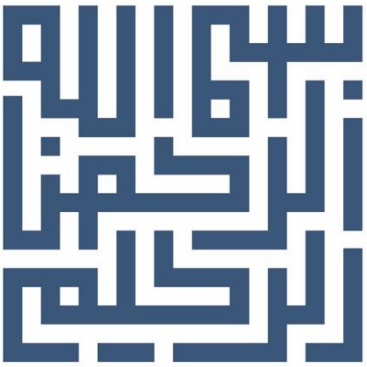
جامعة الإمام عبدالرحمن بن فيصل
IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY
كلية العلوم الطبية التطبيقية
College of Applied Medical Sciences

Department of Cardiac Technology

Student Handbook

2025 - 2026



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ABOUT CARDIAC TECHNOLOGY DEPARTMENT

MESSAGE FROM THE HEAD OF CT DEPARTMENT

Dear Students,

It is with great pleasure that I welcome you to the Department of Cardiac Technology at Imam Abdulrahman Bin Faisal University. You are joining a program that is committed to academic excellence, professional integrity, and the advancement of cardiovascular health care through education, research, and community service.

Our vision is to be a leading program of academic distinction in cardiac technology education and research at both the national and international levels. In line with this vision, our mission is to graduate competent cardiac technologists equipped with evidence-based knowledge and clinical skills, empowered with innovative research capabilities, and committed to effective community service, while upholding the highest ethical values of the profession.

As you undertake this academic journey, you will be encouraged to engage actively in your studies, apply critical thinking in practice, and embrace opportunities for research and professional growth. The department's faculty and staff are dedicated to supporting your development and ensuring that you are well prepared to meet the demands of a dynamic and evolving health care environment.

I invite you to approach this year with dedication, curiosity, and a strong sense of responsibility toward yourself, your patients, and your community.

Together, we will continue to build on the department's achievements and contribute to the progress of cardiovascular medicine.

I wish you every success in your academic and professional journey.

With sincere regards,

Dr. Abrar Ibrahim Alnaimi
Assistant Professor of Cardiovascular Sciences
Head of the Department of Cardiac Technology
College of Applied Medical Sciences, Imam Abdulrahman Bin Faisal University

INTRODUCTION

Cardiac technology is an allied health profession specifically focused on the diagnosis to assist in the management of patients with cardiovascular disease. Cardiac Technology Specialists are highly skilled professionals qualified to provide patient care using diagnostic (Echo) technology, assisting with cardiac catheterization either diagnostically or through intervention, or by managing cardiac perfusion in open-heart surgery.

The Cardiac Technology program at Imam Abdulrahman bin Faisal University, College of Applied Medical Sciences (CAMS) was established during the 2008-2009 academic year. The program length is four years, including the Preparatory year, and is followed by an internship year in a variety of approved hospitals.

CT DEPARTMENT HEADS

- Dr. Abdullah Alshehri (2009-2015)
- Prof. Akram Alkhadra'a (2015-2018)
- Dr. Mousa Alharbi (2018-2020)
- Dr. Ahmed Sabry (2020-2021)
- Dr. Hussam Abdualeem (2021-2022)
- Dr. Lamia Al Saikhan (2022-2025)
- Dr. Abrar Alnaimi (2025-present)

OUR VISION

A leading program of academic excellence for cardiac technology education and research nationally and internationally.

OUR MISSION

Graduate cardiac technologists who are competent in evidence-based knowledge and practice, innovative research skills, and effective community service compatible with the best ethical values of the profession.

PROGRAM GOALS

- Provide quality education, and continuously improve learning standards with the best clinical experience.
- Graduate qualified cardiac technologists of national and international standards to fulfil labor markets' needs.
- Promote scientific research in the field of cardiac technology.
- Maintain effective community service and partnership.

PROGRAM VALUES

- Excellence
- Loyalty
- Teamwork
- Initiative
- Responsibility
- Transparency
- Creativity

CARDIAC TECHNOLOGY STAFF MEMBERS

PROGRAM FACULTY

- Dr. Abdullah Alshehri (2009-2015)
- Dr. Hussam Abdualeem (2009-2013) (2019-2022)
- Dr. Ayman Azoz (2009-2018)
- Dr. Yhiya Farrag (2009-2015)
- Dr. Ahmed Sabry (2010-2021)
- Dr. Soad Mosbah (2011- 2023)
- Prof. Mohamed Yahia (2013-2018) _ (2025-present)
- Dr. Mostafa Rashed (2013-present)
- Ms. Neethu Theruvan (2013-present)
- Prof. Akram Alkhadra'a (2015-2018)
- Dr. Mousa Alharbi (2018-2020)
- Dr. Ghada Mahmoud Basiony (2024-present)

Faculty (Graduated from the Program)

- Dr. Abrar Alnaimi (2013-present)
- Dr. Aesha Althunyyan (2013 – present)
- Dr. Alhanoof Almalki (2013- present)
- Dr. Alaa Alyahia (2013- present)
- Dr. Lamia Al Saikhan (2015-present)
- Dr. Maryam Alsharqi (2015 –present)
- Dr. Mashael Alfuraih (2016-present)
- Ms. Majd Almutairi (2025-present)

Faculty (Graduated from the Program - Studying Abroad)

- Ms. Sara Alsubaie (2018-present)
- Ms. Foziyah Alqahtani (2018-present)
- Ms. Lamis Alghamdi (2019-present)
- Ms. Raghad Alraimi (2019 –present)

