



CARDIOVASCULAR TECHNOLOGY / ECHOCARDIOGRAPHY PROGRAM HANDBOOK

COLLEGE OF APPLIED MEDICAL SCIENCES-RIYADH, KSAU-HS

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1.0 Program Mission:

The ECAV program mission is to graduate high quality and competent echocardiography technologists who are capable of serving the community, promoting education and conducting health-related research

2.0 College and Program Management

Name	Position	Branch
Dr. Abdullah Al Abdali	Dean, College of Applied Medical Sciences	Riyadh branch
Dr. Nesrin Alharthy	Associate Dean, COAMS-Female	
Dr. Maha Al Turki	Associate Dean, Academic and Student Affairs COAMS	
Dr. Taha Ismaeil	Associate Dean - Clinical Affairs	
Dr. Tareq Al Otaibi	Assistant Dean - Clinical Affairs	
Dr. Areej Al Hariri	Assistant Dean - Student Affairs	
Dr. Reem Alsharari	Program Director	
Dr. Aseel Alfuhied	Assistant Professor	
Dr. Abdulaziz Albraikan	Assistant Professor	
Mr. Uttam Koparde	Lecturer	
Ms. Jawza Al Dakhil	Teaching Assistant	
Ms. Areej Al Jehani	Teaching Assistant	
Ms. Azhar Akhmimi	Teaching Assistant	
Ms. Mona Al Mutaury	Administrative Officer	

3.0 Program Goals:

- To graduate well-trained and competent cardiovascular technologists in the field of cardiovascular sciences.
- To graduate Echocardiography technologist with research skills who can conduct health-related research projects.
- Enhance community projects and encourage students' participation.

4.0 Graduate Attributes:

Graduated students will be qualified Echocardiography Technologists to perform comprehensive cardiac scanning in clinical settings, and participate in research and community services. The Echocardiography Technology program graduate attributes are aligned with the College and University graduate attributes which are also aligned with the Institutional Learning Outcomes.

The following table shows the graduate attributes for the ECAV Program:

Program/Graduate Attributes	College Graduate Attributes	Institutional Graduate Attributes
Clear knowledge of Echocardiography Technology	Excellence and innovation in education	In-depth knowledge
Problem-solving and creative and critical thinking	Integration of contemporary technologies	Critical thinking and problem solving
Skilled and competent clinical researcher in the field of Echocardiography Technology	Personal, professional, and scholarly development	Proficiency in research
Lifelong learning, professionalism, and dedication to learning commitment	Commitment to lifelong learning	Life-long learning
Effective teamwork and communication skills with other team members	Effective communication and teamwork	Efficient in teamwork
Applying ethical and digital competency values	Ethical behavior and Islamic Value	Versed in ethics concepts
Effective communication interpersonal, and leadership qualities	Integrity in personal and professional life	Effective communication
Efficient and competent patient care	Safe patient care and competency in discipline-related skills	Safe patient care and competency in discipline-related skills

5.0 Learning Outcomes:

Program Learning Outcomes*	
Knowledge and Understanding	
K1	Outline the principles of anatomy, physiology, pathology, physics, electrophysiology, and pharmacology that are relevant to cardiovascular sciences.
K2	Recognize advance knowledge related to cardiovascular imaging, techniques and applications.
K3	Describe advance knowledge related to cardiovascular sciences, treatment and management.
Skills	
S1	Distinguish the distinctive characteristics of normal and abnormal ECG analysis, anatomical and sonographic features of the cardiac structures.
S2	Perform cardiovascular procedures for both adult and pediatric individuals in different cardiac situations.
S3	Perform appropriate analysis, optimal cardiac images, and standard measurements in clinical practice.
S4	Conduct scientific research, community, and inter-professional activities related to the ECAV program.
S5	Show effective communication skills and standard protocol in the field.
Values, Autonomy, and Responsibility	
V1	Demonstrate autonomy, ethics, integrity, safety measures, and professionalism.
V2	Show effective teamwork and leadership skills.

