

Guidelines
For
Competency Based Training Programme
DrNB - Plastic and Reconstructive Surgery
(3 Years Course)
2021



NATIONAL BOARD OF EXAMINATIONS IN MEDICAL SCIENCES

Medical Enclave, Ansari Nagar, New Delhi-110029, INDIA

Email: mail@natboard.edu.in Phone: 011 45593000



TABLE OF CONTENT

S.NO	CONTENT	PAGE NO.
I	Introduction:	3-5
II	The Syllabus:	6-18
III	Skill Development:	19-21
IV	Academic Activities: Activities Of Learning And Effective Communication	22
V	Teaching Skills:	23-25
VI	Recommended Books & Journals:	26-28
VII	References:	29-30



INTRODUCTION:

The objective of this proposal is to update the existing curriculum to eliminate deficiencies in the training.

1. The Goal

As per the regulations of Medical Council of India, the goal of postgraduate medical education shall be to produce competent specialists and/or Medical teachers:

- i. Who shall recognize the health needs of the community, and carry out professional obligations ethically and in keeping with the objectives of the national health policy.
- ii. Who shall have mastered most of the competencies, pertaining to the Plastic surgery specialty, that are required to be practiced at the secondary and the tertiary levels of the health care delivery system
- iii. Who shall be aware of the contemporary advance and developments in the discipline of plastic surgery
- iv. Who shall have acquired a spirit of scientific inquiry and is oriented to the principles of research methodology and epidemiology; and
- v. Who shall have acquired the basic skills in teaching of the medical and paramedical professionals.

2. The Objectives

- i. Recognize the importance to the specialty in the context of the health needs of the community and the national priorities in the health section.
- ii. Practice the specialty ethically and in step with the principles of primary health care.
- iii. Demonstrate sufficient understanding of the basic sciences relevant in the specialty
- iv. Identify social, economic, environmental, biological and emotional determinants of health in a given case, and take them into account while planning therapeutic, rehabilitative, preventive and primitive measure/strategies.
- v. Diagnose and manage majority of the conditions in the specialty on the basis of clinical assessment, and appropriately selected and conducted investigations



- vi. Plan and advise measures for the prevention and rehabilitation of patients suffering from disease and disability related to the specialty.
- vii. Demonstrate skills in documentation of individual case details as well as morbidity and mortality rate relevant to the assigned situation.
- viii. Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behaviour in accordance with the societal norms and expectations.
- ix. Play the assigned role in the implementation of national health programme, effectively and responsibly.
- x. Organize and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or the field situation.
- xi. Develop skills as a self-directed learner, recognize continuing education needs; select and use appropriate learning resources.
- xii. Demonstrate competence in basic concepts of research methodology and epidemiology, and be able to critically analyse relevant published research literature.
- xiii. Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.
- xiv. Function as an effective leader of a health team engaged in health care, research or training.

3. Subject Specific Objectives

- i. To acquire the competencies pertaining to all areas of plastic surgery that are required to be practiced in the community and at all levels of health care system.
- ii. To train in 8 essential Core areas of plastic surgery. The training should provide sufficient scientific knowledge and skills. They include (in alphabetical order):
 - a. Aesthetic Surgery & Medicine
 - b. Burns
 - c. Brachial plexus & Peripheral nerve surgery
 - d. Hand Surgery
 - e. Maxillofacial surgery & Craniofacial Surgery including Cleft surgery
 - f. Microvascular & Peripheral vascular surgery
 - g. Reconstructive surgery



- h. Urogenital surgery, External genitalia & Intersex
- iii. The training of essential core areas may be obtained, in addition to the parent unit, from different units by rotation. This is subject to the discretion of the Head of the department within the regulations of the institution. The rotation period shall not exceed 6 months.
- iv. To acquire skills in effective communication with different specialties and provide inter- specialty services.
- v. To acquire skills in effective communication with patients, family and the community;
- vi. To acquire skills in educating medical and paramedical professionals.
- vii. To be updated on contemporary advances and developments in plastic surgery
- viii. To be able to understand research methodology, ethics, critical analysis, statistical methods and be able to conduct independent research.
- ix. To acquire skills of writing a scientific manuscript for peer reviewed publications and analyse evidence-based literature.
- x. To be updated with record keeping, medico legal knowledge, consumer protection law, consent and other contentious issues of rights of patients and consumer.

