21 September University of Medical & Applied Sciences

Faculty: Medicine

Program: MD Program in Orthopedics surgery

Orthopedics Surgery MD Program Specification

Program Specifications of MD Program in Orthopedics surgery

Introduction

The **Orthopedic Surgery Medical Doctorate Program** at 21 September University is designed to cultivate the next generation of highly skilled clinician-scientists who will shape the future of musculoskeletal healthcare. The program integrates rigorous academic training, hands-on clinical experience, and cutting-edge research, preparing graduates to become leaders in the field of orthopedic surgery and trauma care.

Orthopedic surgery is an evolving discipline that requires both technical proficiency and an in-depth understanding of musculoskeletal science. This program is designed to equip students with the essential skills and knowledge required to manage complex orthopedic conditions and trauma, utilizing both conventional and emerging surgical techniques. Through extensive training in surgical anatomy, biomechanics, pathophysiology, and operative procedures, students will become proficient in managing a wide range of orthopedic diseases and traumatic injuries.

In addition to clinical skills, the program places a strong emphasis on research. Students will be trained to engage in high-impact, evidence-based research that addresses both global and region-specific musculoskeletal health challenges. Graduates will contribute to advancing the body of knowledge in orthopedic surgery, collaborating on clinical trials, and developing treatment guidelines that improve patient outcomes worldwide.

The program also fosters the development of leadership, communication, and mentorship skills. Graduates will be prepared to assume prominent roles in academic settings, healthcare leadership, and professional societies, with the aim of enhancing the standard of orthopedic care locally and globally.

By addressing the current and future needs of musculoskeletal health, this program prepares its graduates to be at the forefront of orthopedic and trauma surgery, making meaningful contributions to the scientific, clinical, and educational advancements in the field.

Program Identification and General Information

1	**Scientific name of the program:**	**Medical Doctorate (MD) in Orthopedic Surgery**
2	**The body responsible for granting the degree:**	**21 September University for Medical and Applied Sciences**
3	**The body responsible for the program:**	**Department of Orthopedics & Traumatology**
4	**Departments participating in the program:**	**All medical department**
5	**Study Language of the Program:**	**English – Arabic**
6	**Starting year of the program:**	**2024/2025**

7	**Study methods in the program:**	**Full time**
8	**Program Type**	**Single**
9	**Location of Delivery:**	**University campus and Hospital**
10	**Study system:**	**Semesters**
11	**Number of years needed for completion of the program:**	**5 years**
12	**Total credit hours**	**181 credit hours**
13	**Targeted qualification level(s) in the program**	**Medical Doctorate (MD)**
14	**The profession(s) of graduates:**	- **Specialist clinicians in Orthopedic Surgery** - **Good Academic staff** - **Researchers**
15	**Required qualification for admission to the program:**	**MBBS degree, academic master degree**
16	**Minimum grade requirements:**	**Good**
17	**Other admission requirements:**	**None**
18	**Prepared by:**	**Asco. Prof. Abdulraqeeb Al-Mareh**
19	**year of the program Accreditation:**	

University Vision, Mission and Aims

▪ University Vision

A Contemporary University with National Responsibility and Faith Identity

▪ University Mission

Leadership of transformation headway in managing and providing the health care with all partners via having the distinction standard in education and applied and medical researches that meet the needs of Yemeni people and regional influence.

▪ Aims of the University

- Ensuring the application of quality standards and having the distinction standards in medical and applied sciences, scientific research and community service.
- Adopting student-centered learning, the partnership with them for life, consolidating the principles of national responsibility and faith identity, looking after them and developing their capabilities after graduation and during work.

- Attracting and Eemploying scientists, cadres and talents to gain minds and put an end for the “brain drain” in a way that promotes and ensures the availability of thinkers, businessmen and good citizens.
- Developing the distinguished academic infrastructure continuously and establishing modern research and service centers with high efficiency that can give a real effect locally and regionally.
- Enhancing the university status as a preferred partner for local, regional and international partnership through implementing creative styles of education, exchanging researches and knowledge, and providing real and effective outcomes for developing professional practices to benefit from them locally and regionally.
-

Postgraduate studies and scientific research Mission and Aims

Contemporary in presenting programs of postgraduate studies and scientific research locally and regionally.

