PROGRAM SPECIFICATION FOR

PROFESSIONAL DIPLOMA IN HAND 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 hand Surgery

1. Basic Information

- **Program Title : Professional diploma in hand Surgery**
- **Nature of the program: Single**
- **Course code: HAS492**
- **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: Febraury 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: 21- 8-2021**
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- **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 year full time

  N.B. It is obligatory for the candidate to completely free for the year 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 aims to:

A. Provide the surgeon with the specialist knowledge and master range of skills necessary for practice of hand surgery.

B. Apply detailed exploration of the evidence-base practice thus promoting a culture of innovation and scientific enquiry related to subspecialities.

C. Provide a model for ongoing integrated learning with appropriate internal and external assessments in hand surgery.

D. Promote recognition of Hand Surgery as a sub-specialty.

E. Apply the standard of care for disorders of the hand 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 hand surgery with the relevant basic sciences.

K2. Explain the essential clinical and scientific EBM principles of hand surgery.

K3. Critically evaluate scientific and clinical literature pertinent to the practice of hand surgery.
K4. Solve common problems of hand surgery

S. Practical skills (hand on training)

Trainees will be able to:

S1. Apply skills relevant to the discipline comprising the planning, counseling, and undertaking of procedures and including managing aftercare and potential complications in practice.
S2. Perform skills to work with, organize and lead the team in practice.
S3. Perform management of various hand problems.

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.
G5. Provide 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)

1- The British Society for surgery of the hand. Diploma in Hand Surgery. The Diploma in Hand Surgery is a course of study to build knowledge and confidence for life as a consultant Hand Surgeon. It is aimed at senior trainees and young consultants. The course is run in conjunction with the University of Manchester who ensure the quality of the educational experience and validate the final qualification. This is a qualification that has the confidence of our profession and the public.

https://www.bssh.ac.uk/professionals/diploma_in_hand_surgery.aspx

Comparison between program and external reference		
Item	**Professional diploma in hand Surgery**	**Diploma in Hand Surgery;** The British Society for surgery of the hand.
Goals	Matched	Matched
ILOS	Matched	Matched
Duration	12 month	**13 months**
Requirement	Different	Different
Program structure	Different	Different

5. Structure

A-Duration of the program: 12 months
B-Structure of the program:
Total number of the credit points: 60 CPS
a. Completion of four curriculum units

b. 30CP (50% of program); out of them 6 CP for attendance and Formative assessment (10% of program structure)

c. Achievement and pass of Microsurgery course

5CP (8.3% of program structure)

d. Achievement and pass of Basic fracture fixation course

5 CP (8.3% of program structure)

e. Attendance of two national/international congresses

5CP (8.3%of program structure)

f. Submission of scientific paper for hand on training 5CP (8.3%of program structure)

g. Success at the exit exam

10 CP (16.7% of 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.

A) Completion of four curriculum units =30 CP; 12CP for didactics and 18CP for training, out of them 6CP for attendance and formative assessment.

6. Modules Contents and matrix

Four units or modules are included in the study.

Didactic	Covered ILOS	Hands on training	Covered ILOS
A-Module 1 (Injury of the Hand and Upper Limb): • Skin Techniques of skin cover – management of skin loss including basic plastic surgical techniques. a) Split skin grafts b) Full thickness grafts c) Local and distant pedicle flaps; Z-plasty; skin advancement and rotation d) Free flaps – skin, subcutaneous tissue, multi-tissue • Tendon **Flexor Tendon** a) Anatomy, physiology, biomechanics, healing b) Techniques of primary repair c) Secondary techniques eg. graft, pulley reconstruction, tenolysis, tenodesis	K1-K4	1. Skin grafting. 2. Local pedicled flaps for soft tissue reconstruction. 3. Free flaps for soft tissue reconstruction. 4. Microsurgical soft tissue reconstruction. 5. Flexor tendon repair 6. Extensor tendon repair 7. Tendon grafting and transfers 8. Nerve repair 9. Nerve grafting 10. Vessel repair 11. Fasciotomies of the hand and forearm	S1-S3 G1-G13

d) Extensor Tendon e) Anatomy, physiology, biomechanics, healing f) Techniques of primary repair g) Secondary techniques eg. graft, transfers, tenolysis • Nerve a) Anatomy, physiology, types of injury b) Repair mechanisms c) Repair techniques, microsurgical techniques d) Primary repair – major nerve, digital nerve e) Nerve graft f) Neurolysis g) Neuroma management h) Brachial plexus injuries • Vessels a) Anatomy, physiology, pathology b) Microsurgical techniques, vessel repair and anastomosis c) Management of arterial injuries d) Management of compartment syndromes and sequelae e) Management of ischemic hands			

