PROGRAM SPECIFICATION FOR **Professional Diploma** IN TRAUMATOLOGY

(According to currently applied credit point bylaws)

ORTHOPEDIC SURGERY DEPARTMENT

FACULTY OF MEDICINE

MANSOURA UNIVERSITY

2020-2021/2021-2022

Professional training program specifications

Program title: Orthopedic Trauma surgical skills training program

University: Mansoura University

Faculty: Faculty of Medicine

Department: Department of Orthopedics & Traumatology

Academic Year: 2020

Duration: One year – Starting on January- June

Credit points: 90 points

Pre-requisites:

- MD Orthopedics or one of its equivalents
- MSc. Orthopedics or one of its equivalents + 2 years experience
- Egyptian fellowship in orthopedics or one of its equivalents

Academic director:

Prof Dr Barakat Alalfy

Trainers:

- Dr Khaled Noor. Assistant professor of orthopedic surgery Mansoura University.
- Dr Khaled Zaghlool. Assistant professor of orthopedic surgery Mansoura University
- Dr Osama Gaarour. Lecturer of orthopedic surgery Mansoura University

- **Date of Approval by the Faculty of Medicine Council of Assiut University:**

- **Date of most recent approval of Program by the Faculty of Medicine Council of Assiut University:**

Fees:

As regulated and approved by the Department and Faculty councils. LE 36000.

Aim of the Professional training program

The program is a professional training program in Orthopedic Trauma Surgery that provides the advanced intellectual, clinical, and operative skills and the knowledge needed to enable the candidates to provide a high quality level of management for trauma patients with high consideration to environmental safety and ethical attitudes.

Needs assessment:

The course is designed in response to the changing health needs of the Egyptian community, after a focus expert discussion conducted by the members of the orthopedic department committee.

Intended Learning objectives (ILOs)

A- **Knowledge and understanding (10%):**

1. Describe the normal Anatomy & Biomechanics of musculoskeletal system.
2. Understand and apply the AO principles of internal fixation.
3. Understand the biomaterial criteria of different metals.
4. Describe the normal and abnormal growth and development of the musculoskeletal system in children to adults.
5. Outline the various mechanisms of injury in single trauma patients and polytraumatized patients.
6. Discuss the relevant anatomy, mechanism of injury, radiological evaluation, classification, management, complications and prognosis for different kinds of fractures.
7. Outline new trends in the diagnosis (clinical and radiological), differential diagnosis, and management (operative and conservative) of common and complicated trauma patients.
8. Identify the basics, methodologies & research tools and areas of updated research in the field of orthopedic trauma.
9. Describe the principles of quality and fundamentals of good practice in the field of orthopedic trauma.

B- **Intellectual skills (15%):**

1. Demonstrate proper scientific thinking to reach high level of management of common, rare and complicated orthopedic trauma problems.
2. Design an appropriate diagnostic plan among various alternatives to reach a final management for orthopedic trauma problems
3. Make accurate evidence based decisions & formulate appropriate management plans for individual patients presenting with complex orthopedic trauma situations.
4. Provide cost effective optimal patient care with maximum benefit from available resources.
5. Carry out the preoperative work up for patients.

6. Perform appropriate postoperative protocols after surgery.
7. Prescribe the specific rehabilitation program for each patient separately.
8. Make proper use of different types of orthoses & prostheses used for orthopedic trauma patients.
9. Evaluate the dialogues and debates related to the Orthopedics & Traumatology based on documented evidence.
10. Able to adapt to new developments & Conduct the research studies that will add to the practice and help in the development of orthopedic traumatology.