4. The Learning Objectives :

- i. The teaching and training module involves:
 - Cognitive Domain
- ii. Theoretical knowledge—the syllabus:
 - Psychomotor Domain
- iii. Skill development: Clinical Skill development: Operative:
 - Scholarly Activity and Evidence Based Practice
- iv. Academic Activities: Activities of Learning Research Methodology, Thesis, Medical Ethics and Medico Legal Aspects Teaching Skills:
 - Affective Domain
- v. Personal Attributes: Professional ism, Attitude and Effective Communication:
 - Assessment
- vi. Monitoring Learning Activities:



THE SYLLABUS:

At the end of the training the candidates demonstrate in-depth knowledge in basic science and principles, and various regional and essential core areas of plastic, reconstructive and aesthetic surgery.

1. General Principles, Basic Sciences

- i. History of Plastic Surgery
- ii. History and development to plastic surgery in India and across the world
- iii. The scope of plastic surgery
- iv. Research methodology and Research in plastic surgery
- v. Medico legal issues in plastics surgery practice
- vi. Liability issues in plastic surgery, legal & insurance perspective.
- vii. Documentation, Record keeping and consent.
- viii. Patient safety issues in plastic surgery
- ix. Psychological aspect of plastic surgery
- x. Ethics
- xi. Photography in plastic surgery
- xii. Training modules for Plastic surgery trainees.

2. Technology Applications

- i. Technological innovations
- ii. Laser and energy device applications
- iii. Tissue expansion-principles and application
- iv. Distraction Histogenesis
- v. Endoscopy in Plastic Surgery
- vi. Robotics and simulations
- vii. Telemedicine
- viii. 3-D Printing technology & applications
- ix. Implants and Biomaterials
- x. Transplantation
- xi. Regenerative medicine, Tissue engineering, cell therapy & stem cells
- xii. Foetal surgery
- xiii. Information Technology for Plastic Surgeon
- xiv. Teaching tools, methods & innovations in plastic surgery residency training.



3. Basic Principles and Techniques

- i. Wound: Definition, classification and implications.
- ii. Wound healing-normal and abnormal.
- iii. Wound Management-Mechanical and pharmacological dressing techniques.
- iv. Negative pressure wound therapy & other techniques.
- v. Scar biology and management
- vi. Keloid, hypertrophic scars prevention and management
- vii. Unstable scar and scar contracture.
- viii. Anatomy and functions of skin.
- ix. Skin grafts.
- x. Blood supply to skin, cutaneous circulation and basis of flaps.
- xi. FLAPS: General indications, Bio geometry off laps principles and technique off lap planning, designing and application. Classification off laps; Local skin flaps. Pedicle skin flaps.; Muscle flaps, osseous flaps, free flaps; Cutaneous flap perforator flaps, freest leper orator flaps, Keystone flaps, chimeric flaps, flow-through flaps etc.
- xii. Prefabricated, Prelaminated flaps.
- xiii. Grafts–fat, fascia, tendon, nerve, cartilage, bone, composite tissue
- xiv. Infective conditions of skin.
- xv. Nosocomial infections.
- xvi. Suture materials.
- xvii. Surgical instruments.
- xviii. Principles of genetics and general approach to the management of congenital mal formations.
- xix. Local anaesthesia, nerve blocks, regional an aesthesia.
- xx. Principles of anaesthesia for infants, adults, hypothermia, hypotensive anaesthesia.
- xxi. Pain management
- xxii. Transplant Biology.

4. Maxillofacial and Craniofacial Surgery General

- i. Embryology and anatomy of craniofacial complex.
- ii. Growth and development changes in face, anatomy of facial skeleton.
- iii. Structure and development of teeth and Dentofacial anomalies.

5. Craniofacial Anomalies

- i. Principles of craniofacial surgery
- ii. Craniofacial clefts Tessier's clefts classification.
- iii. Cranio synostosis-: syndromic and non-syndromic



- iv. Hypertelorism,
- v. Craniofacial microsomia.
- vi. Craniofacial distraction.
- vii. Hemi facial atrophy
- viii. Teacher-Collins Syndrome
- ix. Pierre Robin sequence.
- x. Other craniofacial syndromes, e.g.-Binders syndrome etc.

