veins, Carotid body tumour resection, Abdominal aortic aneurysm repair, elective and ruptured, Femoro-popliteal bypass, Femoro-femoral bypass

Core reading materials of the course:

Books;

- i. Bojar M. Manual of Perioperative Care in Adult Cardiac Surgery. Wiley-Blackwell; 5 edition. ISBN-13: 978-1444331431

Journals;

- i. Journal of Vascular Surgery.
- ii. Journal of Cardiothoracic Surgery.
- iii. European Association Cardiothoracic Surgeons.
- iv. Annals of Vascular Surgery,
- v. Annals of Thoracic Surgery.
- vi. The Journal of Thoracic and Cardiovascular Surgery, Operative Techniques in Thoracic and Cardiovascular Surgery.
- vii. Seminars in Thoracic and Cardiovascular Surgery.
- viii. Seminars in Thoracic and Cardiovascular Surgery.
- ix. Pediatric Cardiac Surgery Annual.

Recommended reference materials:

Books

- i. Frank Sellke, Pedro J. del Nido, Scott J. Swanson. Sabiston and Spencer Surgery of the Chest: 2-Volume Set. Elsevier, 9th Edition. ISBN-13:978-0323241267.

- ii. John H. Lemmer Jr., Gus J. Vlahakes John H. Lemmer, Gus J. Vlahakes. Handbook of Patient Care in Cardiac Surgery. Lippincott Williams & Wilkins Handbook Series. Dec 21, 2009. ISBN-13:978-078177385.
- iii. David Yuh, Luca Vricella, Stephen Yang, John R. Doty. Johns Hopkins Textbook of Cardiothoracic Surgery. John Hopkins medicine. Second Edition 2nd Edition. ISBN-13:978-0071663502
- iv. Siavosh Khonsari and Colleen Flint Sintek. Cardiac Surgery: Safeguards and Pitfalls in Operative Technique. Lippincott Williams & Wilkins,US; 4Rev Ed edition. ASIN: B00CF6A3EK.
- v. Mark Ferguson. Thoracic Surgery Atlas. ISBN-13:978-0721603254
- vi. Christopher K. Zarins, Bruce L. Gewertz. Atlas of Vascular surgery. Elsevier. 2nd edition. ISBN-13:978-1437722253
- vii. V Bhattacharya and G Stansby. Postgraduate vascular surgery: the candidate's guide to the FRCS. Cambridge Medicine, 1st Edition. ISBN-13:978-0521133524
- viii. Robert L. Kormos, Leslie W. Miller. Mechanical Circulatory Support: A Companion to Braunwald's Heart Disease. Elsevier Health Sciences, 2011. 1st Edition. ISBN-13:978-1416060017.
- ix. Linda B. Mongero, James R. Beck. On Bypass: Advanced Perfusion Techniques (Current Cardiac Surgery). Humana Press. ISBN-13:978-1588296368.
- x. Todd E. Rasmussen, W. Darrin Clouse, Britt H. Tonnessen. Handbook of patient care in vascular diseases. Lippincott Williams & Wilkins Handbook Series. 5th edition. ISBN-13:978-0781781350.
- xi. Ronald Dalman. Operative Techniques in Vascular Surgery, Walters Kluwer health 2015. ISBN-13:860-1423657684.
- xii. Jack L. Cronenwett, K. Wayne Johnston. Rutherford's Vascular Surgery. 2-Volume Set, Elsevier. 8th Edition. ISBN-13:978-1455753048, 2014.
- xiii. Jack L. Cronenwett, K. Wayne. Rutherford's Vascular Surgery, 2-Volume Set. Saunders; 8 edition (May 5, 2014). ISBN-13: 978-1455753048.
- xiv. Clement Darling III, C. Keith Ozaki. Master Techniques in Surgery: Vascular Surgery: Arterial Procedures. LWW; First edition (October 2, 2015). ISBN-13: 978-1451191615.

3.3 TCS 302. General Thoracic Surgery

Title of the course: TCS 302. General Thoracic Surgery

Purpose of the course: Provide trainee with requisite skills in thoracic surgery.

Expected learning outcomes of the course

Course content. Management of Non-neoplastic Diseases of the Trachea, Benign and Malignant Tumours of the Trachea, Chest Wall Abnormalities and Tumours, Diseases of the Pleural Space, Diseases of the Pleura, Diseases of the mediastinum, Developmental Anomalies of the lung Emphysema of the Lung, Benign Diffuse Pulmonary Disease Destructive Pneumonias, Lung Abscess, Bronchiectasis, Fungal Diseases of the Lung, Parasitic Diseases of the Lung, Surgical Treatment of

Tuberculosis, Carcinoma of the Lung, Other Tumours of the Lung, Congenital Anomalies of the oesophagus and trachea, Motility Disorders and Reflux Oesophagitis, Neoplasms of the Oesophagus, Diaphragm: Paralysis, eventration, pacing, hernias and tumours, Blunt and Penetrating Thoracic Injuries

Mode of delivery of the course:

The course shall be delivered as a combination of the following modalities;

- i. Didactic lectures and tutorials.
- ii. Assignments and case studies.
- iii. Self-directed learning.
- iv. Ward, theatre and clinic work
- v. Electronic discussion groups.
- vi. Self-directed learning.
- vii. Skills laboratory demonstrations for practical aspects of surgical anatomy.

Instructional materials and/or equipment:

Materials facilitating teaching shall include amongst others;

- i. Recommended reading materials listed
- ii. Wards and theatres
- iii. LCD projectors
- iv. Skills laboratory
- v. Computers

Course assessment:

Modalities of assessment will include;

- i. Continuous Assessment Tests.
- ii. Attendance.
- iii. Final examinations.
- iv. Course evaluation by students.
- v. Student Assignment of academic staff.
- vi. Stakeholder evaluation

Trainee assessment will specifically include the following; Skills to be assessed will include Endoscopic and surgical techniques of lung biopsy, Mediastinal assessment and biopsy, Intraoperative diagnosis and staging, Endoscopic management of tumours, Wedge resection and metastasectomy, Tracheal resection, repair and stenting, Lung Segmentectomy, lobectomy and pneumonectomy, Pleurodesis and pleurectomy, VATS procedures, Advanced techniques of pleural space obliteration, Chest wall biopsy, Resection of the chest wall, Pectus correction, Complex chest wall reconstruction, Resection and repair of the diaphragm, Procedures to deal with pneumothorax and bullae, Lung volume reduction surgery, Pericardial fenestration procedures, Pericardiectomy, Excision of mediastinal tumours and cysts, Antireflux procedures and procedures for oesophageal motility disorders, Oesophageal resection and replacement

Core reading materials of the course: Included are the following recommendations however trainees are advised to read outside this range as is possible.