C- **Professional skills (70%):**

1. Consent

1.1. Demonstrate sound knowledge of indications and contraindications including alternatives to surgery.

1.2. Demonstrate awareness of sequelae of operative or non operative management

1.3. Explains the perioperative process to the patient and/or relatives or carers and checks understanding

1.4. Explain likely outcome and time to recovery and checks understanding**.**

2. Pre-operative planning

2.1. Demonstrate recognition of anatomical and pathological abnormalities and relevant co-morbidities and selects appropriate operative strategies/techniques to deal with these

2.2. Demonstrate ability to make reasoned choice of appropriate equipment, materials or devices (if any) taking into account appropriate investigations

2.3. Check patient records, personally reviews investigations pre-operatively.

3. Pre operative preparation

3.1. Ensure the operation site is marked where applicable

3.2. Check in theatre that consent has been obtained

3.3. Give effective briefing to theatre team

3.4. Ensure proper and safe positioning of the patient on the operating table

3.5. Demonstrate careful skin preparation & draping of the patient’s operative field

3.6. Ensure appropriate drugs administered

3.7. Arrange for supporting equipment (e.g. image intensifiers) effectively.

4. Exposure and closure

4.1. Demonstrate knowledge of optimum skin incision / portal / access

4.2. Achieve an adequate exposure through purposeful dissection in correct tissue planes and identifies all structures correctly

4.3. Complete a sound wound repair where appropriate.

4.4. Protect the wound with dressings, splints and drains where appropriate

5. Intra operative Technique

5.1. Follow an agreed, logical sequence or protocol for the procedure

5.2. Consistently handle tissue well with minimal damage

5.3. Control bleeding promptly by an appropriate method

5.4. Demonstrate a sound technique of knots and sutures/staples.

5.5. Use instruments appropriately and safely

5.6. Proceed at appropriate pace with economy of movement

5.7. Anticipate and respond appropriately to variation e.g. anatomy.

5.8. Deal calmly and effectively with unexpected events/complications

5.9. Uses assistant(s) to the best advantage at all times

5.10. Communicate clearly and consistently with the scrub team

5.11. Communicate clearly and consistently with the anesthetist.

6. Post operative management

7. Procedures

The expected level of competence in every surgical or manual skill will be decided as follows:

Level 1 - to assist senior staff

Level 2 - to perform with supervision

Level 3 - to perform without supervision

D- General and Transferable skills (5%):

1. Recognize the basics of ethics, medico legal aspects of health problems, malpractice and common errors related to orthopedic trauma.
2. Communicate with the patients & respond effectively to a patient's emotional and psychosocial concerns.
3. Communicate with other health care providers & appreciate team working.

4. Demonstrate administrative skills to fulfill the paper work needed, read and interpret medical reports.
5. Recognize scientific methodologies, have critical reading abilities and participate in research projects
6. Write scientific article according to the basics of scientific research.
7. Be committed to lifelong learning to ensure that patient safety is maintained and the quality of treatment provided is the best possible.

Course structure:

A-Duration of the program: 12 months

B-Structure of the program:

Total number of the credit points: 90 CPS

- Completion of four curriculum units distributed into four blocks, three months for each block 45 cp
- Microsurgery course attendance, fulfillment ,and achievement of skills and competencies 7 cp
- Basic fracture fixation course attendance fulfillment and achievement of skills and competencies 7 cp
- Attendance of two national/international congresses 7 cp
- Submission of research paper from medical record or hand on training. 12 cp
- Success at the exit exam 12 cp

- ***NB, fulfilling b& c will be achieved by certificate approval of attendance and fulfilling course from any qualified specified surgical unit or center.***

Content of the curriculum:

ILO		A	B	C	D	Total
		Knowledge and understanding	**Intellectual skills**	**Professional and practical skills**	**General and transferable skills**	**Total**
		10%	15%	70%	5%	100%
		4.5 C.P.	7 C.P.	31 C.P.	2.5 C.P.	
45 Lectures (2 hours / week)		X	X		X	45 C.P.
90 hr.	6 C.P.					

