



كلية الطب  
وحدة ضمان الجودة



Faculty of Medicine  
Quality Assurance Unit

## **PROGRAM SPECIFICATION FOR**

### **Professional Diploma**

**in Reconstructive Microsurgery of the Extremities, Brachial Plexus and Peripheral Nerve Surgery**

(According to currently applied credit point bylaws)

*Orthopedic Surgery*  
*Department*  
*Faculty of medicine*  
*Assiut University*  
*2020-2021/2021-2022*

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**Program Specification for Professional diploma in  
Reconstructive Microsurgery of the Extremities, Brachial  
Plexus and Peripheral Nerve Surgery**


**1. Basic Information**

- + Program Title : Professional diploma in Reconstructive Microsurgery of the Extremities, Brachial Plexus and Peripheral Nerve Surgery**
- + Nature of the program: Single**
- + Course code: RME493**
- + Responsible Department: Hand and reconstructive microsurgery unit, Orthopedic Surgery Department.**
- + Academic Director (Head of Hand and reconstructive microsurgery unit):  
Prof. Dr. Amr Elsayed**
- + Coordinator (s):**
  - Principle coordinator: Prof. Dr. Amr Elsayed**
  - Assistant coordinator (s) and trainers:  
Prof. Dr. Mohamed Mostafa Kotb  
Dr. Waleed Riad  
Dr. Yasser Farouk  
Dr. Waleed Riad  
Dr. Omar Refai  
Dr. Mohamed Morsy**
- + Date last reviewed: February 2021**
- + Date of Approval by the Faculty of Medicine Council of Assiut University: 23-2-2021**
- + Date of most recent approval of Program by the Faculty of Medicine Council of Assiut University: 23-2-2021**
- + Requirements from the students to achieve the required ILOs are clarified in the joining Portfolio.**
- + Admission Requirements (prerequisites) if any :**
  - I. General Requirements:**

Completed residency and Master degree in orthopedic, or plastic surgery.

**Acceptance letter from the candidate's work for training for one and a half years full time**

**N.B. It is obligatory for the candidate to completely free for the one and a half years of training to work full time in the hand and reconstructive microsurgery unit, Assiut University**

 **FEES:** As regulated and approved by the Department and Faculty councils.

## 2. Program Aims

**This program is aimed to:**

- A-Provide the surgeon with the specialist knowledge and master a range of qualified skills necessary for practice of brachial plexus, peripheral nerve surgery and reconstructive microsurgery of the extremities
- B-Promote detailed exploration of the evidence-base practice thus promoting a culture of innovation and scientific enquiry related to subspecialty.
- C-Provide a model for ongoing integrated learning with appropriate internal and external assessments to subspecialty.
- D-Promote recognition of Peripheral nerves and Reconstructive Microsurgery Surgery art as a sub-specialty.
- E-Progress and promote the standard of care for disorders of brachial plexus, peripheral nerves problems, and extremities reconstruction in Egypt and Middle East.

## 3a.Competencies:

**The Competencies are:**

- Practice-Based Learning and Improvement
- Patient Care and Procedural Skills
- Systems-Based Practice
- Medical Knowledge
- Interpersonal and Communication Skills
- Professionalism.

## 3b. Intended learning outcomes (ILOs) of program:

### K-Knowledge and understanding

**Trainees will be able to:**

- K1- Correlate theoretical and practical basis of microsurgery, brachial plexus and peripheral nerve surgery with the relevant basic sciences.
- K2-Explain the essential clinical and scientific EBM principle of

reconstructive microsurgery, brachial plexus and peripheral nerve surgery.

K3-Critically evaluate the relevant scientific and clinical literature

K4. Solve common problems of reconstructive microsurgery, brachial plexus and peripheral nerve surgery.

### **S- Practical skills (hand on training)**

#### **Trainees will be able to:**

S1-Acquire skills relevant to the discipline comprising the planning, counseling, and undertaking of procedures and including managing aftercare and potential complications

S2- Perform the skills to work with, organize and lead the team in practice.

S3-Perform for management of various peripheral nerves reconstruction and extremities reconstruction.

### **G- General skills**

G1. Perform practice-based improvement activities using a systematic methodology (share in audits and use logbooks).

G2-Appraises evidence from scientific studies.

G3-Maintain therapeutic and ethically sound relationship with patients.

G4-Elicit information using effective nonverbal, explanatory, questioning, and writing skills.