Books;

- i. Frank Sellke, Pedro J. del Nido. Sabiston and Spencer Surgery of the Chest: 2-Volume Set. Elsevier; 9 edition (September 17, 2015). ISBN-13 978-0323241267
- ii. Mary Hawn. Operative Techniques in Thoracic and Esophageal Surgery. LWW; First edition (May 26, 2015). ISBN-13: 978-1451190182
- iii. Bojar M. Manual of Perioperative Care in Adult Cardiac Surgery. Wiley-Blackwell; 5 edition. ISBN-13: 978-1444331431
- iv.

Journals;

- i. Journal of Vascular Surgery.
- ii. Journal of Cardiothoracic Surgery.
- iii. European Association Cardiothoracic Surgeons.
- iv. Annals of Vascular Surgery,
- v. Annals of Thoracic Surgery.
- vi. The Journal of Thoracic and Cardiovascular Surgery, Operative Techniques in Thoracic and Cardiovascular Surgery.
- vii. Seminars in Thoracic and Cardiovascular Surgery.
- viii. Seminars in Thoracic and Cardiovascular Surgery.
- ix. Pediatric Cardiac Surgery Annual.

Recommended reference materials:

Books;

- i. Douglas J. Mathisen, Christopher Morse. Master Techniques in Surgery: Thoracic Surgery: Lung Resections, Bronchoplasty. LWW; 1st edition (December 23, 2014)1st Edition. ISBN-13: 978-1451190731
- ii. Douglas J. Mathisen, Christopher Morse. Master Techniques in Surgery: Thoracic Surgery: Transplantation, Tracheal Resections, Mediastinal Tumors, Extended Thoracic Resections. LWW; 1st edition (December 23, 2014), First Edition. ISBN-13: 978-1451190724
- iii.

3.4 TCS 400. Surgery for Acquired Cardiovascular Disease

Title of the course: TCS 400. Surgery for Acquired Cardiovascular Disease

Purpose of the course: Provide trainee with requisite skills in cardiovascular surgery.

Expected learning outcomes of the course:

Course content: Valvular Heart Disease: Indications for surgery and surgical procedures, Prosthetic Heart Valves: Mechanical and Bioprosthetic Valves, Surgery for Infective Endocarditis, Coronary Revascularisation, Surgery for the Complication of Myocardial Infarction, Electrophysiology of Cardiac Pacing, Surgery for Cardiac Arrhythmias, Cardiac Tumours, Cardiac Failure: Assist Devices and Cardiomyoplasty, Aneurysms of the Ascending Aorta, Aneurysms of the Aortic Arc, Descending Aortic Aneurysms, Dissections of the Aorta, Pulmonary Embolism,

Intraoperative monitoring, Spinal cord protection, Hypothermic strategies including HCA, RCP and SACP. Transplantation surgery: Cardiac Transplantation (Guidelines for recipient selection, Cardiac donor selection, Rejection and immunosuppression, Coronary graft vasculopathy, Post-transplant infection/other, Renal failure, Other complications associated with immunosuppression, Survival), Heart and Lung Transplantation (Candidate selection, Selection criteria for heart-lung donors, Anaesthetic considerations, Post-operative complications, Post-operative management, Follow-up strategies, Survival), Lung Transplantation (Candidate selection, Selection criteria for heart-lung donors, Anaesthetic considerations, Post-operative complications, Post-operative management, Follow-up strategies, Survival)

Mode of delivery of the course:

The course shall be delivered as a combination of the following modalities;

- i. Didactic lectures and tutorials.
- ii. Assignments and case studies.
- iii. Self-directed learning.
- iv. Ward, theatre and clinic work
- v. Electronic discussion groups.
- vi. Self-directed learning.
- vii. Skills laboratory demonstrations for practical aspects of surgical anatomy.

Instructional materials and/or equipment:

Materials facilitating teaching shall include amongst others;

- i. Recommended reading materials listed
- ii. Wards and theatres
- iii. LCD projectors
- iv. Skills laboratory
- v. Computers

Course assessment:

Modalities of assessment will include;

- i. Continuous Assessment Tests.
- ii. Attendance.
- iii. Final examinations.
- iv. Course evaluation by students.
- v. Student Assignment of academic staff.
- vi. Stakeholder evaluation

Student assessment shall review; Saphenous vein harvest, Mammary artery/radial artery harvest, Preparation for and management of cardiopulmonary bypass, Proximal coronary anastomosis, Distal coronary anastomosis, Aortic valve replacement, mitral valve replacement, Tricuspid valve surgery, combined valve and graft surgery, Aortic root surgery, Redo Valve surgery, Surgical ablation of arrhythmias, Mitral valve repair, Minimal access surgery, Non-bypass strategies for

descending aortic surgery, Femoral cannulation, Aortic arch replacement, Descending aorta, replacement, Thoracoabdominal aortic surgery

Core reading materials of the course:

Books

i. Bojar M. Manual of Perioperative Care in Adult Cardiac Surgery. Wiley-Blackwell; 5 edition. ISBN-13: 978-1444331431

Journals

- i. Journal of Vascular Surgery.
- ii. Journal of Cardiothoracic Surgery.
- iii. European Association Cardiothoracic Surgeons.
- iv. Annals of Vascular Surgery,
- v. Annals of Thoracic Surgery.
- vi. The Journal of Thoracic and Cardiovascular Surgery, Operative Techniques in Thoracic and Cardiovascular Surgery.
- vii. Seminars in Thoracic and Cardiovascular Surgery.
- viii. Seminars in Thoracic and Cardiovascular Surgery.
- ix. Pediatric Cardiac Surgery Annual.

Recommended reference materials:

- i. Randy Ray Richardson. Atlas of Acquired Cardiovascular Disease Imaging in Children. 1st ed. 2017 Edition. ISBN-13: 978-3319441139.

3.5 [TCS 401. Cardiothoracic Trauma](#)

Title of the course: TCS 401. Cardiothoracic Trauma

Purpose of the course: Produce a trainee competent in the management of cardiothoracic emergencies.

Expected learning outcomes of the course:

Course content: Trauma to Chest wall, Pleural space sequelae, Lung trauma, Tracheo-bronchial injuries, Oesophageal injuries, Diaphragmatic injuries, cardiovascular trauma, Transmediastinal injuries, foreign bodies in airway and oesophagus, treatment and complications.

Mode of delivery of the course:

The course shall be delivered as a combination of the following modalities;

- i. Didactic lectures and tutorials.
- ii. Assignments and case studies.
- iii. Self-directed learning.
- iv. Ward, theatre and clinic work

- v. Electronic discussion groups.
- vi. Self-directed learning.
- vii. Skills laboratory demonstrations for practical aspects of surgical anatomy.