6. Cleft Lip and Palate

- i. Embryology of head and neck.
- ii. Embryogenesis of cleft lip and palate.
- iii. History and evolution of techniques in Cleft surgery.
- iv. Classification of Clefts
- v. Unilateral Cleft Lip
- vi. Bilateral Cleft Lip
- vii. Cleft Palate
- viii. Alveolar Clefts
- ix. Secondary deformity correction in clefts
- x. Management of palatal fistula
- xi. Flaps in Clefts-Abbe flap, Tongue flap, buccal flaps, free flaps etc.
- xii. Cleft nose correction
- xiii. Midface skeletal evaluation and corrections
- xiv. Orthognathic surgery/ distraction in Clefts
- xv. Velopharyngeal Incompetence
- xvi. Orthodontics, speech therapy in cleft lip and palate.

7. Maxillofacial trauma

- i. Dentofacial anatomy, occlusions, various terminologies.
- ii. Evaluation of injuries, imaging, principles of treatment.
- iii. Management of Airway and acute care
- iv. ATLS protocols
- v. Principles of facial soft tissue injury repair
- vi. Soft tissue injuries and Management-Repair of various specific areas: Eyelids, lacrimal injury, ear, nose, lips etc.
- vii. Facial nerve injuries and management
- viii. Restoration of anatomical subunits of face.



- ix. Access to maxillofacial fractures, various incisions, posterior approach with coronal /bicorporal flaps.
- x. Skeletal Fractures–Principles and management
- xi. Fracture Mandible and condyle fractures
- xii. Midface fractures: maxilla, nasal bone, NOE complex
- xiii. Nasal bone fractures.
- xiv. Frontal bone fractures.
- xv. Zygomatic complex fractures
- xvi. Management of Panfacial injuries
- xvii. Management of dento-alveolar injuries
- xviii. Fracture reduction and different modalities of skeletal stabilization; AO principles.
- xix. Osteosynthesis, Plate fixation principles and techniques
- xx. Maxillo mandibular fixation techniques: Arch bar, dental wiring, cranio maxillary fixations
- xxi. Primary and secondary bone grafting, donor sites, techniques.
- xxii. Avulsion injuries of face
- xxiii. Gunshot injuries of face.
- xxiv. Paediatric Facial Fractures
- xxv. Geriatric facial fractures
- xxvi. Head injury assessment and principles of management.
- xxvii. Treatment of Secondary deformities.

8. Maxillofacial Disorders

- i. Temporo Mandibular joint: Ankylosis, Hypermobility
- ii. Temporomandibular joint pain, dysfunctions.
- iii. T.M Joint Reconstruction.
- iv. Obstructive sleep apnea–Evaluation, planning and management
- v. Obstructive sleep apnea–Surgical treatment: Genioglossus advancement hyoid suspension, Maxillo mandibular advancements etc.
- vi. Head and neck infections, space infections.
- vii. Ludwig's Angina Management
- viii. Distraction osteogenesis-maxilla, mandibular deficiencies.
- ix. Principles of osteointegration and Implantology
- x. Craniofacial and Maxillofacial Prosthetics
- xi. Craniofacial Implants and retained prosthesis



9. Head and Neck Reconstruction

- i. Reconstruction of Scalp and the face
- ii. Reconstruction of the Nose defects, deformities
- iii. Reconstruction of external ear. (Congenital, Post-traumatic, as well as Aesthetic Otoplasty or ear reshaping)
- iv. Reconstruction of the Lip and commissure.
- v. Cheek reconstruction
- vi. Mid face, maxilla defect classification, reconstruction options including free flaps
- vii. Oral cavity, tongue reconstruction
- viii. Principles of reconstruction of pharynx and oesophagus.
- ix. Mandibular reconstruction.
- x. Congenital deformities of face and jaw bone, Fibrous dysplasia, Romberg's disease, hemifacial atrophy, macrosomia etc.
- xi. Flaps for facial reconstruction
- xii. Facial paralysis and various reconstructive procedures
- xiii. Leprosy deformities of face and corrections.
- xiv. Corrective Rhinoplasty.
- xv. Skull Base Surgery-principles
- xvi. Management of vascular malformations of head and neck

10. Orthognathic surgery

- i. Dentofacial anomalies and occlusal disturbances
- ii. Evaluation-OPG, Cephalograms, CT imaging
- iii. Planning of treatment –preparation of splints, models, mock surgery
- iv. Pre and post-surgical orthodontics-principles
- v. Mandibular osteotomies-Sagittal split osteotomies, BSSO, Genioplasty etc.
- vi. Maxillary osteotomies-LeFort, segmental maxillary osteotomy etc.
- vii. Bi maxillary (double jaw procedures) osteotomies.