Total	3		4
B-Module 2 (bony and ligamentous injuries) • Bone 1. Anatomy, physiology, fracture healing, biomechanics of fracture repair and fixation 2. Techniques of fracture fixation – closed methods a. Use of splints and casts b. External fixation 3. Techniques of fracture fixation – open methods eg. K-wires, plates and screws 4. Management of metacarpal and phalangeal fractures and fracture dislocations a. Shaft b. Intra-articular 5. Wrist injuries a. Carpal bone fracture (non-scaphoid) b. Scaphoid fractures c. Carpal dislocations and fracture dislocations d. Fractures and fracture dislocations of the distal radius e. Fractures, dislocations and fracture dislocations of the distal ulna 6. Kienböck's disease and	K1-K4	1. Basic fracture fixation 2. Basic casting and splinting 3. Fixation of fractures of the forearm and hand 4. Reduction and fixation of fractures/dislocations of the wrist 5. Non-vascularized bone grafting 6. Limited carpal fusions 7. Proximal row carpectomy 8. Correction of deformities by osteotomies 9. Basic wrist arthroscopy 10. Replantation and revascularizations of the upper extremity	S1-S3 G1-G13

other carpal ischaemias 7. Secondary management a. Repair of non-unions and malunions b. Osteotomies, arthroplasties and fusions c. Management of late carpal collapse d. Management of late problems in the distal radioulnar joint e. Management of late problems in the carpometacarpal joint areas f. Management of bone loss (bone grafts, vascularized bone grafts, free flaps) • Ligaments 1. Anatomy, physiology, biomechanics, types of injury 2. Diagnostic techniques: standard imaging, special imaging, arthrography, arthroscopy 3. Management of dislocations and ligament injuries – interphalangeal, metacarpophalangeal a. Open repair of ligament injuries, fingers			

and thumb b. Reconstruction of chronic ligament injuries 4. Management of acute and chronic ligament injuries of the wrist a. Carpal subluxations and instabilities b. Management of injuries to the distal radioulnar joint and triangular fibro-cartilage complex c. Arthroscopic surgery of the wrist and hand • Amputations 1. Techniques of treatment of fingertip injuries 2. Techniques of repair of thumb amputations 3. Management of finger, hand and forearm amputations 4. Replantation and revascularization 5. Reconstruction following amputation a. Prostheses and orthoses b. Thumb and digit reconstruction • Special Injuries			

1. Management of thermal and electrical injuries 2. Management of pressure and injection injuries 3. Management of degloving injuries 4. Management of multiple tissue injuries 5. Radiation and chemical injuries 6. Vibration injuries			
Total	3		5
C-Module 3 (Elective Surgery of the Hand and Upper Limb) • Congenital 1. Embryology of the hand and upper limb 2. Classification of congenital hand anomalies 3. Management of congenital hand anomalies a. thumb eg aplasia, duplication b. digits eg syndactyly, polydactyly, clinodactyly, camptodactyly c. limb eg radial and ulnar club hand, aplasia, cleft hand 4. Techniques used in	K1-K4	1. Syndactyly release 2. Centralization of radial club hand 3. Index pollicization 4. Basics of bone lengthening 5. Contracture release 6. Tendon transfers for median, ulnar and radial nerves	S1-S3 G1-G13

management of congenital anomalies a. pollicization, finger transfer b. flaps c. toe to hand transfers d. microsurgical techniques e. physis manipulation f. external fixator manipulation • Paralyses 1. General principles of management of cerebral palsy and other spastic paralyses 2. General principles of management of tetraplegia 3. Paralyses due to poliomyelitis 4. Paralyses due to nerve injury and reconstruction for peripheral nerve lesions 5.General principles of management of muscular dystrophy and other neurological conditions 6. Tendon transfers 7. Nerve transfers 8. Stabilization of joints 9. Contracture management			
Total	3		4