Instructional materials and/or equipment:

Materials facilitating teaching shall include amongst others;

- i. Recommended reading materials listed
- ii. Wards and theatres
- iii. LCD projectors
- iv. Skills laboratory
- v. Computers

Course assessment:

Modalities of assessment will include;

- i. Continuous Assessment Tests.
- ii. Attendance.
- iii. Final examinations.
- vii. Course evaluation by students.
- viii. Student Assignment of academic staff.
- ix. Stakeholder evaluation

Student assessment shall include evaluation for skills in; Establish an emergency airway, Insertion and management of thoracic drains, Pericardiocentesis and subxiphoid pericardial window, Subxiphoid pericardial window for tamponade, Postero-lateral thoracotomy, antero-lateral thoracotomy and thoraco-laparotomy, Bilateral Anterior Thoracotomy, Median sternotomy and closure, Repair of cardiac injuries, Repair of pulmonary and bronchial injuries, Repair of vascular injuries

Core reading materials of the course:

Books

- i. Stephen Westaby, John A. Odell. Cardiothoracic Trauma. CRC Press; 1 edition (April 15, 1999), ISBN-13: 978-0340573204.
- ii. David Sidebotham, Andrew McKee, Michael Gillham, Jerrold Levy. Cardiothoracic Critical Care Kindle Edition** Butterworth-Heinemann. Sold by: Amazon Digital Services LLC. ISBN-13: 978-0750675727.

Journals

- i. Journal of Vascular Surgery.
- ii. Journal of Cardiothoracic Surgery.
- iii. European Association Cardiothoracic Surgeons.
- iv. Annals of Vascular Surgery,
- v. Annals of Thoracic Surgery.
- vi. The Journal of Thoracic and Cardiovascular Surgery, Operative Techniques in Thoracic and Cardiovascular Surgery.
- vii. Seminars in Thoracic and Cardiovascular Surgery.

- viii. Seminars in Thoracic and Cardiovascular Surgery.
- ix. Pediatric Cardiac Surgery Annual.

Recommended reference materials:

- i. Salomone Di Saverio, Gregorio Tugnoli, Fausto Catena, Luca Ansaloni, Noel Naidoo. Trauma Surgery: Volume 2: Thoracic and Abdominal Trauma. Springer; 2014 edition (January 7, 2014). ISBN-13: 978-8847054585

3.6 TCS 500. Surgery for Congenital Cardiovascular Disease

Title of the course: TCS 500. Surgery for Congenital Cardiovascular Disease

Purpose of the course: Provide trainee with requisite skills in handling congenital cardiovascular disease.

Expected learning outcomes of the course:

Course content: Aortic Arch Anomalies: vascular rings, Patent Ductus Arteriosus, Coarctation of the Aorta, Interrupted Aortic Arch, Aorto-Pulmonary Window, Sinus of Valsalva Aneurysms and Fistulae, Coronary Artery Anomalies, Atrial Septal Defect (ASD), Partial anomalous pulmonary venous connection, Ventricular Septal Defect (VSD), Atrioventricular Canal (Septal) Defects, Left Ventricular Outflow Tract Obstruction, Tetralogy of Fallot, Pulmonary Stenosis with Intact Ventricular Septum, Pulmonary Atresia with Intact Ventricular Septum, Pulmonary Atresia with Ventricular Septal Defect, Double Outlet Right Ventricle and Double Outlet Left ventricle, Transposition of the Great Arteries, Congenitally Corrected Transposition of the Great Arteries, Total Anomalous Pulmonary Venous Connection (TAPVC), Cor Triatriatum, Truncus Arteriosus, Tricuspid Atresia, Hypoplastic Left Heart Syndrome, Complex Functional Single Ventricle, Congenital Anomalies of the Mitral Valve, Ebstein's Anomaly, Palliative Procedures in Congenital Heart Disease, Adult Congenital Heart Disease

Mode of delivery of the course:

The course shall be delivered as a combination of the following modalities;

- i. Didactic lectures and tutorials.
- ii. Assignments and case studies.
- iii. Self-directed learning
- iv. Ward, theatre and clinic work
- v. Electronic discussion groups.
- vi. Self-directed learning.
- vii. Skills laboratory demonstrations for practical aspects of surgical anatomy.

Instructional materials and/or equipment:

Materials facilitating teaching shall include amongst others;

- i. Recommended reading materials listed
- ii. Wards and theatres
- iii. LCD projectors
- iv. Skills laboratory
- v. Computers

Course assessment:

Modalities of assessment will include;

- iv. Continuous Assessment Tests.
- v. Attendance.
- vi. Final examinations.
- x. Course evaluation by students.
- xi. Student Assignment of academic staff.

Stakeholder evaluation shall review skills in; PDA ligation, Blalock-Taussig shunt (classical or modified), Central Shunt(aorta-to-pulmonary artery), Bidirectional cavopulmonary anastomosis, Fontan procedure, Pulmonary Artery Banding, ASD repair, VSD repair, Correction of Tetralogy of Fallot, Atrioventricular canal (septal) defect repair, Valve repair

Core reading materials of the course:

Books

- i. Ali Dabbagh, Antonio H. Conte, Lorraine Lubin. Congenital Heart Disease in Pediatric and Adult Patients: Anesthetic and Perioperative Management. Springer; 1st ed. 2017 edition (November 5, 2016). ISBN-13: 978-3319446899.

Journals

Recommended reference materials:

4 APPENDICES

APPENDIX 1

Requirements for a training site

College accreditation criteria

The posts must be in a surgical unit, under the charge of a Consultant Surgeon, who should have a commitment to training.

a) For membership training posts the hospital should have at least two surgeons, one of whom should have been in practice for at least five years.

b) For Fellowship training the posts may be in single consultant units but only one year under a single consultant may be counted for training.

2. There should be at least 200 major operations performed per year in the unit to which the post is attached, and there should be opportunity for the trainee to progress through surgical cases of increasing complexity.

3. The post should involve a regular weekly commitment to outpatient clinics and the trainee should see both review and new patients under supervision.

4. The Trainee should be responsible for taking emergency patients at least one day per week and should be involved in the initial assessment, investigation and treatment of acute surgical problems.*

5. The post should involve a commitment to the care of seriously ill, high dependency patients, and training must be provided in the techniques of monitoring such patients.*

6. The post should be in a hospital with Anaesthetic, Pathology, Bacteriology, Clinical Chemistry, Haematology, Blood Transfusion and Radiology services.

Radiology services should be appropriate to the specialty, i.e. for general surgery there should be access to fluoroscopy for barium studies.*

7. There should be a General Medical Unit responsible for the hospital and appropriate facilities for the care of critically ill surgical patients, including ventilatory support*

8. The Surgical Unit should hold meetings at least monthly with other Departments such as Radiology and Pathology. It would also be desirable to have educational activities such as grand rounds, journal clubs and tutorials. There should be a library with appropriate surgical texts.