CURRENT FACULTY AND STAFF

Name	Grade	Academic Degree	E-mail	Extension
Chairperson				
Dr Abrar Alnaimi	Assistant professor	Doctorate	aialnaimi@iau.edu.sa	013-3335235
Department Coordinator				
Dr Mostafa Rashed	Assistant professor	Doctorate	mhrashed@iau.edu.sa	013-3331218
Dr. Mohammed Yahia	Professor	Doctorate	myabdullah@iau.edu.sa	-
Dr Ghadah Soltan	Associate Professor	Doctorate	gmsultan@iau.edu.sa	013-3331230
Dr Maryam Alsharqi	Assistant professor	Doctorate	maalsharqi@iau.edu.sa	013-3331346
Dr Lamia Al Saikhan	Assistant professor	Doctorate	lkalsaikhan@iau.edu.sa	013-3331358
Dr Aeshah Althunayyan	Assistant professor	Doctorate	amAlthunayan@iau.edu.sa	013-3331249
Dr Alhanoof Almalki	Assistant professor	Doctorate	adalmalki@iau.edu.sa	-
Dr Alaa Alyahya	Assistant professor	Doctorate	aialyahya@iau.edu.sa	-
Dr Mashael Alfuraih	Assistant professor	Doctorate	mafarih@iau.edu.sa	-
Mrs Neethu Theruvan	Lecturer	Master	nbtheruvan@iau.edu.sa	013-3331316

Ms Majd Almutairi	Teaching Assistant	Bachelor	msmmutairi@iau.edu.sa	013-3331192
Mrs Abeer Almwald	Technician	Bachelor	asalmwald@iau.edu.sa	013-3331393
Mrs Helah Alyahya	Technician	Bachelor	hyalyahya@iau.edu.sa	013-3331372
Mrs Amal Almussa	Secretary	Bachelor	amalmussa@iau.edu.sa	013-3331315

CARDIAC TECHNOLOGY STUDY PLAN

CARDIAC TECHNOLOGY CURRICULUM

INVASIVE TECHNOLOGIST (CARDIAC CATHETERIZATION) TRACK

Course Title	Code	Pre-Requisites	Year/Term
Level 3: Major Courses – 16 Credit Hours			
History& civilization of Kingdom of Saudi Arabia	HIST-281	-	Second Year First Term
Entrepreneurship	BUS-381	-	
Cardiovascular Physiology	PHYL-201	BIOL-108	
Cardiovascular Anatomy	ANAT-202	BIOL-108	
Microbiology and Infection control	MICRO-203	BIOL-108	
Health Informations	HIMT-204	-	
Level 4: Major Courses – 16 Credit Hours			
Islamic Ethics and Values	ISLM-282	-	Second Year Second Term
Medical Biochemistry	BIOCH-208	CHEM-109	
Cardiac Pathology	PATH-210	PHYL-201 ANAT-202	
Introduction to Cardiovascular Technology	CTECH-211	PHYL-201 ANAT-202	

Applied Physics for Cardiac Technology	PHYS-212	PHYS-106	
Level 5: Major Courses – 17 Credit Hours			
Cardiovascular Hemodynamics	CTECH-301	PHYL-201	Third Year First Term
Basic Echocardiography	CTECH-302	PATH-210 CTECH-211	
Electrocardiogram I	CTECH-303	CTECH-211	
Nursing Skills	NURS-304	CTECH-211	
Applied Biostatistics	STAT-305	COMP-107	
Behavioral Science	PSYCO-214	-	
Level 6: Major Courses – 17 Credit Hours			
Basic Cardiac Catheterization	CTECH-311	CTECH-211 PHYS-212	Third Year Second Term
Basic Cardiac Perfusion	CTECH-312	CTECH-211	
Cardiovascular Pharmacology	PHARM-313	PHYL-201	
Medical Ethics and Law	CTECH-314	-	
Research Methodology	RESM-315	STAT-305	
Level 7: Major Courses – 14 + 3 IP Credit Hours			
Electrocardiogram 2	CTECH-401	CTECH-303	Fourth Year First Term
Graduation Research Project	CTECH-402	RESM-315	
Advanced Cardiac Catheterization 1	CTECH-406	CTECH-311	
Clinical Practice on Cardiac Catheterization1	CTECH-407	CTECH-311	
Basic and Advanced Cardiac Life Support	CTECH-405	CTECH-303	

Level 8: Major Courses – 18 Credit Hours			
Graduation Research Project	CTECH-402	RESM-315	Fourth Year Second Term
ECG Interpretation	CTECH-411	CTECH-401	
Cardiac Catheterization Interpretation	CTECH-416	CTECH-406	
Advanced Cardiac Catheterization 2	CTECH-417	CTECH-406	
Pediatric Cardiac Catheterization	CTECH-418	CTECH-406	
Clinical Practice on Cardiac catheterization 2	CTECH-419	CTECH-406	

INVASIVE TECHNOLOGIST (CARDIAC PERFUSION) TRACK

Course Title	Code	Pre-Requisites	Year/Term
Level 3: Major Courses – 16 Credit Hours			
History& civilization of Kingdom of Saudi Arabia	HIST-281	-	Second Year First Term
Entrepreneurship	BUS-381	-	
Cardiovascular Physiology	PHYL-201	BIOL-108	
Cardiovascular Anatomy	ANAT-202	BIOL-108	
Microbiology and Infection control	MICRO-203	BIOL-108	
Health Informations	HIMT-204	-	
Level 4: Major Courses – 16 Credit Hours			
Islamic Ethics and Values	ISLM-282	-	Second Year