- **Postgraduate studies and scientific research Mission**

Postgraduate Studies and Scientific Research seeks to prepare and implement a qualitative and un applied scientific programs, in order to, prepare excellent research-leaders, able to solve community problems.

- **Postgraduate studies and scientific research Aims**

1. Create qualitative and attractive programs for graduates from local and regional universities.
2. Continuous development and updating of postgraduate programs according to comprehensive quality standards .
3. Prepare distinctive researchers through continuous education programs and develop research skills.
4. Participate with similar scientific organizations in scientific research
5. Develop the infrastructure, financial and human resources for programs of postgraduate and scientific research, according to academic accreditation standards .
6. Automate the system of postgraduate and scientific research and activate electronic contents.
7. Attract the experts of academic and researchers from internal and external environment.

Faculty Vision, Mission and Aims

▪ Faculty Vision

A distinguished Medical Faculty capable of competing locally and regionally.

▪ Faculty Mission

That the Faculty of Medicine be contemporary in providing a distinguished educational level based on creativity and innovation and a true partner in facing the main national health challenges and in treating patients with high quality based on research to solve problems that leads to integrated health care in an ethical context

▪ Aims of the Faculty

- Finding effective solutions for the university hospital, the infrastructure of the College and its annual budget.
- Addressing the gap in human resources adequately and efficiently, and developing them on a professional basis.
- Improving the quality and quality of the human medicine program in accordance with quality standards and national and international academic accreditation.
- Strengthening governance and management systems, consolidating decentralization, and practicing transparency and accountability.
- Building the students' abilities to think, analyze and solve problems in research methods that qualify them for the labor market and achieve their practical and professional aspirations in the future.
- Contribute to supporting scientific research directed on the basis of planning related to comprehensive development goals in Yemen.
- Forming a real and effective partnership with the community, its institutions and its counterparts in a national, Arab and international context

Department Mission and Aims

Department Mission ▪

The mission of the department is to provide compassionate, patient-centered care through the diagnosis, treatment, and rehabilitation of musculoskeletal and traumatic conditions. We aim to improve the quality of life for our patients by offering innovative, evidence-based solutions and personalized treatment plans. Our department is dedicated to advancing orthopedic knowledge through research and education while promoting a culture of excellence in clinical care and patient safety.

Department Aims ▪

1- To provide personalized, compassionate care for patients with musculoskeletal injuries and disorders, focusing on both surgical and non-surgical treatment options.
2- To employ the latest medical technologies and advanced techniques to ensure the most effective and minimally invasive treatment outcomes for all patients.

3- To foster a culture of research that drives improvements in orthopedic care, with a focus on enhancing surgical outcomes and developing new, evidence-based treatments.
4- To continuously educate and train our healthcare professionals, ensuring that they remain experts in the latest advancements in orthopedics and trauma care.

Program Mission and Aims

▪ Program Mission

To graduate exceptional and advance clinician-scientists in the field of orthopedic surgery through rigorous research and evidence-based practice, deliver comprehensive, patient-centered musculoskeletal care and contribute to the global body of knowledge in orthopedic and traumatology science.

▪ Program Aims

The Orthopedic Surgery Medical Doctorate Program at 21 September University aims to:

1. Develop surgeons capable of managing complex orthopedic and trauma cases through mastery of surgical procedures and proficiency in both conventional and emerging surgical techniques.
2. Foster research skills to conduct high-impact clinical and translational studies, Publish in peer-reviewed journals and contribute to national and international treatment guidelines.
3. Prepare graduates for roles as educators in academic medical centers, leaders in professional societies and mentors for future orthopedic surgeons.
4. Instill a commitment to critical appraisal of medical literature, application of best practices in patient care and continuous professional development.
5. Address worldwide musculoskeletal health needs through research on region-specific trauma patterns, development of context-appropriate treatment protocols, collaboration with international orthopedic organizations.

▪ Attributes of graduates:

Core Medical and Technical Skills

1. In-depth Medical and Surgical Knowledge:
   - Comprehensive understanding of bone, and muscle conditions and orthopaedics surgical diseases
2. Diagnostic and Analytical Skills:
   - Strong ability to diagnose and analyze complex medical orthopedics issues.
3. Manual Dexterity and Hand-Eye Coordination:
   - Excellent fine motor skills and hand-eye coordination.
4. Proficiency in Orthopedic Equipment and Devices:
   - Thorough knowledge of medical equipment and devices used in orthopedics.