9. There must be a regular audit of morbidity and mortality, at least every three months, and the Trainee must be involved in some aspect of clinical outcome assessment.

10. The College must be informed of any change in the hospital affecting the above criteria

* For fellowship training in orthopaedics one year of the three may be in a unit that does not take emergencies. For these posts criteria 4, 5, and 7 need not apply.

APPENDIX 2

Training Facilities

List of accredited (by COSECSA), teaching sites

COUNTRY	HOSPITAL	COURSES OFFERED
Burundi	Military Hospital, Kamange	MCS, FCS General Surgery, FCS Orthopaedics
	University Hospital, Kamange	MCS, FCS General Surgery, FCS Orthopaedics
Cameroon	Mbingo Baptist Hospital	MCS, FCS General Surgery
DR Congo	Heal Africa Hospital, Goma	MCS
Ethiopia	Felege Hiwot Referral Hospital / Bahir Dar University	MCS, FCS General Surgery
	Yekatit 12 Hospital	FCS Plastic
	St Paul's Hospital and Millenium Medical College	MCS, FCS General Surgery
	Soddo Christian Hospital	MCS, FCS General Surgery, FCS Orthopaedics
	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University	MCS, FCS General Surgery, FCS Orthopaedics, FCS Neurosurgery
	Ayder Referral Hospital / Mekelle University	MCS, FCS General Surgery
	CURE Ethiopia Children's Hospital	MCS, FCS Paediatric surgery
	Gondar University Teaching Hospital	MCS, FCS General Surgery
	Myungsung Christian Medical Centre (MCM, Korean Hospital)	Kenyatta National Hospital
Gabon	Bongolo Hospital	MCS, FCS General Surgery
Kenya	The Mombasa Hospital	MCS
	Armed Forces Memorial Hospital	MCS, FCS General Surgery, FCS Orthopaedics
	The Mater Hospital	MCS
	AIC Kijabe - including AIC-CURE International Children's Hospital	MCS, FCS General Surgery, FCS Orthopaedics, FCS Paediatric surgery, FCS Plastic

	Tenwek Hospital	MCS, FCS General Surgery, FCS Orthopaedics
	Kenyatta National Hospital	MCS, FCS General Surgery, FCS Orthopaedics, FCS Neurosurgery
	PCEA Kikuyu (including Orthopaedic Rehabilitation Centre)	MCS, FCS General Surgery, FCS Orthopaedics
	Moi Teaching and Referral Hospital / Moi University	MCS, FCS Orthopaedics
	Aga Khan University Hospital Nairobi	MCS, FCS General Surgery, FCS Neurosurgery
	Aga Khan Hospital Mombasa	MCS
	Aga Khan Hospital Kisumu	MCS
	Coast Provincial General Hospital	MCS
	Consolata Hospital Mathari	MCS
	Nyeri Provincial General Hospital	MCS
	Rift Valley Provincial General Hospital and Egerton University, Nakuru	MCS, FCS General Surgery
	Nyanza Provincial General Hospital	MCS
	Pandya Memorial Hospital	MCS
	The Nairobi Hospital	MCS, FCS General Surgery
	MP Shah Hospital	MCS
Malawi	Zomba Hospital	MCS
	Malamulo Hospital	MCS, FCS General Surgery
	Queen Elizabeth Central Hospital (QECH) / College of Medicine	MCS, FCS General Surgery, FCS Orthopaedics, FCS Neurosurgery, FCS paediatric surgery, FCS Plastic, FCS ENT
	Kamuzu Central Hospital (KCH)	MCS, FCS General Surgery, FCS Orthopaedics
	Beit CURE International, Malawi	MCS, FCS General Surgery

Mozambique	Matola Provincial Hospital	MCS
	Beira Central Hospital	MCS
	Maputo Central Hospital (HCM)	MCS, FCS General Surgery, FCS Orthopaedics, FCS Urology
Namibia	Windhoek Central Hospital	MCS, FCS General Surgery, FCS Urology
	Oshakati Intermediate Hospital	MCS, FCS General Surgery, FCS Orthopaedics
	Katatura Intermediate Hospital	MCS, FCS Orthopaedics
Niger	SIM Galmi Hospital	MCS, FCS General Surgery
Rwanda	Ruhengeri Provincial Hospital	MCS
	Rwanda Military Hospital (Kanombe)	MCS, FCS General Surgery, FCS Orthopaedics
	King Faisal	MCS, FCS General Surgery, FCS Orthopaedics, FCS Neurosurgery, FCS Urology
Somalia		
Sudan	Khartoum Teaching Hospital	MCS, FCS ENT, FCS General Surgery, FCS Orthopaedics, FCS Neurosurgery, FCS Paediatric Surgery, FCS Plastic surgery, FCS Urology
	Ibn Sina Hospital	MCS, FCS ENT, FCS General Surgery, FCS Orthopaedics, FCS Urology
	Omdurman Teaching Hospital	MCS, FCS ENT, FCS General Surgery, FCS Orthopaedics, FCS Neurosurgery, FCS Paediatric Surgery, FCS Plastic surgery, FCS Urology
Tanzania	Arusha Lutheran Medical Centre (ALMC)	MCS, FCS General Surgery
	Bugando Medical Centre	MCS
	Kilimanjaro Christian Medical Centre (KCMC)	MCS, FCS General Surgery, FCS Orthopaedics, FCS Urology
	Mission Mikocheni Hospital	MCS

	Muhimbili National Hospital (MNH) / Muhimbili University of Health and Allied Sciences (MUHAS)	MCS, FCS General Surgery, FCS Urology
	Muhimbili Orthopaedic and Neurological Institute (MOI)	MCS, FCS Orthopaedic Surgery, FCS Neurosurgery
	Aga Khan Hospital Dar es Salaam	MCS
Uganda	Kitovu Hospital	MCS
	Mbarara Regional Referral Hospital	MCS
	St Francis Hospital Nsambya	MCS, FCS General Surgery
	Soroti Regional Referral Hospital	MCS
	Gulu Regional Referral Hospital	MCS
	Fort Portal Regional Referral Hospital	MCS
	CURE Children's Hospital of Uganda	MCS, FCS Neurosurgery
	Comprehensive Rehabilitation Services in Uganda - CoRSU	MCS, FCS Plastic surgery
	Mulago Hospital / Makerere College of Health Sciences	MCS, FCS General Surgery, FCS Orthopaedics, FCS Neurosurgery, FCS Paediatric Surgery, FCS Plastic surgery, FCS Urology
	Kagando Hospital (KARUDEC)	MCS
	Jinja Regional Referral Hospital	MCS
	Lacor Hospital (St Mary's)	MCS, FCS General Surgery
	Mbale Regional Referral Hospital	MCS, FCS General Surgery
Zambia	Monze District Hospital	MCS, FCS General Surgery
	Ndola Central Hospital / Copperbelt University School of Medicine	MCS, FCS General Surgery
	Zambian Italian Orthopaedic Hospital	MCS, FCS Orthopaedic Surgery
	Livingstone General Hospital	MCS, FCS General Surgery