6.0 Program Admission and Support:

1. Student Admission Requirements
<p>Admission to KSAU-HS depends on the competing for the annular available seats according to the admission criteria.</p> <ul style="list-style-type: none">Admission Criteria: https://www.ksauhs.edu.sa/Arabic/admission/pages/admissionrequirementsm_r.aspx http://cams.ksau-hs.edu.sa/index.ph/en/students/admission-and-registration <p>The Cardiovascular Technology – Echocardiography program is following the University’s academic bylaws, policies and procedures under the umbrella of the Ministry of Education. This process is fully automated through the Student Information System (SiS) and is governed by the Deanship of Admission and Registration (DAR) with the support of the Deanship of Student Affairs (DSA). Once the admission gate opens, applicants can submit their applications through the University website or the Ministry of Education’s (MOE) unified admission gate. The admission criteria and requirements are available in the admission booklet and the University’s social networks. The University’s admission requirements include Saudi nationality, a recent high school certificate and a weighted score not lower than 90%. The weighted score is a ratio consisting of high school achievement, general aptitude test grade, and scholastic achievement grade.</p> <p>Upon admission, all students are enrolled in the first Pre-Professional Year as health sciences students. After the first year in the Pre-Professional year, they will be segregated into the program based on their cumulative grade point average (cGPA), and students’ preferences considering the program capacity.</p>
2. Guidance and Orientation Programs for New Students
<ul style="list-style-type: none">At the beginning of every academic year, KSAU-HS holds an orientation ceremony for the new students, organized by the Deanship of Student Affairs in cooperation with the College of Sciences and Health Professions.The College also provides guidance and orientation activities, including tours of the College programs, facilities, etc.The Department also conduct an introductory tour of the College facilities and explanatory workshops to help students with their learning journey. The induction includes providing a simplified explanation of how to use the available academic and learning applications.Students are also provided with the necessary handbooks which can be accessible online. For example:<ul style="list-style-type: none">Students’ Rights and Responsibilities Bylaws https://ksau-hs.edu.sa/English/Deanships/Dqm/Documnets/2017/05/Students-Rights-Bylaws-updated.pdfStudy and Examination Bylaws https://ksau-hs.edu.sa/English/Deanships/Dqm/Documents/2017/05/Study-Examination-BylawsUpdated.pdf
3. Student Counseling Services (academic, career, psychological and social)
<ul style="list-style-type: none">Each faculty member will be assigned a group of students for counselling and advising. Every student will be required to meet the academic advisor at least twice per semester.Each faculty member will be asked to post their office hours during the semester so students can visit to receive counselling and advice.Well-Student Center provides psychological support for all students to help them overcome academic life stress and difficulties. Additionally, it provides a suitable environment that inspires the personal and academic growth of students at all levels.
4. Special Support (low achievers, disabled, gifted and talented)
<ul style="list-style-type: none">The low achievers are required to attend a counselling session with their advisors within the program and the Chairman of the Department to reveal the problems and offer solutions.

- The College has an Associate Dean, an Assistant Dean for Students and Academic Affairs, and Student Affairs Unit responsible for enhancing student's life inside the College and supporting their educational, social, intellectual and personal development to prepare them for a thriving profession.
- Student Affairs team significantly provides a high level of academic and scientific services and contributes to the awareness of the students.
- Student Affairs team members guide the students throughout their academic lives and help them to solve problems which might hinder their educational journey.
- If a student has a documented disability (or is required to document a disability), or needs an accommodation, he/she should contact his/her Department as soon as possible, so the Department can discuss how to meet his/her personal needs and the requirements of the course.

7.0 Curriculum Structure:

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Institution Requirements	Required	13	36	26%
	Elective	-	-	-
College Requirements	Required	14	34	24%
	Elective	-	-	-
Program Requirements	Required	24	70	50%
	Elective	-	-	-
Capstone Course/Project	-	NA	NA	NA
Field Training/ Internship	-	12 Months	NA	NA
Residency year	-	NA	NA	NA
Others	-	NA	NA	NA
Total		51	140	100%

