



PROGRAM SPECIFICATION FOR Professional Diploma IN SPINE SURGERY

(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: Spine Surgery Training Program.

University: Mansoura University

Faculty: Faculty of Medicine

Department: Department of Orthopedics & Traumatology

Organization: Mansoura spine surgery Unit

Academic Year: 2021

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-year-experience
- Egyptian fellowship in orthopedics or one of its equivalents

Trainers:

- Ehab Youssef Hasanin, MD. Professor of Orthopedics and spine surgery
Mansoura University
- Mohammed Abdelwahab Elsaead, MD. Professor of Orthopedics and spine surgery
Mansoura University
- Mohammed Serry Elsaead, MD Professor of Orthopedics and spine surgery
Mansoura University.
- Yosry Ali Zyada, MD Associate Professor of Orthopedics and spine surgery
Mansoura University.
- Tamer Ahmed Niazy, MD Lecturer of Orthopedics and spine surgery
Mansoura University.
- Hany Elsayed Ali Elashmawy, MD Lecturer of Orthopedics and spine 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 Spine 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 Spine Trauma, diseases, and deformities 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 spine.
2. Describe the normal and abnormal growth and development of the musculoskeletal system of the vertebral column.
3. Outline the various etiologies (genetic, developmental, metabolic, microbiologic, autoimmune, neoplastic, degenerative and traumatic) of different diseases & Deformities of the spine.
4. Discuss the pathoanatomy, pathophysiology, Pathomechanics, complications, and prognosis for different problems of the spine.
5. Outline new trends in the diagnosis (clinical and radiological), differential diagnosis, and management (operative and conservative) of common and complicated problems.
6. Identify the basics, methodologies & research tools and areas of updated research in the field of spine surgery.
7. Describe the principles of quality and fundamentals of good practice.

B- Intellectual skills (15%):

1. Demonstrate proper scientific thinking to reach high level of management of common, rare and complicated spine surgical problems.
2. Design an appropriate diagnostic plan among various alternatives to reach a final diagnosis.
3. Make accurate evidence based decisions & formulate appropriate management plans for individual patients presenting with complex disorders

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. Able to adapt to new developments & Conduct the research studies that will add to the practice and help in the development of the spine surgery.

C- Professional skills (70%):

1. Consent

- Demonstrate sound knowledge of indications and contraindications including alternatives to surgery.
- Demonstrate awareness of sequelae of operative or non operative management
- Explains the perioperative process to the patient and/or relatives or carers and checks understanding
- Explain likely outcome and time to recovery and checks understanding.

2. Pre-operative planning

- Demonstrate recognition of anatomical and pathological abnormalities and relevant co-morbidities and selects appropriate operative strategies/techniques to deal with these
- Demonstrate ability to make reasoned choice of appropriate equipment, materials or devices (if any) taking into account appropriate investigations
- Check patient records, personally reviews investigations pre-operatively.

3. Pre operative preparation

- Ensure the operation site is marked where applicable
- Check in theatre that consent has been obtained
- Give effective briefing to theatre team
- Ensure proper and safe positioning of the patient on the operating table
- Demonstrate careful skin preparation & draping of the patient's operative field
- Ensure appropriate drugs administered
- Arrange for supporting equipment (e.g. image intensifiers) effectively.

4. Exposure and closure

- Demonstrate knowledge of optimum skin incision / portal / access
- Achieve an adequate exposure through purposeful dissection in correct tissue planes and identifies all structures correctly
- Complete a sound wound repair where appropriate.
- Protect the wound with dressings, splints and drains where appropriate

5. Intra operative Technique

- Follow an agreed, logical sequence or protocol for the procedure
- Consistently handle tissue well with minimal damage
- Control bleeding promptly by an appropriate method
- Demonstrate a sound technique of knots and sutures/staples.
- Use instruments appropriately and safely
- Proceed at appropriate pace with economy of movement
- Anticipate and respond appropriately to variation e.g. anatomy.
- Deal calmly and effectively with unexpected events/complications
- Uses assistant(s) to the best advantage at all times
- Communicate clearly and consistently with the scrub team
- 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 spine surgery.
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.