Personal Skills

1. Attention to Detail:
   - Ability to maintain focus and attention to detail in a fast-paced environment.
2. Empathy and Communication:

- Ability to show compassion towards patients and possess strong verbal and written communication skills.

3. Patience and Adaptability:
   - Patience in managing patient care and adaptability in high-pressure situations.
4. Teamwork and Flexibility:
   - Ability to work effectively in emergency situations and collaborate with a multidisciplinary medical team.
5. Commitment to Continuous Learning:
   - Dedication to staying updated with the latest advancements in orthopedics and actively participating in professional development activities.

Program Benchmarks

Egyptian NRS

Indian NARS

Program Benchmarks:

1- National University of Singapore
https://www.duke-nus.edu.sg/education/our-programmes/md-phd-programme

2- University of Pittsburgh
https://www.mdphd.pitt.edu/

3- Seoul National University
https://medicine.snu.ac.kr/

4- University of Zurich
https://www.med.uzh.ch/en/UeberdieFakultaet.html

5- University of Michigan
https://medschool.umich.edu/programs-admissions/md-phd-program/about-md-phd-medical-scientist-training-program-mstp

6- University California San Diego
https://med.ucsd.edu/
https://ortho.ucsd.edu/

ملحق (1) المعايير الأكاديمية للمحتوى لعينة الاعتماد.
ملحق (2) مسح أسماء البرامج المماثلة للبرنامج الحالي.
ملحق (3) مسح مخرجات التعلم في البرامج المماثلة للبرنامج الحالي.
ملحق (4) مسح الساعات المعتمدة للبرامج المماثلة للبرنامج الحالي.
ملحق (5) مسح المقررات الدراسية في البرامج المماثلة للبرنامج الحالي.

Survey of Similar Accredited Programs at National and International Universities (Benchmarks)

Data Required	Similar Accredited Programs						Current program
	1st	2nd	3rd	4th	5th	6th	
Program Name	NUS MD-PhD Programme	Pitt Medical Scientist Training Program (MSTP)	MD-PhD Orthopedic Bioengineering	Dr. med. et PhD	MSTP Ortho Track	MD/PhD Ortho Innovation	MD in Orthopedic Surgery
Faculty/Department	Yong Loo Lin SOM, Dept. of	School of Medicine, Dept. of	College of Medicine /	Faculty of Medicine / Orthopedics	Medical School /	School of Medicine /	Faculty of Medicine / Dept. of

	Orthopedic Surgery	Orthopedic Surgery	Orthopedic Surgery		Orthopedic Surgery	Orthopedics	Orthopedic & Traumatology
University	National University of Singapore	University of Pittsburgh	Seoul National University	University of Zurich	University of Michigan	University California San Diego	21 September UMAS
Country	Singapore	USA	South Korea	Switzerland	USA	USA	Yemen
Study Type	Integrated MD-PhD	Integrated MD-PhD	Integrated MD/PhD	Combined Dr.med/PhD	MD/PhD (MSTP)	Accelerated MD/PhD	Integrated MD-PhD
Study Mode	Full-time on-site	Full-time on-site	Full-time on-site	Full-time (ETH lab access)	Full-time	80% on-site, 20% remote	Full-time
Number of Semesters	10 semesters (5 years)	12 semesters (6 years)	11	-	11	11	10
Total Credits (Without Thesis)	90 credits	87	15	16 ECTS	16	13	151 credit
Core Course Credits	72 credits	72 credits	12	14 ECTS	14	10	95 credit
Elective Course Credits	18 credits	15 credits	3	2 ECTS	3	3	-
Number of Core Courses	3 courses	3 courses	3	2	2	2	26 courses
Number of Elective Courses	4 courses	3 courses	1	1	1	1	-
Bridging Courses (if any)	2-semester Research Methodology	3 lab rotations	Korean Medical Law (2cr)	Alpine Sports Medicine (3 ECTS)	NIH Ethics (2cr)	Naval Trauma (3cr)	-
Thesis Credits	60 credits	60 credits	60	120 ECTS	75	80	30 credits
Total Credits (Courses + Thesis)	150 credits	147 credits	75	136 ECTS	92	93	181 credit
Thesis Duration	3-5 years	3-5.5 years	4-5.5 years	3-5 years	3-5.5 years	3-5.5 years	2 year
Minimum Program Duration	5 years	5 years	5.5 years	5 years	5.5 years	5.5 years	5 years
Maximum Program Duration	7 years	8 years	7 years	7 years	7 years	7 years	7 years

