MEDICAL DOCTORATE (M.D.) DEGREE PROGRAM AND COURSES SPECIFICATIONS FOR ORTHOPEDIC SURGERY

(According to currently applied **Credit points** *bylaws)*

Department of Orthopedics
Faculty of medicine
Assiut University
2021-2022/2023-2023

Contents

Item	Page
Program Specification For Orthopedic surgery, 2021-2022/2022-2023 A. Basic Information	3
B. Professional Information 1. Program aims 2. Intended learning outcomes (ILOs) for the whole program 3. Program academic standards 4. Program external references 5. Program structure and contents 6. Courses contents (Annex 1) 7. Admission requirements 8. Progression and completion requirements 9. Assessment methods and rules 10. Program evaluation 11. Declaration	4
- Annex 1, Courses/ specifications	20
First part Course 1: Medical statistics.	21
Course 2: Research methodology	28
Course 3: Medicolegal Aspects & Ethics in Medical Practice and Scientific Research	36
Course 4: -Biomechanics & Biomaterials	42
Course 5: Surgical Anatomy	48
Course 6: Surgical Pathology	55
Second part: Course 7: Orthopedic Surgery (advanced) 1- UNIT (Module) 1 Trauma 2- Unit (Module) 2 General *Orthopaedic* surgery 3- Unit (Module) 3 Spine Surgery 4- Unit (Module) 4 Arthroscopy and Sport Medicine 5- UNIT (Module) 5 Arthroplasty 6- Unit (Module) 6 Pediatrics 7- Unit (Module) 7 Hand and Microsurgical reconstruction 8- Unit (Module) 8 Foot and Ankle and Deformity Correction Surgery	62
- Annex 2, Program academic standards	120
- Annex 3, Teaching methods	125
- Annex 4, Assessment methods	128
- Annex 5, Program evaluation tools	132
- Annex 6 Matrixes: I-General Academic reference standards(GARS) for postgraduates versus Program ARS 1-Graduate attributes 2-Academic Standards II-Program ARS versus program ILOs III- Program Matrix.	134
- Annex 7, Additional information.	154

Assiut University
Faculty of Medicine
Quality Assurance Unit (QAU)

كليـة الـطب
وحدة ضمان الجودة

M. D. degree of Orthopedic Surgery

A. Basic Information

- **Program Title: Medical doctorate degree of Orthopedic Surgery**
- **Nature of the program: Single.**
- **Responsible Department: Orthopedic Surgery** and Trauma
- **Program Academic Director (Head of the Department):** Prof. Mohammad Mostafa Mohammad El-Sharkawi
  Coordinator (s):
  - **Principle coordinator:** Prof. Khaled Mostafa
  - **Assistant coordinator (s):** Prof. Mohamed Mostafa Qotb
- **Internal evaluators: Prof Dr. khaled Mohamed Hassan**
- **External evaluator: Prof Dr. Mohamed abdelwanes**
- **Date of Approval by the Faculty of Medicine Council of Assiut University: 23 / 9 /2014**
- **Date of most recent approval of program specification by the Faculty of Medicine Council of Assiut University: 2 7/ 11/ 2022**
- **Total number of courses: 7 courses**

B. Professional Information

1- Program aims

1/1 To enable candidates to keep with National standards of Orthopedic patients' care by teaching high level of clinical skills, bedside care skills, in addition to update medical knowledge as well as clinical, surgical experience and competence in the area of Orthopedics Surgery `and their subspecialties.

1/2 Develop and improve the skills of scientific medical research.

1/3 To enable candidates to describe the basic ethical and medicolegal principles relevant to Orthopedics Surgery

. 1/4. To enable candidates to have professional careers as a consultant in Egypt and recognized abroad.

1/5 To enable candidates to continue self learning in subspecialties.

1/6 To enable candidates to master different research methodology and do their own.

2-Intended learning outcomes (ILOs) *for the whole program*:

2/1Knowledge and understanding:

A. Demonstrate in-depth knowledge and understanding of theories, basics and updated biomedical, clinical epidemiological and socio – behavioral science relevant to orthopedic surgery as well as the evidence – based application of this knowledge to patient care.
B. Explain basics, methodology, tools and ethics of scientific medical, clinical research.
C. Mention ethical, medico logical principles and bylaws relevant to his practice in the field of orthopedic surgery.
D. Mention principles and basics of quality assurance and quality improvement in medical education and in clinical practice of orthopedic surgery.

E. Mention health care system, public health and health policy, issues relevant to orthopedic surgery and principles and methods of system – based improvement of patient care in common health problems of the field of orthopedic surgery.

2/2 Intellectual outcomes

A. Apply the basic and clinically supportive sciences which are appropriate to orthopedic surgery related conditions / problem / topics.

B. Demonstrate an investigatory and analytic thinking "problem – solving "approaches to clinical situation related to orthopedic surgery.

C. plan research projects.

D. Write scientific papers.

E. Participate in clinical risk management as a part of clinical governance.

F. Plan for quality improvement in the field of medical education and clinical practice in orthopedic surgery.

G. Create / innovate plans, systems, and other issues for improvement of performance in his practice in orthopedic surgery.

H. Present and defend his / her data in front of a panel of experts.

I. Formulate management plans and alternative decisions in different situations in the field of in orthopedic surgery.

2/3 Skills

2/3/1 Practical skills (Patient Care)

Students will be able to:

A. Provide extensive level of patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.

p.s. Extensive level means in-depth understanding from basic science to evidence – based clinical application and possession of skills to manage independently all problems in field of practice.

B. Provide extensive level of patient care ***for patients with all common diagnoses and for uncomplicated procedures*** related to orthopedic surgery.

C. Provide extensive level of patient care ***for non-routine, complicated patients and under increasingly difficult circumstances***, while demonstrating compassionate, appropriate and effective care.

D. Perform diagnostic and therapeutic procedures considered essential in the field of orthopedic surgery.

E. Handles unexpected complications, while demonstrating compassion and sensitivity to patient needs and concerns.

F. Communicate effectively and demonstrate caring and respectful behaviors when interacting with patients and their families in orthopedic surgery related situations**.**

G, Gather essential and accurate information about patients of orthopedic surgery related conditions.

H. Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence and clinical judgment for orthopedic surgery related conditions.

I. Develop and carry out patient management plans for orthopedic surgery related conditions.

J. Counsel and educate patients and their families about orthopedic surgery related conditions.

K. Use information technology to support patient care decisions and patient education in all orthopedic surgery related clinical situations.
L. Perform competently all medical and invasive procedures considered essential for orthopedic surgery related conditions / area of practices.
M. Provide health care services aimed at preventing orthopedic surgery related health problems.
N. Lead health care professionals, including those from other disciplines, to provide patient-focused care in orthopedic surgery related conditions**.**
O-Write competently all forms of patient charts and sheets including reports evaluating these charts and sheets (Write and evaluate a consultation note, Inform patients of a diagnosis and therapeutic plan, completing and evaluating comprehensive, timely and legible medical records)

2/3/2 General skills

Including:

- Practice-based Learning and Improvement
- Interpersonal and Communication Skills
- Professionalism
- Systems-based Practice

Practice-Based Learning and Improvement

A. Demonstrate the competency of care provision to patients in the different area of orthopedic surgery.
B. Appraise scientific evidence.
C. Continuously improve patient care based on constant self-evaluation and life-long learning.
D. Participate in clinical audit and research projects.
E. Practice skills of evidence-based Medicine (EBM).

F. Educate and evaluate students, residents and other health professionals.
G. Design logbooks.
H. Design clinical guidelines and standard protocols of management.
I. Appraise evidence from scientific studies related to the patients' health problems.
J. Apply knowledge of study designs and statistical methods to the appraisal of clinical studies.
K. Use information technology to manage information, access on-line medical information; for the important topics.

Interpersonal and Communication Skills

N. Master interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals, including:-

- Present a case.
- Write a consultation note.
- Inform patients of a diagnosis and therapeutic plan completing and maintaining comprehensive.
- Timely and legible medical records.
- Teamwork skills.

O. Create and sustain a therapeutic and ethically sound relationship with patients.
P. Elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills.
Q. Work effectively with others as a member or leader of a health care team or other professional group.

Professionalism

R. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society.

S. Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices.

T. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities.

Systems-Based Practice

U. Work effectively in health care delivery settings and systems related to orthopedic surgery and traumatology.

V. Practice cost-effective health care and resource allocation that does not compromise quality of care.

W. Advocate for quality patient care and assist patients in dealing with system complexities.

X. Design, monitor and evaluate specification of under and post graduate course and programs.

Y. Act as a chair man for scientific meetings including time management.

3- Program Academic Reference Standards (ARS) (annex 2)

Academic standards for Medical Doctorate (MD) degree in orthopaedic surgery

Assiut Faculty of Medicine developed MD degree programs' academic standards for different clinical specialties.

In preparing these standards, the General Academic Reference Standards for post graduate programs (GARS) were adopted. These standards set out the graduate attributes and academic characteristics that are expected to be achieved by the end of the program. These standards were approved by the faculty council

20/3/2010. These standards were revised and approved without changes by the Faculty Council on 23-9-2014.
These standards were re-revised and approved without changes by the Faculty Council on 27-11-2022.

4- Program External References (Benchmarks)

1. **ACGME (Accreditation Council for Graduate Medical Education). http://www.acgme.org/acWebsite/navPages/nav_Public.asp**
2. **SICOT training manual** www.sicot.org/resources/File/pdf/Training%20Manual%20

Comparison between program and external reference		
Item	**Orthopedic Surgery program**	**SICOT training manual**
Goals	Matched	Matched
ILOS	Matched	Matched
Duration	4-6 years	N/A
Program structure	Different	Different

5- Program Structure

A. Duration of program: **4-6 years**
B. Structure of the program:

Total number of credit point = 420 CP
Master degree: 180 credit point
Didactic #: 37 (23.1%), practical 123 (76.9%), total 160 CP
Thesis and researches: 80 CP (33.3%)
First part
Didactic 10 CP (100 %), practical 0(0 %).total 10 CP
Second part
Didactic 24 (16.3 %) practical 123 (83.7 %) total 147
According the currently applied bylaws:
Total courses: 160 credit point

Compulsory courses: 157 credit point (98.1%)
Elective courses: 3 credit point (1.9%)

	Credit points	% from total
Basic science courses	10	4.1%
Humanity and social courses	3	1.2%
Speciality courses	147	61.3%
Others (Computer, …)		0
Field training	123	51.3%
Thesis	40	16.7%
2 published researches	40	16.7%

C- Program Time Table

Duration of program 4 years (could be extended at maximum to 6 years) divided into

Part 1

Program-related basic science courses

- Medical statistics
- Research methodology
- Medicolegal Aspects and Ethics in Medical Practice and Scientific Research

Students are allowed to sit the exams of these courses after 6 months from applying to the M D degree.

Students are allowed to sit the exams of the remaining basic science courses after 12 months from applying to the MD degree.

Thesis and 2 published researches

For the M D thesis;

MD thesis subject should be officially registered within 1 year from application to the MD degree,

Discussion and acceptance of the thesis should not be set before 24 months from registering the M D subject;

It could be discussed and accepted either before or after passing the second part of examination

Part 2

Program –related speciality courses and ILOs

Students are not allowed to sit the exams of these courses before 4 years from applying to the MD degree.

Two elective courses can be set during either the 1st or 2nd parts.

The students pass if they get 50% from the written exams and 60% from oral exams, 60% from clinical/practical exams of each course and 60% of summation of the written exams, oral and clinical/practical exams of each course

Total degrees 1700 marks.

500 marks for first part

1200 for second part

Written exam 40% - 70%.

Clinical/practical and oral exams 30% - 60%.

Curriculum Structure: (Courses):

Courses and student work load list	Course Code	Core Credit points		
		Didactic	training	total
First Part				
Basic science courses (10 CP)				
Course 1: Medical Statistics	FAC309A	1	-	1
Course 2: Research Methodology	FAC309B			
Course 3: - Medicolegal Aspects & Ethics in Medical Practice and Scientific Research	FAC310C	1	-	1
		1	-	1
Coiurse 4: Biomechanics & Biomaterials	ORT317A	2	-	2
Course 5 Surgical Anatomy	ORT317B	2.5	-	2.5
Course 6 Surgical Pathology	ORT317C	2.5	-	2.5
Elective courses*	3 CP			
Elective course 1		1.5		1.5
Elective course 2		1.5		1.5
Thesis		40 CP		
Published researches**		40 CP		
Second Part	Speciality courses 24 CP Speciality Clinical Work (log Book) 123 CP			
Speciality Courses Course 7 Orthopedic Surgery (advanced)	**ORT317D**	24		24
Speciality Clinical Work (123 CP)	**ORT317D**		123	123
Total of second part		24	123	147

* Elective courses can be taken during either the 1st or 2nd parts.

Student work load calculation:

Work load hours are scheduled depending on the type of activities and targeted competences and skills in different courses

Elective Courses#:

- Advanced medical statistics.
- Evidence based medicine.
- Advanced infection control.

- Quality assurance of medical education.
- Quality assurance of clinical practice.
- -Hospital management

Two of the above mentioned courses are prerequisites for fulfillment of the degree.

3. Thesis / Researches:

40 CP are appointed to the completion and acceptance of the thesis.

** Another 40 points are appointed to acceptance or publication of one research from the thesis in international indexed medical journals or publication of 2 researches from the thesis in local Speciality medical journals.

Units' Titles' list	% from total Marks
1) Unit 1 "Trauma"	35%
2) Unit 2 "General Orthopedics"	20%
3) Unit 3 " Spine"	7.5%
4) Unit 4 " Arthroscopy/Sports Injuries"	7.5%
5) Unit 5 " Arthroplasty"	7.5%
6) Unit 6 " Pediatrics"	7.5%
7) Unit 7 " Hand/Microsurgery"	7.5%
8) Unit 8 " Foot & Ankle/Deformities"	7.5%

6. Courses Contents (Annex 1)

The competency based objectives for each course/module/rotation are specified in conjunction with teaching/training methods, requirements for achieving these objectives and assessment methods.

See Annex 1 for detailed specifications for each course/ module

Annex 6 II: Program Matrix

7-Admission requirements

- **Admission Requirements (prerequisites) if any :**
  - **I. General Requirements:**
    - **Master degree in the Speciality.**
  - **II. Specific Requirements:**
    - **Fluent in English (study language)**

VACATIONS AND STUDY LEAVE

The current departmental policy is 1 week study leave before the first part and 2 weeks study leave before the 2nd part.

FEES:

As regulated by the postgraduate studies rules and approved by the faculty vice dean of post graduate studies and the faculty and university councils.

8-Progression and completion requirements

- Examinations of the first part (Medical statistic, Research methodology and Medicolegal Aspects and Ethics in Medical Practice and Scientific Research) could be set at 6 months from registering to the MD degree.
- Students are allowed to sit the exams of the remaining essential courses of the first part after 12 months from applying to the MD degree.
- Examination of the second part cannot be set before 4 years from registering to the degree.
- Discussion of the MD thesis could be set after 2 years from officially registering the MD subject, either before or after setting the second part exams.
- The minimum duration of the program is 4 years.

The students are offered the degree when:

1. Passing the exams of all basic science, elective and speciality courses of this program as regulated by the post graduates approved rules by the faculty council.
2. Completing all scheduled CP and log book (minimum 80%).
3. Discussion and acceptance of the MD thesis.

4. Acceptance or publication of one research from the thesis in international indexed medical journals or publication of 2 researches from the thesis in local specialized medical journals.