Medical Biochemistry	BIOCH-208	CHEM-109	Second Term
Cardiac Pathology	PATH-210	PHYL-201 ANAT-202	
Introduction to Cardiovascular Technology	CTECH-211	PHYL-201 ANAT-202	
Applied Physics for Cardiac Technology	PHYS-212	PHYS-106	
Level 5: Major Courses – 17 Credit Hours			
Cardiovascular Hemodynamics	CTECH-301	PHYL-201	Third Year First Term
Basic Echocardiography	CTECH-302	PATH-210 CTECH-211	
Electrocardiogram I	CTECH-303	CTECH-211	
Nursing Skills	NURS-304	CTECH-211	
Applied Biostatistics	STAT-305	COMP-107	
Behavioral Science	PSYCO-214	-	
Level 6: Major Courses – 17 Credit Hours			
Basic Cardiac Catheterization	CTECH-311	CTECH-211 PHYS-212	Third Year Second Term
Basic Cardiac Perfusion	CTECH-312	CTECH-211	
Cardiovascular Pharmacology	PHARM-313	PHYL-201	
Medical Ethics and Law	CTECH-314	-	
Research Methodology	RESM-315	STAT-305	
Level 7: Major Courses – 14 + 3 IP Credit Hours			
Electrocardiogram 2	CTECH-401	CTECH-303	Fourth Year First Term
Graduation Research Project	CTECH-402	RESM-315	
Advanced Cardiac Perfusion1	CTECH-408	CTECH-312	

Clinical Practice on Cardiac Perfusion 1	CTECH-409	CTECH-312	
Basic and Advanced Cardiac Life Support	CTECH-405	CTECH-303	
Level 8: Major Courses – 18 Credit Hours			
Graduation Research Project	CTECH-402	RESM-315	Fourth Year Second Term
ECG Interpretation	CTECH-411	CTECH-401	
Cardiac Perfusion Interpretation	CTECH-420	CTECH-408	
Advanced Cardiac Perfusion 2	CTECH-421	CTECH-408	
Pediatric Cardiac Perfusion	CTECH-422	CTECH-408	
Clinical Practice on Cardiac Perfusion 2	CTECH-423	CTECH-408	

NON-INVASIVE TECHNOLOGIST (ECHOCARDIOGRAPHY) TRACK

Course Title	Code	Pre-Requisites	Year/Term
Level 3: Major Courses – 16 Credit Hours			
History& civilization of Kingdom of Saudi Arabia	HIST-281	-	Second Year First Term
Entrepreneurship	BUS-381	-	
Cardiovascular Physiology	PHYL-201	BIOL-108	
Cardiovascular Anatomy	ANAT-202	BIOL-108	
Microbiology and Infection control	MICRO-203	BIOL-108	
Health Informations	HIMT-204	-	

Level 4: Major Courses – 16 Credit Hours			
Islamic Ethics and Values	ISLM-282	-	Second Year Second Term
Medical Biochemistry	BIOCH-208	CHEM-109	
Cardiac Pathology	PATH-210	PHYL-201 ANAT-202	
Introduction to Cardiovascular Technology	CTECH-211	PHYL-201 ANAT-202	
Applied Physics for Cardiac Technology	PHYS-212	PHYS-106	
Level 5: Major Courses – 17 Credit Hours			
Cardiovascular Hemodynamics	CTECH-301	PHYL-201	Third Year First Term
Basic Echocardiography	CTECH-302	PATH-210 CTECH-211	
Electrocardiogram I	CTECH-303	CTECH-211	
Nursing Skills	NURS-304	CTECH-211	
Applied Biostatistics	STAT-305	COMP-107	
Behavioral Science	PSYCO-214	-	
Level 6: Major Courses – 17 Credit Hours			
Basic Cardiac Catheterization	CTECH-311	CTECH-211 PHYS-212	Third Year Second Term
Basic Cardiac Perfusion	CTECH-312	CTECH-211	
Cardiovascular Pharmacology	PHARM-313	PHYL-201	
Medical Ethics and Law	CTECH-314	-	
Research Methodology	RESM-315	STAT-305	
Level 7: Major Courses – 14 + 3 IP Credit Hours			
Electrocardiogram 2	CTECH-401	CTECH-303	Fourth Year

Graduation Research Project	CTECH-402	RESM-315	First Term
Advanced Adult Echocardiography 1	CTECH-403	CTECH-302	
Clinical Practice on Echocardiography 1	CTECH-404	CTECH-302	
Basic and Advanced Cardiac Life Support	CTECH-405	CTECH-303	
Level 8: Major Courses – 18 Credit Hours			
Graduation Research Project	CTECH-402	RESM-315	Fourth Year Second Term
ECG Interpretation	CTECH-411	CTECH-401	
Echocardiography Interpretation	CTECH-412	CTECH-403	
Advanced Adult Echocardiography 2	CTECH-413	CTECH-403	
Pediatric Echocardiography	CTECH-414	CTECH-403	
Clinical Practice on Echocardiography 2	CTECH-415	CTECH-403	

COURSE DESCRIPTION

Course Title and Code	Course Description
History & civilization of Kingdom of Saudi Arabia (HIST-281)	Aimed to review the historical and civilizational aspects of the Kingdom of Saudi Arabia and its cultural heritage, and the efforts of its rulers in building the political and civilized state and their role in serving Arab, Islamic, and humanitarian issues, and achieving Vision 2030 in the field of tourism and national heritage.
Entrepreneurship (BUS-381)	Introductory to the creative and innovative managerial practices of successful entrepreneurship. This course reviews the significant economic and social contributions of entrepreneurs that provides the society with the skills necessary for entrepreneurial success.
Cardiovascular Physiology (PHYL-201)	Discussed the fundamental concepts of cardiovascular physiology including characters of cardiac muscle, and cardiac cycle as well as different regulatory mechanisms required to maintain normal cardiac output and arterial blood pressure.
Cardiovascular Anatomy (ANAT-202)	Concerned with a detailed study of cardiovascular anatomy and a basic study of cardiac embryology with a review study of general anatomy.
Microbiology and Infection control (MICRO-203)	Aimed to study different types of microorganism and its relation to healthcare -associated infection and hospital-associated infection.
Health Informations (HIMT-204)	Designed to teach students the basic systems that capture, store, manage or transmit information related to health care individuals.
Islamic Ethics and Values (ISLM-282)	Deals with virtuous morals, values, practical ethics and their legal rooting in the Qur'an and Sunnah, the determinant of instinct and instinct, moderation and community identity, and related skill and applied activities.
Medical Biochemistry (BIOCH-208)	Designed to study the chemical process in a molecular basis and its relation to the human being.