8.0 Program Study Plan:

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 1	ENGL 101	English Academic Writing for Health Sciences I	R	n/a	4	Institution
	ENGL 102	English Grammar I	R	n/a	3	Institution
	ENGL 103	English Reading & Vocabulary I	R	n/a	4	Institution
	ENGL 104	English Communication Skills	R	n/a	3	Institution
	ARBC 101	Arabic Language Skills I	R	n/a	2	Institution
	ISLM 101	Islamic Culture	R	n/a	2	Institution
Level 2	ENGL 111	English Academic Writing for Health Sciences II	R	n/a	2	Institution
	ENGL 112	English Grammar II	R	n/a	2	Institution
	ENGL 113	English Academic Reading & Vocabulary II	R	n/a	2	Institution
	BIOL 111	Biology for Health Sciences	R	n/a	2	Institution
	CHMH 111	Chemistry for Health Sciences	R	n/a	4	Institution
	PHSH 111	Physics for Health Sciences	R	n/a	4	Institution
	ARBC 102	Arabic Language Skills II	R	n/a	2	Institution
Level 3	ENGL 211	Advanced English Writing for Health Sciences	R	n/a	3	College
	TERM 201	Medical Terminology	R	n/a	2	College
	BIOC 214	Biochemistry for Applied Medical Sciences	R	n/a	4	College
	BIOS 201	Biostatistics	R	n/a	2	College
	IMMC 214	Microbiology & Immunology for Applied Medical Sciences	R	n/a	3	College
	RESC 201	Research skills	R	n/a	1	College
	COMP 201	Computer Science & Health Informatics	R	n/a	3	College
Level 4	ANTM 214	Anatomy for Applied Medical Sciences	R	n/a	3	College
	PAMG 214	Pathology and Molecular Genetics for Applied Medical Sciences	R	n/a	3	College
	PHRM 214	Basic Pharmacology for Medicine for Applied Medical Sciences	R	n/a	3	College
	ECAV 201	Introduction to Cardiovascular Technology - Echocardiography	R	n/a	2	Program

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or
	ETHC 201	Ethics & Patient Safety	R	n/a	2	College
	BEHS 201	Behavioral Sciences	R	n/a	2	College
	PHYG 214	Physiology for Applied Medical Sciences	R	n/a	2	College
	AHPE 201	Applied Health Professions Education	R	n/a	1	College
Level 5	ECAV 301	Anatomy for Echocardiography Technology	R	n/a	3	Program
	ECAV 302	Physiology for Echocardiography Technology	R	n/a	3	Program
	ECAV 311	Basic Cardiac Electrophysiology	R	n/a	2	Program
	ECAV 304	Principles of Cardiac Pathology	R	n/a	3	Program
	ECAV 305	Pharmacology for Echocardiography Technology	R	n/a	3	Program
	ECAV 306	Principles of Echocardiography	R	n/a	3	Program
Level 6	ECAV 303	Clinical Observation	R	n/a	3	Program
	ECAV 312	Ultrasound Physics and Instrumentations	R	ECAV 306	4	Program
	ECAV 313	Basic Adult Echocardiography	R	ECAV 306	4	Program
	ECAV 307	Non-invasive Testing	R	n/a	2	Program
	ECAV 308	Patient Care Skills	R	n/a	2	Program
	CAMS 301	Research Methodology I	R	n/a	2	Program
Level 7	ECAV 401	Doppler physics and Cardiac Hemodynamics	R	n/a	2	Program
	ECAV 402	Advanced Adult Echocardiography	R	n/a	4	Program
	ECAV 411	Clinical Practicum I	R	ECAV 304	4	Program

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
	ECAV 412	Congenital Heart Disease	R	ECAV 402	2	Program
	ECAV 413	Pediatric Echocardiography	R	ECAV 402	3	Program
	CAMS 412	Research Methodology II	R	CAMS 301	2	Program
Level 8	ECAV 414	Transesophageal Echocardiography	R	ECAV 313	4	Program
	ECAV 415	Clinical Practicum II	R	ECAV 411	5	Program
	ECAV 404	Principles of cardiovascular disease management	R	n/a	2	Program
	ECAV 416	Special Echocardiography Procedures	R	ECAV 402	4	Program
	ECAV 403	Quality and Professional Development	R	n/a	2	Program

9.0 Course Description:

ECAV 201 – Introduction to Cardiovascular Technology

This course introduces students to normal cardiac anatomy and physiology. It also outlines the scope of clinical cardiology and provides an overview of cardiovascular diseases. Students will be introduced to the commonly used cardiovascular diagnostic imaging modalities and their respective clinical utility, advantages, limitations and safety profiles. During this course, students are going to be familiarized with the basics of echocardiography technology and its clinical applications. Basic concepts of effective communication and professional responsibility are also going to be emphasized during this course.