	Beit CURE Hospital of Zambia	MCS, FCS Neurosurgery, FCS Orthopaedic Surgery
	Kitwe Central Hospital	MCS, FCS General Surgery
	University Teaching Hospital, Lusaka (UTH)	MCS, FCS ENT, FCS General Surgery, FCS Orthopaedics, FCS Neurosurgery, FCS Paediatric Surgery, FCS Urology
	Nchanga South Hospital	MCS, FCS General Surgery
Zimbabwe	Parirenyatwa Hospital	MCS, FCS ENT, FCS General Surgery, FCS Orthopaedics, FCS Urology
	Harare Central Hospital	MCS, FCS General Surgery, FCS Orthopaedics
	United Bulawayo Hospitals	MCS, FCS General Surgery, FCS Orthopaedics
	Bulawayo Central Hospital	MCS, FCS General Surgery, FCS Urology
	Mater Dei Hospital, Bulawayo	MCS, FCS General Surgery, FCS Orthopaedics
	Mpilo Hospital	MCS, FCS General Surgery
	Mutare Provincial Hospital	MCS, FCS General Surgery
	Chitungwiza Central Hospital	MCS, FCS General Surgery, FCS urology
	Harare Children's Hospital	MCS, FCS Paediatric Surgery

Cardiothoracic surgeons in region

Title	Name	Organisation	Qualifications	PhD	Yrs University experience	Country
Dr	Nebyou Seyoum	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University		No		Ethiopia
Dr	Berhanu Alemu	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University		No		Ethiopia
Dr	Abebe Bekele	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University		No		Ethiopia
Dr	Girmay Hagos	Ayder Referral Hospital / Mekelle University		No		Ethiopia
Dr	Seyoum Kassa	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University		No		Ethiopia
Prof	Adem Ahmed	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University		No		Ethiopia
Prof	Adem Ali	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University		No		Ethiopia
Dr	Dereje Gulilat	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University		No		Ethiopia
Dr	Seyoum Kassa	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University		No		Ethiopia
Dr	Abebe Bekele	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University		No		Ethiopia
Dr	Berhanu Nega	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University		No		Ethiopia
Dr	Abebe Bezabih	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University		No		Ethiopia
Dr	Ayalew Tizazu	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University		No		Ethiopia

Dr	Ephraim Teferra	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University		No		Ethiopia
Dr	Mahlet Tesfaye	Jimma Hospital, Jimma University		No		Ethiopia
Dr	Girmaye Hagos	Ayder Hosital, Mekelle University		No		Ethiopia
Prof	Russell White	Tenwek Hospital		No		Kenya
Dr	Rajwinder Jutley	Aga Khan University Hospital Nairobi		No		Kenya
Dr	Yashvant Sonigra	Aga Khan University Hospital Nairobi		No		Kenya
Prof	Barasa Otsyula	Mount kenya university		No		Kenya
Prof.	Stephen Ogendo	Maseno University		No		Kenya
Prof.	Peter A. Odhiambo	University of Nairobi		No		Kenya
Dr.	Mark Awori	University of Nairobi		No		Kenya
Dr.	Nikita Metha	University of Nairobi		No		Kenya
Dr.	James Munene	Kenyatta National Hospital		No		Kenya
Dr	William Okumu	Kenyatta National Hospital		No		Kenya
Dr.	William Okumu	Kenyatta National Hospital		No		Kenya
Dr.	Josiah Ruturi	Kenyatta National Hospital		No		Kenya
Dr.	Nderitu	Mbagathi Hopital		No		Kenya
Dr.	Peter Sore	Coast Provincial General Hospital		No		Kenya
Mr	Simukayi Machawira	Parktown		No		South Africa
Dr	Eliafie Swai	Kilimanjaro Christian Medical Centre (KCMC)		No		Tanzania, United Republic of
Prof	Naboth Mbembati	Muhimbili National Hospital (MNH)		No		Tanzania, United Republic of
Dr	William Mahalu	Bugando Medical Centre		No		Tanzania, United Republic of
Dr	Elijah Ussiri	Muhimbili National Hospital (MNH)		No		Tanzania, United Republic of
Prof	Leonard Lema	Muhimbili National Hospital (MNH)		No		Tanzania, United Republic of

Mr	Mugisa Didace	St Francis Hospital Nsambya		No		Uganda
Dr	Michael Oketcho	Uganda Heart Institute		No		Uganda
Dr	John Omagino	Uganda Heart Institute		No		Uganda
Dr	David Chimuka	University of Zimbabwe		No		Zimbabwe
Prof	Livion Ngwenya	Parirenyatwa Hospital		No		Zimbabwe

APPENDIX 3

Accreditation assessment form

**ASSESSMENT FORM FOR ACCREDITATION OF HOSPITALS AS TRAINING INSTITUTES FOR THE COSECSA
MEMBERSHIP AND FELLOWSHIP TRAINING PROGRAMMES**

Name of Hospital _____

Address

Country _____

Telephone

e-mail

Owner (tick appropriate)

University Teaching Hospital []

Government Hospital []

Private []

NGO faith-based []

Number of beds _____

Annual Budget _____

Surgical Department (**specify**) being assessed _____

Date of assessment _____

	No. on Criteria List	Satisfactory	Unsatisfactory	Comments
1.	SURGEONS No.Consultant Surgeons: No. Support Surgical Staff:			
2.	SURGERY Dept. No.Major Operations/yr..... No.Minor Operations/yr..... No. Emergencies/yr..... 			

	No. on Criteria List	Satisfactory	Unsatisfactory	Comments
	No. Elective Ops./yr..... Operating Theatres..... Wards.....			
3	OUTPATIENTS No. New Outpatients..... No. Old Outpatients..... O.P. Facilities			
4	Consultant Emergency cover			
5	I.C.U./High Dependency U.			

	No. on Criteria List	Satisfactory	Unsatisfactory	Comments
6	SUPPORT SERVICES Anaesthetic Services			
	Pathology			
	Bacteriology			
	Clinical Chemistry			
	Haematology			
	Blood transfusion			
	Radiological services			
7	Medical & other specialty support			
8	Educational meetings			
	Library & IT Facilities			
9	Audit & M&M meetings			
10	Availability of Endoscopy/ Ultrasound			
11	Pharmacy Physiotherapy Others			
12	Equipment			

	No. on Criteria List	Satisfactory	Unsatisfactory	Comments
	Operating Theatre..... I.C.U./H.D.U./Wards.....			
13	Technical Department			
14	Accommodation for Trainees			

ADDITIONAL COMMENTS:

Hospital:

Name of Hospital: BONGOLO Hospital GABON

15. Hospital recommended for the following Training Posts by the assessors

Tick Initials

.....