Intended Learning Outcomes (ILOs)

Knowledge and Understanding (A)

	Upon successful completion of the postgraduate MD in Orthopedic Surgery Program, the graduates will be able to:
A1	Demonstrate comprehensive knowledge of the scientific principles underlying orthopedic surgery, including musculoskeletal anatomy, biomechanics, pathophysiology, and surgical methodology.
A2	Understand the complex pathophysiology of musculoskeletal disorders and trauma, with emphasis on emerging trends in the field.
A3	Exhibit in-depth knowledge of both conventional and advanced surgical techniques for the treatment of orthopedic conditions.
A4	Recognize and apply evidence-based practices to patient management, ensuring the highest standard of musculoskeletal care.

A5	Understand the current state and advances in orthopedic research, including biomaterials and translational science.
A6	Demonstrate a global understanding of regional trauma patterns and their impact on the musculoskeletal health of diverse populations.
A7	Comprehend ethical issues in orthopedic surgery, including patient consent, confidentiality, and professional responsibilities.
A8	Understand the role of orthopedic surgery in healthcare systems and contribute to the development of treatment protocols based on local and global needs.

Intellectual Skills **(B)**	
	Upon successful completion of the postgraduate MD in Orthopedic Surgery Program, the graduates will be able to:
B1	Critically analyze and interpret medical literature to guide evidence-based clinical decision-making in orthopedic surgery.
B2	Design and conduct high-quality research, focusing on clinical and translational studies relevant to musculoskeletal health.
B3	Evaluate and integrate the latest advancements in orthopedic techniques and technologies into clinical practice.
B4	Solve complex clinical problems using a systematic approach that integrates knowledge from various fields of orthopedic surgery.
B5	Develop hypotheses, design experiments, and interpret results within the context of musculoskeletal diseases and trauma.
B6	Synthesize data from clinical studies to inform national and international treatment guidelines.
B7	Reflect critically on personal practice and research, identifying areas for improvement and professional growth.
B8	Demonstrate the ability to think strategically about the future of orthopedic surgery and its evolving role in global healthcare.
B9	Collaborate with multidisciplinary teams to address complex clinical and research challenges.
B10	Apply critical thinking and clinical judgment to make well-informed decisions in both routine and emergency trauma situations.

Professional and Practical Skills **(C)**	
	Upon successful completion of the postgraduate MD in Orthopedic Surgery Program, the graduates will be able to:
C1	Perform a thorough musculoskeletal examination, assess injury severity, and make appropriate clinical decisions for patient management.
C2	Master advanced surgical techniques, including minimally invasive and robotic-assisted procedures, in both elective and trauma-related surgeries.
C3	Manage orthopedic emergencies, including fractures, dislocations, and soft tissue injuries, with competence and confidence.
C4	Exhibit proficiency in the use of orthopedic imaging tools, including radiography, MRI, CT, and ultrasound, for diagnosis and treatment planning.
C5	Apply principles of biomechanical analysis to understand and correct musculoskeletal dysfunctions.
C6	Demonstrate effective communication skills with patients, families, and multidisciplinary healthcare teams, ensuring a collaborative approach to care.

C7	Provide mentorship and training to junior orthopedic surgeons and medical students, contributing to the educational mission of academic medical centers.
C8	Conduct research that directly impacts clinical outcomes and advances the field of orthopedic surgery.
C9	Develop and implement patient-centered care plans that are culturally sensitive and evidence-based.
C10	Demonstrate competence in managing the perioperative care of orthopedic patients, including anesthesia, pain management, and rehabilitation.
C11	Take leadership roles in professional orthopedic societies, contributing to the development of best practices, guidelines, and policies.
C12	Apply ethical principles in the management of complex musculoskeletal cases, particularly in resource-limited settings.