G5Provide information using effective nonverbal, explanatory, questioning, and writing skills.

G6-Work effectively with others as a member of a health care team or other professional group.

G7-Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society

G8-Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices

G9-Work effectively in relevant health care delivery settings and systems.

G10- Practice cost-effective health care and resource allocation that does not compromise quality of care.

G11-Access literature databases and online journal facilities

G12- Design an audit project

G13-Design a research project and writing relevant reports and papers.

#### 4. Program External References (Benchmarks)

✚ Graduate Diploma in Reconstructive Microsurgery of the Limb (English)

[https://www.uab.cat/web/postgraduate/graduate-diploma-in-reconstructive-microsurgery-of-the-limb-english-/general-information-1217916968009.html/param1-2517\\_en/](https://www.uab.cat/web/postgraduate/graduate-diploma-in-reconstructive-microsurgery-of-the-limb-english-/general-information-1217916968009.html/param1-2517_en/)

Comparison between program and external reference		
Item	Professional diploma in Reconstructive Microsurgery of the Extremities, Brachial Plexus and Peripheral Nerve Surgery	Graduate Diploma in Reconstructive Microsurgery of the Limb (English)
Goals	Matched	Matched
ILOS	Matched	Matched
Duration	18 months	<b>12 months</b>
Requirement	Different	Different
Program structure	Different	Different

## 5. Program Structure

**A-Duration of the program: 18 months**

**B-Structure of the program:**

**Total number of the credit points: 90 (100%) CP**

- a. Completion of ten curriculum units divided into six blocks, three months for each block 45(50%)CP; out of them 9CP for attendance and assignments including formative assessment(10% of program structure)
- b. Microsurgery course attendance, fulfillment, and achievement of skills and competencies 7CP(7.7% program structure)
- c. Basic fracture fixation course attendance fulfillment and achievement of skills and competencies. 7CP(7.7% program structure)
- d. Attendance of two national/international congresses 7CP (7.7% program structure)
- e. Submission of research paper from medical record or hand on training. 12CP (13.3% program structure)
- f. Success at the exit exam 12CP (13.3% program structure)

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



## 6. Modules Contents and matrix

✚ Ten curriculum units are included in two major modules;

**A) Reconstructive Microsurgery of the Extremities= 20 CP;**  
**8CP for didactics and 12CP for training.**

**B) Peripheral Nerves and Brachial Plexus Injuries= 25 CP;**  
**10CP for didactics and 15CP for training.**

-Out of 45 CP; 9CP for attendance and assignments including formative assessment

### A) Reconstructive Microsurgery of the Extremities

Didactic	Covered ILOS	Hands on training	Covered ILOS
<p><b>Module A.1 (Introduction and basic concepts in microsurgery):</b></p> <ol style="list-style-type: none"> <li>1. History and evolution of microsurgery</li> <li>2. Microscope and microsurgical instruments</li> <li>3. Selection of suture material for microsurgical procedures</li> <li>4. Basic skills of microsurgery</li> <li>5. Blood coagulations mechanism and thromboembolic diseases</li> <li>6. Anatomy and physiology of the microcirculation</li> <li>7. Ischemia re-perfusion injuries</li> </ol>	K1-K4	<ol style="list-style-type: none"> <li>1. Basic microsurgical skills and suturing techniques.</li> <li>2. Microsurgical vessel anastomosis.</li> <li>3. Flap monitoring.</li> </ol>	S1-3& G1-G13

8. Preoperative microsurgical planning			
9. Microsurgical flap monitoring			
10. Microsurgical flap salvage			
Total	2		3
<b>Module A.2 (Advanced Microsurgery)</b> 1. Flaps types and classifications 2. Skin and fascial flaps 3. Muscles and musculocutaneous flaps 4. Functioning muscle transplantations 5. Bone flaps 6. Epiphyseal transfer 7. Chimeric flaps 8. Prefabricated flaps 9. Toe transplantations 10. Major limb replantation 11. Microvascular reconstruction of The Mangled extremity 12. Composite tissue allograft and allogenic limb transplantation 13. Microsurgery in lymphatic diseases	K1-K4	1. Vascularized free skin flaps 2. Vascularized non-functioning muscle flaps 3. Vascularized functioning muscle flaps 4. Vascularized bone flaps 5. Toe transfer	S1-S3&G1-G13