ECAV 301 – Anatomy for Echocardiography Technology

This course provides a full description and demonstration of the heart as a three-dimensional structure. The course starts with a description of the external and internal thoracic anatomy, with special emphasis on the surface anatomical landmarks of the heart and great vessels and the intra-thoracic anatomical relationships. Morphologic anatomical features of the cardiac chambers and heart valves are going to be discussed in detail. Other aspects, like histological features of relevant cardiac and vascular structures and the embryologic development of the heart, are going to be covered as well. This course consists of theoretical classroom-based lectures and laboratory practical sessions and is run in parallel with the cardiovascular physiology course so the anatomical structures are linked to their respective physiologic functions.

ECAV 302 – Physiology for Echocardiography Technology

This course covers the basic function of the heart as a pump. Cellular and functional myocardial properties are going to be described in detail. The interaction of the electrical impulse with the myocardium in producing sequential cardiac events is going to be covered as well. Intra-cardiac pressure changes and blood flow dynamics in relation to the cardiac cycle are going to be described in detail. Additional aspects will include myocardial

metabolism, physiologic response to exercise, systemic vascular control and cardiopulmonary relationship. The course will relate physiologic cardiac events to their respective anatomic structures.

ECAV 303 – Clinical Observation

This course represents the initial clinical exposure of students to real patients in the echocardiography (echo) laboratory (lab). During this course, students are going to experience the real echo lab environment and workflow. Students will be able to apply their prior knowledge and skills gained from the lecture hall and skills lab to real-life practice. They will have the opportunity to apply communication skills and professional responsibilities and practice the technical echo skills on real patients. During this phase of learning, students will be able to link the basic sciences knowledge of anatomy, physiology, pathology and ECG to real-life echo studies. This course will also prepare students for the subsequent level of clinical courses that include; patient care skills, ultrasound instrumentation and advanced clinical practicum. Students will attend and interact with real patients in the echo lab under the supervision and guidance of the echo lab instructors and technologists. Students will initially participate in providing simple patient care, patient preparation and data entry and as the course progresses, students will be gradually allowed to perform limited scanning of one window at a time, after study completion by the sonographer, whenever feasible.

ECAV 304 – Principles of Cardiac Pathology

Students are going to be introduced to cardiovascular diseases and their pathophysiological mechanisms and potential complications. It will cover almost every pathological condition that might affect the heart structure and/or function in the adult population. Common cardiovascular diseases, like cardiomyopathies, valvular heart disease, and coronary artery disease are going to be discussed in detail. In addition, diseases of the pericardium, great vessels, and pulmonary and systemic circulations are also going to be covered during this course.

ECAV 305 – Pharmacology for Echocardiography Technology

This course provides ECVT students with the essential theoretical knowledge and clinical applications of commonly used cardiovascular medications. Contents of this course include basics of pharmacokinetics and pharmacodynamics, medications' side effects and interactions. Major classes of cardiovascular medications and their specific clinical use for therapeutic or diagnostic purposes are going to be discussed.

ECAV 306 – Principles of Echocardiography

In this course, students learn the general principles of technical aspects and clinical applications of echocardiography. Technical aspects include manual skills of patient preparation, handling of the echo machine and mastering the standard 2D echo views on a normal subject. Clinical applications cover the indications, advantages and limitations of the Echocardiography scan. The course prepares students for the next advanced level of knowledge and practical skills in the field of transthoracic echocardiography.

ECAV 307 – Non Invasive Testing

This course introduces students to different forms of non-invasive cardiovascular investigations that are commonly used as complementary to echocardiography. The imaging part of this course will cover the theoretical principles and technical applications of cardiac computed tomography (cardiac CT), cardiac magnetic resonance (CMR) and nuclear myocardial perfusion scan. Other topics of the course will include the clinical applications and technical aspects of different forms of cardiac stress testing. It also covers advanced arrhythmia recognition and BP measurement using ambulatory monitoring devices.