Scientific Activities			X	X	X	
90 hr.	6 C.P.					
45 OPD (4 hours / week)			X	X	X	
180 hr.	6 C.P.					
Inpatient care			X	X	X	
90 hr.	3 C.P.					
OR (16 hours / week)				X	X	
720 hr.	24 C.P.					

Distribution of the four curriculum blocks:

Lecture	**Covered ILOs**	**Hands on training**	**Covered ILOs**
Module 1 1. Evaluation, resuscitation and damage control orthopedics 2. Open fractures and Gustillo classification 3. Trauma Scoring systems 4. Review over ATLS 5. Geriatric patients trauma, elder and domestic abuse- child abuse – intimate partner abuse 6. Gunshot wounds - Amputation 7. Compartment	**A 1.2.4.6**	1. Wound closure, delayed primary or secondary 2. Wound Debridement 3. Anterior dislocation shoulder closed reduction 4. Scaphoid fracture non-op 5. Phalangeal fracture MUA +/- POP 6. MCPJ fracture / dislocation MUA +/- POP 7. Diaphyseal tibial fracture MUA & POP 8. Ankle fracture / dislocation MUA & POP 9. Aspiration /	**C 1.2.3.4.5.6**

syndrome 8. Hardware and wound infection 9. Necrotizing fasciitis and gas gangrene 10. Brachial plexus injuries 11. Principles of screws – plates – Intramedullary nails 12. Sternoclavicular dislocation – clavicle fracture – scapulothorathic dissociation 13. Acromioclavicular disruption- floating shoulder – fracture scapula		injection joint 10. Fracture diaphysis humerus POP +/- MUA 11. Fracture shaft radius / ulna MUA & POP 12. Fracture distal radius MUA & POP 13. Metacarpal fracture / dislocation POP & MUA 14. Metacarpal fracture / dislocation MUA & percutaneous wires 15. MCPJ fracture / dislocation MUA & Percutaneous wires 16. Dislocated hip closed reduction 17. Diaphyseal fracture in children traction or spica 18. Diaphyseal fracture femur external fixator 19. Fracture shaft radius / ulna MUA & percutaneous wires	
Module 2	**A 1.2.3.5**	20. Extensor Tendon	**C 1.2.3.4.5.6**

1. Proximal humeral fracture 2. Humeral shaft fracture 3. Distal humeral fracture – SCIC humeral fractures 4. Elbow dislocation 5. Capetellum fracture – Coronoid fracture 6. Olecranon fx. – Radial head fx. – Terrible triad 7. Montegia and Galeazi 8. Radius and Ulna shaft fractures – Radioulnar synostosis 9. Distal radial fractures 10. DRUJ injuries 11. Flexor tendon injuries with relevant anatomy 12. Extensor tendon injuries with relevant anatomy 13. Scaphoid fracture and perilunate dislocation 14. Carpal bone		repair 21. Flexor Tendon repair 22. Nail bed repair 23. Diaphyseal tibial fracture external fixation 24. SCH pinning 25. LHC pinning 26. Dislocated elbow +/- fracture closed reduction 27. Extracapsular fracture DHS 28. Subtrochanteric or shaft fracture intramedullary fixation 29. Diaphyseal fracture femur plating 30. Tibial plateau PC screws 31. Diaphyseal tibial fracture ORIF 32. Diaphyseal tibial fracture IMN 33. Pilon fracture with external fixator 34. Talar, subtalar or midtarsal fracture/ dislocation MUA +/-POP +/-K wires 35. Fasciotomy for compartment syndrome	