11. Tumours of Head and Neck

- i. Vasoformative lesions of the skin and adenexa
- ii. Malignant and benign tumours of head and neck.
- iii. Tumours of oral cavity, oropharynx and Mandible.



- iv. Jaw tumours, lesions and cyst.
- v. Cancer of upper Aerodigestive system Principles of management for reconstruction
- vi. Resection of tumour and Reconstruction of mandible, maxilla and facial hard and soft tissue.
- vii. Paediatric head and neck tumours

12. Dermatological conditions & surgery

- i. Management of skin lesions (benign and malignant)
- ii. Superficial soft tissue tumours (benign and malignant) and cyst
- iii. Management of hyperpigmentation
- iv. Management of Leucoderma
- v. Surgical Management of vitiligo, hypopigmentation conditions

13. Oculoplastic Surgery

- i. Reconstruction of eyelids, upper, lower, total.
- ii. Ptosis evaluation and correction
- iii. Reconstruction of orbital socket
- iv. Prosthetic rehabilitation

14. Aesthetic Surgery and Medicine

- i. Safety in cosmetic surgery and patient evaluation
- ii. Managing cosmetic surgery patient.
- iii. Anatomy of ageing skin
- iv. Non-surgical procedures
- v. Cutaneous Resurfacing-Chemical peeling, dermabrasion & Laser resurfacing
- vi. Facial rejuvenation techniques
- vii. Soft tissue fillers
- viii. Botulinum toxin
- ix. Chemical peeling and dermabrasion.
- x. Management of scars of face and other regions
- xi. Blepharoplasty.
- xii. Face lift non-surgical and various surgical techniques.
- xiii. Forehead lift surgical / endoscopic
- xiv. Laser therapy-and various applications.



- xv. Aesthetic and functional Rhinoplasty open, closed.
- xvi. Facial augmentation with implants and autologous tissue: e.g. chin, angle, midface etc.
- xvii. Osseous Genioplasty
- xviii. Structural fat grafting
- xix. Management of high BMI patients and large volume liposuction
- xx. Liposuction lipostructuring and various modalities like PAL, LASER, Ultrasonic etc.
- xxi. Abdominoplasty, Lip abdominoplasty.
- xxii. Body contouring procedures
- xxiii. Axillary contouring and axillary breast management.
- xxiv. Post Bariatric reconstruction
- xxv. Body lifts, limb contouring procedures
- xxvi. Buttock augmentation, Calf augmentation, Pectoral augmentation
- xxvii. Upper limb contouring
- xxviii. Aesthetic genital surgery male and female.
- xxix. Aesthetic jewellery piercing
- xxx. Dimple creation for cheek, minor aesthetic procedures.

15. Hair Restoration

- i. Scalp Anatomy
- ii. Biology of the hair follicle from the surgical perspective
- iii. Scalp pathology
- iv. Medical restoration
- v. Various techniques of restoration including strip harvest(FUT), FUE, Body hair transplant (Non scalp donor harvest)
- vi. Setting up a hair restoration practice.
- vii. Eyebrow reconstruction

16. Breast

- i. Breast cancer and over view of management.
- ii. Approach to breast reconstruction-options.
- iii. Breast reconstruction Different surgical techniques, free flaps and prosthetic reconstruction



- iv. Reconstruction of nipple and areola
- v. Congenital anomalies of breast and correction
- vi. Poland's syndrome
- vii. Fat grafting and contouring.
- viii. Reduction mammoplasty various techniques
- ix. Mastopexy.
- x. Augmentation mammoplasty & breast implants
- xi. Detailed knowledge about various breast implants, prosthesis
- xii. Revision surgeries in breast.
- xiii. Gynecomastia
- xiv. Axillary breast / lipomas

17. Lower Extremity

- i. Functional anatomy of lower extremity
- ii. Lower extremity trauma management.
- iii. Principles and techniques of fracture management of lower limb
- iv. Post traumatic soft tissue defect reconstruction.
- v. Skeletal defects reconstruction of the lower extremity
- vi. Reconstruction of soft tissue sarcoma and excisional defects.
- vii. Reconstruction of foot defects
- viii. Skeletal fixation of foot fractures
- ix. Diabetic and neuropathic foot management and reconstruction
- x. Various post burn deformities.
- xi. Congenital foot deformity
- xii. Lymphedema (detailed in lymphology)
- xiii. Leprosy deformities of leg and foot.
- xiv. Nerve entrapment in lower extremity