Applied Pathology for Heart Diseases (PATH-210)	Described the pathology and pathophysiological mechanisms of different cardiovascular diseases.
Introduction to Cardiovascular Technology (CTECH-211)	Introductory to the basic sciences of cardiac technology, including basic concepts and terminology, equipment of ECG, Echocardiography, Catheterization, and Perfusion.
Applied Physics for Cardiac Technology (PHYS-212)	Concerned with a brief review of concepts of classic physics, detailed study of waves properties and selected reviews of some modern physics topics.
Cardiovascular Hemodynamics (CTECH-301)	Enabled students to use the essential methods of hemodynamic assessment in the cardiac catheterization laboratory to understand the physiology and pathophysiology of patients with cardiovascular diseases.
Basic Echocardiography (CTECH-302)	Enabled students to do basic echocardiography through training on simulators and real patients.
Electrocardiogram I (CTECH-303)	Focused on acquiring basic theoretical and practical concepts of electrocardiogram, correct leads placement, review electrical conduction of the heart and basic ECG interpretation skills.
Nursing Skills (NURS-304)	Focused on gaining proficiency in clinical assessment of patients and apply the therapeutic communication skills and critical decision-making skills in analyzing the data obtained through the history taking and examination. Designed to develop competency in management and care of clinical problems identified for the client.
Applied Biostatistics (STAT-305)	Enabled students to apply statistics to a wide range of topics related to health care by using computer-based software.
Behaviour Sciences (PSYCO-214)	Study of human habits, actions, and intentions through combining knowledge of psychology with strong observation, research, and communication skills.
Basic Catheterization (CTECH-311)	Aimed at gaining basic theoretical and practical concepts of cardiac catheterization procedures, exposing students to deal with Cath lab equipment, understand principles of sterilization, cardiac catheterization views, indications and contraindications, vascular access, and left heart catheterization techniques.

Basic Cardiac Perfusion (CTECH-312)	Aimed to acquire basic theoretical knowledge and practical application of cardiac perfusion, equipment and supplies utilized in open heart surgeries. Also, sterilization and infection control principles, patient assessment pre and post CABG surgeries. with emphasis on the basics of hemodynamic monitoring of patients.
Cardiovascular Pharmacology (PHARM-313)	Discussed basic concepts pf pharmacology as well as detailed pharmacotherapeutics, pharmacodynamics and pharmacokinetics of different drugs affecting the cardiovascular system.
Research Methodology (RESM-315)	Designed to enable students to understand the basic skeleton of research and how to write a proposal and conduct research projects.
Electrocardiogram 2 (CTECH-401)	By the end of this course the students will be able to perform and interpret 12 leads ECG, Exercise stress test and Holter monitoring.
Graduation Research Project (CTECH-402)	Aimed to organize and collect DATA in a scientific manner, that will prepare them to practice different types of health research, and to be enabled to conduct scientific research appropriately.
Advanced Adult Echocardiography I (CTECH-403) (Echo subspecialty)	Discussed the role of echocardiography in diagnosis, and severity assessment of different cardiovascular diseases.
Advanced Cardiac Catheterization 1 (CTECH-406) (Cath subspecialty)	Enabled students to learn the theoretical and applied concepts of cardiac catheterization with information about right and left diagnostic angiography.
Advanced Cardiac Perfusion 1 (CTECH-408) (Cardiac Prefusion subspecialty)	Aimed to acquire advanced theoretical knowledge and practical application of cardiac perfusion techniques, equipment and supplies that will be utilized in open heart surgeries. Different cannulation techniques and adjusted doses of heparin and its antidot.
Clinical Practice on Echocardiography1 (CTECH-404) (Echo subspecialty)	In-hospital round including exposure of students to a practical performance and observation of Transthoracic Echo, resting ECG, Stress ECG, and Holter Monitoring.

Clinical Practice on Cardiac Catheterization 1 (CTECH-407) (Cath subspecialty)	In-hospital round including exposure of students to learn essential clinical skills through a practical performance and observation of resting ECG, Stress ECG, Holter Monitoring and Cardiac Catheterization.
Clinical Practice on Cardiac Perfusion 1 (CTECH-409) (Cardiac Perfusion subspecialty)	In-hospital round enable students to pursue the theoretical knowledge and practical skills of basic and advanced cardiac perfusion, with emphasis on patient preparation, safety measures, hemodynamic calculations and equipment installation in open heart surgery room.
Basic and Advanced Cardiac Life Support (CTECH-405)	Concerned with theoretical and practical application of basic and advanced life support and cardiopulmonary resuscitation in cardiac arrest.
ECG interpretation (CTECH-411)	Tutorial based course focused on review and interpret ECG abnormalities as well as exercise and Holter.
Echocardiography interpretation (CTECH-412) (Echo subspecialty)	Tutorial-based course enabled students to gain the needed skills for echocardiography interpretation through discussing cases with instructor either in class lectures or in echo-machines in the lab.
Cardiac catheterization interpretation (CTECH-416) (Cath subspecialty)	Tutorial-based course and group discussion in which students will discuss with their instructor how to interpret diagnostic Coronary Angiography, Interventional Adult Cardiac Catheterization, Basic Pediatric Cardiac Catheterization and Cardiovascular Hemodynamic.
Cardiac Perfusion interpretation (CTECH-420) (Cardiac Perfusion subspecialty)	Tutorial-based course enabled students to practical training of interpretation of different Cardiac perfusion case scenarios, including different clinical situations in operative room.
Advanced adult echocardiography 2 (CTECH-413) (Echo subspecialty)	Focused on Stress Echocardiography, and Trans-esophageal Echocardiography, indications, contraindications, precautions, and interpretation.
Advanced cardiac catheterization 2	Electrophysiology course aimed to enable students to understand the mechanisms of different types of cardiac arrhythmias and