General Skills (D)	
	Upon successful completion of the postgraduate MD in Orthopedic Surgery Program, the graduates will be able to:
D1	Communicate effectively in both written and oral formats with peers, healthcare professionals, and the broader scientific community.
D2	Demonstrate a lifelong commitment to professional development through continuous learning and participation in academic and professional activities.
D3	Manage time effectively to balance clinical, research, and educational responsibilities.
D4	Demonstrate leadership and initiative in both clinical and academic settings, contributing to team success and program development.
D5	Adapt to rapidly changing healthcare environments, integrating new technologies and research findings into clinical practice.
D6	Exhibit professionalism in interactions with patients, colleagues, and academic communities, adhering to ethical standards of medical practice.
D7	Contribute to global orthopedic and traumatology efforts by participating in international conferences, collaborative research, and humanitarian projects.
D8	Develop personal resilience and stress management strategies to maintain a high level of performance throughout the demanding nature of the program.

Program Structure:

Requirements	No. of Courses	Credit Hours	Rational Weight %
Supplementary courses	-	-	-
Core Courses	**25**	**95**	**52%**
Elective Courses	-	-	**0%**
Clinical training	**Continue**	**56**	**31%**
Thesis	**1**	**30**	**17%**
Total:		**181**	**100%**

Study Plan

Course Title		Code/ no.	Credit Hours				Total study days	Total C.H.	Pre-Requisites
			Theoretical	Clinical	Operative	Total C.H			
Part 1									
Semester 1									
1	Basic Musculoskeletal Anatomy	ORT101	4	6	0	6			None
2	Introduction to Orthopedics	ORT102	3	0	0	3			None
3	Medical Ethics in Orthopedics	ORT103	2	0	0	2			None
4	Research Methods in Medicine	ORT104	3	0	0	3			None
5	Radiology and Imaging in Trauma	ORT105	3	6	0	5			None
Total credit hours			**15**	**12**	**0**	**19**			
Semester 2									
1	Biomechanics of Musculoskeletal System	ORT106	2	9	12	8			ORT101
2	Pathology	ORT107	1	9	16	7			ORT102
3	General Trauma Management & Rehabilitation	ORT108	1	9	0	7			ORT103
4	Research in Orthopedics: Techniques	ORT109	2	0	0	2			ORT104
5	Basic Surgical Skills	ORT110	0	0	8	2			ORT107
6	Surgical evaluation	ORT201	0	9	8	5			ORT105
Total credit hours			**6**	**36**	**44**	**31**			
Semester 3 (Clinical Training)									
1	Orthopedic Trauma (Emergency Dept.)	ORT201	0	9	16	7			All S1–S2
2	Fracture Management and Casting	ORT202	0	9	16	7			ORT107,108
Total Clinical hours			**0**	**18**	**32**	**14**			

Course Title		Code/ no.	Credit Hours				Total study days	Total C.H.	Pre-Requisites
			Theoretical	Clinical	Operative	Total C.H			
Semester 4 (Clinical Training)									
1	Advanced Orthopedic Surgery (Hip/Knee)	ORT203	0	12	20	9			ORT107
2	Operative Surgical Skills	ORT204	0	12	16	7			ORT108
	Total Clinical hours		**0**	**24**	**36**	**16**			
Semester 5									
1	Advanced Surgical Techniques	ORT205	1	9	16	8			ORT107,108
2	Research Dissertation (Part 1)	ORT206	4	0	0	4			ORT109
3	Pediatric Orthopedics	ORT207	1	9	16	8			ORT106
4	Spinal Orthopedics and Trauma	ORT208	1	9	16	8			ORT107
5	Joint Replacement & Arthroplasty	ORT209	1	9	16	8			ORT203
	Total credit hours		**8**	**36**	**64**	**36**			
Part 2									
Semester 6 (Clinical Training)									
1	Complex Trauma and Reconstructive Surgery	ORT301	0	12	20	8			ORT205
Total Clinical hours			**0**	**12**	**20**	**8**			
Semester 7									
1	Advanced Orthopedic Research	ORT302	2	0	0	2			ORT206
2	Musculoskeletal Biomechanics	ORT303	2	6	8	6			ORT106
3	Clinical Case Study Presentations	ORT304	1	0	0	1			ORT108
Total credit hours			**5**	**6**	**8**	**9**			
Semester 8 (Clinical Training)									