14. Super and nano-microsurgery			
Total	2		3
<b>-ModuleA.3 (Basic Principles of Extremities Reconstructions)</b> 1. Basic biomechanics of the upper limb 2. Basic biomechanics of the lower limb 3. Principles of treatment of open fractures of long bones 4. Basic principles of management of non-union of long bones 5. Reconstructive approach of chronic osteomyelitis of the long bones 6. Primary bone tumors (pathology, diagnosis and management) 7. Soft tissue musculoskeletal tumors (pathology, diagnosis and management) 8. Reconstructive alternatives for soft tissue defects	K1-K4	1. Basic bone fixation 2. Biopsy of bone and soft tissue lesions 3. Excision of musculoskeletal tumors 4. Reconstruction of defects following excision of musculoskeletal tumors	S1-S3&G1-G13

9. Reconstructive alternatives for long bone defects			
Total	2		3
<p>Module A.4 (<b>Specific Anatomic Locations</b>)</p> <ol style="list-style-type: none"> <li>1. Shoulder girdle and arm reconstruction</li> <li>2. Elbow and forearm reconstruction</li> <li>3. Distal forearm and hand reconstruction</li> <li>4. Metacarpal hand reconstruction and reconstruction after thumb amputations</li> <li>5. Pelvic girdle and hip reconstruction</li> <li>6. Thigh reconstruction</li> <li>7. Reconstructions of bone and soft tissue defects around the knee</li> <li>8. Leg reconstruction</li> <li>9. Foot and ankle reconstruction</li> <li>10. Soft tissue reconstruction of the abdominal wall and the back</li> <li>11. Role of microsurgery in vertebral</li> </ol>	K1-K4	1. Application of flaps to reconstruct defects in different anatomical locations and decision making	S1-S3 & G1-G13

column reconstruction			
Total	2		3

### B) Peripheral Nerves and Brachial Plexus Injuries

Didactic	Covered ILOS	Hands on training	Covered ILOS
<p><b>Module B.1 (Basic Principles of Nerve Surgery):</b></p> <ol style="list-style-type: none"> <li>1. Microanatomy of the nerve</li> <li>2. Pathophysiology and classifications of nerve injuries</li> <li>3. Clinical evaluation of nerve injury and regeneration</li> <li>4. Electrodiagnostic pre-, intra-, and postoperative evaluations</li> <li>5. The role of Magnetic resonance neurography (MRN) and ultrasound in evaluating peripheral nerve injuries</li> </ol>	K1-K4	<ol style="list-style-type: none"> <li>1. Examination and assessment of nerve function</li> <li>2. Interpreting neurophysiological studies</li> <li>3. Basics of nerve suturing techniques</li> <li>4. Nerve grafting techniques</li> <li>5. Nerve transfer techniques</li> </ol>	S1-S3 & G1-G13

<ul style="list-style-type: none"> <li>6. Timing of intervention and surgical strategies</li> <li>7. Principle of nerve repair and grafting</li> <li>8. Nerve transfer</li> <li>9. Nerve conduit, allografts and wrap</li> <li>10. Post-operative management and rehabilitation after nerve repair</li> <li>11. Outcomes after nerve surgery</li> <li>12. Delayed reconstruction and general principles of tendons transfer</li> </ul>			
<p>Total</p>	1		2
<p><b>Module B.2 Specific lesions (Early management and late reconstruction)</b></p> <ul style="list-style-type: none"> <li>1. Surgical anatomy and approaches to the nerves of the upper limb</li> <li>2. Surgical anatomy and approaches to the nerves of the lower limb</li> <li>3. Radial nerve injuries</li> <li>4. Median nerve injuries</li> <li>5. Ulnar nerve injuries</li> <li>6. Combined nerve injuries of the</li> </ul>	K1-K4	<ul style="list-style-type: none"> <li>1. Exploration and repair of peripheral nerve injuries including radial, median, ulnar, sciatic nerve and common peroneal nerve</li> </ul>	S1-S3& G1-G13