9-Program assessment methods and rules (Annex IV)

Method	ILOs measured
Written examinations: **Structured essay questions** **Objective questions** **MCQ** **Problem solving**	**K & I**
Clinical: **Long/short cases** **OSCE**	**K ,I, P &G skills**
Structured oral	**K ,I &G skills**
Logbook assessment	**All**
Research assignment	**I &G skills**

Weighting of assessments:

Courses	Course code	Written Exam	Oral	Practical or clinical Exam	Total
First part					
Basic science courses:					
Medical Statistics	FAC309A	35	15	-	50
Research Methodology	FAC309B	35	15	-	50
Medicolegal Aspects & Ethics in Medical Practice and Scientific Research	FAC310C	35	15	-	50
Biomechanics & Biomaterials	ORT317A	60	20	20	100
Surgical anatomy	ORT317B	65	30	30	125
Surgical Pathology	ORT317C	65	30	30	125
Total of first part					500

Second Part					
Speciality Courses	code	written	Oral *	Practical / clinical	total
Course 7 Orthopedic Surgery (advanced) Paper 1 Paper2 Paper 3 Paper 4	**OTR317D**	 150 150 150 150	300	300	
Total of second part		600	300	300	1200
Elective course 1		50	50		100
Elective course 2		50	50		100

* 25% of the oral exam for assessment of logbook

Total degree 1900

500 marks for first part

1200 for second part

Written exam 50% (600 marks).

Clinical/practical and oral exams 50-% (600 marks

Examination system:

First part:

- Written exam 2 hours in Medical Statistics and Research Methodology + oral examination
- Written exam 1 hours in Medicolegal Aspects and Ethics in Medical Practice and Scientific Research + oral examination
- Written exam 2 hours in Biomechanics & Biomaterials + oral Exam+ Practical or Clinical Exam
- Written exam 2 hours in Surgical Pathology + oral Exam+ Practical or Clinical Exam
- Written exam 2 hours in Surgical Anatomy + oral Exam+ Practical or Clinical Exam

Second part:

- Written exam 4 papers 3 hours for each +Oral + Clinical examination

Elective courses

- Written exam one paper 1 hour in Elective course 1 + Oral & Practical exam
- Written exam one paper 1 hour in Elective course 2 + Oral & Practical exam

10-Program evaluation

By whom	method	sample
Quality Assurance Unit	Reports Field visits	#
External Evaluator (s):According to department council External Examiner (s): According to department council	Reports Field visits	#
Stakeholders	Reports Field visits questionnaires	#
Senior students	questionnaires	#
Alumni	questionnaires	#

#Annex 5 contains evaluation templates and reports (Joined in the departmental folder).

11-Declaration

We certify that all of the information required to deliver this program is contained in the above specification and will be implemented.
All course specifications for this program are in place.

Contributor	Name	Signature	Date
Program Principle Coordinator:	Prof: Dr. khaled Mostafa		9/2022
Head of the Responsible Department (Program Academic Director):	Prof. Mohammad Mostafa Mohammad El-Sharkawi		9/2022

Annex 1, Specifications for Courses / Modules

1: specifications for courses

First Part

1) **Course 1: Medical statistics**
2) **Course 2: Research Methodology**
3) **Course 3: - Medicolegal Aspects and Ethics in Medical Practice and Scientific Research**
4) **Course 4: Biomechanics & Biomaterials**
5) **Course 5 Surgical anatomy**

Course 6 Surgical pathology

Course 1: Medical statistics

Name of department: Public Health and Community Medicine

Faculty of medicine

Assiut University

2022-2023

1. Course data

- **Course Title: Medical statistics**
- **Course code: FAC309A**
- **Specialty: offered to all clinical and academic specialties**
- **Number of credit points: 1 credit point**
- **Department (s) delivering the course:** Pubic Health and Community Medicine
- **Coordinator (s):**
  - Course coordinator: Prof. Farag Mohammed Moftah
  - Assistant coordinator (s): Prof. Medhat Araby Khalil Saleh
- Date last reviewed: January -2022
- **Requirements (pre-requisites) if any:**
  - Completed Master degree in any of the academic or clinical departments of Medicine.

2. Course Aims

Enable graduate students to use statistical principles to improve their professional work and develop the concept of critical interpretation of data

3. Intended learning outcomes (ILOs):To be able to use statistical principals to manage data

A knowledge and understanding

ILOS	Methods of teaching/ learning	Methods of Evaluation
A. List the types of variables	Lecture and discussion	Written examination
B. Identify the methods of data collection	Lecture and discussion	Written examination
C. Describe the different sampling strategies	Lecture and discussion	Written examination
D. Identify types of tabular and graphic presentation of data	Lecture and discussion	Written examination
E. Identify measures of central tendency and dispersion	Lecture and discussion	Written examination
F. Identify the characters of normal distribution curve.	Lecture and discussion	Written examination
G. Detect the difference between parametric and non-parametric tests	Lecture and discussion	Written examination
H. Identify the concepts of correlation and regression	Lecture and discussion	Written examination

B. intellectual

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Describe the normal curves.	Lecture& Discussions	Written examination
B. Describe and summarize data	Lecture& Discussions	Written examination
C. Select the proper test of significance	Lecture& Discussions	Written examination
D. Interpret the proper test of significance	Lecture& Discussions	Written examination
E. Describe the difference between parametric and non-parametric tests	Lecture& Discussions	Written examination

C. Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Design data entry files.	Tutorial on SPSS	Assignments SPSS exam
B. Validate data entry.	Tutorial on SPSS	Assignments SPSS exam
C. Manage data files.	Tutorial on SPSS	Assignments SPSS exam
D. Construct tables and graphs.	Tutorial on SPSS	Assignments SPSS exam
E. Calculate measures of central tendency and dispersion.	Tutorial on SPSS	Assignments SPSS exam
F. Select, apply and interpret the proper test of significance.	Tutorial on SPSS	Assignments SPSS exam

D general skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Appraise scientific evidence	Discussions	Research assignment
B. Use information technology to manage information, access on-line medical information; for the important topics.	tutorial	Research and audits' assignment

4. Course contents (topic s/modules/rotation
Course Matrix

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge A	Intellectual B	Practical skills C	General Skills D
Introduction	A-F	A-D	-	A&B
Tables and graphics	D	A-D	-	A&B
Sampling	C	-	-	A&B
Methodology of data collection	B	-	-	A&B
Type of variables	A	-	-	A&B
Proportion test& Chi-square test	E,F	C&D	-	A&B
Student T test& Paired T test	E,F	C&D	F	A&B
ANOVA test	E,F	C&D	F	A&B
Non parametric tests	E,F	C&D	F	A&B
Discrimination analysis factor analysis	E,F	C&D	-	A&B
SPSS Introduction	A-F	A-D	-	A&B
Data entry and cleaning of data	A	A-D	A-C	A&B
Transforming of variables	A	A&B	A-C	A&B
Descriptive statistics	D	A-D	D&E	A&B
Graphic presentation	D	A&B	D	A&B
Chi square and interpretation of results	E,F	C&D	F	A&B
Correlation Regression	E,F	C&D	F	A&B
Multiple and logistic Regression	E,F	C&D	F	A&B

5. Course Methods of teaching/learning

1. Lectures
2. Assignments
3. Discussions
4. Exercises
5. Tutorial on SPSS v.16

6. Course assessment methods:

i. Assessment tools:

1. Attendance and active participation
2. Assignment
3. Practical SPSS examination
4. Written exam

ii. Time schedule: After 6 months from applying to the M D degree.

iii. Marks: 50 (35 for written exam and 15 for practical exam).

7. List of references

i. Lectures notes

Department lecture notes

ii. Essential books

- Medical Statistics: Book by Ramakrishna HK 2016
- Janet Peacock and Philip Peacock. Oxford Handbook of Medical Statistics (second edition.) Publisher: Oxford University Press, Print Publication Date: Nov 2010 Print ISBN-13: 9780199551286, Published online: Jun 2011. DOI: 10.1093/med/9780199551286.001.0001
- Leslie E. Daly MSc, PhD, Hon MFPHM,, Geoffrey J. Bourke MA, MD, FRCPI, FFPHM, FFPHMI, Interpretation and Uses of Medical Statistics, Fifth Edition, First published:1 January 2000, Print ISBN:9780632047635 |Online ISBN:9780470696750 |DOI:10.1002/9780470696750
- Marcello Pagano, Kimberlee Gauvreau: Principles of Biostatistics second edition published in 2000 by Brooks/Cole and then Cengage Learning. CRC Press, Feb 19, 2018 - Mathematics - 584 pages.

Iii- Recommended books

- Ji-Qian Fang (Sun Yat-Sen University, China) Handbook of Medical Statistics: https://doi.org/10.1142/10259 | September 2017.Pages: 852
- Robert H. Riffenburgh: Statistics in Medicine 4th Edition (2020). Evidence Based Medicine How to practice and teach EBM.
- Discovering Statistics Using IBM SPSS Book by Andy Field, 2013.

iii. Periodicals, Web sites, etc

iv. **Periodicals , etc** Statistics in Medicine - Wiley Online Library

v. **Web sites** https://www.phc.ox.ac.uk/research/medical-statistics

8. Signatures

Course Coordinator: - Farag Mohammed Moftah	**Head of the Department:** - Prof. Eman Morsy Mohamed
Date: 10-1-2022	**Date**: 10-1-2022
Associated Coordinator: Prof. Medhat Araby Khalil Saleh	
Date: 10-1-2022	

Course 2: Research Methodology

Name of department: Public Health and Community Medicine
Faculty of medicine
Assiut University
2021-2022

1. Course data

- **Course Title: Research methodology**
- **Course code: FAC309B**
- **Specialty: Offered to all clinical and academic specialties**
- **Number of credit points: 1 credit point**
- **Department (s) delivering the course: Department of public health**
- **Coordinator (s):**
  - **Course coordinator:** Prof. Mahmoud Attia

  Assistant coordinator (s): Prof. Ekram Mohamed
  - Prof. Medhat Araby Khalil
- **Date last reviewed:** January 2022
- **Requirements (prerequisites) if any:**
  - **Completed Master degree in any of the academic or clinical departments of Medicine.**

2. Course Aims

To provide graduate students with the skills of:

- planning and implementing sound research
- writing a scientific research proposal

3. Intended learning outcomes (ILOs)

A knowledge and understanding

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Explain differences between different study designs.	Lecture and discussion Practical sessions Workshops	Written exam Log book assignments Practical exam
B. Identify sources and types of bias in research.	Lecture and discussion Practical sessions	Written exam Log book assignments Practical exam
C. Identify methods of data collection.	Lecture and discussion Practical sessions	Written exam Log book assignments
D. Select and design valid measurement tools for research.	Lecture and discussion Practical sessions Workshops	Written exam Log book assignments Practical exam
E. Explain ethical issues in conducting research on human subjects.	Lecture and discussion Practical sessions Workshops	Written exam Log book assignments
F. List the steps involved in proposal writing.	Lecture and discussion Practical sessions	Written exam Log book assignments

	Workshops	Practical exam
G. Identify a research problem within a conceptual framework.	Lecture Discussion	Written exam Log book assignments Practical exam
H. Use the web sources to do a literature search	Practical tutorial on web	Log book assignment
I. Describe the rules of authorship in scientific writing.	Lecture and discussion Practical sessions Workshops	Written exam Log book assignments
J. Select the appropriate study design for the research question.	Lecture Practical sessions	Written exam Practical exam
K. Minimize bias in designing research.	Lecture	Written exam
L. Screening & theoretical background	Lectures	Written exam Practical exam
M. Mention the basic ethics for conducting a research and medicolegal principles relevant to data confidentiality.	lectures seminar	Written exam Practical exam

B. intellectual

Competency and Skills	Methods of teaching/ learning	Methods of Evaluation
A- Apply basic science & knowledge for appraising scientific literature.	Discussions &seminars	Written exam Practical exam
B- Design research and present study data, in seminars.	lecture seminar	log book assignments
C- Design suitable epidemiological study.	lecture seminar	log book assignments
D- Design strategies for resolving ethical concerns in research, law, and regulations.	lecture Workshops	Written exam log book

		assignments
E- Apply coherently synthesize ideas and integrate lateral and vertical thinking.	lecture Workshops	log book assignments
F- Evaluate screening tests and interpreting their uses in different population.	lecture	Written exam Practical exam

C. Practical skills

Competency and Skills	Methods of teaching/ learning	Methods of Evaluation
A- Conduct epidemiological studies, screening and surveys.	lectures seminar	written exam log book assignments
B- Identify steps required in fielding the study.	Lecture	Assignments Written exam
C- Managing data collection team.	lectures seminar	log book assignments
D- Identify steps required for calculation sensitivity, specificity, positive predictive value, negative predictive value, accuracy of a screening test.	Lecture Practical sessions	Assignments Written exam Practical exam
E- Be able to define and apply the epidemiologic criteria of causality and be able to distinguish between a measure of association and evidence of causality.	Lecture Practical sessions	Assignments Written exam Practical exam
F- Synthesize information from multiple sources for research writing and the ability to perform paper critique .	Lecture Practical sessions	Assignments Written exam Practical exam
G- Identify bias and confounding in epidemiological study designs, their types and ways to control them in various types of biases.	Lecture Practical sessions	Assignments Written exam Practical exam

D General skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A- Scientific paper and proposal writing skills: be able to write an introduction, objectives and the methodological section.	Tutorial	Written examination
B- Learn authorship ethical rules.	Tutorial	Written examination
C- Perform practice-based improvement activities using a systematic methodology (audit, logbook, critical appraisal)	- Lectures -Practical sessions - Discussion - Readings	critical appraisal
D- Appraise evidence from scientific studies(journal club)	- Lectures -Practical sessions - Discussion - Readings	critical appraisal
E- Conduct epidemiological studies, screening and surveys.	- Lectures -Practical sessions - Discussion - Readings	attendance and participation
F- Facilitate training of junior students and other health care professionals in different screening activities.	Field work Participation in projects	attendance and participation

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
G- Maintain ethically sound relationship with community members.	- Lectures -Practical sessions - Discussion - Readings	Written exams

H- Provide information using effective nonverbal, explanatory, questioning, and writing skills.	- Lectures -Practical sessions - Discussion - Readings	Written exams Practical exams
I- Present results of researches in seminars.	- Lectures -Practical sessions - Discussion - Readings	Log book assignments

Professionalism

ILOs	Methods of teaching/ learning	Methods of Evaluation
J- Demonstrate respect, compassion, and integrity to the needs of society.	- Lectures - Discussion - Readings	Written exams
K- Manage potential conflicts of interest encountered by practitioners, researchers, and organizations.	- Lectures - Discussion - Readings	Written exams
L- Design strategies for resolving ethical concerns in research, law, and regulations.	Lectures - Discussion - Readings	Written exams Practical exams
M- Demonstrate ways to control for confounding in the analysis phase of a study	Lectures - Discussion - Readings	Written exams Practical exams
N- Demonstrate a commitment to ethical principles including confidentiality of participants' information and informed consent.	Lectures - Discussion - Readings	Written exams
O- Assess ethical considerations in developing communications and promotional initiatives.	- Lectures - Discussion - Readings	Written exams

4. Course contents (topic s/modules/rotation
Course Matrix

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge A	Intellectual B	Practical skills C	General Skills D
Over view on research conduction and research ethics	A&E	A-D	A-C	C-G, I,L&M-O
How to write a research proposal	F,I	E	F	A-C&H
Observational study design	A& D	B & C	D	E & F
Experimental study design	A& D	B & C	B	E & F
Evaluation of diagnostic tests (Screening)	L	A	B& E	F
Systematic reviews and meta analysis	G, H & M	E& F	F	C, D
Confounding, bias & effect modification	B & K	D	E & G	M

5. Course Methods of teaching/learning:

1. Lectures
2. Assignments
3. Discussion
4. Exercises

6. Course assessment methods:

i. Assessment tools:

1. Attendance and participation
2. Log book assignments
3. Written examination
4. Practical examination

ii. Time schedule: After 6 months from applying to the M D degree.

iii. Marks: 50 (35 for written exam and 15 for practical exam).