ECAV 308 – Patient Care Skills

This course is designed to provide students with adequate skills that ensure appropriate delivery of care to patients undergoing echocardiographic examination. Communication skills, documentation notes, professional attitude, physical care and patient safety are the main themes of the course. This course allows students to learn and practice direct patient care skills through classroom lectures and practical field experience sessions.

ECAV 311 – Basic Cardio Electrophysiology
This course covers the basic principles of electrical cardiac activity and ECG recording. Students will be introduced to the basic concepts of ECG recording and rhythm analysis. Practical sessions of performing ECG and interpreting normal and abnormal ECG findings are going to be provided. Systematic analysis and interpretation of a wide range of rhythm abnormalities and conduction disturbances are going to be demonstrated in practical sessions.
ECAV 312 – Ultrasound Physics and Instrumentation
This course provides detailed knowledge of the theoretical principles of ultrasound physics and their practical implementations in the medical field, with special emphasis on cardiac applications. Ultrasound wave production, propagation, characteristics and interaction with matter are going to be covered in detail. Students are also going to be introduced to ultrasound instrumentation including transducer construction and function, echo machine operations, display systems, information processing and storage. Safety and quality issues of ultrasound technology are also going to be addressed through several sessions on ultrasound bioeffects and image artifacts.
ECAV 313 – Basic Adult Echocardiography
This course provides students with detailed visual demonstration of 2D- and M-mode echocardiographic studies for a wide range of cardiac pathologies that include but are not limited to; valvular heart disease, cardiomyopathies, cardiac masses, infectious endocarditis, pericardial diseases and diseases of the aorta. It also covers the technical aspects of M-mode and 2D-measurements and volumetric assessment of cardiac chamber size and function. During this course, Doppler applications will be briefly introduced to the students as they will be covered in detail in a separate course
ECAV 401 – Doppler Physics and Cardiac Hemodynamics
This course provides detailed knowledge of the physical principles of the Doppler phenomenon and its related medical applications, particularly in echocardiography practice. Cardiac blood flow, valvular stenosis, valvular regurgitation and intracardiac shunt assessment represent the main topics of this course.
ECAV 402 – Advanced Adult Echocardiography
Students are going to learn during this course cardiac Doppler applications and hemodynamic assessment. Color Doppler and spectral Doppler modalities and applications, in relation to a wide spectrum of cardiovascular diseases, are going to be covered in theoretical and practical sessions. Quantitative and qualitative Doppler assessment of valvular heart disease, cardiac shunts, diastolic cardiac impairment and pericardial disorders are going to be discussed and demonstrated.
ECAV 403 – Quality and Professional Development
Students are going to study the concept of quality in its broad meaning with special attention to quality in health care systems. Institutional and specialty quality aspects are going to be covered this course, with special emphasis on the quality of echocardiography services. Echo lab quality standards and the accreditation process are also going to be discussed in detail. In addition, students are going to be oriented to the available post-graduation career pathways relevant to their specialty and the way of choosing the appropriate one.
ECAV 404 – Principles of Cardiovascular Disease Management
After having adequate diagnostic skills and being able to identify most the cardiovascular diseases, it would be very reasonable to close the loop in the students' minds and proactively answer their question, "What should we do for these patients?" It is important for the students as future echo technologists to know their active role in the patient's management plan. During this course, students are going to review the concepts and practices of cardiovascular disease management for common diseases. Pharmacological and non-pharmacological therapeutic options are going to be discussed as properties related to their clinical indications. Special emphasis is going to be paid to the catheter-based and surgical interventions, particularly in relation to structural heart

diseases, timing and expected outcome of the procedure and the long-term benefits and the follow-up plan.