(CTECH- 417) (Cath subspecialty)	associated conditions like syncope and to understand the intra cardiac ECG. The course deals with trance catheter ablation of accessory pathways and helps to understand the pacemaker system.
Advanced cardiac perfusion 2 (CTECH- 421) (Cardiac Perfusion subspecialty)	Aimed to acquire advanced theoretical knowledge and practical application of cardiac perfusion techniques, Pathophysiology of Perfusion and cardiopulmonary bypass machine, Including CNS, CVS and myocardial protection, also, blood management, respiratory function, fluid and electrolyte balance during bypass.
Paediatric Echocardiography (CTECH-414) (Echo subspecialty)	Focused on the role of echocardiography in assessment of congenital heart diseases in pediatrics and adults.
Paediatric cardiac catheterization (CTECH-418) (Cath subspecialty)	Enabled students to understand the role of cardiac technologists in pediatric catheterization laboratories.
Paediatric cardiac perfusion (CTECH-422) (Cardiac Perfusion subspecialty)	Aimed to pursue a theoretical and practical simulation study of the role of the Cardiac perfusionist in a various of invasive cardiac procedures such as surgical correction of congenital heart defects, Priming in pediatric patients, Fluid, and electrolyte balance in pediatric age group.
Clinical Practice on Echocardiography 2 (CTECH-415) (Echo subspecialty)	In-hospital round to enable students to practice and observe Transthoracic, Transesophageal, and Stress Echocardiography.
Clinical Practice on Cardiac catheterization 2 (CTECH-419) (Cath subspecialty)	In-hospital round course during which students can assist cardiologist in Cath lab and assist in different types of basic and interventional adult and pediatric cardiac catheterization.
Clinical Practice on Cardiac Perfusion 2 (CTECH-423) (Cardiac Perfusion subspecialty)	In-hospital round enable students to apply the theoretical knowledge and practice their skills of basic and advanced cardiac perfusion, with emphasis on equipment preparation, patient preparation, safety measures, hemodynamic calculations in open heart surgery room.
Total Credit Hours is 129+IP hours	

Fifth year (Internship)

After completing the previous curriculum, students spend 12 months of focused training in cardiac technology field (internship) at approved hospitals. After successful completion of this year, students are graduated with a certificate that allows them to start a career as a cardiac technology specialist.

GENERAL ROLE OF CARDIAC TECHNOLOGIST IN PRACTICE

- Perform resting ECG, stress ECG, 24H Holter monitoring, and 24H blood pressure monitoring.
- Monitor patients' vital signs and hemodynamics.
- Schedule appointments.
- Explain test procedures to patients and record any additional medical history.
- Operate and care for testing and adjusting the equipment.

ROLE OF CARDIAC TECHNOLOGIST IN CARDIAC CATHETERIZATION

- Assist invasive cardiologists in performing diagnostic and interventional cardiac catheterization procedures.
- Prepare patients for cardiac catheterization and assist interventionalists as scrubbing assistant, by sterilizing the area around the puncture site, and preparing Cath table with the necessary tools and medications.
- Closely monitor and record patients' blood pressure and heart rhythm with special hemodynamic monitoring equipment during the invasive procedures and notify the physician about any hemodynamic changes noted.

- Assist in obtaining angiographic views, performing physiological and anatomical assessment to reach diagnosis and plan intervention if needed.
- Write a preliminary report of the angiographic findings and interventional data.
- Assist in programing pacemakers and implanted devices for optimal function under the supervision of the attending cardiologist.
- Perform pressure measurements by applying specific equations in right heart catheterization.

ROLE OF CARDIAC TECHNOLOGIST IN CARDIAC PERFUSION

- Assist physicians in diagnosing and treating cardiac and vascular ailments.
- Reviewing the patient's medical history and notes to adequately prepare for the surgery.
- Operating and selecting different extracorporeal circulation equipment, including the heart-lung machine, artificial heart, blood transfusion devices, intra-aortic balloon pump, and ventricular-assist devices.
- Monitoring and managing the patient's care during surgery to ensure their physiological functions are safe.
- Administering various types of blood products and medications to patients as part of the standard procedure during surgery.
- Performing various administrative responsibilities such as equipment management, purchasing supplies, managing the department, and implementing quality improvement measures.

ROLE OF CARDIAC TECHNOLOGIST IN ECHOCARDIOGRAPHY

- Perform a cardiac ultrasound imaging scan of patients, using multiple views to scan the heart.
- Obtain basic and advanced heart structure and function parameters relevant to patients' pathological condition.
- Evaluate the findings to identify and grade the severity of a spectrum of heart diseases.
- Write a preliminary report of the heart structure and function.
- Select appropriate equipment settings and changing the patient's position as necessary.
- Assist cardiologists in performing stress and transesophageal echocardiography procedures.

SELECTION OF SUBSPECIALITY

Cardiac Technology program offers three subspecialities: Echocardiography, Cardiac Catheterization and Cardiac Perfusion. CT students share the same academic study plan and learning outcomes that includes Basic Echocardiography, Basic Cardiac Catheterization and Basic Cardiac Perfusion. By the end of 3rd year, students are knowledgeable of the basic concepts of the specialties and are well prepared to choose between them. In the 4th year, students must be enrolled in one of the three subspecialities to include the advanced courses in their study plan.

The selection policy of the department is applied at the end of each academic year to have a balanced distribution of 3rd year students who are divided between the three subspecialities in their 4th year of study, taking into consideration the update in market demands and the up-to-date stakeholders' recommendations.