7. List of references

i. Lectures notes

- Department lecture notes

ii. Essential books

- Research Design: Qualitative, Quantitative and Mixed Methods Approaches 4th Edition by John W. CreswellSAGE Publications, Inc; 4th edition (January 1, 2014)
- Research methodology: A step – by – step Guide for Beginners. Ranjit Kumar, 2020. Second edition https://books.google.com.eg/books?
- Medical Research Essentials Rania Esteitie, McGraw Hill Professional, third edition, Feb 5, 2014 - Medical - 104 pages
- Research Methodology in the Medical and Biological Sciences Petter Laake, Haakon Breien Benestad, Bjorn R. Reino Olsen, 4th edition , Academic Press, Nov 5, 2007 - Science - 512 pages

iv. Recommended books

- Research Methods in Education 7th Edition, by Louis Cohen, Lawrence Manion, Keith Morrison Publisher: Routledge; (April 22, 2011) www.routledge.com/textbooks/cohen7e.
- Research Methodology: A Practical and Scientific Approach Vinayak Bairagi, Mousami V. Munot · 2019, Research Methodology: A Practical and Scientific Approach - Google Books
- Based Medicine How to practice and teach EBM. David Sachett, Sharon E. Straus, W. Scott Richardson , William Rosenberg R.Brain Haynes
- Dissertation workshop open courseware JHSPH

8. Signatures

Course Coordinator: Prof.Mahmoud Attia	**Head of the Department:** Prof. Eman Morsy Mohamed
Date: 10-1-2022	**Date**: 10-1-2022

Course 3: Medico legal Aspects and Ethics in Medical Practice and Scientific Research

Name of department:
Forensic medicine and clinical toxicology
Faculty of medicine
Assiut University
2016-2017

1. Course data

- **Course Title: Medicolegal Aspects and Ethics in Medical Practice and Scientific Research**
- **Course code: FAC310C**
- **Speciality:General and special surgery (1st part),**
- **Number of credit points: 1 credit point**
- **Department (s) delivering the course: Forensic Medicine and Clinical Toxicology**
- **Coordinator (s):**
- **Course coordinator:**
  Prof. Ghada omran
- **Date last reviewed:** September 2017
- **Requirements (prerequisites) if any :**
  - **Completed Master degree**

2. Course Aims

To describe the basic ethical and medicolegal principles and bylaws relevant to practice in the field of General and special surgery Rheumatology

3. Intended learning outcomes (ILOs):

A. knowledge and understanding

Competency and Skills	Methods of teaching/ learning	Methods of Evaluation
A. Mention principals of writing consent forms.	Lecture and discussion	Written & oral exam
B. Mention principals of Writing a death certificate	Lecture and discussion	Written & oral exam
C. Explain principals of medical reports.	Lecture and discussion	Written & oral exam
D. Mention principals of Dealing with wounds.	Lecture and discussion	Written & oral exam
E. Mention principals of firearm injuries.	Lecture and discussion	Written & oral exam
F. List indications of induced emesis, gastric lavage and samples collection.	Lecture and discussion	Written & oral exam

B. Intellectual

Competency and Skills	Methods of teaching/ learning	Methods of Evaluation
A. Design and present case , seminars in death certificate	Lecture and discussion	Written & oral exam
B. Design and present case, seminars in toxicological cases	Lecture and discussion	Written & oral exam

C. Practical skills

Competency and Skills	Methods of teaching/ learning	Methods of Evaluation
A. Identify medical ethics and ethics in research.	Lecture and discussion	Discussion
B. Prepare and write consent.	Lecture and discussion	Discussion
C. Identify medical responsibilities.	Lecture and discussion	Discussion
D. Write death certificate.	Lecture and discussion	Discussion and active participation
E. Deal with a case of Suspicious death	Lecture and discussion	Discussion and active participation
F. Write medical reports	Lecture and discussion	Discussion and active participation
G. Identify types of wounds and deal with them.	Lecture and discussion	Discussion and active

		participation
H. Identify types, distance and direction of firearm wounds and deal with them	Lecture and discussion	Discussion and active participation
I. Elicit death associated with surgical anesthesia.	Lecture and discussion	Discussion and active participation
J. Perform gastric lavage, induce emesis, and obtain samples	Lecture and discussion	Discussion and active participation

D. General Skills

Competency and Skills	Methods of teaching/ learning	Methods of Evaluation
A. Present a case.	Lecture and discussion	Global rating logbook
B. Write a consultation note	Lecture and discussion	Global rating logbook
C. Inform patients and maintaining comprehensive.	Lecture and discussion	Global rating logbook
D. Make timely and legible medical records	Lecture and discussion	Global rating logbook
E. Acquire the teamwork skills	Lecture and discussion	Global rating logbook

4. Course contents (topic s/modules/rotation
Course Matrix

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge A	Intellectual B	Practical skills C	General Skills D
1. Death and death certificate.	B	A	D	
2. Suspicious death	B		E	B
3. Death associated with surgical anesthesia	B		I	B
4. Medical reports	C	B	F	A,D,E
5. Toxicological Reports	F	B	J	A,E
6. Wounds	D		G	B
7. Firearm injuries	E		H	B
8. Ethics in research			A	
9. Medical ethics.	A		A,B,C	C,E

5. Course Methods of teaching/learning:

1. Lectures.
2. Discussions.
3. Exercises.

6. Course assessment methods:

i. Assessment tools:

1. Written examination.
2. Attendance and active participation.
3. Oral examination.

ii. Time schedule: After 6 months from applying to the M D degree.

iii. Marks: 50 (35for written exam and 15 for oral exam).

7. List of references

i. Lectures notes

- Course notes.
- Staff members print out of lectures and/or CD copies.

ii. Essential books

- Bernard Knight and Pekka Saukko (2015: Knight Forensic Pathology. Hodder Arnold press
- Goldfrank, Lewis R.; Howland, Mary Ann; Hoffman, Robert S.; Nelson, Ewis S.; Lewin, Neal A (2019): Goldfrank's Toxicologic Emergencies, 11th ed. McGraw Hill / Medical.
- Medical Ethics Manual. World medical association. Third edition 2015.
- Medical ethics and law. Dominic Wilkinson, 3rdedition 2019.

iii. Recommended books

- Biswas Gautam (2021): Review of Forensic Medicine & Toxicology. 5th ed. Jaypee Brothers Medical Pub.

iv. Journal and web site

- Journals of all Egyptian Universities of Forensic Medicine and Clinical Toxicology.
- All International Journals of Forensic Medicine and Clinical Toxicology which available in the university network at www.sciencedirect.com. As :
  - Forensic Science International Journal.
  - Toxicology Letter.

v. others

8. Signatures

- Course Coordinator: **Prof.** Prof. Ghada omran	**- Head of the Department:** **Prof.** Randa Hussein Abdelhady
Date: September 2017	**Date:** September 2017

Course 4 Biomechanics & Biomaterials

1. Course data

- **Course Title: Biomechanics &Biomaterials**
- **Course code: ORT317A**
- **Speciality: Orthopedic Surgery.**
- **Number of Credit point :** Didactic **1.2(100%), practical 0.8 (0%) total 2CP**
- **Department (s) delivering the Course : Orthopedic Surgery Department.**
- **Coordinator (s):**
  - **Principle coordinator: Prof DR. khaled Mostafa**
  - **Assistant coordinator (s) Dr. Waleed Riad Saleh**
- **Date last reviewed: 9-2022**
- **Requirements (prerequisites) if any :**
- **NONE**

2. Course Aims

-The student should acquire in depth the essential facts of Biomechanics &Biomaterials necessary for **Orthopedic Surgery.**

3. Intended learning outcomes (ILOs):

A- Knowledge and understanding

ILOs	**Methods of teaching/ learning**	***Methods of Evaluation***
A. Illustrate Principles of Biomechanics: - Introduction and basics of biomechanics - Gait and its abnormalities - International standards of orthopedic devices - Biomechanics of normal joints Upper limb Lower limb Spine & pelvis - Biomechanics of Internal fixation External fixation Joint replacement (Hip & Knee)	-Lectures	-Written and oral examination - Log book
B-Describe Details of Biomaterials - Types of biomaterials in orthopedic surgery - Implant- host interaction		

B- Intellectual outcomes

ILOs	**Methods of teaching/ learning**	**Methods of Evaluation**
A. Correlates the facts of Biomechanics &Biomaterials with clinical reasoning, diagnosis and management of common diseases related to orthopaedic Surgery.	Didactic (lectures, seminars, tutorial)	-Written and oral examination -Log book

Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A- Identify the application of Biomechanics &Biomaterials in orthopaedic Surgery.	Lecture and discussion	Assessment of practical skills -Logbook

D-General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Use information technology to manage information, access on-line medical information; and support their own education	-Observation and supervision -Written and oral communication	Log book Oral exam

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
B. Write a report in common condition mentioned in A.A and A.B	-Clinical round -Seminars -Lectures	- Logbook Oral exam Chick list

Professionalism

ILOs	Methods of teaching/ Learning	Methods of Evaluation
C. Demonstrate a commitment to ethical principles	Observation Senior staff experience Case taking	Logbook Oral exam

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
D. Work effectively in different health care delivery settings and systems	-Observation -Senior staff experience	1. 360o global rating

4. Course contents (topic s/modules/rotation
Course Matrix

Time Schedule: One year after application to MD degree

Principles of				
B. **Biomechanics**	**A**	**A**	**A**	**A-D**
Describe Details of:				
C. **Biomaterials**	**B**	**A**	**A**	**A-D**

5. Course Methods of teaching/learning:

1. Didactic (lectures, seminars, tutorial)
2. journal club,

6. Course Methods of teaching/learning: for students with poor achievements

1. Extra lectures
2. Extra training

7. Course assessment methods:

i. Assessment tools:

1. Clinical examination
2. oral examination
3. Written examination
4. Objective structure clinical examination (OSCE)

ii. Time schedule: one year after to application to the degree

iii. Marks: 100

8. List of references

i. Lectures notes

- Course notes
- Staff members print out of lectures and/or CD copies

ii. Essential books

Biomechanics and Biomaterials in Orthopedics, 2016

iii. Recommended book

Biomechanics and biomaterial in Mercer's Textbook of Orthopaedics and Trauma

iv. Periodicals, Web sites, … etc

Online Jounrals

Pubmed

v. Others : None

9. Signatures

Course Coordinator:	**Head of the Department:**
Date:	**Date:**

Course 5 Surgical Anatomy

1. Course data

- **Course Title: Surgical Anatomy.**
- **Course code: ORT317B**
- **Speciality: Orthopedic Surgery.**
- **Number of Credit point :** Didactic **2.5 (100%),practical 0(0%) total 2.5 CP**
- **Department (s) delivering the Course:** Orthopaedic and trauma surgery department**.**
- **Coordinator (s):**
  Staff members of Orthopaedic and trauma surgery department**.**
- **Date last reviewed: 9-2022**
- **Requirements (prerequisites) if any :**
  NONE

2. Course Aims

-The student should acquire in depth Anatomical facts necessary for **Orthopedic Surgery.**

3. Intended learning outcomes (ILOs):

A- Knowledge and understanding

ILOs	**Methods of teaching/ learning**	***Methods of Evaluation***
A. Illustrate Principles of Microanatomy (Histology) • Structure of bone • Structure of articular cartilage • Structure of peripheral nerve	Lectures	Written and oral examination Log book
B-Describe Anatomical Details of: • Anatomy of the upper limb and shoulder girdle • Anatomy of the lower limb and pelvic girdle • Anatomy of the spine and its muscles • Neurological anatomy of the spinal cord	Lectures	Written and oral examination Log book

B- Intellectual outcomes

ILOs	**Methods of teaching/ learning**	**Methods of Evaluation**
A. Correlates the facts of surgical anatomy of human body (musclo-skeletal system) with clinical reasoning, diagnosis and management of common diseases related to orthopaedic and trauma surgery	Didactic (Lectures-seminars-tutorial)	-Written and oral examination -Log book
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to common clinical situations related to orthopaedic and trauma surgery		

C- Practical skills

Practical: 0 hours

D-General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Use information technology to manage information, access on-line medical information; and support their own education	-Observation and supervision -Written and oral communication	Log book Oral exam

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
B. Write a report in common condition mentioned in A.A and A.B	-Clinical round -Seminars -Lectures	- Logbook Oral exam Chick list

Professionalism

ILOs	Methods of teaching/ Learning	Methods of Evaluation
C. Demonstrate a commitment to ethical principles	Observation Senior staff experience Case taking	Logbook Oral exam

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
D. Work effectively in different health care delivery settings and systems	-Observation -Senior staff experience	1. 360o global rating

4. Course contents (topic s/modules/rotation
Course Matrix

Time Schedule: One year after application to MD degree

Topic	Covered ILOs			
	Knowledge A	Intellectual B	Practical skill C	General Skills D
Course 1 Surgical Anatomy				
A. Illustrate Principles of Microanatomy (Histology)				
- Microscopic anatomy of the bone	A	A-B	-	**A-D**
- Microscopic anatomy of the articular cartilage	A	A-B	-	**A-D**
- Structure of the peripheral nerve	A	A-B	-	**A-D**
B-Describe Anatomical Details of:				
- Musclo-skeletal system of the upper limb	B	A-B	-	**A-D**
- Anatomy of the shoulder girdle	B	A-B	-	**A-D**
- Blood supply of the upper limb	B	A-B	-	**A-D**
- Nerve supply of the upper limb	B	A-B	-	**A-D**
- Musclo-skeletal system of the Lower Limb	B	A-B	-	**A-D**
- Anatomy of the Pelvic girdle	B	A-B	-	**A-D**
- Blood supply of the Lower limb	B	A-B	-	**A-D**
- Nerve supply of the Lower limb	B	A-B	-	**A-D**
- Anatomy of the spine and spinal muscles	B	A-B	-	**A-D**

- Anatomy of the intervertebral disc	B	A-B	-	**A-D**
- Neurological anatomy of the spinal cord	B	A-B	-	**A-D**
- Microscopic anatomy of the bone	B	A-B	-	**A-D**
- Microscopic anatomy of the articular cartilage	B	A-B	-	**A-D**
- Structure of the peripheral nerve	B	A-B	-	**A-D**

5. Course Methods of teaching/learning:

1 Didactic (lectures, seminars, tutorial)
2 Observation and supervision
3 Written & oral communication
4 Senior staff experience

6. Course Methods of teaching/learning: for students with poor achievements

1. Extra Didactic (lectures, seminars, tutorial) according to their needs

7. Course assessment methods:

i. Assessment tools:

1- Written and oral examination
2- Log book

ii. Time schedule: One year after application to MD degree

iii. Marks: 125

8. List of references

i. Lectures notes

- Course notes
- Staff members print out of lectures and/or CD copies

ii. Essential books

- Apley & Solomon's System of Orthopaedics and Trauma, 10 th edition , 2018
- Roger Dee Orthopaedics and Trauma

- McRai's Trauma
- Clinical Orthopaedic Examination 5th Edition By McRai's, 2004

iii. Recommended books

- Campbell's Operative Orthopaedics, 14th Edition, 2020
- Surgical Exposures in Orthopaedics: The Anatomic Approach (Hoppenfeld, Surgical Exposures in Orthopaedics) 4th Edition, 2009

iv. Periodicals, Web sites, … etc

- Wheeless Text of Orthopedics
- Orthopedics Hyperguide
- Orthoteers
- Online Jounrals
- Pubmed

9. Signatures

Course Coordinator	**Head of the Department: Prof:**
Date:	**Date:**

Course 6 Surgical Pathology

1. Course data

- **Course Title: Surgical Pathology.**
- **Course code: ORT317C**
- **Speciality: Orthopedic Surgery.**
- **Number of Credit point :** Didactic **2.5 (100%),practical 0(0%) total 2.5 CP**
- **Department (s) delivering the Course :** orthopaedic and trauma surgery department
- **Coordinator (s):**
  Staff members of Orthopaedic and trauma surgery department**.**
- **Date last reviewed: 9-2017**
- **Requirements (prerequisites) if any :**
  NONE

2- Course Aims

-The student should acquire the pathological facts necessary for *Orthopaedic and Trauma surgery*

3. Intended learning outcomes (ILOs):

A-Knowledge and understanding

ILOs	**Methods of teaching/ learning**	***Methods of Evaluation***
A. Illustrate Principles of General Pathology and pathology of bone and joints infection: • Acute Osteomyelitis • Chronic osteomyelitis • Bone tuberculosis	Lectures	Written and oral examination Log book
B-Describe Pathologic Details of: 1) Trauma: • Pathology of Poly-trauma • Pathology of compartment syndrome and volkmann`s ischemia contractures • Pathology of regional pain syndrome 2) Bone Diseases: • Pathology of metabolic bone diseases • Pathology of bone osteonecrosis • Pathology of bleeding disorder in musclo-skeletal system • Bone and joints infections	Lectures	Written and oral examination Log book

B- Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Correlates the facts of pathology with clinical reasoning, diagnosis and management of common diseases related to orthopaedic surgery	Didactic (lectures, seminars, tutorial)	-Written and oral examination -Log book
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to common clinical situations related to orthopaedic surgery		

Practical skills

Practical: 0 hours

D-General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Use information technology to manage information, access on-line medical information; and support their own education	-Observation and supervision -Written and oral communication	Log book Oral exam

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
B. Write a report in common condition mentioned in A.A and A.B	-Clinical round -Seminars -Lectures	- Logbook Oral exam Chick list

Professionalism

ILOs	Methods of teaching/ Learning	Methods of Evaluation
C. Demonstrate a commitment to ethical principles	Observation Senior staff experience Case taking	Logbook Oral exam

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
D. Work effectively in different health care delivery settings and systems	-Observation -Senior staff experience	1. 360o global rating

Course contents (topic s/modules/rotation
Course Matrix

Time Schedule: One year after application to MD degree

Topic	Covered ILOs			
	Knowledge A	Intellectual B	Practical skill C	General Skills D
Unit 2 Surgical Pathology				
- Histo-pathological of the bone	A	A-B	-	A-D
- Bone infection (general)	A	A-B	-	A-D
- Acute osteomylitis	A	A-B	-	A-D
- Chronic osteomylitis	A	A-B	-	A-D
- Bone tuberculosis	B	A-B	-	A-D
- Metabolic bone disease	B	A-B	-	A-D
- Bone Tumors (general)	B	A-B	-	A-D
- Benign bone tumors	B	A-B	-	A-D
- Malignant bone tumor	B	A-B	-	A-D
- Pathology of osteonecrosis	B	A-B	-	A-D
- Bleeding disorders in musclo-skeletal system	B	A-B	-	A-D
- Pathology of polytrauma patient	B	A-B	-	A-D
- Pathological changes in polytrauma patient	B	A-B	-	A-D
- Pathology of regional pain syndrome	B	A-B	-	A-D
- Clinical picture of reflex sympathetic dystrophy	B	A-B	-	A-D
- Management of CRPS	B	A-B	-	A-D

5. Course Methods of teaching/learning:

1 Didactic (lectures, seminars, tutorial)
2 Observation and supervision
3 Written & oral communication
4 Senior staff experience

6. Course Methods of teaching/learning: for students with poor achievements

1Extra Didactic (lectures, seminars, tutorial) according to their needs

7. Course assessment methods:

i. Assessment tools:

1- Written and oral examination
2- Log book

ii. Time schedule: One year after application to MD degree **iii. Marks: 125**

8. List of references

i. Lectures notes

- Course notes
- Staff members print out of lectures and/or CD copies

ii. Essential books

- Apley & Solomon's System of Orthopaedics and Trauma, 10 th edition , 2018
- Roger Dee Orthopaedics and Trauma
- McRai's Trauma
- Clinical Orthopaedic Examination 5th Edition By McRai's, 2004

iii. Recommended books

- Campbell's Operative Orthopaedics, 14th Edition, 2020
- Surgical Exposures in Orthopaedics: The Anatomic Approach (Hoppenfeld, Surgical Exposures in Orthopaedics) 4th Edition, 2009

iv. Periodicals, Web sites, … etc

- Wheeless Text of Orthopedics
- Orthopedics Hyperguide
- Orthoteers
- Online Jounrals
- Pubmed

9. Signatures

Course Coordinator:	**Head of the Department:**
Date:	**Date:**

Second Part

Course 7 - Orthopaedic Surgery

- ***Name of department: Orthopedic surgery***
- ***Faculty of medicine***
- ***Assiut University***
- ***2021-2022***

1. Course data

- **Course Title: Orthopaedic Surgery (Advanced)**
- **Course code: ORT317D**

- **Speciality: Orthopaedic Surgery (Advanced)**
- **Number of CPS: Didactic 24 (16.3 %) practical 123 (83.7 %).total 147**

Department (s) delivering the course: Orthopaedic and trauma surgery department

- **Coordinator (s):**

- Principle coordinator: Prof. Khaled Mostafa

- Assistant coordinator (s): Prof. Mohamed Mostafa Qotb

Staff members of Orthopaedic and trauma surgery department**.**

- **Date last reviewed: 9/ 2022**
- **Requirements (prerequisites) if any :**

I. General Requirements:

- **Master degree in the speciality.**

II. Specific Requirements:

- **Fluent in English (study language)**

- **Requirements from the students to achieve course ILOs are clarified in the joining log book.**

This course consists of 8 Units (Modules)

1- UNIT (Module) 1 Trauma
2- Unit (Module) 2 General *Orthopaedic* surgery
3- Unit (Module) 3 Spine Surgery
4- Unit (Module) 4 Arthroscopy and Sport Medicine
5- UNIT (Module) 5 Arthroplasty
6- Unit (Module) 6 Pediatrics
7- Unit (Module) 7 Hand and Microsurgical reconstruction
8- Unit (Module) 8 Foot and Ankle and Deformity Correction Surgery

Unit Coordinator (s):

Unit	Principle Coordinator	Assistant coordinators
1- UNIT (Module) 1 Trauma	Prof: Osama Farouk	Dr :Hatem Galal Zaki
2- Unit (Module) 2 General *Orthopaedic* surgery	Prof Mohammad Gamal	Prof. Prof Faisal Fahmy
3- Unit (Module) 3 spine	Prof. Mohammed Gamal Hassan	-
4- Unit (Module) 4 Arthroscopy	- Prof Maher El Assal	- Prof Hesham el Kady
5- Unit (Module) 5 Arthroplasty	Prof Ahmed Abdel Aal	Dr Yasser Imam
6- Unit (Module) 6 Paediatrics	Prof Kamal El Gaafary	--
7-Unit (Module) 7 Hand and Microsurgical reconstruction	Prof. Dr. WaelYousif El-Adly	Ahmed Ekram Abdullah Osman
8- Unit **(Module)** 8 Foot and Ankle and Deformity Correction Surgery	Prof. Dr. Wael Yousif El-Adly	Ahmed Ekram Abdullah Osman

2. Course Aims

1- To enable MD students to master high level of clinical skills, in addition to update and advanced medical knowledge, integration and interpretation of different investigations, professional competence in the area of Orthopedics and Traumatology `and their subspecialties including Joint replacement surgery, the different causes of foot and ankle pain and Deformities, Pediatrics *Orthopedic*s, Spine surgery, Hand and Microsurgical reconstruction, general orthopaedics, and

2- To provide candidates with enough general skills related to Orthopedics and Traumatology `and their subspecialties. including, writing specialized reports, use of information technology in clinical decisions and research, teaching junior students and counseling patients and their families about Orthopedics and Traumatology `and their subspecialties.
3- Develop and improve the skills of scientific medical research.
4- To enable candidates to describe the basic ethical and medicolegal principles relevant to Orthopedics and Traumatology.

3. Course intended learning outcomes (ILOs):____

UNIT 1 Trauma

A-Knowledge and understanding

ILOs	**Methods of teaching/ learning**	***Methods of Evaluation***
A. Explain update and evidence based etiology, clinical picture, diagnosis and management of the following common diseases and clinical	Didactic; Lectures Clinical rounds Seminars	-Written Exam -Oral exam

conditions: 1. Polytrauma patient: including ATLS Protocol 2. Diaphyseal fractures management 3. Articular fractures management 4. Absolute and relative stability 5. Open Fractures 6. Complications of fractures 7. Pathological Fractures 8. Fixation principles in osteoporotic bone 9. Peri-prothetic fractures 10. Epiphyseal injuries	Clinical rotations (service teaching)	
B. Mention the principles of: • Diagnostic radiology including X-ray, CT & MRI related to traumatic conditions • Principles of IMN fixation • Principles of plate fixation • Principles of external fixation		
C. Mention briefly state of art of the following rare diseases and conditions • Fractures of upper cervical spine • Sternoclavicular joint injuires • Acromioclavicular joint injuries • Fractures of the femoral head • Fractures of the talus		
D. Explain the facts and principles of the relevant basic and clinically supportive sciences related to Trauma		
E. Describe the basic ethical and medicolegal principles revenant to the Trauma.		
F. describe the basics of quality assurance to ensure good clinical care in his field		
G. Explain the ethical and scientific principles of medical research		
H. Explains the impact of common health problems in the field of Trauma on the society.		

B-Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Design / present case in common problem related to Trauma	Clinical rounds Senior staff experience	Procedure/case presentation Log book and Portfolios
B. Apply the basic and clinically supportive sciences which are appropriate to trauma related conditions / problem / topics.		
C. Demonstrate an investigatory and analytic thinking "problem – solving "approaches to clinical situation related to Trauma		
D. Plain research projects.		
E. Write scientific papers.		
F. Lead risk management activities as a part of clinical governs • The polytrauma patient • Open fractures		
G. Plan quality improvement activities in the field of medical education and clinical practice in trauma.		
H. Create and innovate plans, systems, and other issues for improvement of performance in his practice.		
I. Present and defend his / her data in front of a panel of experts		
J. Formulate management plans and alternative decisions in different situations in the field of Trauma.		

C-Practical skills (Patient Care)

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Take history, examine and clinically diagnose different conditions related to Trauma	Lectures Clinical rounds Seminars Clinical round with senior staff Observation Hands on workshops Case Presentations	Written and oral examination -Check list -log book & portfolio Procedure/case presentation
B. Order the following non invasive/invasive diagnostic procedures • Diagnostic radiology including X-ray, CT & MRI related to traumatic conditions		
C. Interpret the following non invasive/invasive diagnostic procedures • Diagnostic radiology including X-ray, CT & MRI related to traumatic conditions		
D. Prescribe& perform the following non invasive/invasive therapeutic procedures: • Primary emergency management according to ATLS protocols for Polytrauma patients • Primary and Surgical management of open fracture		
E. Develop and carry out patient management plans for the following problems • Decision making in polytrauma patients • Priorities in management of polytrauma patients		

• Trauma in critically ill patients • Limb salvage versus amputations		
F. Counsel and educate patients and their family about • Inform patient about sequelae of operative and non-operative management. • Explain perioperative process, likely outcome and time to recovery to patients, and check understanding.		
G. Use information technology to support patient care decisions and patient education for Trauma related conditions.		
H. Provide health care services aimed at preventing the following conditions • Complications of fractures including Fracture disease and recumbence complications		
I. Work with health care professionals, including those from other disciplines, to provide patient-focused care.		
J-Write competently all forms of patient charts and sheets including reports evaluating these charts and sheets (Write and evaluate a consultation note, Inform patients of a diagnosis and therapeutic plan, completing and evaluating comprehensive, timely and legible medical records)	Clinical round with senior staff	

D-General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology in the common problems (plain and conduct audit cycles)	Simulations Clinical round Seminars Lectures Case presentation Hand on workshop	Global rating Portfolios Procedure/case presentation Log book Chick list
B. Locate, appraises, and assimilates evidence from scientific studies related to patients' health problems.		
C. Apply knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness		
D. Use information technology to manage information, access on-line medical information; and support their own education		
E. Lead the learning of students and other health care professionals.		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Create and sustain a therapeutic and ethically sound relationship with patients	-Simulations -Clinical round -Seminars -Lectures -Case presentation	-Global rating -Procedure/case presentation -Log book and Portfolios -Chick list
G. Perform the following oral communications: • History Taking • Peri-operative counseling & rehabilitation		
H. Fill the following reports: • Admission sheet • Post-operative notes • Medico legal reports (primary & final)		
I. Work effectively with others as a member or leader of a health care team e.g. in operative ward.		

Professionalism

ILOs	Methods of teaching/ Learning	Methods of Evaluation
J. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society that supersedes self-interest.		1. Objective structured clinical examination 2. Patient survey
K. Demonstrate a commitment to ethical principles pertaining to		1. 360o global rating

provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices.		
L. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities		

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
M. Work effectively in different health care delivery settings and systems.		1. 360o global rating
N. Practice cost-effective health care and resource allocation that does not compromise quality of care		1. Check list evaluation of live or recorded performance
O. Advocate for quality patient care and assist patients in dealing with system complexities		1. 360o global rating 2. Patient survey
P. Partner with health care managers and health care providers to assess, coordinate, and improve health care and predict how these activities can affect system performance		

Unit 2 General Orthopedic Surgery

A-Knowledge and understanding

ILOs	Methods of teaching/Learning	*Methods of Evaluation*
A. To demonstrate in depth the basic knowledge and understanding general orthopaedics topics		
B. To mention the different general orthopaedics topics their causes, mechanisms and pathogenesis of and their management.		
C. To mention the ethical and medico-legal principle relevant to his practice in the general orthopaedic field.		
D. To know the evidence-based new trends in general orthopaedic field surgery.		

Intellectual outcomes

ILOs	Methods of teaching/learning	Methods of Evaluation
A. Demonstrate the analytic thinking "problem-solving-approach"		
B. Plan research work		
C. Write scientific papers		
D. Present and defend his data in front of panel of experts.		

Practical skills

ILOs	Methods of teaching/learning	Methods of Evaluation
A. Provide extensive level of patient care with patients with all common diagnosis and uncomplicated procedures in the field of general orthopaedic field surgeries.		
B. Provide extensive level of patient care with patients with uncommon diagnosis and complicated procedures under increasingly difficult situation while demonstrating appropriate effective care.		
C. Performing essential diagnostic and therapeutic procedures regarding general orthopaedic field surgeries		
D. Management of the unexpected complications demonstration special consideration for the patient needs and concerns		
E. Communicate and council the patient and his family with special consideration of protection of the patient's data		
F. Perform the most common invasive techniques regarding general orthopaedic field surgery.		
G. Write competently all forms of documentation for the patients and all evaluation and scoring forms		

General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Participate in research projects.	-Observation and supervision -Written and oral communication	Log book Oral exam
B. Appraise evidence from scientific studies related to patient's problem		
C. Master communication skills with the patient and his family		
D. Present a case.		
E. Write a consultation note.		
F. Teamwork skills		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
G. Write a report in common condition mentioned in A.A and A.B	-Clinical round -Seminars -Lectures	- Logbook Oral exam Chick list

Professionalism

ILOs	Methods of teaching/ Learning	Methods of Evaluation
H. Demonstrate a commitment to ethical principles	Observation Senior staff experience Case taking	Logbook Oral exam

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
I. Work effectively in different health care delivery settings and systems	-Observation -Senior staff experience	1. 360o global rating

Unit 3 Spine

A-Knowledge and understanding

ILOs	Methods of teaching/Learning	*Methods of Evaluation*
A. To demonstrate in depth the basic knowledge and understanding in the Anatomy & physiology of the spinal column as well	Clinical rounds Senior staff experience	Case presentation and logbook
B. To know detailed Examination & imaging techniques of the spine		
C. To mention the different causes, mechanisms, pathogenesis & management of spine disorders		
D. To mention the ethical and medico-legal principles relevant to his practice in the field of spine surgery		
E. To know standard techniques for spine surgery.		
F. To know the evidence-based new trends in postoperative management .		

B-Intellectual outcomes

ILOs	Methods of teaching/learning	Methods of Evaluation
A. Demonstrate the analytic thinking "problem-solving-approach"	Clinical rounds Senior staff experience	Portfolios Procedure/case presentation Log book
B. Plan research work		
C. Write scientific papers		
D. Present and defend his data in front of panel of experts.		