Course Title		Code/ no.	Credit Hours				Total study days	Total C.H.	Pre-Requisites
			Theoretical	Clinical	Operative	Total C.H			
1	Surgical Leadership and Management	ORT305	0	12	20	9			ORT209
Total Clinical hours			**0**	**12**	**20**	**9**			
Semester 9 (Clinical Training)									
1	Advanced Trauma & Reconstruction	ORT306	0	12	20	9			ORT301
Total Clinical hours			**0**	**12**	**20**	**9**			
Semester 10									
1	Final Research Dissertation Submission	ORT307	30	0	0	30			ORT302
Total credit hours			**30**	**0**	**0**	**30**			
إجمالي الساعات المعتمدة			**64**	**168**	**244**	**181**			

Matrix of Mapping Program PILO's with Courses

Courses	A1	A2	A3	A4	A5	A6	A7	A8	B1	B2	B3	B4	B5	B6	B7	B8	B8	B10	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	D1	D2	D3	D4	D5	D6	D7	D8
Basic Musculoskeletal Anatomy	✔	✔		✔					✔																													
Introduction to Orthopedics	✔				✔				✔	✔													✔															
Medical Ethics in Orthopedics	✔		✔						✔													✔																
Research Methods in Medicine	✔		✔	✔					✔	✔	✔	✔	✔						✔	✔	✔		✔														
Radiology and Imaging in Trauma	✔								✔													✔																
Biomechanics of Musculoskeletal System	✔	✔			✔	✔			✔	✔	✔								✔		✔	✔	✔															
Surgical Techniques in Orthopedics			✔	✔				✔	✔	✔		✔	✔			✔	✔		✔	✔			✔	✔	✔		✔	✔	✔			✔	✔			✔	✔
Trauma Management & Rehabilitation		✔		✔					✔	✔		✔		✔										✔		✔					✔	✔			✔			
Research in Orthopedics: Techniques				✔			✔	✔	✔	✔		✔		✔	✔	✔			✔					✔						✔	✔				✔			
Basic Surgical Skills									✔	✔		✔		✔										✔		✔					✔	✔			✔			
Surgical evaluation										✔	✔		✔		✔										✔		✔					✔	✔			✔		
Orthopedic Trauma (Emergency Dept.)											✔	✔		✔		✔	✔	✔	✔		✔	✔		✔		✔		✔		✔	✔		✔	✔	✔		✔	✔

Courses	A1	A2	A3	A4	A5	A6	A7	A8	B1	B2	B3	B4	B5	B6	B7	B8	B8	B10	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	D1	D2	D3	D4	D5	D6	D7	D8
Fracture Management and Casting	✔				✔				✔		✔	✔	✔	✔									✔			✔	✔					✔						
Advanced Orthopedic Surgery (Hip/Knee)									✔	✔	✔	✔		✔	✔		✔	✔						✔		✔	✔		✔	✔		✔		✔	✔		✔	
Operative Surgical Skills					✔	✔				✔				✔				✔			✔	✔		✔					✔			✔			✔		
Advanced Surgical Techniques							✔				✔	✔						✔	✔						✔					✔				✔			
Research Dissertation (Part 1)			✔	✔					✔						✔	✔				✔	✔		✔		✔	✔	✔		✔		✔	✔					
Pediatric Orthopedics					✔							✔		✔		✔		✔			✔	✔						✔						✔			
Spinal Orthopedics and Trauma								✔				✔		✔					✔					✔						✔		✔				✔	✔
Joint Replacement & Arthroplasty				✔		✔		✔				✔			✔			✔				✔		✔										✔			
Complex Trauma and Reconstructive Surgery					✔		✔			✔	✔			✔		✔			✔	✔					✔	✔			✔		✔				✔		✔
Advanced Orthopedic Research										✔			✔		✔		✔					✔				✔		✔					✔			✔	
Musculoskeletal Biomechanics								✔	✔					✔				✔	✔		✔			✔					✔						✔		
Clinical Case Study Presentations									✔	✔	✔			✔		✔				✔			✔					✔		✔	✔						

Courses	A1	A2	A3	A4	A5	A6	A7	A8	B1	B2	B3	B4	B5	B6	B7	B8	B8	B10	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	D1	D2	D3	D4	D5	D6	D7	D8
Surgical Leadership and Management											✔			✔		✔			✔		✔		✔	✔				✔	✔				✔				✔	
Advanced Trauma & Reconstruction											✔	✔		✔		✔	✔	✔	✔		✔	✔	✔		✔				✔		✔			✔		✔			
Final Research Dissertation Submission											✔	✔		✔	✔			✔		✔	✔	✔		✔		✔		✔		✔	✔		✔	✔	✔		✔	✔