Name of the Assessors:

1. -----

Designation:

Institution:

2. -----

Designation:

Institution:

APPENDIX 4
Sample of facilities at an accredited site

APPENDIX 5.

List of COSECSA trainers at accredited teaching sites

Title	Name	Organisation	Specialty	Mailing Country
Dr	Dejene Hurisa	Soddo Christian Hospital	General	Ethiopia
Dr	Fasika Amdesilasie	Ayder Referral Hospital / Mekelle University	General	Ethiopia
Dr	Malede Mersha	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University	General	Ethiopia
Dr	Admani Asif	The Mombasa Hospital	Orthopaedics	Kenya
Dr	Jack Barasa	AIC Kijabe - including AIC-CURE International Children's Hospital	General	Kenya
Dr	Abdi Mohamed	Aga Khan Hospital Mombasa	General	Kenya
Dr	Jivanjee Amirali	MP Shah Hospital	General	Kenya
Dr	Phyllis Kisa	Mulago Hospital / Makerere College of Health Sciences	Paediatrics	Uganda
Ms	Olivia Kituuka	Mulago Hospital / Makerere College of Health Sciences	General	Uganda
Dr	Ahmed Kiswezi	University Teaching Hospital of Butare (CHUB)	General	Rwanda
Dr	Masaba Benon	Mulago Hospital / Makerere College of Health Sciences	Urology	Uganda
Dr	Frank Rubabinda	Kagando Hospital (KARUDEC)	Urology	Uganda
Dr	Munyaradzi Ndekwere	Harare Central Hospital	Orthopaedics	Zimbabwe
Dr	Munyaradzi Magara	United Bulawayo Hospitals, Suite Medical Centre	Neurosurgery	Zimbabwe
Dr	Munthali James	University of Zambia	Orthopaedics	Zambia
Dr	Nicholas Lubega	Beit CURE International, Malawi	Orthopaedics	Malawi
Dr	Collen Msasanure	United Bulawayo Hospitals	Orthopaedics	Zimbabwe
Dr	Francis Nyiuro	Comprehensive Rehabilitation Services in Uganda - CoRSU	Orthopaedics	Uganda
Dr	Abebe Bekele	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University	Cardiothoracic/Cardiovascular	Ethiopia
Mr	Aspect Maunganidze	University of Zimbabwe	General	Zimbabwe
Dr	Georges Ntakiyiruta	University Teaching Hospital of Kigali (CHUK)	General	Rwanda
Dr	Robinson Ssebuufu	University Teaching Hospital of Butare (CHUB)	General	Rwanda
Dr	Tom Mogire	University of Nairobi	Orthopaedics	Kenya
Dr	Nelson Alema	Lacor Hospital (St Mary's)	General	Uganda

Title	Name	Organisation	Specialty	Mailing Country
Dr	Patson Makobore	Mulago Hospital / Makerere College of Health Sciences	General	Uganda
Dr	Benjamin Ndeleva	Kenyatta National Hospital	Orthopaedics	Kenya
Dr	Gilbert Maranya	Coast Provincial General Hospital	Urology	Kenya
Dr	Philippe Kuradusenge	Moi Teaching and Referral Hospital, Eldoret	General	Kenya
Dr	Kevin Lakati	Rift Valley Provincial General Hospital and Egerton University, Nakuru	Orthopaedics	Kenya
Dr	Levis Nguku	AIC Kijabe - including AIC-CURE International Children's Hospital	Orthopaedics	Kenya
Dr	Mbugua Kimani	AIC Kijabe - including AIC-CURE International Children's Hospital	Orthopaedics	Kenya
Dr	Mensur Osman	Gondar University Teaching Hospital	General	Ethiopia
Dr	Berhanu Kotisso	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University	General	Ethiopia
Dr	Amazene Tadesse	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University	Paediatrics	Ethiopia
Dr	Atakiltie Barahi	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University	Plastics	Ethiopia
Dr	Fikre Gebrehiwot	Yekatit 12 Hospital	Plastics	Ethiopia
Dr	Girmay Hagos	Ayder Referral Hospital / Mekelle University	Cardiothoracic/Cardiovascular	Ethiopia
Dr	Mekonen Abebe	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University	Plastics	Ethiopia
Dr	Miliard Derbew	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University	Paediatrics	Ethiopia
Dr	Aberra Gobezie	Hawassa University Teaching Hospital	Urology	Ethiopia
Dr	Nebyou Seyoum	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University	Cardiothoracic/Cardiovascular	Ethiopia
Dr	Samson Esseye Workineh	Jimma University / Jimma University Specialised Hospital (JUSH)	Urology	Ethiopia
Dr	Abraham G/Egziabeher	ALERT Hospital	Plastics	Ethiopia
Dr	Taye Cifeta	Yekatit 12 Hospital	Plastics	Ethiopia
Dr	Jonathan Pollock	Myungsung Christian Medical Centre (MCM, Korean Hospital)	General	Ethiopia
Dr	Solomon Bekele	Myungsung Christian Medical Centre (MCM, Korean Hospital)	General	Ethiopia
Dr	Befekadu Lemu	St Paul's Hospital and Millenium Medical College	General	Ethiopia
Dr	Duane Anderson	Soddo Christian Hospital	Orthopaedics	Ethiopia

Title	Name	Organisation	Specialty	Mailing Country
Dr	Biruk Wamisho	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University	Orthopaedics	Ethiopia
Dr	Yegeyem Kebede	ALERT Hospital	Plastics	Ethiopia
Dr	Andualem Deneke	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University	Urology	Ethiopia
Dr	Be-Ede Lemma	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University	Urology	Ethiopia
Dr	Andrew Ndonga	The Mater Hospital	General	Kenya
Dr	Gordon Odera Calleb	Kenya Ports Authority Hospital (KPA)	General	Kenya
Prof	Pankaj Jani	University of Nairobi	General	Kenya
Prof	Augustine Mallya	Kilimanjaro Christian Medical Centre (KCMC)	Orthopaedics	Tanzania, United Republic of
Dr	Eliafie Swai	Kilimanjaro Christian Medical Centre (KCMC)	Cardiothoracic/Cardiovascular	Tanzania, United Republic of
Dr	Kien Mteta	Bugando Medical Centre	Urology	Tanzania, United Republic of
Dr	Amani Malima	Temeke Hospital	Orthopaedics	Tanzania, United Republic of
Dr	Jerome Mkiramweni	Hubert Kairuki Memorial University	Neurosurgery	Tanzania, United Republic of
Dr	Hamisi Shabani	Muhimbili Orthopaedic and Neurological Institute (MOI)	Neurosurgery	Tanzania, United Republic of
Ms	Ally Mwanga	Muhimbili National Hospital (MNH)	General	Tanzania, United Republic of
Ms	Merida Makia	Muhimbili National Hospital (MNH)	General	Tanzania, United Republic of
Ms	Julieth Magandi	Muhimbili National Hospital (MNH)	General	Tanzania, United Republic of
Prof	Alex Buteera	Rwanda Military Hospital (Kanombe)	Orthopaedics	Rwanda
Dr	Eugene Rugwizangoga	Rwanda Military Hospital (Kanombe)	General	Rwanda
Dr	Dominique Mugenzi	University Teaching Hospital of Kigali (CHUK)	General	Rwanda
Prof	Emile Rwamasirabo	King Faisal Hospital	Urology	Rwanda