fractures – Midcarpal instability 15. Metacarpal fx – MCP dislocation – Phalangeal fx – Pha;angeal dislocations 16. Base of thumb fractures – Gamekeeper injury 17. Fingertip amputation and finger flap- Ring avulsion injuries- Replantation – Thumb reconstruction		36. Ankle fracture / dislocation ORIF 37. Amputation toe / ray for trauma	
<u>Module 3:</u> 18. Pelvic fractures (including sacrum – sacroiliac – ilium) 19. Acetabular fractures 20. Hip dislocation and femoral head fractures 21. Femoral neck fracture – intertrochanteric fracture – subtrochanteric fractures 22. Femoral shaft fracture and distal	**A 2.3.5.6**	38. SN humerus pinning 39. Radius and ulna ORIF 40. Fracture distal radius Pinning 41. Finger tip reconstruction and hand soft tissue surgeries 42. Hand compartment syndrome decompression 43. Intracapsular fracture NOF ORIF 44. Extracapsular fracture intramedullary	**C 1.2.3.4.5.6**

femoral fractures 23. Knee dislocation and MLI of the knee 24. Fracture patella and tibial plateau		fixation 45. Supracondylar fracture (not intraarticular) 46. Tendoachilles repair 47. Olecranon fracture ORIF 48. Patella fracture ORIF 49. Metatarsal fracture ORIF 50. Fracture diaphysis humerus ORIF plating 51. Fracture distal radius ORIF 52. Metacarpal fracture / dislocation ORIF 53. Subtrochanteric fracture plate/screw fixation CP DCS 54. Tibial plateau fracture ORIF 55. Lisfranc fracture ORIF 56. Pelvic fracture external fixator application 57. Lateral condyle fracture ORIF	

Module 4: 1. Upper, middle and lower third tibial shaft fractures 2. Ankle fracture and Pillon fractures 3. Talus fracture and Subtalar dislocation 4. Calcaneal fractures 5. Ankle sprain and base 5^{th} MTB fx. 6. Lisfranc fx. – Tarsal and metatarsal fxs. 7. Achilis tendon rupture – patellar tendon rupture – quadriceps tendon rupture 8. Physeal considerations regarding trauma 9. Overall view over avulsion and physeal fractures (Tillaux – triplane – tibial tuberosity – tibial tubercle – patellar sleeve ……..)	**A 1.3.6**	58. Medial condyle / epicondyle fracture MUA/Kwire/ORIF 59. Fracture distal radius external fixation 60. Supracondylar fracture (intraarticular) DCS / blade plate etc 61. Quadriceps tendon repair 62. Patella tendon repair 63. SN humerus ORIF 64. SCH ORIF 65. Intracapsular fracture NOF arthroplasty 66. Intraarticular fracture distal femur ORIF 67. Pilon fracture ORIF 68. Nerve repair 69. Intra-articular distal humerus fracture ORIF 70. Base of 1st metacarpal fracture/dislocation POP/Percutaneous wire/ORIF	**C 1.2.3.4.5.6**

		71. Ilizarov Tibia 72. Calceneus fixation 73. Talus fracture 74. Scaphoid fixation 75. Lumbar spine pedicular screw fixation	

I-Theoretical teaching (Lectures): (6 credit points – 2 hrs for each lecture – 1 lecture per week) see the table

II-Scientific Activities: (6 credit points – 90 hours) **Covered ILOs: B1.2.3.4.7.8.9.10**

The candidates will cover these points by face to face teaching and self learning activities. The candidates should participate in the scientific activities of the department such as:

- Staff round, Grand round, Seminars, Journal clubs, scientific meetings.
- Workshops.
- Conferences.
- Thesis discussions.

III-Clinical skills: (9 credit points – 270 hours)

Outpatient orthopedic department (180 hrs.): (Covered ILOs: B 1.2.4.7.9 – C 1.2.3 – D 1.2.3.4.5.6.7) The candidate participates in the clinical examination of orthopedic outpatient cases under the supervision of senior staff (45 times - 1 outpatient clinic per week - 4hrs each).

- **Inpatient orthopedic department (90 hrs.): (Covered ILOs: C 1.2.3 – D 1.2.3.4.5.6.7)** The candidate participates in the inpatient care under the supervision of senior staff.