Policy Statement

1. An orientation program on selection of subspeciality is organized by the program coordinator and conducted to 3rd year students each year as an interactive session. It includes an introduction to the subspecialties offered within the program, and the role of cardiac technologists in Echocardiography, Cardiac Catheterization and Cardiac Perfusion in addition to the potential future career opportunities. During the orientation program, students are informed about the selection criteria with the student preference being the most important factor. The faculty members welcome any questions and are ready to answer all questions and/or concerns the students may have.

2. Within one week of the orientation program, students are requested to make a decision choosing the preferred specialty through a google form link sent by the program coordinator.

3. The list of students' preference is then reviewed for approval.

4. The department prefers to have a balanced distribution of students in subspecialities, taking into consideration the capacity of clinical training sites, market demands, and the up-to-date stakeholders' recommendations. Students' preferences are expected to be distributed according to the one of the following:

4.1. A balanced distribution, that will be directly accepted and approved.

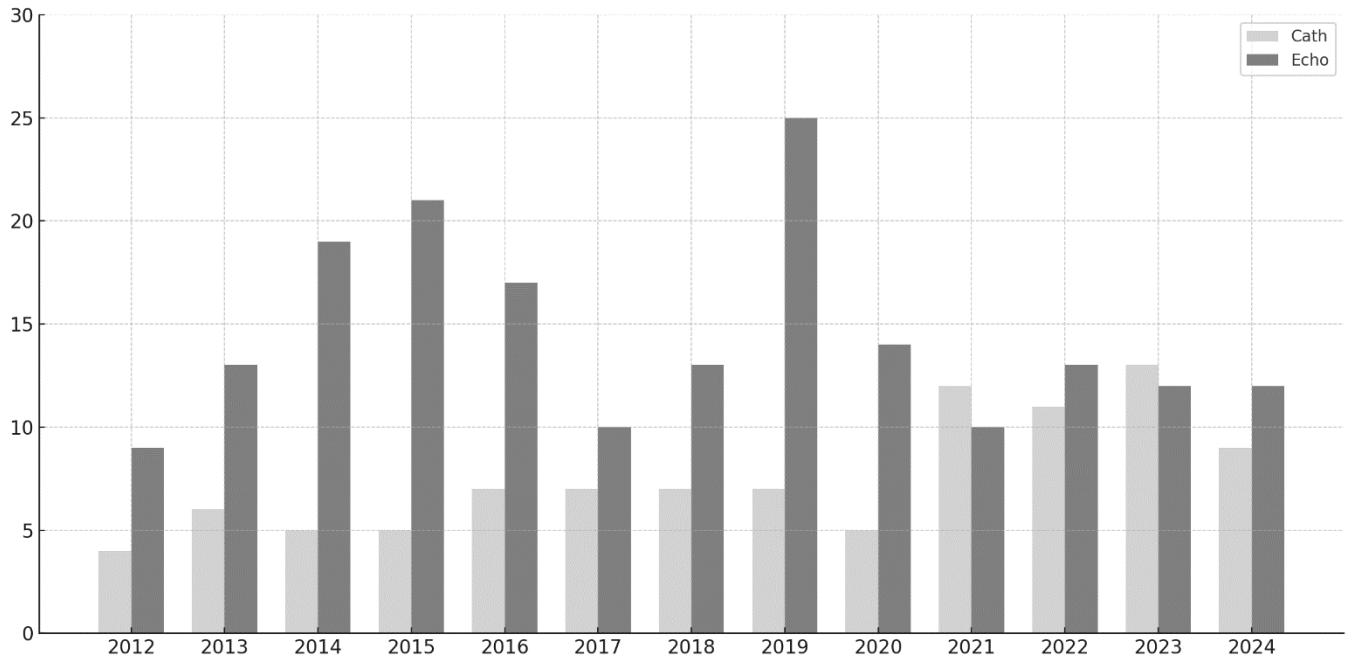
4.2. An unbalanced distribution, that can be divided into three possibilities.

A. If the preference of students is more towards Echocardiography, the GPA and the midterm exam grades of the basic Echocardiography course are reviewed as criteria for selection.

B. If the preference of students is more towards Cardiac Catheterization, the GPA, and the midterm exam grades of the basic Cardiac Catheterization, and Cardiovascular Hemodynamics courses are reviewed as criteria for selection.
C. If the preference of students is more towards Cardiac Perfusion, the GPA and the midterm exam grades of the basic Cardiac Perfusion course are reviewed as criteria for selection.

5. The final approved list of students' distribution is then announced to all students with their selected subspeciality by the program coordinator via a department email.

CARDIAC TECHNOLOGY GRADUATES (2012 – 2024)



GRADUATE ATTRIBUTES

1. **Deep knowledge and intellectual breadth**

Graduates have comprehensive knowledge and understanding of the field of cardiac technology and have the ability to apply their knowledge in practice including in multi-disciplinary and/or multi-professional contexts.

2. **Critical thinking and problem solving**

Graduates are effective problem-solvers, able to apply critical and creative thinking to conceive innovative research ideas and responses to challenges.

3. **Teamwork and communication skills**

Graduates convey ideas and information effectively to a range of audiences for a variety of purposes and contribute in a positive and collaborative manner to achieving common goals.

4. **Professionalism and leadership readiness**

Graduates engage in a professional behavior and have the responsibility for continuous professional development and have the potential to take leadership roles in their chosen careers and communities.

5. **Intercultural and ethical competency**

Graduates are responsible and accountable citizens whose personal values and practices are consistent with the Islamic identity and values as responsible members of the society.

6. **Digital capabilities**

Graduates are well prepared for living, learning, and working in a digital society.

7. **Self-awareness and emotional intelligence**

Graduates are self-aware and reflective, flexible and resilient, and have the capacity to accept and give constructive feedback, being able to act with integrity and take responsibility for their actions.