D-Module 4 • Arthritis 1. Pathophysiology of osteoarthritis and rheumatoid arthritis and other inflammatory joint disease 2. General principles of management of arthritis in hand and upper limb 3.Management of rheumatoid arthritis including tendon and joint synovectomy, tendon transfer, arthroplasty and arthrodesis a. Interphalangeal joints b. Metacarpophalangeal joints c. Carpometacarpal joint of thumb d. Wrist and inferior radioulnar joint 4. Management of osteoarthritis including arthroplasty and arthrodesis a. Digital joints b. Thumb base c. Intercarpal joints d. Wrist and inferior radioulnar joint 5. Management of other arthritis a. Psoriatic arthropathy b. Systemic lupus c. Scleroderma d. Juvenile RA	K1-K4	1. Arthrodesis of joints of the wrist and hand 2. Release of compression syndromes of the median and ulnar nerves 3. Excision and reconstruction of benign/malignant bone tumors of the hand and forearm 4. Drainage of septic collections in the hand and forearm 5. Debridement of infected tissues of the hand and forearm 6. Injection and release of trigger digits and thumb 7. Excision of Depuytren's contracture 8. Injection and surgical management of various types of enthesopathies 9. Diagnosis and management of various pain syndromes of the	S1-S3 G1-G13

e. Gout f. Others • Nerve Compression Syndromes 1. Pathology, EMG techniques, nerve conduction studies 2. Management of compression syndromes a. Median b. Ulnar c. Radial d. Thoracic outlet and other proximal compartment syndromes • Tumors 1. Pathology of tumors affecting the hand 2. Principles of tumor management 3. Management of soft tissue tumors a. Ganglion b. Benign soft tissue tumors including pigmented Villonodular synovitis c. Malignant soft tissue tumors 4. Management of bone tumors a. Benign b. Malignant c. Metastatic		upper extremity	

• Infection 1. General principles, prevention, use of antibiotics 2. Wound infection 3. Nail infection 4. Infection of skin and subcutaneous tissues 5. Deep sepsis a. Septic arthritis b. Osteomyelitis c. Tendon sheath infection 6. Esoteric infections eg. fungal, mycobacterial infections 7. Limb and/or life-threatening conditions eg. necrotizing fasciitis etc. • Connective Tissue Disorders 1. Anatomy, physiology, pathology of connective tissue disorders in the hand, stenosing syndromes eg. trigger digits, de Quervain's syndrome 2. Dupuytren's contracture a. Anatomy, physiology, pathology, epidemiology b. Surgical techniques 3. Tenosynovitis of the wrist and hand 4. Other connective tissue disorders eg. fasciitis,			

enthesitis • Pain Syndromes in the Upper Limb 1. Occipito-cervico-brachial pain 2. Occupational and vocational problems 3.Pain dysfunction syndromes eg. “cumulative trauma disorder” and “repetitive strain injury” 4. Causalgia and other types of dystrophic responses – complex regional pain syndromes (1 and 2) 5. Hysterical and psychosomatic conditions in the upper limb • Sports Injuries in the Upper Limb			
Total	3		5

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	12		20%
Module 1 (Injury of the Hand and Upper Limb)	3CP	30 hours	
Module 2 (bony and ligamentous injuries)	3CP	30 hours	
Module 3 (Elective Surgery of the Hand and Upper Limb)	3CP	30 hours	
Module 4(Miscellaneous issues) o Arthritis o Nerve Compression Syndromes o Tumors o Infection o Connective Tissue Disorders o Pain Syndromes in the Upper Limb Sports Injuries in the Upper Limb	3CP	30 hours	
- Attend and practice for 12 months in Clinical and Research Hand and Microsurgery Unit and clinic , Orthopedic Surgery Department for training and fulfilling the requirement or practical skills including; attendance of weekly seminar	18CP		30%

unit, formative assessment for each unit, operative procedure and case log as mentioned below.			
- Achievement and pass of Microsurgery course	5CP		8.3%
- Achievement and pass of Basic fracture fixation course	5CP		8.3%
- 5 CP (8.3% of program structure)	5CP		8.3%
- Attendance of two national/international congresses	5CP		8.3%
- Success at the exit exam	10CP		16.7%

Hand surgery Procedure log :