Contents of the curriculum:

ILO	A	B	C	D	Total
	Knowledge and understanding	Intellectual skills	Professional and practical skills	General and transferable skills	
	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
<p><u>Module 1</u></p> <ol style="list-style-type: none"> 1. Normal Spinal Anatomy: Normal Sagittal Plane Alignment 2. Biomechanics of the spine. 3. Clinical examination of the spine. 4. Investigations used for spine Disorders 5. Surgical approaches of the spine. 6. Spinal Cord and Nerve Root Monitoring 7. Bone Grafting and Spine Fusion 8. Cervical Radiculopathy & Cervical Myelopathy Clinical Evaluation and Nonoperative Treatment. 9. Occipitocervical 	<p>A</p> <p>1.2.4.6</p>	<p>Cervical Spine</p> <ul style="list-style-type: none"> • Closed Cervical Skeletal Tong Placement and Reduction Techniques • Halo Placement in the Pediatric and Adult Patient • Anterior Odontoid Resection: The Transoral Approach • Odontoid Screw Fixation • Anterior C1-C2 Arthrodesis: Lateral Approach of Barbour and Whitesides • Anterior Cervical Corpectomy/Discectomy • Anterior Resection of Ossification of the Posterior Longitudinal Ligament • Anterior Cervical Disk Arthroplasty • Occipital-Cervical Fusion 	<p>C</p> <p>1.2.3.4.5.6</p>

<p>and Atlantoaxial Methods of Fusion: C1-2 Fixation,</p> <p>10. Anterior Cervical Decompression and Fusion Techniques: Discectomy, Foraminotomy, Corpectomy, Strut Grafting & Anterior Cervical Plating</p> <p>11. Subaxial Posterior Decompression and Fusion Techniques:, Laminoplasty , Laminectomy, Foraminotomy, Lateral Mass Fixation & Cervical Pedicle Screw Fixation.</p> <p>12. Cervical Disc Arthroplasty</p>		<ul style="list-style-type: none"> • C2 Translaminar Screw Fixation • Posterior C1-C2 Fusion: Harms and Magerl Techniques • Lateral Mass Screw Fixation • Cervical Pedicle Screw Fixation • Posterior Cervical Osteotomy Techniques • Posterior Cervical Laminoplasty • The Modified Anterior Approach to the Cervicothoracic Junction & Jaw-Splitting Approaches to the Upper Cervical spine 	
<p><u>Module 2</u></p> <p>1. Treatment of Lumbar Disc</p>	<p>A</p> <p>1.2.3.5</p>	<p>Lumbar Spine</p> <ul style="list-style-type: none"> • Sacropelvic Fixation 	<p>C</p> <p>1.2.3.4.5.</p> <p>6</p>

<p>Herniation .</p> <p>2. Treatment of Lumbar Spinal Stenosis .</p> <p>3. Revision Laminectomy: Indications and Techniques .</p> <p>4. 45. When to Consider ALIF, TLIF, PLIF, PSF, or Motion-Preserving Techniques</p> <p>5. Minimally Invasive Posterior Surgery for the Lumbar Spine.</p> <p>6. Total Disc Replacement: Concepts/ Design Strategy/ Indications/ Contraindications/ Complications</p> <p>7. Complications of Lumbosacral Spine Surgery.</p> <p>8. Thoracic Discectomy</p> <p>9. Thoracic Stenosis</p> <p>10. Management of lumbar</p>		<ul style="list-style-type: none"> • Posterior Disk Herniation • The Lateral Extracavitary Approach for Vertebrectomy • Osteotomy Techniques (Smith-Petersen and Pedicle Subtraction) for Fixed Sagittal Imbalance • Spondylolysis Repair • Surgical Treatment of High-Grade Spondylolisthesis • Interspinous Process Motion-Sparing Implant • Anterior Lumbar Interbody Fusion • Transforaminal Lumbar Interbody Fusion • Transpsaos Approach for Thoracolumbar Interbody Fusion • Lumbar Total Disk Arthroplasty • Kyphoplasty • Minimally Invasive 	
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<p>Spondylolisthesis.</p>		<p>Exposure Techniques of the Lumbar Spine</p> <ul style="list-style-type: none"> • Hemivertebrae Resection • Lumbar Internal Laminectomy • Minimally Invasive Presacral Retroperitoneal Approach for Lumbosacral Axial Instrumentation 	
<p><u>Module 3:</u></p> <ol style="list-style-type: none"> 1. Adolescent Idiopathic Scoliosis: Natural History, Measures of Maturity, Measurement and Radiographic Classification Scheme: Lenke Classification 2. Management of AIS: Posterior Spinal Deformity Correction, Anterior Lumbar and Thoracolumbar Correction, Open 	<p>A 2.3.5.6</p>	<p>Thoracic Spine</p> <ul style="list-style-type: none"> • Anterior Thoracic Discectomy and Corpectomy • Anterior Thoracolumbar Spinal Fusion via Open Approach for Idiopathic Scoliosis • Operative Management of Scheuermann's Kyphosis • Resection of Intradural Intramedullary or Extramedullary Spinal Tumors 	<p>C 1.2.3.4.5.6</p>