C-Practical skills (Patient Care)

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Take history, examine and clinically diagnose different conditions related to Spine	Lectures Clinical rounds Seminars Clinical round with senior staff Observation Post graduate teaching Hands on workshops Case Presentations	Clinical examination -Check list -log book & portfolio Procedure/case presentation
B. Order & Interpret the following noninvasive and invasive diagnostic procedures		

1. Diagnostic radiology including X-ray, CT & MRI related to spine.		
C. Perform the following non invasive and invasive diagnostic procedures 2. Transpedicular biopsy Lumbar spine		
D. Perform the following non invasive and invasive therapeutic procedures		
ACDF Laminectomy / Laminoplasty cervical spine Posterior fusion +/- instrumentation cervical spine Occiptocervical fusion Anterior thoracic fusion +/- instrumentation Posterior thoracic fusion +/- instrumentation Discectomy lumbar spine Revision discectomy lumbar spine Anterior Lumbar fusion +/- instrumentation Postrolateral fusion lumbar spine PLIF TLIF Vertebroplasty/kyphoplasty Kyphosis correction Scoliosis correction Growing rods for scoliosis		
E. Counsel and educate patients and their family with special consideration of protection of the patient's data		
F. Use information technology to support patient care decisions and patient education for Spine related conditions.		
G. Work with health care professionals, including those from other disciplines, to provide patient-focused care.		

D-General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Participate in research projects.	-Observation and supervision -Written and oral communication	Log book Oral exam
B. Appraise evidence from scientific studies related to patient's problem		
C. Use information technology to manage information, access on-line medical information; and support their own education		
D. Lead the learning of students and other health care professionals.		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
E. Write a report in common condition mentioned in A.A and A.B	-Clinical round -Seminars -Lectures	- Logbook Oral exam Chick list
F. Master communication skills with the patient and his family		
G. Present a case.		
H. Write a consultation note.		
I. Teamwork skills		

Professionalism

ILOs	Methods of teaching/ Learning	Methods of Evaluation
J. Demonstrate a commitment to ethical principles	Observation Senior staff experience Case taking	Logbook Oral exam

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
K. Work effectively in different health care delivery settings and systems	-Observation -Senior staff experience	1. 360o global rating

Unit 4 Arthroscopy and Sports Medicine

A-Knowledge and understanding

ILOs	Methods of teaching/ learning	*Methods of Evaluation*
A. Explain update and evidence based etiology, clinical picture, diagnosis and management of the following common diseases and clinical conditions: 1. Osteoarthritis of the Knee 2. Meniscal injuries 3. Ligamentous injuries of the knee 4. Rotator cuff tears 5. Shoulder instability 6. Frozen shoulder 7. FAI	Didactic; Lectures Clinical rounds Seminars Clinical rotations (service teaching	Written Exam Oral exam

B. Mention the principles of: 3. Arthroscopy: Overview ,Basic setup, Indications and Limitations 4. Knee Arthroscopy 5. Shoulder arthroscopy 6. Hip arthroscopy 7. Elbow , Wrist and Ankle arthroscopy overview		
C. Mention briefly state of art of the following rare diseases and conditions 1. Chondromalacia patellae 2. Osteochondritis dissecans 3. Osgood-shlatter disease 4. Femro-acetabular impingement syndrome		
D. Explain the facts and principles of the relevant basic and clinically supportive sciences related to arthroscopy & sports medicine		
E. Describe the basic ethical and medicolegal principles revenant to the arthroscopy & sports medicine.		
F. Describe the basics of quality assurance to ensure good clinical care in his field		
G. Explain the ethical and scientific principles of medical research		
H. Explains the impact of common health problems in the field of arthroscopy & sports medicine on the society.		

B-Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Design / present case in common problem related to arthroscopy & sports medicine	Clinical rounds Senior staff experience	Portfolios Procedure/case presentation Log book

B. Apply the basic and clinically supportive sciences which are appropriate to the speciality related conditions / problem / topics.		
C. Demonstrate an investigatory and analytic thinking "problem – solving "approaches to clinical situation related to arthroscopy & sports medicine		
D. Plan research projects.		
E. Write scientific papers.		
F. Lead risk management activities as a part of clinical governs • Acute ligamentous injuries of the knee		
G. Plan quality improvement activities in the field of medical education and clinical practice in arthroscopy & sports medicine.		
H. Create and innovate plans, systems, and other issues for improvement of performance in his practice.		
I. Present and defend his / her data in front of a panel of experts		

C-Practical skills (Patient Care)

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Take history, examine and clinically diagnose different conditions related to arthroscopy & sports medicine	Lectures Clinical rounds Seminars Clinical round with senior staff	Clinical examination -Check list -log book & portfolio Procedure/case presentation

	Observation Post graduate teaching Hands on workshops Case Presentations	
B. Order and interpret the following non invasive and invasive diagnostic procedures 8. Diagnostic radiology including X-ray, CT & MRI related to Arthroscopy & sports medicine 9. CBC 10. Inflammatory markers (ESR + CRP) 11. Joint aspirations 12. Basic diagnostic arthroscopy		
C. Perform the following non invasive and invasive diagnostic procedures 13. Diagnostic Hip Arthroscopy 14. Diagnostic Shoulder Arthroscopy 15. Diagnostic Knee Arthroscopy 16. FAI surgery		
D. Prescribe the following non invasive and invasive therapeutic procedures. • Medical & surgical treatment of all of the previously mentioned conditions		
E. Perform the following non invasive and invasive therapeutic procedures. • Medical treatment of the previous conditions • Joint injections		

• Basic therapeutic arthroscopy		
F. Develop patient management plans for the following problems • all of the previously mentioned conditions		
G. Develop and carry out patient management plans for the following problems • Knee deformities & osteoarthritis of the knee • Frozen shoulder		
H. Counsel and educate patients and their family about • Inform patient about sequelae of operative and non-operative management . • Explain perioperative process, likely outcome and time to recovery to patients, and check understanding. • Lifestyle modification in certain orthopedic diseases		
I. Use information technology to support patient care decisions and patient education for arthroscopy & sports medicine related conditions.		
J. Provide health care services aimed at preventing the following conditions • Postoperative stiffness and wasting around joints • Advanced arthritis through early minimally invasive interventions		
K. Work with health care professionals, including those from other disciplines, to provide patient-focused care.		

D-General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology in the common problems (plain and conduct audit cycles)	Simulations Clinical round Seminars Lectures Case presentation Hand on workshops	Global rating Portfolios Procedure/case presentation Log book Check list
B. Locate, appraises, and assimilates evidence from scientific studies related to patients' health problems.		
C. Apply knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness		
D. Use information technology to manage information, access on-line medical information; and support their own education		
E. Lead the learning of students and other health care professionals.		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Create and sustain a therapeutic and ethically sound relationship with patients	Simulations Clinical round Seminars Lectures Case presentation Hand on workshops	Global rating Portfolios Procedure/case presentation Log book Chick list
G. Perform the following oral communications: • Inform patient about sequelae of operative and non-operative manage-ment . • Explain perioperative process, likely outcome and time to recovery to patients, and check understanding. • Interpretation of results of different investigations related to the conditions mentioned previously and discussion of different therapeutic options		
H. Fill the following reports: • Admission sheet • Post-operative notes • Medicolegal reports		
I. Work effectively with others as a member or leader of a health care team e.g. in operative ward.		

Professionalism

ILOs	Methods of teaching/ Learning	Methods of Evaluation
J. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society that supersedes self-interest.		1. Objective structured clinical examination 2. Patient survey
K. Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices.		1. 360o global rating
L. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities		

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
M. Work effectively in different health care delivery settings and systems.		1. 360o global rating
N. Practice cost-effective health care and resource allocation that does not compromise quality of care		1. Check list evaluation of live or recorded performance
O. Advocate for quality patient care and assist patients in dealing with system complexities		1. 360o global rating 2. Patient survey
P. Partner with health care managers and health care providers to assess, coordinate, and improve health care and predict how these activities can affect system performance		

Unit 5 Arthroplasty

A-Knowledge and understanding

ILOs	Methods of teaching/ learning	*Methods of Evaluation*
A. Explain update and evidence based etiology, clinical picture, diagnosis and management of the following common diseases and clinical conditions: • Hip & knee arthritis and its management.	Didactic; Lectures Clinical rounds Seminars Clinical rotations (service teaching	Written Exam Oral exam
B. Mention the principles of : 17. Biomechanics of joint replacement 18. The standard techniques for primary & revision hip & knee arthroplasty.		
C. Mention briefly state of art of the following rare diseases and conditions • Seronegative arthritis & monoarticular joint diseases • Ankylosing spondylitis		
D. Explain the facts and principles of the relevant basic and clinically supportive sciences related to arthroplasty		
E. Describe the ethical and medico-legal principles relevant to his practice in the field of arthroplasty.		
F. describe the basics of quality assurance to ensure good clinical care in his field		
G. Explain the ethical and scientific principles of medical research		
H. Explains the impact of common health problems in the field of arthroplasty on the society.		

B-Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Design / present case in common problem related to arthroplasty	Clinical rounds Senior staff experience	Portfolios Procedure/case presentation Log book
B. Apply the basic and clinically supportive sciences which are appropriate to arthroplasty related conditions / problem / topics.		
C. Demonstrate an investigatory and analytic thinking "problem – solving "approaches to clinical situation related to arthroplasty		
D. Plain research projects.		
E. Write scientific papers.		
F. Lead risk management activities as a part of clinical governs. • Dislocated arthroplasty • Infections in joint replacement		
G. Plan quality improvement activities in the field of medical education and clinical practice in arthroplasty.		
H. Create and innovate plans, systems, and other issues for improvement of performance in his practice.		
I. Present and defend his / her data in front of a panel of experts		

C-Practical skills (Patient Care)

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Take history, examine and clinically diagnose different conditions related to arthroplasty	Lectures Clinical rounds Seminars Clinical round with senior staff Observation Post graduate teaching Hands on workshops Case Presentations	Clinical examination -Check list -log book & portfolio Procedure/case presentation
B. Order & Interpret the following noninvasive and invasive diagnostic procedures 19. Diagnostic radiology including X-ray, CT & MRI related to arthroplasty 20. Arthrography 21. CBC 22. Inflammatory markers (ESR + CRP) 23. Culture & sensitivity 24. Histopathological examination 25. Joint aspirations		
C. Perform the following non invasive and invasive diagnostic procedures 26. Arthrography		

27. Biopsy 28. Joint aspirations		
D. Prescribe the following non invasive and invasive therapeutic procedures. • Joint injections • High tibial osteotomy • Primary arthroplasty (hemi & total) • Revision arthroplasty • Closed reduction & open reduction of dislocated arthroplasty • Management of infected arthroplasty		
E. Perform the following non invasive and invasive therapeutic procedures. • Joint injections • High tibial osteotomy • Primary hemi-arthroplasty of the hip • Closed reduction & open reduction of dislocated arthroplasty • Debridment & first stage revision of infected arthroplasty		
F. Develop patient management plans for the following problems • Osteoarthritis & other degenerative arthritis • Arthrodesed & ankylotic hips • Haemophilia & sickle cell disease • Dislocated arthroplasty		

• Infected arthroplasty • The painful arthroplasty		
G. Develop and carry out patient management plans: Acquiring essential skills for primary hip & knee arthroplasty		
H. Counsel and educate patients and their family with special consideration of protection of the patient's data		
I. Use information technology to support patient care decisions and patient education for arthroplasty related conditions.		
J. Provide health care services aimed at preventing the following conditions • Dislocation and infection of replaced joints		
K. Work with health care professionals, including those from other disciplines, to provide patient-focused care.		

D-General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology in the common problems (plain and conduct audit cycles)	Simulations -Clinical round -Seminars -Lectures -Case	Global rating -Procedure & case presentation -Log book & Portfolios

	presentation -Hand on workshops	- Chick list
B. Locate, appraises, and assimilates evidence from scientific studies related to patients' health problems.		
C. Apply knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness		
D. Use information technology to manage information, access on-line medical information; and support their own education		
E. Lead the learning of students and other health care professionals.		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Create and sustain a therapeutic and ethically sound relationship with patients	Simulations Clinical round Seminars Lectures Case presentation Hand on workshops	Global rating Portfolios Procedure/case presentation Log book Chick list
G. Perform the following oral communications: • Inform patient about sequelae of operative and non-operative manage-		

ment . • Explain perioperative process, likely outcome and time to recovery to patients, and check understanding. • Interpretation of results of different investigations related to the conditions mentioned in A.A and discussion of different therapeutic options		
H. Fill the following reports: • Admission sheet • Post-operative notes • Medicolegal reports		
I. Work effectively with others as a member or leader of a health care team e.g. in operative ward.		

Professionalism

ILOs	Methods of teaching/ Learning	Methods of Evaluation
J. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society that supersedes self-interest.		1. Objective structured clinical examination 2. Patient survey
K. Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices.		1. 360o global rating
L. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities		

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
M. Work effectively in different health care delivery settings and systems.		1. 360o global rating
N. Practice cost-effective health care and resource allocation that does not compromise quality of care		1. Check list evaluation of live or recorded performance
O. Advocate for quality patient care and assist patients in dealing with system complexities		1. 360o global rating 2. Patient survey
P. Partner with health care managers and health care providers to assess, coordinate, and improve health care and predict how these activities can affect system performance		

Unit 6 Pediatric

Knowledge and understanding

ILOs	Methods of teaching/Learning	*Methods of Evaluation*
A. To demonstrate in depth the basic knowledge and understanding in the different topics of Pediatrics Orthopedics their presentations, and their management	Didactic; Lectures Clinical rounds Seminars Clinical rotations (service teaching	Didactic; Lectures Clinical rounds Seminars Clinical rotations (service teaching
B. To mention the different causes, mechanisms and pathogenesis of Pediatrics Orthopedic cases and their management.		
C. Mention briefly state of art of the following rare diseases and conditions • congenital high scapula • congenital absent radius • congenital radioulnar synostosis • Congenital pseudoarthrosis tibia • congenital abscent tibia • congenital dislocation patella		
D. Explain the facts and principles of the relevant basic and clinically supportive sciences related to arthroplasty		
E. To mention the ethical and medico-legal principle relevant to his practice in the field of pediatric orthopedics.		
F. To know the evidence-based new trends in pediatric surgery.		

Intellectual outcomes

ILOs	Methods of teaching/learning	Methods of Evaluation
A. Demonstrate the analytic thinking "problem-solving-approach"	Clinical rounds Senior staff experience	Case presentation and logbook
B. Plan research work		
C. Write scientific papers		
D. Present and defend his data in front of panel of experts.		

Practical skills

ILOs	Methods of teaching/learning	Methods of Evaluation
A. Provide extensive level of patient care with patients with all common diagnosis and uncomplicated procedures in the field of pediatric surgeries.		
B. Provide extensive level of patient care with patients with uncommon diagnosis and complicated procedures under increasingly difficult situation while demonstrating appropriate effective care.		
C. Performing essential diagnostic and therapeutic procedures regarding pediatric surgeries		
D. Management of the unexpected complications demonstration special consideration for the patient needs and concerns		
E. Communicate and council the patient and his family with special consideration of protection of the patient's data		
F. Perform the most common invasive techniques regarding pediatric surgery.		

G. Write competently all forms of documentation for the patients and all evaluation and scoring forms		

General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Participate in research projects.	-Observation and supervision -Written and oral communication	Log book Oral exam
B. Appraise evidence from scientific studies related to patient's problem		
C. Use information technology to manage information, access on-line medical information; and support their own education		
D. Lead the learning of students and other health care professionals.		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
E. Write a report in common condition mentioned in A.A and A.B	-Clinical round -Seminars -Lectures	- Logbook Oral exam Chick list
F. Master communication skills with the patient and his family		
G. Present a case.		
H. Write a consultation note.		
I. Teamwork skills		

Professionalism

ILOs	Methods of teaching/ Learning	Methods of Evaluation
J. Demonstrate a commitment to ethical principles	Observation Senior staff experience Case taking	Logbook Oral exam

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
K. Work effectively in different health care delivery settings and systems	-Observation -Senior staff experience	1. 360o global rating

Unit 7 Hand and Microsurgical reconstruction

A-Knowledge and understanding

ILOs	Methods of teaching/Learning	*Methods of Evaluation*
A. To demonstrate in depth the basic knowledge and understanding in the different causes of hand injury Deformities, their presentations, and their management	Clinical rounds Senior staff experience	Case presentation And log book
B. To mention the different type of brachial plexus injury obstetric or traumatic , mechanisms and pathogenesis of injury and presentation and its management.		
C. To mention the type of coverage in different sit limb in post traumatic cases D. Including local and free flap to cover exposed bone tendons ,vessels and nerve		
E. To mention functional free muscle transfer and tendon transfer to improve the function and correct the deformity		
F. To know the basic knowlge about tumor resection and reconstructive bony and soft tissue transfer		

B-Intellectual outcomes

ILOs	Methods of teaching/learning	Methods of Evaluation
A. Demonstrate the analytic thinking "problem-solving-approach"	Clinical rounds Senior staff experience	Lo g book Case presention
B. Plan research work		
C. Write scientific papers		
D. Present and defend his data in front of panel of experts.		