ECAV 411 – Clinical Practicum I

This course takes students to a higher level of skills in echocardiography in a clinical context. During this course, students are going to have longer exposure to cardiac patients and more chance of practicing hands-on skills of transthoracic echocardiogram. Students are expected to apply their prior knowledge of basic sciences, patient care skills and technical skills into real practice. In addition, this course is going to build in students a sense of professional responsibility and accountability that prepare them for the internship phase and subsequently for the work field. Students are going to be under direct supervision and guidance of qualified echo lab instructors and technologists. Students are expected to participate in all steps of conducting a transthoracic echocardiogram, including image acquisition and performing measurements.

ECAV 412 – Congenital Heart Disease

This course covers the clinical aspects, anatomical relationships and pathophysiologic consequences of congenital heart diseases. Students are going to be introduced to a new field of scientific terminologies and pathological conditions that are commonly seen in the pediatric age group. A wide range of cardiac defects and cardiac congenital anomalies are going to be covered in a classroom lecture format. The practical echocardiographic applications of this course is going to be covered in the “Pediatric Echocardiography” course which is running in parallel with this course.

ECAV 413 – Pediatric Echocardiogram

During this course, technical aspects and practical applications of echocardiography in pediatrics are going to be covered. This course consists of theoretical classroom lectures and practical laboratory sessions. The course will explore the current practices of echocardiography in assessing a wide range of acquired and congenital pediatric cardiac diseases.

ECAV 414 – Trans-Esophageal Echocardiography

This course will take the students to a new dimension of echocardiography, the Trans-Esophageal Echocardiogram (TEE), which they have not been exposed to in their prior studies. Students will learn the clinical applications, the technical aspects and the role of echo technologists in the TEE. Students will be oriented to the TEE transducer, the standard TEE views and their corresponding anatomical structures. Pre-procedural checklist, patient preparation and post-procedural care are going to be covered during this course.

ECAV 415 – Clinical Practicum II

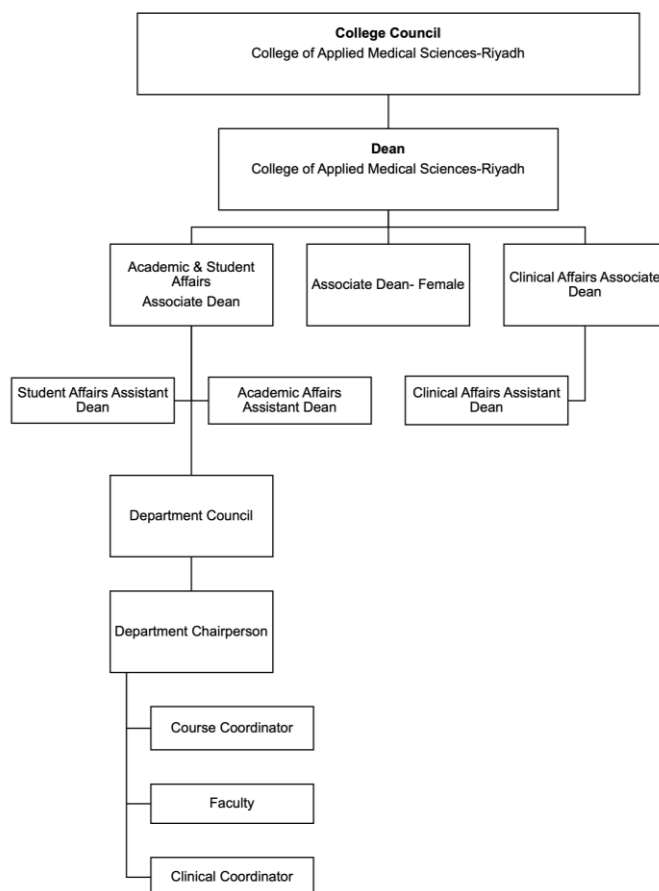
This course is a continuation of Clinical Practicum I, however, more independent students’ hands-on activities and decision-making are added. During this course, students are going to have longer exposure to cardiac patients and more chance of practicing hands-on skills of transthoracic echocardiogram. Students are expected to apply their prior knowledge of basic sciences, patient care skills and technical skills into real practice. In addition, this course is going to build in students the professional responsibility and accountability that prepare them for the internship phase and subsequently for the work field. Students are going to be under the direct supervision and guidance of the echo lab instructors and technologists. Students are expected to participate in all steps of conducting transthoracic echocardiogram, including acquiring images and performing measurements.