IV-Operative and practical skills: (24 credit points – 720 hours) **(Covered ILOs: C 1.2.3.4.5.6)**

The candidate participates in the operative lists under the supervision of senior staff (90 times – 3 OR lists per week - 8 hrs each).

- **List of surgical operations: see the table**
- **Levels of participation in surgical operations:**

Level 1 - to assist senior staff

Level 2 - to perform with supervision

Level 3 - to perform without supervision

Operation	Level 1	Level 2	Level 3
SECTION I: CORE TRAUMA SKILLS			
Wound closure, delayed primary or secondary	**20**	**10**	**20**
Wound Debridement	**10**	**10**	**5**
Anterior dislocation shoulder closed reduction	**5**	**5**	**5**
Scaphoid fracture non-op	**5**	**5**	**5**
Phalangeal fracture MUA +/- POP	**4**	**4**	**4**
MCPJ fracture / dislocation MUA +/- POP	**4**	**4**	**4**
Diaphyseal tibial fracture MUA & POP	**4**	**4**	**4**
Ankle fracture / dislocation MUA & POP	**5**	**5**	**5**
Aspiration / injection joint	**5**	**5**	**5**
Fracture diaphysis humerus POP +/- MUA	**5**	**5**	**5**
Fracture shaft radius / ulna MUA & POP	**4**	**4**	**4**
Fracture distal radius MUA & POP	**7**	**7**	**7**
Metacarpal fracture / dislocation POP & MUA	**7**	**7**	**7**
Metacarpal fracture / dislocation MUA & percutaneous wires	**4**	**4**	**4**
MCPJ fracture / dislocation MUA & Percutaneous wires	**4**	**4**	**4**
Dislocated hip closed reduction	**2**	**2**	**3**
Diaphyseal fracture in children traction or spica	**3**	**3**	**3**
Diaphyseal fracture femur external fixator	**3**	**3**	**2**
Fracture shaft radius / ulna MUA & percutaneous wires	**2**	**2**	**2**

Extensor Tendon repair	**5**	**5**	**2**
Flexor Tendon repair	**5**	**5**	**2**
Nail bed repair	**5**	**5**	**2**
Diaphyseal tibial fracture external fixation	**3**	**3**	**2**
SCH pinning	**4**	**4**	**-**
LHC pinning	**4**	**4**	**-**
Dislocated elbow +/- fracture closed reduction	**4**	**2**	**2**
Extracapsular fracture DHS	**5**	**4**	**1**
Subtrochanteric or shaft fracture intramedullary fixation	**7**	**3**	**-**
Diaphyseal fracture femur plating	**7**	**3**	**-**
Tibial plateau PC screws	**8**	**3**	**1**
Diaphyseal tibial fracture ORIF	**10**	**3**	**-**
Diaphyseal tibial fracture IMN	**10**	**3**	**1**
Pilon fracture with external fixator	**5**	**2**	**1**
Talar, subtalar or midtarsal fracture/ dislocation MUA+/-POP +/-K wires	**5**	**2**	**-**
Fasciotomy for compartment syndrome	**5**	**3**	**1**
Ankle fracture / dislocation ORIF	**10**	**3**	
Amputation toe / ray for trauma	**3**	**3**	**1**
SECTION II: ADVANCED TRAUMA SKILLS			
SN humerus pinning	**5**	**2**	**-**
Radius and ulna ORIF	**8**	**3**	**-**
Fracture distal radius Pinning	**8**	**3**	**-**
Finger tip reconstruction and hand soft tissue surgeries	**5**	**3**	**-**
Hand compartment syndrome decompression	**5**	**1**	**-**
Intracapsular fracture NOF ORIF	**7**	**2**	**-**
Extracapsular fracture intramedullary fixation	**5**	**1**	**-**
Supracondylar fracture (not intraarticular)	**5**	**2**	**-**
Tendoachilles repair	**4**	**1**	**-**
Olecranon fracture ORIF	**5**	**2**	**-**