C-Practical skills

ILOs	Methods of teaching/learning	Methods of Evaluation
A. Provide extensive level of patient care with patients with all common diagnosis and uncomplicated procedures in the hand and microsurgical reconstruction	Lectures Clinical rounds Seminars Clinical round with senior staff Observation	Clinical examination -Check list -log book & portfolio Procedure/case presentation
B. Provide extensive level of patient care with patients with uncommon diagnosis and complicated procedures under increasingly difficult situation while demonstrating appropriate effective care.		
C. Mention briefly state of art of the following rare diseases and conditions Replantation of amputated limbs or parts of limbs		
D. Performing essential diagnostic and therapeutic procedures regarding hand and microsurgical reconstruction		
E. Management of the unexpected complications demonstration special consideration for the patient needs and concerns		
F. Communicate and council the patient and his family with special consideration of protection of the patient's data		
G. Perform the most common invasive techniques regarding hand and microsurgical reconstructionsurgery.		
H. Write competently all forms of documentation for the patients and all evaluation and scoring forms		

General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Participate in research projects.	-Observation and supervision -Written and oral communication	Log book Oral exam
B. Appraise evidence from scientific studies related to patient's problem		
C. Present a case.		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
D. Write a report in common condition mentioned in A.A and A.B	-Clinical round -Seminars -Lectures	- Logbook Oral exam Chick list
E. Master communication skills with the patient and his family		
F. Write a consultation note.		
G. Teamwork skills		

Professionalism

ILOs	Methods of teaching/ Learning	Methods of Evaluation
H. Demonstrate a commitment to ethical principles	Observation Senior staff experience Case taking	Logbook Oral exam

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
I. Work effectively in different health care delivery settings and systems	-Observation -Senior staff experience	1. 360o global rating

Unit 8 Foot and Ankle and Deformity Correction

A-Knowledge and understanding

ILOs	Methods of teaching/ Learning	*Methods of Evaluation*
A. Explain update and evidence based etiology, clinical picture, diagnosis and management of the following common diseases and clinical conditions: - The different causes of Deformities	Didactic; Lectures Clinical rounds Seminars Clinical rotations (service teaching	Written Exam Oral exam
B. To mention the different causes, mechanisms and pathogenesis of foot pain and its management.		
C. To Explain the facts and principles of the relevant basic and clinically supportive sciences related to arthroplasty		
D. To mention the ethical and medico-legal principle relevant to his practice in the field of deformity correction.		
E. To know the evidence-based new trends in deformity management, foot and ankle surgery.		

B-Intellectual outcomes

ILOs	Methods of teaching/learning	Methods of Evaluation
A. Demonstrate the analytic thinking "problem-solving-approach"	Clinical rounds Senior staff experience	Portfolios Procedure/case presentation Log book
B. Plan research work		
C. Write scientific papers		
D. Present and defend his data in front of panel of experts.		

C-Practical skills

ILOs	Methods of teaching/learning	Methods of Evaluation
A. Take history, examine and clinically diagnose different conditions related to field of deformity correction and foot and ankle surgeries	Lectures Clinical rounds Seminars Clinical round with senior staff Observation Post graduate teaching Hands on workshops Case Presentations	Clinical examination -Check list -log book & portfolio Procedure/case presentation
B. Provide extensive level of patient care with patients with uncommon diagnosis and complicated procedures under increasingly difficult situation while demonstrating appropriate effective care.		
C. Performing essential diagnostic and therapeutic procedures regarding deformity correction and foot and ankle surgeries		
D. Management of the unexpected complications demonstration special consideration for the patient needs and concerns		

E. Communicate and council the patient and his family with special consideration of protection of the patient's data		
F. Perform the most common invasive techniques regarding deformity correction and foot and ankle surgery.		
G. Write competently all forms of documentation for the patients and all evaluation and scoring forms		

D-General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology in the common problems (plain and conduct audit cycles)	-Simulations -Clinical round -Seminars -Lectures -Case presentation -Hand on workshops	- Global rating -Procedure & case presentation -Log book & Portfolios - Chick list
B. Locate, appraises, and assimilates evidence from scientific studies related to patients' health problems.		
C. Apply knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness		
D. Use information technology to manage information, access on-line medical information; and support their own education		
E. Lead the learning of students and other health care professionals.		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Write a report in common condition mentioned in A.A and A.B	-Clinical round -Seminars -Lectures	- Logbook Oral exam Chick list
G. Master communication skills with the patient and his family		
H. Present a case.		
I. Write a consultation note.		
J. Teamwork skills		

Professionalism

ILOs	Methods of teaching/ Learning	Methods of Evaluation
K. Demonstrate a commitment to ethical principles	Observation Senior staff experience Case taking	Logbook Oral exam

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
L. Work effectively in different health care delivery settings and systems	-Observation -Senior staff experience	1. 360o global rating

4. Course contents (topic s/modules/rotation
Course Matrix

Time Schedule: Second part

Topic	Covered ILOs			
	Knowledge A	**Intellectual B**	**Practical skill C**	**General Skills D**
Unit 1 Trauma				
1. Poltrauma patient: including ATLS Protocol	A, D-H	A-J	A-J	A-P
Open Fractures	A, D-H	A-J	A-J	A-P
- Diaphyseal fractures management - Articular fractures management - Absolute and relative stability - Open Fractures - Complications of fractures - Pathological Fractures - Fixation principles in osteoporotic bone - Peri-prothetic fractures - Epiphyseal injuries	A, D-H	A-J	A-J	A-P
Internal Fixation	B,D,F	A-E,G-J	G, I, J	C-E, N-P
External Fixation	B,D,F	A-E,G-J	G, I, J	C-E, N-P
• Diagnostic radiology including X-ray, CT & MRI related to traumatic conditions	B,D	C,H	B, C,I,J	C-E, N-P
Unit 2 General Orthopedic				
Bone Basic Science Types of Bone Bone Cells,Bone Matrix,Bone	A-D	A-D	A-G	A-I

Marrow,Bone Circulation Bone Signaling & RANKL				
Bone Formation & Healing • Embryology,Endochondral Bone Formation • Intramembranous Bone Formation, Bone Remodeling, Fracture Healing • Nonunion,Bone Growth Factors- • Bone Grafting,Platelet-Rich Plasma	A-D	A-D	A-G	A-I
•Biologic Tissues Collagen,artilage,Tendons,Ligaments	A-D	A-D	A-G	A-I
-Joints • Articular Cartilage , Synovium & Synovial Fluid	A-D	A-D	A-G	A-I
-Neuromascular anatomy • Muscle Biology & Physiolo • Spinal Cord Monitoring	A-D	A-D	A-G	A-I
Molecular Biology & Genetics ○ Molecular Biology Basics ○ Immunology ○ Inheritance Patterns of Or ○ Genetic pearls				
○ Biomechanics ○ Material Properties,Structural Properties,Orthopaedic	A-D	A-D	A-G	A-I

Implants,Hip Biomechanics,Knee Biomechanics ○ Bioabsorbable Materials ○ Rehab & Prosthetics				
Statistics & Evidence Statistic Definitions,Outcome Measure Tools,Clinical Trial Design,Level of Evidence,Legal and Ethics, Occupational Health	A-D	A-D	A-G	A-I
Blood Conditions • Anticoagulation • Fat Embolism Syndrome,Thromboembolism (PE & DVT)	A-D	A-D	A-G	A-I
<u>Joint Diseases</u> Osteoarthritis Gout,Pseudogout (CPPD(Neuropathic (Charcot) Joint of Shoulder & Elbow and knee Hemophilic Arthropathy	A-D	A-D	A-G	A-I
Neurologic Diseases Multiple Sclerosis,Amyotrophic Lateral Sclerosis (ALS),Complex Regional Pain Syndrome (CRPS(Systemic Diseases	A-D	A-D	A-G	A-I
Systemic Diseases Rheumatoid Arthritis,Systemic Lupus Erythematosus (SLE) Lyme Disease Acute Rheumatic Fever	A-D	A-D	A-G	A-I
Metabolic Disease	A-D	A-D	A-G	A-I

PTH & Vit D Physiology Hypoparathyroidism,Hyperparathyroidism Rickets,Osteopenia & Osteoporosis,Osteomalacia				
Unit 3 Spine				
Anatomy: Development of the spine, spinal cord and nerve roots Anatomy and principles of surgical approaches: anterior and posterior at each level and endoscopic access	A-F	A-D	A-G	A-K
Physiology : Physiology of nerve function affecting the spinal cord and emerging nerves Spinal shock and associated secondary problems	A-F	A-D	A-G	A-K
Pathology : The aging spine and degenerative disease Acute and chronic infections of the spine Metabolic conditions affecting the spine Neurological conditions affecting the spine	A-F	A-D	A-G	A-K
Deformity: Congenital and acquired conditions causing deformity around the spine e.g. scoliosis	A-F	A-D	A-G	A-K

and kyphosis				
Pain : Causes of the acutely painful back, including referred pain e.g. acute prolapsed disc	A-F	A-D	A-G	A-K
Neoplasia Primary and secondary tumours of the spine	A-F	A-D	A-G	A-K
Investigations: Radiological investigations (and their interpretation) used to assess common spine conditions Role of diagnostic and therapeutic injections Blood tests Electrophysiological studies (including cord monitoring)	A-F	A-D	A-G	A-K
Assessments History and examination of the painful and injured spine including special clinical tests Examinations of conditions causing referred symptoms to the spine (e.g. renal pain) Assessment of patients after failed spinal surgery for deformity and reconstruction for nondegenerative disease	A-F	**A-D**	**A-G**	**A-K**
Treatments Indications, options and complications for compressive conditions	A-F	**A-D**	**A-G**	**A-K**

Indications, options and complications of instability of the spine Principles of management of tumours around the spine Principles of management of deformity of the spine Principles of the application of spinal bracing				
Unit 4 Arthroscopy and Sport Medicine				
Osteoarthritis of the Knee	A, D-H	A-E, G-I	A-F, H-K	A-P
Meniscal injuries	A, D-H	A-E, G-I	A-F, H-K	A-P
Shoulder instability	A, D-H	A-E, G-I	A-F, H-K	A-P
Frozen shoulder	A, D-H	A-E, G-I	A-K	A-P
Basic diagnostic & therapeutic arthroscopy	B,D,F	A-E, G-I	B, C, H-K	C-E, N-P
Knee Arthroscopy Shoulder arthroscopy Hip arthroscopy Elbow , Wrist and Ankle arthroscopy overview	B, D-H	A-J	A-K	A-P
FAI	A,D-H	A-J	A-K	A-P
Rotator cuff tears	A, D-H	A-E, G-I	A-F, H-K	A-P
Shoulder instability	A, D-H	A-E, G-I	A-F, H-K	A-P
Unit 5 Arthroplasty				
General knowledge: Modern prosthesis evolution & design Biomechanics & wear Surgical approaches	A-H	A-I	A-K	A-P
Preoperative evaluation : Indications & Contraindications Ethical considerations Choosing suitable implants	A-H	A-I	A-K	A-P

Templating				
Primary Total knee replacement Surgical technique Problems related to specific disorders	A-H	A-I	A-K	A-P
Primary Total hip replacement Surgical technique Problems related to specific disorders	A-H	A-I	A-K	A-P
Postoperative Care : Rehabilitation Infections Periprosthtic fractures Dislocation Chronic pain	A-H	A-I	A-K	A-P
- Revisions : Revision THR Revision TKR	**A-H**	**A-I**	**A-K**	**A-P**
Unit 6 Pediatrics				
Hip & Pelvis Conditions	A-F	A-D	A-G	A-K
.Developmental Dysplasia of the Hip	A-F	A-D	A-G	A-K
.Legg-Calve-Perthes Disease (Coxa plana)	A-F	A-D	A-G	A-K
.Slipped Capital Femoral Epiphysis	A-F	A-D	A-F	A-F
.Developmental Coxa Vara	A-F	A-D	A-F	A-F
Leg Conditions	A-F	A-D	A-F	A-F
• Proximal Femoral Focal Deficiency	A-F	A-D	A-G	A-K
•Leg Length Discrepancy (LLD)	A-F	A-D	A-G	A-K
Pediatric Knee	A-F	A-D	A-G	A-K
Congenital Dislocation of the Knee	A-F	A-D	A-F	A-F

Congenital Dislocation of Patella	A-F	A-D	A-F	A-F
Bipartite Patella	A-F	A-D	A-F	A-F
Varus & Valgus Deformities	A-F	A-D	A-G	A-K
Tibial bowing	A-F	A-D	A-G	A-K
Neurofibromatosis	A-F	A-D	A-F	A-F
Anterolateral Bowing & Congenital Pseudoarthrosis of Tibia	A-F	A-D	A-F	A-F
Tibial Deficiency	A-F	A-D	A-F	A-F
Rotational Deformities	A-F	A-D	A-G	A-K
Femoral Anteversion	A-F	A-D	A-G	A-K
Internal Tibial Torsion	A-F	A-D	A-G	A-K
External Tibial Torsion	A-F	A-D	A-F	A-F
Metatarsus Adductus	A-F	A-D	A-F	A-F
Pediatric Foot	A-F	A-D	A-F	A-F
Cavus Deformities	A-F	A-D	A-G	A-K
Clubfoot (congenital talipes equinovarus)	A-F	A-D	A-G	A-K
Cavovarus Foot in Pediatrics & Adults	A-F	A-D	A-G	A-K
Equinovarus Foot	A-F	A-D	A-G	A-K
Equinovalgus Foot	A-F	A-D	A-G	A-K
Planus deformity	A-F	A-D	A-G	A-K
Congenital Vertical Talus (convex pes valgus) Tarsal Coalition & Peroneal Spastic Flatfoot Accessory Navicular&	A-F	A-D	A-G	A-F

Calcaneovalgus Foot				
Toe Conditions Congenital Hallux Varus (Atavistic Great Toe) Syndactyly of the Toes Polydactyly of Foot	A-F	A-D	A-G	A-F
Cerebral Palsy	A-F	A-D	A-G	A-F
Collagen & Bone	A-F	A-D	A-G	A-K
Chromosomal Down's Syndrome Turner's Syndrome Dysplasia Epiphysealis Hemimelica (Trevor's Disease)	A-F	A-D	A-G	A-K
Upper Extremity Conditions Sprengel's Deformity Obstetric Brachial Plexopathy (Erb's, Klumpke's Palsy)	A-F	A-D	A-G	A-K
Infection Osteomyelitis - Pediatric Hip Septic Arthritis - Pediatric	A-F	A-D	A-F	A-F
Unit 7 Hand and Microsurgical reconstruction				
hand: All zones of injury flexor and extensor Follow up of all hand injuries till reaching a steady state arthrodesis of hand joints Mini plate application Simple local hand flaps (Thenar, cross finger (Tendon	A-F	A-D	A-H	A-I

transfer for radial and ulnar nerves				
Brachial plexuse and peripheral nerve injury Basic anatomy and machenism if injury Clinical presentation Radiological study and neurophysiological study Exploration and repair and neurotization	A-F	A-D	A-H	A-I
Flap basic anatomy flap design and use in different site local flap: sural,posteriorinterossus flap, radial forarm ,groin and abdominal flap -free flap selection ,harvesting, insitting,and microvasular anastomosis	A-F	A-D	A-H	A-I
Principles of deformity of upper limb Basic Science and Biological Principles of Distraction Osteogenesis Oseotomies of hand and upper limb Enhancements of Regenerate Bone Healing Principles of management of bone defects	A-F	A-D	A-H	A-I
Functional muscle transfer Volkman contracture Post traumatic muscle loss Posttraumatic nerve injury	A-F	A-D	A-H	A-I
- Tumor resection - Basic tumor workup -Resection technique limb saving surgery	A-F	A-D	A-H	A-I