ECAV 416 – Special Echocardiography Procedures

This course will focus on the echocardiography procedures that are requested in clinical practice to answer specific questions that cannot be answered by conventional echocardiographic studies. These procedures are typically performed in special echo lab settings according to specific protocols. These procedures would frequently require special patient preparation and machine settings. Higher levels of cognitive and technical skills as well as a high degree of safety precautions are commonly required during these procedures. Examples

of these procedures include; stress echocardiography applications, myocardial strain imaging, 3-dimensional echocardiography and intracardiac echocardiography.

10.0 Program Structure and Faculty:



11.0 Program Council and Committees:

Program Council

Chairman: Dr. Reem Alsharari, Assistant Professor, ECAV program chairperson, COAMS, KSAU-HS

Co- Chairman: Dr. Aseel Alfuhied, Assistant Professor, ECAV, COAMS, KSAU-HS

Members:

Dr. Abdulaziz Albraikan, Assistant Professor, ICAV, COAMS, KSAU-HS

Mr. Tahlil Warsame, Manager Non-Invasive Cardiac Laboratory, MNGHA

Mr. Uttam Koparde, Lecturer, ICVT Program, COAMS, KSAU-HS

Dr. Hassan Aljohani, Assistant Professor, QAAA Unit, COAMS, KSAU

Dr. Maram Alfulayyih, Assistant Professor, Community Services Unit, COAMS, KSAU-HS

Dr. Abdulmajeed Alotaibi, Assistant Professor, Research Unit, COAMS, KSAU-HS

Ms. Maryam Bukhamseen, Echocardiography technologist, ECAV, MNGHA

Committees

Quality Development Committee

Chairman: Dr. Reem AL Sharari, Assistant Professor, ECAV, Riyadh

Co- Chairman: Dr. Hassan Yaseen Aljohani, Assistant Professor, RT, Riyadh

Members:

Ms. Maryam Bukhamseen, ECAV program director

Dr. Aseel Alfuhied, Assistant Professor, ECAV, Riyadh

Mr. Tahlil Warsame, Cardiovascular Service Line Manager, NGHHA, Riyadh

Dr. Noha Al Thubaity, Assistant Professor, Radiology Department, Riyadh

Research Sub Committee

Chairman: Dr. Aseel Alfuhied, Assistant Professor, ECAV, Riyadh

Co- Chairman: Dr. Abdulmajeed Al Otaibi, Assistant Professor, Radiology, Riyadh

Members:

Dr. Reem AL Sharari, Assistant Professor, ECAV, Riyadh.

Ms. Maryam Bukhamseen, ECAV program director

Dr. Abdulaziz Al Baraikan, Assistant Professor, ICAV, Riyadh

Mr. Uttam Koparde, Lecturer, ICVT Program, COAMS, KSAU-HS

Community Services Faculty & Enhancement Committee

Chairman: Dr. Maram Alfulayyih, Assistant Professor, COAMS, Riyadh

Co- Chairman: Dr. Reem AL Sharari, Assistant Professor, ECAV, Riyadh

Members:

Ms. Maryam Bukhamseen, ECAV program director

Dr. Aseel Alfuhied, Assistant Professor, ECAV, Riyadh
Ms. Alaa Ahmed Alangary, Lecturer, Radiology Program, Riyadh
Dr. Abdulaziz Al Baraikan, Assistant Professor, ICAV, Riyadh

Assessment Sub-Committee

Chairman: **Dr. Aseel Alfuhied**, Assistant Professor, ECAV, KSAU-HS-R

Co- Chairman: **Dr. Reem Alsharari**, Assistant Professor, ECAV Program Chairperson, KSAU-HS-R

Members:

Ms. Maryam Bukhamseen, Echocardiography technologist, ECAV, MNGHA

Dr. Muna Ahmed Ismail, Consultant Pediatric Cardiology, COAMS, Riyadh

Dr. Abdulaziz Albraikan, Assistant Professor, ICAV, COAMS, KSAU-HS

Mr. Uttam Koparde, Lecturer, ICVT Program, COAMS, KSAU-HS

12.0 Learning Resources, Facilities and Equipment:

<p>1. Learning Resources (textbooks, references and other resource materials, including electronic and web-based resources etc.)</p> <ul style="list-style-type: none"> The campus libraries provide physical and online resources that include over 60 databases, 5000 books and 6200 e-journals access.
<p>2. Facilities and Equipment (Library, laboratories, medical facilities, classrooms, etc.)</p> <ul style="list-style-type: none"> The College classrooms are equipped with smart boards, computers, microphones, and fast internet. The College library is well-established with all needed textbooks, e-journals and databases. Collaboration with the clinical echocardiography laboratory at King Faisal Cardiac Center, KAMC-MNGHA WR had been made to conduct all the practical sessions and hands-on assignments. Students will have access to the Cardiac Center.
<p>3. Arrangements to Maintain a Healthy and Safe Environment (According to the nature of the program) Students will be allocated to the echocardiography laboratory under the supervision of an expert echocardiography technologist team, Following policy and procedure in the hospital. In the university following the university bylaw.</p> <ul style="list-style-type: none"> Safety is a core value at KSAU-HS which is committed to the continued advancement of an institutional safety culture with strong programs of personal safety, accident and injury prevention, wellness promotion, and compliance with applicable environmental and health and safety laws and regulations. Adherence to good health and safety practices and compliance with applicable health and safety regulations are the responsibility of all faculty members, staff, and students. Line responsibility for good health and safety practice begins with the supervisors in the workplace, laboratory or classroom and proceeds upward through the levels of management. KSAU-HS reviews legislation, recommends policies, and monitors compliance with environmental, health and safety laws and regulations. KSAU-HS provides guidance and technical assistance to supervisors and managers in the Departments, and other work units in identifying, evaluating, and correcting health and safety hazards. KSAU-HS provides fire prevention, inspection, engineering and systems maintenance services, and hazardous waste management and disposal services. <p>Faculty, Staff and students are responsible for keeping themselves informed of the conditions</p>

affecting their health and safety, participating in safety training programs as required by KSAU-HS policy and their supervisors and instructors, and adhering to health and safety practices in their workplace, classroom, laboratory and student campus residences.

13.0 Grading System and Grading Point Average (GPA):

Course grading system: It is the scale by which the final mark of each course is classified into a grade interval.

Course final mark: It is the total of all semester work marks such as midterms, projects, and assignments, practical and/ or class participation plus the mark of the final examination.

Semester GPA: It is the GPA calculated for the credit hours completed in one semester.

Cumulative GPA: It is the GPA calculated for the credit hours completed in all the semesters.

Grade Weight: It is a numeric worth assigned for grades that are included in the GPA calculations. Every course that is officially registered for students must be given a grade by the instructor of the specific course according to the applied grading system.

14.0 Laboratory Safety Guideline:

The Safety Department published the safety guide for KSAU_HS Laboratories: A Guide to Some Hazardous Substances to help staff and students identify hazardous substances that may be used in KSAU_HS laboratories and provide an inventory of these substances.

Because of the new global harmonized system, the safety guide has been updated and revised to reflect those changes. This guide on safety in the chemistry laboratory was also written to provide staff and students with an easy-to-read reference to create a safe learning environment in the laboratory. The document attempts to provide the lab responsibly and ultimately their students, with information so that they can take the appropriate precautionary actions in order to prevent or minimize hazards, harmful exposures, and injuries in the laboratory.

The guide presents information about ordering, using, storing, and maintaining chemicals in the laboratory. The guide also provides information about chemical waste, safety and emergency equipment, assessing chemical hazards, common safety symbols and signs, and fundamental resources relating to chemical safety, such as Safety Data Sheets and Chemical Hygiene Plans, to help create a safe environment for learning. In addition, checklists are provided for both staff and students that highlight important information for working in the laboratory and identify hazards and safe work procedures. The guide also presents the biohazard, radiation, and laser safety in the KSAU_HS Laboratories.

This guide is not intended to address most of the safety issues, but rather to provide basic information about important components of safety in the chemistry laboratory and to serve as a resource to locate further information. This manual is available online and also in the lab to all laboratory users. Links for more details about policies and

procedures are provided below.