Patella fracture ORIF	**5**	**2**	-
Metatarsal fracture ORIF	**5**	**1**	-
Fracture diaphysis humerus ORIF plating	**5**	**1**	-
Fracture distal radius ORIF	**5**	**1**	-
Metacarpal fracture / dislocation ORIF	**5**	-	-
Subtrochanteric fracture plate/screw fixation CP DCS	**5**	**1**	-
Tibial plateau fracture ORIF	**3**	-	-
Lisfranc fracture ORIF	**2**	-	-
Pelvic fracture external fixator application	**3**	**1**	-
Lateral condyle fracture ORIF	**5**	**1**	-
Medial condyle / epicondyle fracture MUA/Kwire/ORIF	**5**	-	-
Fracture distal radius external fixation	**5**	**1**	-
Supracondylar fracture (intraarticular) DCS / blade plate etc	**5**	**1**	-
Quadriceps tendon repair	**4**	-	-
Patella tendon repair	**4**	-	-
SN humerus ORIF	**5**	**1**	-
SCH ORIF	**5**	**1**	-
Intracapsular fracture NOF arthroplasty	**5**	**1**	-
Intraarticular fracture distal femur ORIF	**5**	**1**	-
Pilon fracture ORIF	**5**	-	-
Nerve repair	**5**	**1**	-
Intra-articular distal humerus fracture ORIF	**5**	-	-
Base of 1st metacarpal fracture/dislocation POP/Percutaneous wire/ORIF	**5**	**2**	-
Ilizarov Tibia	**5**	-	-
Calceneus fixation	**5**	-	-
Talus fracture	**5**	-	-
Scaphoid fixation	**5**	-	-
Lumbar spine pedicular screw fixation	**5**	-	-

Posterior wall acetabular fracture	5	-	-

Teaching Methods:

- Operative room triple per week.
- Staff round once weekly
- Grand round (presentation of interesting cases) once monthly.
- Journal club (presentation of interesting articles) once monthly.
- Scientific meetings arranged by the department.
- Outpatient Department
- Inpatient Department
- Lectures and Activities

Timetable:

- Saturday: OR – staff round
- Sunday: OPC - journal club
- Monday: OR
- Tuesday: Grand round – ER
- Wednesday: OR – staff round
- Thursday: ER – thesis discussion

Facilities required for teaching and learning:

Data show, Blackboard, Computers, CDs, videos.

List of references:

- Lecture notes will be provided by staff members.
- Essential books:
    - Miller's orthopedic
    - Zucherman handbook of traumatology
    - Surgical approaches by Stanley and Hoppenfield
- Web sites:
    - Medscape,
    - Cochrane database of systemetic reviews,
    - Pubmed.

- Orthoteers
- Orthobulets

- Periodicals:
  - Journal of orthopedic trauma
  - AAOS

Assessment:

- Assessment criteria:

The prerequisite for succeeding is 75% attendance of each of the lectures, outpatient clinics, and operation lists plus fulfillment of 75% of the credit points specified for each activity, which should be registered in the **log book** given to every candidate on the first day of the course.

- Assessment tools:

A. Continuous assessment is carried throughout the course by **logbook** signature every 3 months for operations, presentations and clinical rounds.

B. Procedure based assessment will be conducted for five core procedures for every candidate using a **procedure based assessment sheet**. The candidate should pass in at least four out of five of them. These operative procedures are:

1. Operative reduction and fixation of fracture calcareous
2. Operative reduction and fixation of ankle fractures.
3. Intramedullary nail fixation
4. DHS
5. Locked plate distal femur

C. **Final MCQ exam and clinical exam** at the end of the program. Passing mark in the exam is 60% in each exam. If the candidate did not succeed in the exam, he should apply to another exam after 6 months.

NB The candidate will repeat the exit exam again, if he failed in this exam without repetition of training.

Signatures:

Program Coordinator

Dr. Osama Gaarour

Head of Department

Prof. Akram Hammad