CAREER OPPORTUNITIES FOR CARDIAC TECHNOLOGY GRADUATES

There is an increasing demand for cardiac technology graduates in hospitals and cardiac centers across the Kingdom. The career path for our graduates goes even beyond working only in health sector. Industry and Medical Device Innovation are promising and growing sectors where our graduates can have opportunities for employment. Education and Academia sector is also a potential career path especially for the highly talented graduates. Lastly, engagement in research and postgraduate programs can also play a role in enhancing our graduate's employability.

ORIENTATION PROGRAM

Students' orientation program is provided for all newly joined students to the Cardiac Technology program after the preparatory year. A variety of events are held to welcome new students and introduce them to the department faculty, staff, and an overview of the general academic principles at the college level as well as the department level. The orientation day starts with a welcoming statement from the head of the Cardiac Technology department that is followed by a brief introduction from current faculty members. Several talks are provided to highlight the history of the department, the nature and length of study, the study plan, and the program tracks. Students from previous cohorts are encouraged to attend the orientation day to share their experience and socialize with the new students. All student-related information is distributed during this day, including this handbook.

ACADEMIC PRINCIPLES

ATTENDENCE

Students are expected to adhere to the course policies related to attendance and they are responsible for all activities associated with each class. Students who are absent 25% of the course will not be allowed to enter the final examination. Students' absences are dealt with as follows:

1. Students with an absence rate not exceeding 15% are allowed to sit for final examinations without any deductions of grades due to their absence.
2. Students with an absence rate (15-25%):
    - Presented with an excuse approved by the VDAA; the student is allowed to sit the final examination.
    - Did not present an excuse or excuse was not approved by the VDAA; the student is denied from sitting the final examination.
3. Students with an absence rate exceeding 25% are denied from sitting the final examination.

DRESS CODE

- Students will be required to wear laboratory coats on days when laboratory sessions are held. For female students, long hair will be pulled back and fastened during laboratory periods. Fingernails shall be neat and clean. Cell phones are not allowed in lecture or laboratory sessions.
- On other days, students should wear conservative clothing as a professional health care provider according to regulations of the college and university.

EXAM REGULATION

- Students must be aware of the date, time, and location of their examination.
- Entry to any examination hall is prohibited even if they are open.
- The student should allow enough time for travel and arrive at campus at least 20 minutes before the start of their examination.
- If a student arrives early, he/she must avoid standing in front of entrances and hallways, as this will cause disturbance to other users of the building.
- Students will be allowed into examination halls 5 minutes prior to the scheduled start time of their examination.
- To gain entry to the examination hall, students must present their university ID to the exam invigilator.
- After the first 5 minutes of the scheduled start of examination has passed, students present in the hallways (revising or not) will be denied entering their examination.
- In cases of emergency preventing the student from arriving to campus on time as in cases of an unexpected traffic accidents, traffic jams or car malfunction, the invigilator will allow the student to enter the exam only if the student is not more than 30 minutes late.
- If the student is more than 30 minutes late under any circumstances, he/she will be denied from entering the exam and will be referred to VDAA for further action.
- If the student is unable to attend the final examination in any of the courses for a compulsive excuse, the College Council may, in cases of extreme necessity, accept his excuse and allow him to give an alternative exam for a period not exceeding the end of the next semester.

POSTPONE AND APOLOGY FOR A SEMESTER

- Student can apply for a postponement (if he/she presented with acceptable excuse) for two-consecutive or three non-consecutive semesters. Semester Postponement is available ONLY until the end of the second week of the semester.
- A student can apply for a semester apology (if he/she presented with acceptable excuse) any time during semester till five weeks before the end-of-term exams.

WITHDRAWAL AND DROPPING COURSES

- Students can drop the course only during the registration period.
- A student may withdrawal from one or more courses in one semester according to the executive rules approved by the University Council. Student can log in to his account and request course withdrawal, preferred to be after discussion with his academic supervisor. The Vice dean of academic affairs may accept or deny student request after report raised from student's academic supervisor. Course withdrawal is usually allowed only till end of 7th week (Deanship of admission and registration determine the date on yearly basis and publishes it at university website).

COURSE FAILURE

- If a student fails in some semester courses, it is necessary to re-take these courses with the registration of some additional courses from the next level.

STUDENTS' RIGHTS AND RESPONSIBILITIES

STUDENTS RIGHTS

- Appropriate study environment and academic climate to enable the student to earn high quality education.
- Scheduled access to and use of institutional infrastructure including lecture halls, Laboratory, and other learning resources related to the program.
- Professional and ethical conduct from all institutional personnel.
- Accurate information regarding the program, course syllabus and course requirements.
- Appropriate and open discussion, inquiry, and expression, both in the classroom and in student/instructor conferences.
- The lectures and office hours of the faculty are not cancelled unless coordinated with students.
- Performance evaluation based on a written syllabus.
- Protection against improper disclosure of a student's records, academic work, views.
- On time exams and exam results with adherence to the schedule provided.
- Communicate with Head of Department, Vice Deans, Dean of the College for comments, suggestions, or complaints.
- More information can be found in the following website: https://www.iau.edu.sa/sites/default/files/resources/university_student_charter_rights_and_duties__2.pdf

STUDENTS RESPONSIBILITIES

- Attend the classes and laboratory sessions punctually and regularly.
- Respect all staff members and fellow students.

- Comply with the rules and the regulations of college and university.
- Use all available resources and facilities provided by the College to enhance the learning experience with absolute care.
- Maintain professional and academic excellence throughout the course of study and complete the course requirements on prescribed time.
- Active participation in activities organized by the Department and University.
- Maintain respectful and appropriate behavior within and outside the classroom.
- More information can be found in the following website: https://www.iau.edu.sa/sites/default/files/resources/student_disciplinary_regulations_-_code_of_conduct.pdf

DEPARTMENT ACADEMIC SUPERVISION

Department academic supervisors supervise cardiac technology students from second year till graduation. A faculty member nominated as an academic supervisor is familiar with the university's academic plans, rules, and regulations.