-Reconstruction for bone loss ,soft tissue ,nerve and joint after resection				
Unit 8 : Foot and Ankle and Deformity Correction Surgery				
- Deformity : Overview, Causes, - Presentations and Management - Normal lower limb Alignment and Joint Orientation -Malalignment and Malorientation in the Frontal Plane Malalignment and Malorientation in the Sagittal Plane	A-E	A-D	A-G	A-L
Principles of planning of deformity correction Radiographic Assessment of Lower Limb Deformities Concepts of Osteotomy Translation and Angulation-Translation Deformity Rotation and Angulation-Rotation Deformity	A-E	A-D	A-G	A-L
Adult knee deformities Unicompartmental Knee Arthritis High Tibial Osteotomy Distal Femoral Osteotomy	A-E	A-D	A-G	A-L
Principles of deformity correction using external fixators Basic Science and Biological Principles of Distraction Osteogenesis Mechanical Principles of the Ilizarov Method Enhancements of Regenerate Bone Healing Principles of management of bone	A-E	A-D	A-G	A-L

defects				
Foot and ankle osteotomies Foot Anatomy and Biomechanics Pes Cavus Pes Planus Recurrent Talipes Equinocavovarus Heal pain Forefoot Osteotomies	A-E	A-D	A-G	A-L
Foot and ankle arthrodesis Neuropathic Arthropathy in the Foot Hindfoot Arthrodesis Foot contractures	A-E	A-D	A-G	A-L

5. Course Methods of teaching/learning:

1. Didactic (lectures, seminars, tutorial)
2. Case presentation
3. Direct observation
4. journal club,
5. Clinical rounds
6. Senior staff experience
7. Case log
8. Observation and supervision
9. Hand on workshop
10. Simulations

6. Course Methods of teaching/learning: for students with poor achievements

1. Extra lectures
2. Extra training

7. Course assessment methods:

i. Assessment tools:

1. Clinical examination
2. oral examination

3. Written examination
4. Objective structure clinical examination (OSCE)
5. Portfolios
6. Procedure/case Log book
7. Simulation
8. Record review (report)
9. Patient survey
10. 360o global rating
11. Check list evaluation of live or recorded performance

ii. Time schedule: At the end of second part

iii. Marks: 1200

8. List of references

i. Lectures notes

- Course notes
- Staff members print out of lectures and/or CD copies

ii. Essential books

- Chapman's Comprehensive Orthopaedic Surgery 4th Edition, 2019

iii. Recommended book

- Campbell's Operative Orthopaedics, 14th Edition, 2020
- Clinical Orthopaedic Examination 5th Edition By McRai's, 2004
- Roger Dee Orthopaedics and Trauma

iv. Periodicals, Web sites, … etc

Wheeless Text of Orthopedics
Orthopedics Hyperguide
Orthoteers
Online Jounrals
Pubmed

vi. Others : None

9. Signatures

Course Coordinator:	**Head of the Department:**
Date:	**Date:**

ANNEX 2
Program Academic Reference Standards (ARS)

1- Graduate attributes for medical doctorate in orthopedic surgery

***The Graduate (after residence training and medical doctorate years of study) must*:**

1- Demonstrate competency and mastery of basics, methods and tools of scientific research and clinical audit in Orthopedic surgery.

2- Have continuous ability to add knowledge Orthopedic surgery through research and publication.

3- Appraise and utilise relevant scientific knowledge to continuously update and improve clinical practice.

4- Acquire excellent level of medical knowledge in the basic biomedical, behavioural and clinical sciences, medical ethics and medical jurisprudence and apply such knowledge in patient care and scientific research.

5- Function as a leader of a team to provide patient care that is appropriate, effective and compassionate for dealing with health problems and health promotion.

6- Identify and create solutions for health problems in Orthopedic surgery.

7- Acquire an in depth understanding of common areas of Orthopedic surgery, from basic clinical care to evidence based clinical application, and possession of required skills to manage independently all problems in these areas.

8- Demonstrate leadership competencies including interpersonal and communication skills that ensure effective information exchange with individual patients and their families and teamwork with other health professions, the scientific community and the public.

9- Function as teacher in relation to colleagues, medical students and other health professions.

10- Master decision making capabilities in different situations related to Orthopedic surgery

11- Show leadership responsiveness to the larger context of the health care system, including e.g. the organisation of health care, partnership with health care providers and managers, practice of cost-effective health care, health economics, and resource allocations.

12- Demonstrate in depth awareness of public health and health policy issues including independent ability to improve health care, and identify and carryout system-based improvement of care.

13- Show model attitudes and professionalism.

14- Demonstrate commitment for lifelong learning and maintenance of competence and ability for continuous medical education and learning in subsequent stages and in Orthopedic surgery or one of its subspecialties.

15- Use recent technologies to improve his practice in Orthopedic surgery

16- Share in updating and improving clinical practice in Orthopedic surgery.

2- Competency based Standards for medical doctorate in Orthopaedic surgery

22.1- Knowledge and understanding

By the end of the program, the graduate should demonstrate satisfactory knowledge and understanding of

2-1-A- Established, updated and evidence- based theories, basics and developments of Orthopedic surgery and relevant sciences.

2-1-B- Basics, methods and ethics of medical research.

2-1-C- Ethical and medicolegal principles of medical practice related to Orthopedic surgery.

2-1-D- Principles and measurements of quality in Orthopedic surgery.

2-1-E- Principles and efforts for maintainace and improvements of public health.

2- Intellectual skills

By the end of the program, the graduate should be able to demonstrate the following

2-2-A- Application of basic and other relevant science to solve Orthopedic surgery related Problems.

2-2-B- Problem solving based on available data.

2-2-C- Involvement in research studies related to Orthopedic surgery

2-2-D- Writing scientific papers.

2-2-E- Risk evaluation in the related clinical practice.

2-2-F- Planning for performance improvement in Orthopedic surgery.

2-2-G- Creation and innovation in Orthopedic surgery.

2-2-H- Evidence – based discussion.

2-2-I- Decision making in different situations related to Orthopedic surgery.

2.3- Clinical skills

By the end of the program, the graduate should be able to

- ***Competency-based outcomes for Patient Care:-***

2-3-A- MD students must be able to provide extensive level of patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health extensive level means in depth understanding and from basic science to evidence – based clinical application and possession of skills to manage independently all problems in Orthopedic surgery.

2-3-B- Master patient care skills relevant to Orthopedic surgery for patients with all diagnoses and procedures.

2-3-C- Write and evaluate reports for situations related to the Orthopedic surgery.

2.4- General skills

By the end of the program, the graduate should be able to

- ***Competency-based outcomes for Practice-based Learning and Improvement***

2-4-A-Master practice-based learning and improvement skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, improvements in patient care and risk management

2-4-B- Use competently all information sources and technology to improve his practice.

2-4-C- Master skills of teaching and evaluating others.

- ***Competency-based objectives for Interpersonal and Communication Skills***

2-4-D-Master interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, and other health professionals.

- ***Competency-based objectives for Professionalism***

2-4-E-Master Professionalism behavior, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

- ***Competency-based objectives for Systems-based Practice:***

2-4-F-Demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively use system resources to provide care that is of optimal value.

2-4-G- Participate in improvement of the education system.

2-4-H- Demonstrate skills of leading scientific meetings including time management

2-4-O- Demonstrate skills of self and continuous learning.

Annex 3, Methods of teaching/learning

Annex 3, Methods of teaching/learning

	Patient care	Medical knowledge	Practice-based learning/ improvement	Interpersonal and communication skills	Professionalism	Systems-based practice
Didactic (lectures, seminars, tutorial)	X	X		X	X	X
journal club,	X	X	X			
Educational prescription	X	X	X	X	X	X
Present a case (true or simulated) in a grand round	X	X	X	X	X	
Observation and supervision	X		X	X	X	X
conferences		X	X	X		X
Written assignments	X	X	X	X	X	X
Oral assignments	X	X	X	X	X	X

Teaching methods for knowledge

- Didactic (lectures, seminars, tutorial)
- journal club
- Critically appraised topic
- Educational prescription (a structured technique for following up on clinical questions that arise during rounds and other venues).
- Present a case (true or simulated) in a grand round
- Others

Teaching methods for patient care

- Observation and supervision /Completed tasks procedure/case logs
- On-the-job" training without structured teaching is not sufficient for this skill (checklists).
- Simulation is increasingly used as an effective method for skill/ teamwork training.

Teaching methods for other skills

- Written communication (e.g., orders, progress note, transfer note, discharge summary, operative reports, and diagnostic reports).
- Oral communication (e.g., presentations, transfer of care, interactions with patients, families, colleagues, members of the health care team) and/or non verbal skills (e.g., listening, team skills)
- Professionalism, including medical ethics, may be included as a theme throughout the program curriculum that includes both didactic and experiential components (e.g., may be integrated into already existing small group discussions of vignettes or case studies and role plays, computer-based modules) and may be modeled by the faculty in clinical practice and discussed with the resident as issues arise during their clinical practice.

Annex 4, Assessment methods

Annex 4, competency evaluation methods for residency training.

	Patient care	Medical knowledge	Practice-based learning/ improvement	Interpersonal and communication skills	Professionalism	Systems-based practice
Record review	X	X		X	X	X
Checklist	X			X		
Global rating	X	X	X	X	X	X
Simulations	X	X	X	X	X	
Portfolios	X	X	X	X		
Standardized oral examination	X	X		X		X
Written examination	X	X				X
Procedure/ case log	X	X				

Annex 4, Glossary of MD doctors assessment methods

- Record Review – Abstraction of information from patient records, such as medications or tests ordered and comparison of findings against accepted patient care standards.

- Chart Stimulated Recall – Uses the MD doctor's patient records in an oral examination to assess clinical decision-making.

- Mini clinical evaluation: Evaluation of Live/Recorded Performance (single event) – A single resident interaction with a patient is evaluated using a checklist. The encounter may be videotaped for later evaluation.

- Standardized Patients (SP) – Simulated patients are trained to respond in a manner similar to real patients. The standardized patient can be trained to rate MD doctor's performance on checklists and provide feedback for history taking, physical examination, and communication skills. Physicians may also rate the MD doctor's performance.

- Objective Structured Clinical Examination (OSCE) – A series of stations with standardized tasks for the MD doctors to perform. Standardized patients and other assessment methods often are combined in an OSCE. An observer or the standardized patient may evaluate the MD doctors.

- Procedure or Case Logs – MD doctors prepare summaries of clinical experiences including clinical data. Logs are useful to document educational experiences and deficiencies.

- PSQs – Patients fill out Patient Survey questionnaires (PSQs) evaluating the quality of care provided by a MD doctors.

- Case /problems – assess use of knowledge in diagnosing or treating patients or evaluate procedural skills.

- Models: are simulations using mannequins or various anatomic structures to assess procedural skills and interpret clinical findings. Both are useful to assess practice performance and provide constructive feedback.

- 360 Global Rating Evaluations – MD doctors, faculty, nurses, clerks, and other clinical staff evaluate MD doctors from different perspectives using similar rating forms.

- Portfolios – A portfolio is a set of project reports that are prepared by the MD doctors to document projects completed during the MD study years. For each type of project standards of performance are set. Example projects are summarizing the research literature for selecting a treatment option, implementing a quality improvement program, revising a medical student clerkship elective, and creating a computer program to track patient care and outcomes.

- Examination MCQ – A standardized examination using multiple-choice questions (MCQ). The in-training examination and written board examinations are examples.
- Examination Oral – Uses structured realistic cases and patient case protocols in an oral examination to assess clinical decision-making.
- Procedure or Case Logs – MD doctors prepare summaries of clinical experiences including clinical data. Logs are useful to document educational experiences and deficiencies.
- PSQs – Patients fill out Patient Survey questionnaires (PSQs) evaluating the quality of care provided by MD doctors.

Annex 5, Program evaluation tools

By whom	Method	sample
Quality Assurance Unit	Reports Field visits	#
External Evaluator (s):According to department council External Examiner (s): According to department council	Reports Field visits	#
Stakeholders	Reports Field visits questionnaires	#
Senior students	questionnaires	#
Alumni	questionnaires	#

Annex 6, Program Correlations:

مصفوفة توافق المعايير القومية القياسية العامة لبرامج الدكتوراه مع المعايير الأكاديمية المعتمدة من كلية الطب □ جامعة أسيوط لدرجة الدكتوراه في جراحة العظام

I- General Academic Reference Standards (GARS) versus Program ARS

1- Graduate attributes

Faculty ARS	NAQAAE General ARS for Postgraduate Programs
1- Demonstrate competency and mastery of basics, methods and tools of scientific research and clinical audit in Orthopedic surgery	1-إتقان أساسيات و منهجيات البحث العلمي
2- Have continuous ability to add knowledge new developments to Orthopedic surgery through research and publication.	2-العمل المستمر علي الإضافة للمعارف في مجال التخصص
3- Appraise and utilise scientific knowledge to continuously update and improve clinical practice and relevant basic sciences.	3-تطبيق المنهج التحليلي والناقد للمعارف في مجال التخصص و المجالات ذات العلاقة
4- Acquire excellent level of medical knowledge in the basic biomedical, clinical, behavioural and clinical sciences, medical ethics and medical jurisprudence and apply such knowledge in patient care and scientific	4-دمج المعارف المتخصصة مع المعارف ذات العلاقة مستنبطا و مطورا للعلاقات البينية بينها
5- Function as a leader of a team to provide patient care that is appropriate, compassionate for dealing with effective and health Problems and health promotion. 7- Acquire an in depth understanding of common areas of speciality, from basic clinical care to evidence based clinical application, and possession of skills to manage independently all problems in these areas.	5-إظهار وعيا عميقا بالمشاكل الجارية و النظريات الحديثة في مجال التخصص
6- Identify and create solutions for health problems in Orthopedic surgery.	6-تحديد المشكلات المهنية و إيجاد حلولا مبتكرة لحلها
5- Function as a leader of a team to provide patient care that is appropriate,	7-إتقان نطاقا واسعا من المهارات المهنية في

effective and compassionate for dealing with health problems and health promotion. 7- Acquire an in depth understanding of common areas of Orthopedic surgery, from basic clinical care to evidence based clinical application, and possession of skills to manage independently all problems in these areas.	مجال التخصص
16- Share in updating and improving clinical practice in Orthopedic surgery 9- Function as teacher in relation to colleagues, medical students and other health professions.	8- التوجه نحو تطوير طرق و أدوات و أساليب جديدة للمزاولة المهنية
15- Use recent technologies to improve his practice in Orthopedic surgery.	9-استخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية
8- Demonstrate leadership competencies including interpersonal and communication skills that ensure effective information exchange with individual patients and their families and teamwork with other health professions, the scientific community and the public. 5- Function as a leader of a team to provide patient care that is appropriate, effective and compassionate for dealing with health problems and health promotion.	10-التواصل بفاعلية و قيادة فريق عمل في سياقات مهنية مختلفة
10- Master decision making capabilities in different situations related to Orthopedic surgery.	11-اتخاذ القرار في ظل المعلومات المتاحة
11- Show leadership responsiveness to the larger context of the health care system, including e.g. the organisation of health care, partnership with health care providers and managers, practice of cost-effective health care, health economics, and resource allocations.	12-توظيف الموارد المتاحة بكفاءة و تنميتها والعمل على إيجاد موارد جديدة
12- Demonstrate in depth awareness of public health and health policy issues including	13-الوعي بدوره في تنمية المجتمع والحفاظ

independent ability to improve health care, and identify and carryout system-based improvement of care.	على البيئة
13- Show model attitudes and professionalism.	14-التصرف بما يعكس الالتزام بالنزاهة و المصداقية و قواعد المهنة
14- Demonstrate commitment for lifelong learning and maintenance of competence and ability for continuous medical education and learning in subsequent stages and in Orthopedic surgery or one of its subspecialties. 15- Use recent technologies to improve his practice in Orthopedic surgery	15-الالتزام بالتنمية الذاتية المستمرة و نقل علمه و خبراته للآخرين