<p>upper limb</p> <p>7. Axillary nerve injuries</p> <p>8. Long thoracic nerve palsy</p> <p>9. Spinal accessory nerve injuries</p> <p>10. Femoral nerve injuries</p> <p>11. Sciatic nerve injuries</p> <p>12. Injuries of the lumbosacral plexus</p>			
<p>Total</p>	<p>1</p>		<p>3</p>
<p><b>Module B.3 (Brachial Plexus Injuries)</b></p> <p><b>Obstetric Brachial Plexus Injuries (OBPI)</b></p> <p>1. Clinical presentations and considerations of OBPI</p> <p>2. Natural history of untreated cases</p> <p>3. Assessment and timing of surgery</p> <p>4. Surgical strategies for upper and extended upper palsy</p> <p>5. Surgical strategies for total palsy</p> <p>6. Decision making and management for delayed presenting cases</p>	<p>K1-K4</p>	<p>1. Examination and evaluation of obstetric brachial plexus injuries</p> <p>2. Plan management of OBPI</p> <p>3. Exploration of the brachial plexus in OBPI</p> <p>4. Reconstruction of the plexus in OBPI</p> <p>5. Assessment of late OBPI and management of sequelae</p> <p>6. Examination and evaluation of traumatic brachial plexus injuries</p> <p>7. Plan management of</p>	<p>S1-S3 &amp; G1-G13</p>

<ol style="list-style-type: none"> <li>7. Outcome of surgical treatment of OBPI</li> <li>8. Shoulder sequelae: pathology, assessment, and management</li> <li>9. Elbow and forearm sequelae: pathology, assessment, and management</li> <li>10. Reconstructive strategies to improve hand function in late cases</li> </ol>		<p>TBPI</p> <ol style="list-style-type: none"> <li>8. Exploration of the brachial plexus in TBPI</li> <li>9. Reconstruction of the plexus in TBPI</li> </ol>	
<p><b>Adult Traumatic Brachial Plexus Injuries (TBPI)</b></p> <ol style="list-style-type: none"> <li>1. Clinical evaluation and diagnosis</li> <li>2. Decision making and timing of surgical intervention</li> <li>3. Priorities and surgical strategies for different types</li> <li>4. Extra-plexus neurotization: techniques and outcomes</li> <li>5. Intra-plexus neurotization: techniques and outcomes</li> <li>6. Reconstructive surgical strategies to improve hand function</li> </ol>			



<p>7. Rehabilitation concepts for Adult TBPI</p> <p>8. Outcomes of treatment for Adult TBPI</p> <p>9. Delayed presentation and management of failure after surgery</p> <p>10. Strategies for treating pain</p> <p>11. Adult TBPI associated with vascular injuries</p> <p>12. Adult TBPI associated with head injuries</p>			
<p>Total</p>	<p>4</p>		<p>6</p>
<p><b>Module B.4 (Entrapment Neuropathy)</b></p> <p>1. Pathophysiology of nerve entrapments</p> <p>2. Evaluation of nerve entrapment syndromes</p> <p>3. Principles of treatment of entrapment neuropathy (occupational, pharmacological and surgical treatment)</p> <p>4. Median nerve entrapments and</p>	<p>K1-K4</p>	<p>1. Examination and assessment of nerve entrapments</p> <p>2. Median nerve entrapment release</p> <p>3. Ulnar nerve entrapment release</p>	<p>S1-S3&amp; G1-G13</p>

<p>carpal tunnel syndrome</p> <p>5. Ulnar nerve entrapment</p> <p>6. Radial nerve entrapment</p> <p>7. Entrapment neuropathy around the shoulder (axillary nerve, suprascapular nerve and long thoracic nerve)</p> <p>8. Entrapment neuropathies of the lower limb</p>			
Total	1		2
<p><b>Module B.5 (Surgery for Tetraplegia and Spastic Upper Limb)</b></p> <p>1. Clinical and functional assessment of tetraplegic patient</p> <p>2. Reconstruction of elbow extension</p> <p>3. Reconstruction of grip and grasp</p> <p>4. Reconstruction of intrinsic</p> <p>5. Nerve transfer in tetraplegia</p> <p>6. Clinical evaluation and assessment of spastic upper limb</p> <p>7. Mechanics of spastic muscles and its surgical treatment</p>	K1-K4	1. Examination and decision making in paralytic upper limb conditions	<p>S1-S3&amp; G1-G13</p> <p>S1-S3&amp; G1-G13</p>

<p>8. Non-surgical treatment</p> <p>9. Role and technique of botulinum toxin injection</p> <p>10. Decision making, goals, timing, indications and contraindications of surgery</p> <p>11. Tendons transfer and fractional lengthening</p> <p>12. Neurectomies, hyper-selective neurectomy and nerve replantation</p> <p>13. Specific anatomical locations:</p> <ul style="list-style-type: none"> <li>a. The shoulder</li> <li>b. The elbow</li> <li>c. Pro-supination</li> <li>d. The wrist and fingers</li> <li>e. The thumb</li> </ul> <p>14. The future: Brain stimulation and nerve transfer</p>			
<p>Total</p>	<p>2</p>		<p>1</p>
<p>Module B.6 (Miscellaneous Topics)</p> <p>1. Complex regional pain syndrome</p>	<p>K1-K4</p>	<p>1. management of patients with CRPS</p> <p>2. biopsy, excision and reconstruction of nerve tumors</p>	<p>S1-S3&amp; G1-G13</p>