Observe: Competency A	**Log of under supervision**: Competency B
• Skin grafting. (5 cases) • Local flaps in soft tissue reconstruction. (15 cases) • free flaps for soft tissue reconstruction. (5 cases) • Flexor tendon repair (5 cases) • Extensor tendon repair (5 cases) • Tendon grafting and transfers (5 cases) • Nerve repair (10 cases) • Nerve grafting (5 cases)	• Skin grafting. (15 cases) • Local flaps in soft tissue reconstruction. (15 cases) • free flaps for soft tissue reconstruction. (5 cases) • Flexor tendon repair (5 cases) • Extensor tendon repair (5 cases) • Tendon grafting and transfers (2 cases) • Nerve repair (5 cases) • Nerve grafting (3 cases)

• Vessel repair (5 cases) • Fasciotomies of the hand and forearm (1 case) • Fixation of fractures of the forearm and hand (3 cases) • Reduction and fixation of fractures/dislocations of the wrist (2 cases) • Non-vascularized bone grafting (2 cases) • Limited carpal fusions (3 cases) • Proximal row carpectomy (2 cases) • Wrist arthroscopy (5 cases) • Replantations and revascularizations of the upper extremity (5 cases) • Syndactyly release (3 cases) • Centralization of radial club hand (2 cases) • Index pollicization (1 case) • Arthrodesis of joints of the wrist and hand (3 cases) • Release of compression syndromes of the median and ulnar nerves (5 cases) • Excision and reconstruction of benign/malignant bone tumors of the hand and forearm (5 cases) • Drainage of septic collections in the hand and forearm (3 cases) • Release of trigger digits and thumb (2 cases) • Excision of Depuytren's	• Vessel repair (5 cases) • Fasciotomies of the hand and forearm (1 case) • Fixation of fractures of the forearm and hand (2 cases) • Reduction and fixation of fractures/dislocations of the wrist (2 cases) • Non-vascularized bone grafting (2 cases) • Limited carpal fusions (2 cases) • Proximal row carpectomy (1 case) • Proximal row carpectomy (1 case) • Replantations and revascularizations of the upper extremity (5 cases) • Syndactyly release (2 cases) • Arthrodesis of joints of the wrist and hand (2 cases) • Release of compression syndromes of the median and ulnar nerves (5 cases) • Drainage of septic collections in the hand and forearm (3 cases) • Release of trigger digits and thumb (5 cases) • Excision of Depuytren's contracture (2 cases)

contracture (3 cases)	
Independently Perform: Competency C	
• Skin grafting. (10 cases) • Local flaps in soft tissue reconstruction. (5 cases) • Free flaps for soft tissue reconstruction. (3 cases) • Flexor tendon repair (20 cases) • Extensor tendon repair (20 cases) • Tendon grafting and transfers (2 cases) • Nerve repair (10 cases) • Nerve grafting (3 cases) • Vessel repair (3 cases) • Fasciotomies of the hand and forearm (1 case) • Fixation of fractures of the forearm and hand (2 cases) • Reduction and fixation of fractures/dislocations of the wrist (2 cases) • Non-vascularized bone grafting (2 cases) • Release of compression syndromes of the median and ulnar nerves (10 cases) • Release of trigger digits and thumb (10 cases)	
Level of competency *	
A- Independent performance B- Performance under supervision C- Observed	

8. 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/module through the following (5% of program structure) :

   i. Review outpatient clinic and tutorial attendance and performance
   ii. Portfolio assessment and fulfilling requirements
   iii. Assessment of research project progress
   iv. Assessment of curriculum unit progress by MCQ online exam (four exam, one exam for each module at the end of training) (60% to pass)

   A& b regular assessment and attendance represent 10% of training activities

c. Exit assessment at the end of the program after fulfilling the specified requirements in portfolio (16.7 % of program structure)

   Assessment of the criteria necessary for completion of the program i.e.

   i. Written exam in 40% of exit exam(MCQs,
   ii. Clinical and practical exam30% of exit exam (i.e OSCE or OSPE)
   iii. Oral exam(Formal interview of the trainee by the exam committee and oral discussion with portfolio (30% of exit exam)

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

ii. Time schedule: At the end of the training.

9. List of references

I. Lectures notes

ii. Essential books

- Green's operative hand surgery
  7th edition, by Scott Wolfe William Pederson Scott H. Kozin Mark Cohen, 2016

10. Signatures

Program Coordinator: **Prof. Dr. Amr Elsayed**	**Head of Hand and reconstructive microsurgery unit:** **Prof. Dr. Amr Elsayed**
Date: February 2021	**Date: February 2021**

The Hand and Reconstructive Microsurgery 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