<p>and Thoracoscopic Anterior Thoracic Surgery & Selective Thoracic Fusion</p> <p>3. Complications Associated with Adolescent Idiopathic Scoliosis Surgery</p> <p>4. Fusion less Surgery and Growing Rod Techniques for Infantile and Juvenile Idiopathic Scoliosis</p> <p>5. Adult Spinal Deformity Classification, Sagittal Imbalance, Fixed Coronal Imbalance of the Spine: Clinical Significance and Operative Management</p> <p>6. Types of spine osteotomies: Smith-Petersen,</p>		<ul style="list-style-type: none"> • Endoscopic Thoracic Discectomy • VEPTR Opening Wedge Thoracostomy for Congenital Spinal Deformities • Posterior Thoracolumbar Fusion Techniques for Adolescent Idiopathic Scoliosis • Thoracoplasty for Rib Deformity • Complete Vertebral Resection for Primary Spinal Tumors 	
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<p>Pedicle Subtraction, Vertebral Column Resection.</p> <p>7. secondary scoliosis: Neurofibromatosis , Marfan Syndrome, Skeletal Dysplasia, Familial Dysautonomia & Neuromuscular Scoliosis .</p> <p>8. Congenital Scoliosis & Hemivertebra Resection.</p> <p>9. Congenital Intraspinal Anomalies: Spinal Dysraphism— Embryology, Pathology, and Treatment</p> <p>10. Congenital Anomalies of the Cervical Spine in Children</p> <p>11. Surgical Treatment of Scheuermann's</p>			
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<p>Kyphosis</p> <p>.</p> <p>.</p> <p>12. Postlaminectomy Deformities, Posttraumatic Deformity in the Thoracic and Lumbar Spine</p>			
<p><u>Module 4:</u></p> <p>1. . Ankylosing Spondylitis/ Thoracolumbar Deformities.</p> <p>2. Classification and management of Cervical Spine Injury.</p> <p>3. Classification and management of Thoracic and Lumbar Fractures.</p> <p>4. 135. Management and Surgical Treatment of Fractures of the Lumbosacral Region and the Sacrum .</p> <p>5. After Spinal Cord</p>	<p>A 1.3.6</p>	<p>Miscellaneous</p> <ul style="list-style-type: none"> • Spinal Cord and Nerve Root Monitoring • Bone Grafting and Spine Fusion • Medical Complications in the Adult Spinal Patient • Trunk Range of Motion and Gait Considerations in Patients with Spinal Deformity • Microscopic Approach to the Posterior Lumbar Spine for Decompression • Minimal Access Techniques Using 	<p>C</p> <p>1.2.3.4.5.</p> <p>6</p>

<p>Injury</p> <p>6. Benign Tumors of the Spine & Spinal Vascular Malformations.</p> <p>7. Primary Malignant Tumors of the Spine.</p> <p>8. The Surgical Treatment of Metastatic Spine Disease and Adjuvant Therapy of Spinal Tumors.</p> <p>9. Intramedullary, Intradural & Extramedullary Spinal Cord Tumors</p> <p>10. Spinal Infection/ Osteomyelitis</p> <p>11. Tumors of the Sacrum</p>		<p>Tubular Retractors for Disc Herniations and Stenosis</p> <ul style="list-style-type: none"> • Transsternal Approaches to the thoracic spine • Anterior Exposure of the Thoracic and Lumbar Spine Down to L4 • Anterior Approaches to the Distal Lumbar Spine and Sacrum • Direct Lateral Approach to the Lumbar Spine 	
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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 – 2 OR lists per week - 8 hrs each).

- **List of surgical operations:** see the table

Teaching Methods:

- Operative room twice 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
- Sunday: Grand round
- Monday: journal club + OR.
- Tuesday: staff round - Thesis discussions
- Wednesday: lectures
- Thursday: OPD

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:
 - Keith H. Bridwell Textbook of Spinal Surgery.
 - Spinal deformity-basic principles.
 - Spinal Disorders.
 - Minimally invasive spine surgery.
 - The Growing Spine-2016
- Web sites:
 - Medscape,
 - Cochrane database of systemetic reviews,
 - Pubmed.
 - Orthoteers
 - Orthobulets
- Periodicals:
 - The spine journal.
 - Journal of spine surgery.
 - AOSpine journal.
 - Spine research.

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 fixation of dorso-lumbar fracture.
2. Decompression and fixation of spondylolithesis.
3. Open lumbar discectomy.
4. Anterior cervical decompression and fusion..
5. Diagnostic and therapeutic nerve root injection.

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

Prof Dr. Ehab Youssef Hasanin

Head of Department

Prof Dr. Akram Hammad