2. Nerve injuries caused by firearm injuries			
3. Benign and malignant tumors of the peripheral nerves			
Total	1		1

**7. Methods of teaching/learning:**



1. Didactic (lectures, seminars, tutorial)
2. Clinical rounds and weekly conference
3. Perform under supervision of senior staff (Hands on training)
4. Workshops (fracture fixation, microsurgery)
5. National and international conferences


Modules	Credit points	Attendance	Percentage of Achieved points
Lectures	18		20%
A.1-Reconstructive Microsurgery of the Extremities module (unit 1-4)	8		
Reconstructive Microsurgery Module 1 (Introduction and basic concepts in microsurgery)	2CP	20 hours	
Reconstructive Microsurgery Module 2 (Advanced Microsurgery)	2CP	20 hours	
Reconstructive Microsurgery Module 3 (Basic Principles of Extremities Reconstructions)	2CP	20 hours	
Reconstructive Microsurgery Module 4 (Specific Anatomic Locations)	2CP	20 hours	

B-Peripheral Nerves and Brachial Plexus Injuries (Unit 5-10)	10		
Module B.1 (Basic Principles of Nerve Surgery)	1CP	10 hours	
Module B.2 Specific lesions (Early management and late reconstruction)	1CP	10 hours	
Module B.3 (Brachial Plexus Injuries) -Obstetric Brachial Plexus Injuries (OBPI) -Adult Traumatic Brachial Plexus Injuries (TBPI)	4CP	40 hours	
Module B.4 (Entrapment Neuropathy) Peripheral Nerves and Brachial Plexus	1CP	10 hours	
Module B.5 (Surgery for Tetraplegia and Spastic Upper Limb)	2CP	20 hours	
Module B.6 (Miscellaneous Topics)	1CP	10 hours	
- Training for 18 months in Clinical and Research Hand and Reconstructive Microsurgery Unit& clinic, Orthopedic Surgery Department ,including fulfilling procedure and case log as mentioned below attendance of unit seminar and regular formative assessment for each unit. - Module A- Reconstructive Microsurgery of the Extremities module (unit 1-4) Training in	- 12CP  - 15CP		30%

- Module B- Peripheral Nerves and Brachial Plexus Injuries module (unit 5-10) Training in			
- Microsurgery course attendance, fulfillment, and achievement of skills and competencies	7CP		7.7%
- Basic fracture fixation course attendance fulfillment and achievement of skills and competencies.)	7CP		7.7%
- Attendance of two national/international congresses	7CP		7.7%
- Submission of research paper from medical record or hand on training. 12CP (13.3% program structure)	12CP		13.3%
- Success at the exit exam	CP12		13.3%

**Reconstructive microsurgery of the extremities, brachial plexus and peripheral nerve Procedure log of module A(unit 1-10):**