2- Academic standards

Faculty ARS	NAQAAE General ARS for Postgraduate Programs
2.1. A- Established, updated and evidence- based theories, basics and developments of Orthopedic surgery and relevant sciences.	2-1-أ- النظريات و الأساسيات والحديث من المعارف في مجال التخصص والمجالات ذات العلاقة
2.1. B- Basic, methods and ethics of medical research.	2-1-ب –أساسيات و منهجيات و أخلاقيات البحث العلمي و أدواته المختلفة
2.1. C- Ethical and medicologal principles of medical practice related to Orthopedic surgery.	2-1-ج- المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص
2.1. D- Principles and measurements of quality in Orthopedic surgery.	2-1-د مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص
2.1. E- Principles and efforts for maintains and improvements of public health.	2-1-هـ – المعارف المتعلقة بآثار ممارسته المهنية على البيئة وطرق تنمية البيئة وصيانتها
2.2. A- Application of basic and other relevant science to solve Orthopedic surgery related problems.	2–2–أ –تحليل و تقييم المعلومات في مجال التخصص و القياس عليها و الاستنباط منها
2.2.B- Problem solving based on available data.	2–2–ب –حل المشاكل المتخصصة استنادا علي المعطيات المتاحة
2.2.C- Involvement in research studies related t Orthopedic surgery.	2–2–ج –إجراء دراسات بحثية تضيف إلى المعارف
2.2. D- Writing scientific papers.	2–2–د– صياغة أوراق علمية
2.2. E- Risk evaluation in the related clinical practice.	2–2—هـ تقييم المخاطر في الممارسات المهنية
2.2.F- Planning for performance improvement in Orthopedic surgery.	2–2–و –التخطيط لتطوير الأداء في مجال التخصص
2-2-G- Creation and innovation in the Orthopedic surgery.	2–2–ز– الابتكار /الإبداع
2.2. H- Evidence – based discussion.	2–2–ح– الحوار والنقاش المبني علي البراهين والأدلة
2.2.I- Discussion making in different situations related to Orthopedic	2–2–ط –اتخاذ القرارات المهنية في سياقات مهنية

surgery.	مختلفة
2.3. A- MD students must be able to provide extensive level of patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health extensive level means in depth understanding and from basic science to evidence – based clinical application and possession of skills to manage independently all problems in Orthopedic surgery. 2.3. B- Master patient care skills relevant to Orthopedic surgery or patients with all diagnoses and procedures.	2-3-أ -إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص
2.3. C- Write and evaluate reports for situations related to the field of Orthopedic surgery.	2-3-ب- كتابة و تقييم التقارير المهنية.
2.4.A-Master practice-based learning and improvement skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, improvements in patient care and risk management	2-3-ج -تقييم و تطوير الطرق و الأدوات القائمة في مجال التخصص
2.4.B- Use competently all information sources and technology to improve his practice.	2-3-د - استخدام الوسائل التكنولوجية بما يخدم الممارسة المهنية
2.4.A-Master practice-based learning and improvement skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, improvements in patient care and risk management 2.4.G- Participate in improvement of the education system.	2-3-هـ -التخطيط لتطوير الممارسة المهنية وتنمية أداء الآخرين

II-Program ARS versus program ILOs

Comparison between ARS- ILOS for medical doctorate

(ARS)	(ILOs)
2-1- Knowledge and understanding	***2-1- Knowledge and understanding***
2-1-A- Established, updated and evidence-based Theories, Basics and developments of Orthopedic surgery and relevant sciences.	**2-1-A**- Demonstrate in-depth knowledge and understanding of theories, basics and updated biomedical, clinical epidemiological and socio behavioral science relevant to his speciality as well as the evidence – based application of this knowledge to patient care.
2-1-B Basic, methods and ethics of medical research.	**2-1-B-** Explain basics, methodology, tools and ethics of scientific medical, clinical research.
2-1-C- Ethical and medicologal principles of medical practice related to Orthopedic surgery field.	**2-1-C-** Mention ethical, medico logical principles and bylaws relevant to his practice in the field of Orthopedic surgery.
2-1-D- Principles and measurements of qu in the Orthopedic surgery	**2-1-D-** Mention principles and measurements of quality assurance and quality improvement in medical education and in clinical practice of Orthopedic surgery.
2-1-E-Principles and efforts for maintains and improvements of public health.	**2-1-E-** Mention health care system, public health and health policy, issues relevant to this speciality and principles and methods of system – based improvement of patient care in common health problems of the field of Orthopedic surgery.
***2-2- Intellectual skills*:**	***2-2- Intellectual skills:***
2-2-A-Application of basic and other relevant science to solve Orthopedic surgery related	**2-2-A-** Apply the basic and clinically supportive sciences which are appropriate to Orthopedic surgery related conditions /

problems.	problem / topics.
2-2-B-Problem solving based on available data.	**2-2-B-** Demonstrate an investigatory and analytic thinking "problem – solving "approaches to clinical situation related to Orthopedic surgery.
2-2-C- Involvement in research studies related to the Orthopedic surgery.	**2-2-C-** Plain research projects.
2-2-D Writing scientific papers.	**2-2-D-** Write scientific paper.
2-2-E-Risk evaluation in the related clinical practice.	**2-2-E-** Participate in clinical risk management as a part of clinical governance.
2-2-F-Planning for performance improvement in the Orthopedic surgery field.	**2-2-F-** Plan for quality improvement in the field of medical education and clinical practice in his speciality.
2-2-G-Creation and innovation in the speciality field.	**2-2-G-** Create / innovate plans, systems, and other issues for improvement of performance in his practice.
2-2-H-Evidence – based discussion.	**2-2-H-** Present and defend his / her data in front of a panel of experts.
2-2-I-Decision making in different situations related to Orthopedic surgery fields.	**2-2-I-** Formulate management plans and alternative decisions in different situations in the field of the Orthopedic surgery.

continuous (ARS)	continuous (ILOs)
2-3- Clinical skills:	***2/3/1/Practical skills (Patient care :)***
2-3-A- MD students must be able to provide extensive level of patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health extensive level means in depth understanding and from basic science to evidence – based clinical application and possession of skills to manage independently all problems in his field of practice.	**2-3-1-A-** Provide extensive level of patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. ***p.s.*** Extensive level means in-depth understanding from basic science to evidence – based clinical application and possession of skills to manage independently all problems in field of practice.
2-3-B- Master patient care skills relevant to Orthopedic surgery for patients with all diagnoses and procedures.	**2-3-1-B-** Provide extensive level of patient care for patients with all common diagnoses and for uncomplicated procedures related to Orthopedic surgery **2-3-1-C-** Provide extensive level of patient care for non-routine, complicated patients and under increasingly difficult circumstances, while demonstrating compassionate, appropriate and effective care.
	2-3-1-D- Perform diagnostic and therapeutic procedures considered essential in the field of Orthopedic surgery
	2-3-1-E- Handles unexpected complications, while demonstrating compassion and sensitivity to patient needs and concerns.
	2-3-1-F- Communicate effectively and demonstrate caring and respectful behaviors when interacting with patients and their families in the Orthopedic surgery related situations.

	2-3-1-G- Gather essential and accurate information about patients of the Orthopedic surgery related conditions. **2-3-1-H** Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence and clinical judgment for the Orthopedic surgery related conditions. **2-3-1-I-** Develop and carry out patient management plans for Orthopedic surgery related conditions. **2-3-1-J-** Counsel and educate patients and their families about Orthopedic surgery related conditions. **2-3-1-K-** Use information technology to support patient care decisions and patient education in all Orthopedic surgery related clinical situations. **2-3-1-L-** Perform competently all medical and invasive procedures considered essential for the Orthopedic surgery related conditions / area of practices. **2-3-1-M-** Provide health care services aimed at preventing the Orthopedic surgery related health problems. **2-3-1-N-** Lead health care professionals, including those from other disciplines, to provide patient-focused care in Orthopedic surgery related conditions**.**

2-3-C- Write and evaluate reports for situations related to the field Orthopedic surgery	**2-3-1-O-** Write competently all forms of patient charts and sheets including reports evaluating these charts and sheets.(Write and evaluate a consultation note, Inform patients of a diagnosis and therapeutic plan, completing and evaluating comprehensive timely and legible medical records).
2-4- General skills **2-4-A-** Master practice-based learning and improvement skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, improvements in patient care and risk management	***2/3/2 General skills*** **2-3-2-A-** Demonstrate the competency of continuous evaluation of different types of care provision to patients in the different area of Orthopedic surgery **2-3-2-B-** Appraise scientific evidence. **2-3-2-C-** Continuously improve patient care based on constant self-evaluation and life-long learning. **2-3-2-D**. Participate in clinical audit and research projects. **2-3-2-E-** Practice skills of evidence-based Medicine (EBM). **2-3-2-G-** Design logbooks. **2-3-2-H-** Design clinical guidelines and standard protocols of management. **2-3-2-I-** Appraise evidence from scientific studies related to the patients' health problems.

2-4-B- Use competently all information sources and technology to improve his practice.	**2-3-2-J-** Apply knowledge of study designs and statistical methods to the appraisal of clinical studies. **2-3-2-K**- Use information technology to manage information, access on-line medical information; for the important topics.
2-4-C- Master skills of teaching and evaluating others.	**2-3-2-F-** Educate and evaluate students, residents and other health professionals.
2-4-D- Master interpersonal and communication Skills that result in effective information exchange and teaming with patients, their families, and other health professionals.	**2-3-2-L**- Master interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals, including:- • Present a case. • Write a consultation note. • Inform patients of a diagnosis and therapeutic plan Completing and maintaining comprehensive. • Timely and legible medical records. • Teamwork skills. **2-3-2-M-** Create and sustain a therapeutic and ethically sound relationship with patients. **2-3-2-N**- Elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills. **2-3-2-O-** Work effectively with others as a member or leader of a health care team or other professional group.
2-4-E- Master Professionalism behavior, as manifested through a commitment to carrying out professional responsibilities,	**2-3-2-P-** Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society.

adherence to ethical principles, and sensitivity to a diverse patient population.	**2-3-2-Q-** Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices. **2-3-2-R-** Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities.
2-4-F- Demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively use system resources to provide care that is of optimal value. **2-4-G**- Participate in improvement of the education system.	**2-3-2-S-** Work effectively in health care delivery settings and systems related to Orthopedic surgery including good administrative and time management. **2-3-2-T-** Practice cost-effective health care and resource allocation that does not compromise quality of care. **2-3-2-U-** Advocate for quality patient care and assist patients in dealing with system complexities. **2-3-2-V-** Design, monitor and evaluate specification of under and post graduate courses and programs.
2-4-H- Demonstrate skills of leading scientific meetings including time management	**2-3-2-W-** Act as a chair man for scientific meetings including time management **2-3-2-S-** Work effectively in health care delivery settings and systems related to Orthopedic surgery including good administrative and time management.
2-4-O- Demonstrate skills of self and continuous learning .	From A to H

III-Program matrix
Knowledge and understanding

Course	Program covered ILOs				
	2/1/A	2/1/B	2/1/C	2/1/D	2/1/E
Course 1 : Medical statistics and computer		✓			
course 2 : Research Methods		✓			
course 3 : Medical reports and medical ethics			✓		
Course 4: Biomechanics & Biomaterials	✓				
Course 5: Surgical Anatomy	✓				
Course 6: Surgical Pathology	✓				
Course 7 : Orthopedic surgery (Advanced)	✓	✓	✓	✓	✓

Intellectual

Course	Program covered ILOs								
	2/2/A	2/2/B	2/2/C	2/2/D	2/2/E	2/2/F	2/2/G	2/2/H	2/2/I
Course 1 : Medical statistics and computer			✓	✓				✓	
course 2 : Research Methods			✓	✓				✓	
course 3 : Medical reports and medical ethics								✓	
Course 4: Biomechanics & Biomaterials		✓							
Course 5: Surgical Anatomy	✓	✓							
Course 6: Surgical Pathology	✓	✓							
Course 7 : Orthopedic surgery (Advanced)	✓	✓	✓	✓	✓	✓	✓	✓	✓

Practical Skills (Patient Care)

Course	Program covered ILOs							
	2/3/1/ A	2/3/1/ B	2/3/1/ C	2/3/1/ D	2/3/1/ E	2/3/1/ F	2/3/1/ G	2/3/1/ H
Course 1 : Medical statistics and computer								
course 2 : Research Methods								
course 3 : Medical reports and medical ethics				✓				✓
Course 4: Biomechanics & Biomaterials								✓
Course 5: Surgical Anatomy				✓				
Course 6: Surgical Pathology				✓				
Course 7 : Orthopedic surgery (Advanced)	✓	✓	✓	✓	✓	✓	✓	✓

Patient care

Course	Program covered ILOs						
	2/3/1/I	2/3/1/J	2/3/1/K	2/3/1/L	2/3/1/M	2/3/1/N	2/3/1/0
Course 1 : Medical statistics and computer							
course 2 : Research Methods							
course 3 : Medical reports and medical ethics	✓						✓
Course 4: Biomechanics & Biomaterials							
Course 5: Surgical Anatomy							
Course 6: Surgical Pathology							
Course 7 : Orthopedic surgery (Advanced)	✓	✓	✓	✓	✓	✓	✓

General Skills

Course	Program covered ILOs							
	2/3/2/ A	2/3/2/ B	2/3/2/ C	2/3/2/ D	2/3/2/ E	2/3/2/ F	2/3/2/ G	2/3/2/ H
Course 1 : Medical statistics and computer		✓						
course 2 : Research Methods		✓		✓	✓			
course 3 : Medical reports and medical ethics								
Course 4: Biomechanics & Biomaterials					✓			
Course 5: Surgical Anatomy								
Course 6: Surgical Pathology								
Course 7 : Orthopedic surgery (Advanced)	✓	✓	✓	✓	✓	✓	✓	✓

General skills

Course	Program covered ILOs							
	2/3/2/I	2/3/2/J	2/3/2/K	2/3/2/L	2/3/2/M	2/3/2/N	2/3/2/O	2/3/2/P
Course 1 : Medical statistics and computer	✓	✓	✓					
course 2 : Research Methods	✓	✓						
course 3 : Medical reports and medical ethics				✓				
Course 4: Biomechanics & Biomaterials			✓			✓		
Course 5: Surgical Anatomy			✓	✓		✓		
Course 6: Surgical Pathology			✓	✓		✓		
Course 7 : Orthopedic surgery (Advanced)	✓	✓	✓	✓	✓	✓	✓	✓

Course	Program covered ILOs						
	2/3/2/Q	2/3/2/R	2/3/2/S	2/3/2/T	2/3/2/U	2/3/2/V	2/3/2/W
Course 1 : Medical statistics and computer							
course 2 : Research Methods							
course 3 : Medical reports and medical ethics							
Course 4: Biomechanics & Biomaterials							
Course 5: Surgical Anatomy	✓		✓		✓		
Course 6: Surgical Pathology	✓		✓		✓		
Course 7 : Orthopedic surgery (Advanced)	✓	✓	✓	✓	✓	✓	✓

Annex 7, Additional information:

Examples:

Department information:

- Different units in the orthopedic department include:
  - Trauma reception for patient & CPR Unit.
  - Operative theater of the trauma unit working 24 hours.
  - The inpatient ward of the trauma unit besides a trauma ICU and intermediate care unit .
  - Outpatients clinic that receives 150 patients/day and working 6days /week. (new patients, follow up post discharge patients)
  - Orthopedic Department ward.
  - Orthopedic department operative theaters that have operating rooms working 6 days/week.
  - Micro surgery operative theater.
  - Septic Unit that have separate ward accommodates and separate operative theater.
  - Radiology section.
  - Scientific Library (Orthopedics Text Books and periodicals), MD, MSc thesis,
  - Seminar room with data show
  - Electronic Library of Scientific Seminars, case presentations.

Staff members:

Opportunities within the department:

Department quality control insurance for completing the program:

- Evaluation by the Department head and stuff members.
- Regular assessments.
- Log book monitoring.
- Recent equipments and Specialized Units.