Teaching Strategy		
N	Teaching Strategy	Description
1	Didactic lectures with Socratic method	Foundational Knowledge Delivery
2	Apprenticeship model in OR (1:1 faculty-to-student)	Clinical Skill Development
3	Research	Research Methodology
4	Cadaver dissections	Surgical Technique Mastery
5	Practical rounds	Professional Development

Assessment Strategy		
N	Assessment Strategy	Description
1	Written essay exams	Knowledge Mastery
2	Faculty-observed procedures (Logbook)	Surgical Skills
3	Thesis defense with oral examination	Research Competency
4	Paper case	Clinical Judgment
5	Direct observation	Patient Care
6	Supervisor and faculty evaluations	Professionalism
7	Medical students feedback	Teaching Ability

Study methods and system in the program:
Study system: Integrated competency-based medical education
Study methods in the program: Lecture-based + Clinical practice)
Number of years needed for completion of the program: 5 years
Total credit hours required to award the degree: 181 credit Hours

Admission Requirements for the Program	
Requirement	**Details**
Required Specializations	Bachelor of Medicine and Surgery (MBBS) or an equivalent degree from a recognized university.
English Language Requirement	Good in English
Computer Skills (ICDL)	Good
Other Requirements	Submission of academic transcripts, letters of recommendation, and a personal statement.

Graduation Requirements:

1. Total Credit Hours Required:

- **Minimum Total: 174 Credit Hours**, including:
  - Required courses: 0 C.H.
  - Core Courses: 95 C.H.
  - Electives: 0 C.H.
  - Clinical: 56 C.H.
  - Thesis & Research: 30 C.H.

2- Minimum Passing Grades per Course

Course Type	Passing Grade	Grading Scale
Core Courses (Anatomy, Physiology, etc.)	**70%** (C+)	Excellent (90-100%), Very Good (80-89%), Good (70-79%), Fall (<70%)
Clinical Training Courses	**75%** (B)	Evaluated via OSCE (Objective Structured Clinical Exam)
Thesis Defense	**80%** (B+)	Assessed by committee (research quality, presentation, publication potential)

3. Cumulative Academic Requirements

Minimum CGPA: 70% (Good).

No Failures Allowed: Students must retake any failed course (max 2 attempts).

4. Clinical & Practical Competencies

Successful Completion of:

- **all required Hours** of supervised surgical procedures.

- **all Logbook Cases required.**

- **all Clinical Rotation required** (in the study plan).

5- Thesis & Research

Mandatory:

Submission of an **original research thesis** (30 credits).

Publication: At least 3 conference presentation or journal submission.

6. Additional Requirements

Licensing Exam: Pass national exams

Resource and equipment's needed for Program Implementations

Educational Resources:

- Fully equipped Orthopedic Surgery Department with lecture halls and clinical labs
- Anatomical models and cadaver labs
- Access to online databases: PubMed, Scopus, Cochrane Library
- Orthopedic surgical skill labs (arthroscopy trainers, trauma simulators)

Clinical & Surgical Facilities:

- Affiliated teaching hospital with:
  - Operating theaters
  - Emergency and trauma unit
  - Outpatient orthopedic clinics
  - Radiology and imaging center (X-ray, CT, MRI)
- Instrument sets for:
  - Joint replacement
  - Spine surgeries
  - Arthroscopy
  - Trauma and fracture repair

Technology & IT Support:

- Access to surgical videos and procedure recordings
- Computers/projectors in all classrooms and seminar rooms

Library & Research:

- University medical library with orthopedic references
- Thesis writing support and data analysis tools (SPSS, GraphPad, etc.)
- Dedicated Research Lab for biomaterial and tissue testing

Academic Staff:

	Proof.	Associate Proof.	Asst Proof.
Needed Staff	**1**	**1**	**3**

Current Staff	**1**	**2**	**4**
Totes			

Program evaluation and improvement		
Targeted	**Assessment method**	**Sample**
students	**Course feedback surveys**	**All enrolled students**
Faculty Peer reviews,	**Peer reviews, academic audits**	**All teaching staff**
Alumni	**Graduate tracer studies**	**Selected graduates from past 3 years**
Employers	**Structured feedback forms/interviews**	**Hospitals, health institutions**
Curriculum Committee	**Annual program review meetings**	**Committee members**