 <b>Observe: C.A</b>	 <b>Log of under supervision:</b> C.B
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<ul style="list-style-type: none"> <li>• Skin grafting.(5 cases)</li> <li>• Local flaps in soft tissue reconstruction. (15 cases)</li> <li>• free flaps for soft tissue reconstruction. (5 cases)</li> <li>• Vascularized functioning muscle flaps (5 cases)</li> <li>• Vascularized free fibular flap (10 cases)</li> <li>• Toe transfer (2 cases)</li> <li>• Biopsy of bone and soft tissue lesions (2 cases)</li> <li>• Excision of musculoskeletal tumors (5 cases)</li> <li>• Nerve repair (10 cases)</li> <li>• Nerve grafting (5 cases)</li> <li>• Vessel repair (5 cases)</li> <li>• Exploration and reconstruction of OBPI (5 cases)</li> <li>• Exploration and reconstruction of TBPI (5 cases)</li> <li>• Replantations and revascularizations of the upper extremity (5 cases)</li> <li>• Release of compression syndromes of the median and ulnar nerves (5 cases)</li> <li>• Excision and reconstruction of benign/malignant bone tumors of the hand and forearm (5 cases)</li> <li>• excision and reconstruction of nerve tumors (2 cases)</li> </ul>	<ul style="list-style-type: none"> <li>• Skin grafting.(15 cases)</li> <li>• Local flaps in soft tissue reconstruction. (15 cases)</li> <li>• free flaps for soft tissue reconstruction. (5 cases)</li> <li>• Vascularized free fibular flap (2 cases)</li> <li>• Biopsy of bone and soft tissue lesions (5 cases)</li> <li>• Nerve repair (5 cases)</li> <li>• Nerve grafting (3 cases)</li> <li>• Vessel repair (5 cases)</li> <li>• Exploration and reconstruction of OBPI (1 case)</li> <li>• Exploration and reconstruction of TBPI (1 case)</li> <li>• Replantations and revascularizations of the upper extremity (5 cases)</li> <li>• Release of compression syndromes of the median and ulnar nerves (5 cases)</li> <li>• excision and reconstruction of nerve tumors (1 case)</li> </ul>
 <b>Independently Perform:C.C</b>	
<ul style="list-style-type: none"> <li>• Skin grafting.(10 cases)</li> <li>• Local flaps in soft tissue reconstruction.(5 cases)</li> <li>• Free flaps for soft tissue reconstruction.(3 cases)</li> <li>• Biopsy of bone and soft tissue lesions (10 cases)</li> </ul>	

- Nerve repair (10 cases)
- Nerve grafting (3 cases)
- Vessel repair (3 cases)
- Release of compression syndromes of the median and ulnar nerves (10 cases)

Level of competency \*

- A- Independent performance C.A
- B- Performance under supervision. C.B
- C- Observed. C.C

## 7. Assessment methods:

### i. Assessment tools:

- a. Regular assessments every three months( 5% of program structure) will be performed to confirm the progress of the trainees in their program. This will be through discussion in outpatient clinics, clinical conferences, supervised surgical procedures, etc.
- b. Three monthly assessment **of all candidate** activities at the completion of every curriculum unit through the following( 5% of program structure):
  - i. Review outpatient clinic and tutorial attendance and performance
  - ii. Portfolio assessment
  - iii. Assessment of research progress
  - iv. Assessment of curriculum unit progress by MCQ online exam (60% to pass)



c. Exit assessment at the end of the program after fulfilling the specified requirements in Portfolio.(13.3%of program structure) :

**d-Final Assessment of the criteria necessary for completion of the program;**

-Written exam 40% of exit exam.

- Clinical exam 30% of exit exam.

- Oral exam and formal interview of the trainee by the exam committee (30% of the exam)

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

**- Time schedule of exit exam: At the end of the training.**

**9. List of references**

**i. Lectures notes**

**ii. Essential books**

- Flaps and reconstructive surgery, 2<sup>nd</sup> edition, by Fu-Chan Wei and Samir Mardini, ,2017
- Atlas of microvascular surgery, 2<sup>nd</sup> edition, by Berish Strauch and Han-Liang Yu, 2011
- Grabb's encyclopedia of flaps 4<sup>th</sup> edition, by Berish Strauch, Luis O. Vasconez, Charles K. Herman and Bernard T. Lee, 2015
- Nerve surgery 1<sup>st</sup> edition, by Susan Mackinnon, 2015
- Brachial plexus injuries 1<sup>st</sup> edition, by Alain Gilbert, 2001

## 10. Signatures

<b>Program Coordinator: Prof. Dr. Amr Elsayed</b>	<b>Head of Hand and reconstructive microsurgery unit: Prof. Dr. Amr Elsayed</b>
<b>Date: February 2021</b>	<b>Date: February 2021</b>

## **The Hand and Reconstructive Microsurgery Unit**

This unit is a specialized unit that is part of the Orthopedic Surgery Department in Assiut University. This unit specializes in treatment of various hand and upper extremity diseases and injuries, peripheral nerve surgeries including brachial plexus palsy and reconstructive microsurgery of the upper and lower extremities.

### **The Team:**

**Founder:** Prof. Dr. Tarek Elgammal

**Head of the unit:** Prof. Dr. Amr Elsayed

### **Working Staff:**

- Prof. Dr. Mohamed Mostafa Kotb
- Ass. Prof. Waleed Riad Saleh
- Dr. Yasser Farouk
- Dr. Omar Refai
- Dr. Mohamed Morsy

**End of the program specification**