Unit Functions

- Follow-up with issues concerning student enrollment and registration for each semester.
- Understand the details of the academic calendar of enrollment.
- Study and handle any academic issues referred to the Vice Dean of Academic Affairs.
- Coordinating with the academic counselor in the college to study some exceptional cases that need academic guidance.

COLLEGE ACADEMIC COUNSELORS

Upon referral of specific cases with psychological/social situations from academic supervisor, academic counselor follows student to help in solving her problems under the supervision of the Vice Dean of academic affairs. The aim is to help the student to adapt to university life and to modify some thoughts or approaches that help her socially and psychologically.

Unit Functions

- Addressing newly appeared behaviors/misconduct within the college.
- Studying individual cases after referral from academic supervisor faculty member.
- Addressing individual cases of students who have failed to obtain an academic average of less than 2, which are provided to the unit by the academic advisory unit.
- Conducting training workshops.

UNIVERSITY STUDENT SERVICES

1. **IAU Library:**

   Imam Abdulrahman bin Faisal University has 16 libraries; 3 Central, 13 Satellite located on the two IAU campuses in the city of Dammam, and the various IAU campuses in Jubail, and Qatif.

   Here you will find the academic materials that will support all learning endeavors by utilizing the following tools:

   - **E-Resources:** You can search all electronic databases that IAU has subscribed to. Link for e-resources: https://login.library.iau.edu.sa/login

- **Summon:** This federated search engine will help you simultaneously search all printed and electronic resources at IAU libraries.
- **Library catalog-OPAC** helps you find your resources from books and E-books with a link for full-text display.

Working hours for Central library for female students (Building 20, Rakah Campus).

- Monday, Wednesday, and Thursday: 08:00 am - 02:30 pm.
- Every Sunday and Tuesday: 08:00 am - 4.30 pm.
- Friday and Saturday: Closed.

Central library also provides room reservation through the following link: https://www.picktime.com/iaulibrary.

2. Student Fund:

The Student Fund at Imam Abdul Rahman bin Faisal University is one of the important facilities in the Deanship of Student Affairs for its direct connection with the needs of male and female students. The Fund seeks to keep pace with the development of services provided to the students and seeks to complete financial measures in a competent manner.

For more information you can visit Student Fund services at IAU website through the link:

https://www.iau.edu.sa/en/administration/deanships/deanship-of-student-affairs/student-fund

3. Student Skill Development Center:

The Deanship of Student Affairs at IAU aims to develop student skills in educational, administrative, and social skills, and to award a skill record after graduation to help students in gaining a head start in the labor market.

The student training unit coordinates and provides training courses for students in various fields such as self-development, leadership, and technology, in addition to specialized courses.

For more information you can visit Student Skill Development Center services at IAU website through the link: https://www.iau.edu.sa/en/administration/deanships/deanship-of-student-affairs/student-skills-development-center

4. Student Housing:

Deanship of Student Affairs at IAU provides housing services for students including:

- The Student Housing Administration provides professional supervisors for 24 hours.
- Study rooms inside housing.
- A library for reading and studying.
- A means of reciprocating transportation from housing to colleges and back to housing.
- A specialized maintenance unit.
- Activity rooms.
- Gyms.
- Breaks.

- Mosque.
- Restaurants, cafeteria, and "supermarket".
- Rooms for people with special needs.

For more information regarding housing services, you can visit student housing services at IAU website through the link:

https://www.iau.edu.sa/en/administration/deanships/deanship-of-student-affairs/services/student-housing

5. University Counseling Center (UCC):

University Counseling Center provides Individual Counseling, Group counseling, Consultation, Psychological Assessment, out-reach services, Crisis Intervention and Psychiatric Services.

Personal Counseling

UCC provides individual counseling services to all IAU students, faculty, and staff regarding variety of issues including but not limited to anxiety, depression, stress, relationship conflicts, loss and grief, sexuality, marital problems, drug, and alcohol.

Academic Counseling

UCC provides individual counseling for students with academic concerns. Counselors provide services to help students to deal with issues including test anxiety, stress, learning difficulties, developing study skills, time management, and teamwork skills.

Career/Vocational Counseling

UCC provides career counseling when students discuss their concerns regarding current or future career related programs. UCC also works closely with the Career Center.

You can council a psychologist through submitting a form via the following link:

https://docs.google.com/forms/d/e/1FAIpQLSdzdz3t7ZTDqyu3bmOK9B395bac3VtfAD1sUOr-afk1OxVPRw/viewform

You can also explore other UCC services by visiting the following link:

https://www.iau.edu.sa/en/administration/centers/university-counseling-center

6. Other services:

IAU also provides a variety of services for students including:

- **Permanent Student Activities:** Orientation program for new students, national day celebration, alumni ceremony, etc.

  You can visit the following link for more information about permanent activities offered by the Deanship of Student Affairs:

  https://www.iau.edu.sa/en/administration/deanships/deanship-of-student-affairs/activities/activities

- **Treatment:** Family Medicine Center and Dental Center (Building No. HH3).
- **Education:** Central Library and Copy Center (Building No. 20).
- **Health:** Fitness Center at Cheetah GYM. (Building No. 30).

- **Cafe`:** Each college building on campus has a snack corner serving college students and Dunkin Donuts Cafe is in front of a building C2.
- **Social Communication:** Training Programs, Voluntary Clubs, Trips and Activities (For more information visit @IAU_UNIVERSITY on twitter).
- **Offers:** Special Offers for Students on Directorate for Public Relations and Media Page Link https://www.iau.edu.sa/en/administration/directorates/directorate-for-public-relations-and-media/iau-special-offers-for-staff-and-students

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