Title	Name	Organisation	Specialty	Mailing Country
Prof	Patrick Kyamanywa	University of Rwanda	General	Rwanda
Mr	Mugisa Didace	St Francis Hospital Nsambya	Cardiothoracic/Cardiovascular	Uganda
Mr	Emmanuel Nsengiyumva	University Teaching Hospital of Kigali (CHUK)	Neurosurgery	Rwanda
Dr	Muneza Severien	University Teaching Hospital of Kigali (CHUK)	Neurosurgery	Rwanda
Dr	Nyundo Martin		Orthopaedics	Central African Republic
Prof	Emmanuel Kayibanda	King Faisal Hospital	General	Rwanda
Dr	Christopher Simutowe	Luanshya Mine Hospital	General	Zambia
Dr	Laston Chikoya	University Teaching Hospital, Lusaka (UTH)	Neurosurgery	Zambia
Dr	Tembo Penias	University Teaching Hospital, Lusaka (UTH)	General	Zambia
Dr	Zimba Lameck	University Teaching Hospital, Lusaka (UTH)	General	Zambia
Prof	Mohamed Labib	Windhoek Central Hospital	Urology	Namibia
Dr	Chavuma Roy	University of Zambia	ENT	Zambia
Dr	Chad Tarumbwa	United Bulawayo Hospitals	General	Zimbabwe
Dr	Hassan Ashmawy		Urology	Zimbabwe
Prof	Godfrey Muguti	Parirenyatwa Hospital	Plastics	Zimbabwe
Mr	Maxman Gova	Parirenyatwa Hospital	Orthopaedics	Zimbabwe
Mr	Bothwell Mbuwayesango	Harare Central Hospital	Paediatrics	Zimbabwe
Mr	George Vera	Harare Central Hospital	Orthopaedics	Zimbabwe
Mr	Kuseweni Nduku	Parirenyatwa Hospital	General	Zimbabwe
Mr	Edwin Muguti	University of Zimbabwe	General	Zimbabwe
Mr	Sydney Makarawo	Parirenyatwa Hospital	Neurosurgery	Zimbabwe
Dr	Noah Madziva	Private Practice - Harare	General	Zimbabwe
Dr	Carol Spears	Tenwek Hospital	General	Kenya
Dr	Igor Vaz	Maputo Central Hospital (HCM)	Urology	Mozambique
Mr	Maynard Marikano		General	Zimbabwe
Dr	Rosemary Nassanga	Mulago Hospital / Makerere College of Health Sciences	Urology	Uganda

Title	Name	Organisation	Specialty	Mailing Country
Dr	John Byimana	Rwanda Military Hospital (Kanombe)	Orthopaedics	Rwanda
Dr	Berhanu Alemu	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University	Cardiothoracic/Cardiovascular	Ethiopia
Dr	Bahiru Giorgis	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University	Orthopaedics	Ethiopia
Dr	Samwel Nungu	Muhimbili Orthopaedic and Neurological Institute (MOI)	Orthopaedics	Tanzania, United Republic of
Dr	Mabula Mchembe	Muhimbili National Hospital (MNH)	General	Tanzania, United Republic of
Dr	Adolf Macheka	United Bulawayo Hospitals	Orthopaedics	Zimbabwe
Dr	Enyioma Enwerem	United Bulawayo Hospitals	Urology	Zimbabwe
Dr	Abebe Asmare	Adama General Hospital	General	Ethiopia
Dr	Joseph Macharia	AIC Kijabe - including AIC-CURE International Children's Hospital	Orthopaedics	Kenya
Prof	Eric Borgstein	Queen Elizabeth Central Hospital (QECH) / College of Medicine	Paediatrics	Malawi
Dr	Linda Chokotho	Cure International Hospital	Orthopaedics	Malawi
Dr	Samuel Githiomi	Beit CURE International, Malawi	Orthopaedics	Malawi
Dr	Fred Sitati	University of Nairobi	Orthopaedics	Kenya
Dr	Yahaya Malango	United Bulawayo Hospitals	Orthopaedics	Zimbabwe
Dr	Sundeeep Chavda	Pandya Memorial Hospital	Urology	Kenya
Dr	Ayalign Tsehay	St Paul's Hospital and Millenium Medical College	General	Ethiopia
Prof	Girmaye Tamrat	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University	General	Ethiopia
Dr	Kenneth Johnson	College Medicine U Malawi	General	Malawi
Dr	Anthony Maina	AIC Kijabe - including AIC-CURE International Children's Hospital	Orthopaedics	Kenya
Dr	Edward Naddumba	China Uganda Friendship Hospital, Naguru	Orthopaedics	Uganda
Dr	Moses Okech	Valley Hospital Nakuru (Private)	General	Kenya
Dr	Helder De Miranda	Beira Central Hospital	General	Mozambique
Mr	Samuel Kaggwa	Mulago Hospital / Makerere College of Health Sciences	Urology	Uganda

Title	Name	Organisation	Specialty	Mailing Country
Mr	Peter Kizza	Private Practice	General	Uganda
Dr	Francisco Candido	Maputo Central Hospital (HCM)	Orthopaedics	Mozambique
Dr	Doreen Birabwa-Male	Mulago Hospital / Makerere College of Health Sciences	Paediatrics	Uganda
Dr	Michael Muhumuza	Mulago Hospital / Makerere College of Health Sciences	Neurosurgery	Uganda
Dr	Stephen Muwazi	St Francis Hospital Nsambya	Orthopaedics	Uganda
Dr	Tom Mwambu	Uganda Heart Institute	General	Uganda
Ms	Namuyuga Wamukolo	Jinja Regional Referral Hospital	General	Uganda
Dr	Michael Oketcho	Uganda Heart Institute	Cardiothoracic/Cardiovascular	Uganda
Dr	John Omagino	Uganda Heart Institute	Cardiothoracic/Cardiovascular	Uganda
Dr	John Sekabira	Mulago Hospital / Makerere College of Health Sciences	Paediatrics	Uganda
Dr	Kenneth Mbatia	Rift Valley Provincial General Hospital and Egerton University, Nakuru	General	Kenya
Dr	Paul Odula	University of Nairobi	General	Kenya
Dr	Samuel Swai	Muhimbili Orthopaedic and Neurological Institute (MOI)	Orthopaedics	Tanzania, United Republic of
Dr	Joseph Karanu	St Mary's Mission Hospital	General	Kenya
Prof	Krikor Erzingatsian	COSECSA - College of Surgeons of East, Central and Southern Africa	General	Zambia
Dr	Fred Bisso	Mbale Regional Referral Hospital	ENT	Uganda
Prof	Russell White	Tenwek Hospital	Cardiothoracic/Cardiovascular	Kenya
Dr	Antonio Luis Assis Da Costa	Maputo Central Hospital (HCM)	Orthopaedics	Mozambique
Dr	Mayaba Maimbo	Ndola Central Hospital / Copperbelt University School of Medicine	General	Zambia
Dr	Akoko Onyango	Muhimbili National Hospital (MNH)	General	Tanzania, United Republic of
Prof	Gabriel Ndayisaba	University Hospital Kamenge (CHUK)	General	Burundi
Dr	Daniel Galat	Tenwek Hospital	Orthopaedics	Kenya
Dr	Geoffrey Koech	Tenwek Hospital	Orthopaedics	Kenya

Title	Name	Organisation	Specialty	Mailing Country
Dr	Venerand Barendegere	Military Hospital Kamenge	General	Burundi
Dr	Ayman Amer	Mpilo Hospital	ENT	Zimbabwe
Dr	Prem Yohannan	Maputo Private Hospital	Orthopaedics	Mozambique
Dr	John Mugamba	CURE Children's Hospital of Uganda	Neurosurgery	Uganda
Dr	Hagos Mersha	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University	Neurosurgery	Ethiopia
Dr	Maura Lynch	Kitovu Hospital	General	Uganda
Dr	Carlos Varela	Kamuzu Central Hospital (KCH)	General	Malawi
Dr	Amado Vanda	Maputo Central Hospital (HCM)	Paediatrics	Mozambique
Dr	Asmamaw Mirutse	Ayder Referral Hospital / Mekelle University	General	Ethiopia
Dr	Messay Mekonnen	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University	Urology	Ethiopia
Prof	Adelola Adeloje		Neurosurgery	Nigeria
Dr	Zarina Shabhay			Russian Federation
Dr	Rose Alenyó	Mulago Hospital / Makerere College of Health Sciences	Plastics	Uganda
Dr	Emmanuel Alex Elobu	Mulago Hospital / Makerere College of Health Sciences	General	Uganda
Dr	Odubu Fualal	Mulago Hospital / Makerere College of Health Sciences	General	Uganda
Dr	Edris Kalanzi	Mulago Hospital / Makerere College of Health Sciences	Plastics	Uganda
Dr	Stephen Kijjambu	Mulago Hospital / Makerere College of Health Sciences	Plastics	Uganda
Dr	Belachew Dejene	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University	Paediatrics	Ethiopia
Dr	Kidane Gikirstos	Ayder Referral Hospital / Mekelle University		Ethiopia
Dr	Seyoum Kassa	Tikur Anbessa (Black Lion) Hospital / Addis Ababa University	Cardiothoracic/Cardiovascular	Ethiopia
Dr	Luc Kalisya	Heal Africa Hospital		Congo, Democratic Republic of the
Dr	Neil Wetzig	Heal Africa Hospital	General	Australia
Dr	Vuhaka Kighoma	Heal Africa Hospital		Congo, Democratic Republic of the
Dr	Ruhungande Landouald	Ruhengeri Provincial Hospital	General	Rwanda

APPENDIX 6

Equipment and teaching materials

Equipment and teaching materials accessible to trainees at JOOOTRH

APPENDIX 7

Core texts and journals

Year 3

Books;

- i. Bojar M. Manual of Perioperative Care in Adult Cardiac Surgery. Wiley-Blackwell; 5 edition. ISBN-13: 978-1444331431
- ii. Frank Sellke, Pedro J. del Nido, Scott J. Swanson. Sabiston and Spencer Surgery of the Chest: 2-Volume Set. Elsevier, 9th Edition. ISBN-13:978-0323241267.
- iii. John H. Lemmer Jr., Gus J. Vlahakes John H. Lemmer, Gus J. Vlahakes. Handbook of Patient Care in Cardiac Surgery. Lippincott Williams & Wilkins Handbook Series. Dec 21, 2009. ISBN-13:978-078177385.
- iv. David Yuh, Luca Vricella, Stephen Yang, John R. Doty. Johns Hopkins Textbook of Cardiothoracic Surgery. John Hopkins medicine. Second Edition 2nd Edition. ISBN-13:978-0071663502
- v. Siavosh Khonsari and Colleen Flint Sintek. Cardiac Surgery: Safeguards and Pitfalls in Operative Technique. Lippincott Williams & Wilkins,US; 4Rev Ed edition. ASIN: B00CF6A3EK.
- vi. Mark Ferguson. Thoracic Surgery Atlas. ISBN-13:978-0721603254
- vii. Christopher K. Zarins, Bruce L. Gewertz. Atlas of Vascular surgery. Elsevier. 2nd edition. ISBN-13:978-1437722253
- viii. V Bhattacharya and G Stansby. Postgraduate vascular surgery: the candidate's guide to the FRCS. Cambridge Medicine, 1st Edition. ISBN-13:978-0521133524
- ix. Robert L. Kormos, Leslie W. Miller. Mechanical Circulatory Support: A Companion to Braunwald's Heart Disease. Elsevier Health Sciences, 2011. 1st Edition. ISBN-13:978-1416060017.
- x. Linda B. Mongero, James R. Beck. On Bypass: Advanced Perfusion Techniques (Current Cardiac Surgery). Humana Press. ISBN-13:978-1588296368.
- xi. Todd E. Rasmussen, W. Darrin Clouse, Britt H. Tonnessen. Handbook of patient care in vascular diseases. Lippincott Williams & Wilkins Handbook Series. 5th edition. ISBN-13:978-0781781350.
- xii. Ronald Dalman. Operative Techniques in Vascular Surgery, Walters Kluwer health 2015. ISBN-13:860-1423657684.
- xiii. Jack L. Cronenwett, K. Wayne Johnston. Rutherford's Vascular Surgery. 2-Volume Set, Elsevier. 8th Edition. ISBN-13:978-1455753048, 2014.
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APPENDIX 8

College policy on curriculum development

College curriculum review policy requires a five year review of all curricula.