18. Trunk / chest

- i. Thoracic reconstruction
- ii. Sternal reconstruction
- iii. Abdominal wall reconstruction
- iv. Management of incisional hernia.
- v. Pressure (decubitus) ulcers



19. Genito Urinary, external genitalia, intersex & Perineum

- i. Embryology and anatomy of the male and female external genitalia and perineum
- ii. Various problems of the region Oncological defects, Fournier's gangrene, incontinence
- iii. Reconstruction of perineum
- iv. Hypospadias.
- v. Epispadias and ectopic vesicae.
- vi. Reconstruction of Male external genitalia.
- vii. Vaginal atresia, malformations.
- viii. Vaginoplasty techniques
- ix. Reduction labioplasty, Clitoroplasty
- x. Transsexualism
- xi. Intersex
- xii. Gender reassignment procedures.
- xiii. Aesthetic external genital procedures
- xiv. Penile implant techniques
- xv. Testicular implants

20. Hand and upper extremity

- i. Embryology of upper extremity.
- ii. Functional anatomy of hand.
- iii. Examination of hand.
- iv. General principles of hand surgery.

21. Congenital Hand

- i. Embryology and classification
- ii. Congenital anomalies of hand, finger and thumb.
- iii. Anomalies of forearm, upper limb: e.g. radial club hand, ulnar club hand, radioulnar synostosis
- iv. Vascular anomalies
- v. Various corrective procedures for congenital hand
- vi. Pollicization



- vii. Thumb Reconstruction-Various techniques
- viii. Innervated flaps
- ix. Toe transfers

22. Hand Trauma

- i. Treatment of acute hand injuries
- ii. Fingertip injuries
- iii. Flexor tendon injuries
- iv. Extensor tendon injuries
- v. Principles of reconstruction in mutilating and injuries
- vi. Fractures and dislocation of hand–metacarpal, phalanges and wrist
- vii. Treatment principles, options, technique for hand fractures
- viii. Soft tissue cover for hand, fingers, thumb
- ix. Nail injuries, grafting
- x. Vascular injuries and repairs
- xi. Nerve injuries and repairs
- xii. Replantation of amputations / disarticulations of upper limb, proximal, distal and digits
- xiii. Reconstruction of thumb loss
- xiv. Tendon transfers
- xv. Burn Hand

23. Non traumatic Hand conditions

- i. Vascular anomalies of upper extremity
- ii. Lymphedema in upper extremity
- iii. Nerve compression syndromes
- iv. Surgery for spastic and tetraplegic hand
- v. Problems of small joints
- vi. Dupuytren's disease
- vii. Principles and treatment of old and neglected hand deformities
- viii. Rheumatoid arthritis of hand (Reconstructive procedures)
- ix. Benign and malignant tumours of hand
- x. Hand infections



24. Physiotherapy & Rehabilitation

- i. Basic principles of physical therapies, techniques
- ii. Manual and assisted therapy, electro therapy, ultrasonic, Laser and other modalities
- iii. Hand functional outcome evaluation
- iv. Rehabilitation of hand, prosthesis
- v. Burn rehabilitation & physiotherapy

25. Allogenic Transplantation

- i. Basic principles, immunology, transplant biology
- ii. Hand Transplantation
- iii. Face transplantation

26. Brachial plexus and Peripheral nerve surgery

- i. Patho-physiology and classification of nerve injuries
- ii. Principles of nerve repair
- iii. Peripheral nerve reconstructions
- iv. Nerve grafts, donor sites
- v. Distal nerve transfers innerve injuries
- vi. Electro diagnostic tests and interpretations
- vii. Brachial plexus injury(BPI): Principles of management
- viii. Examination, Investigation & planning
- ix. Exploration of brachial plexus
- x. Nerve grafting, neurotisations, distal nerve transfers in BPI
- xi. Contralateral C7 transfers including direct repairs
- xii. Secondary surgeries in BPI
- xiii. Free functioning muscle transfer
- xiv. Obstetrical Brachial Plexus Injuries Primary management and secondary procedures
- xv. Tendon transfers for nerve injury
- xvi. Nerve entrapments, e.g. carpal tunnel syndrome etc.
- xvii. Assessment of nerve recovery, functional results



27. Microvascular surgery

- i. Principles of micro surgery and its applications in plastic surgery
- ii. Basic techniques; instrumentation; operative microscopes
- iii. Replantation of upper limb, lower limb and other body parts
- iv. Revascularization surgery in extremity vascular injury
- v. Microvascular (free) tissue transfers
- vi. Free Functioning muscle transfer
- vii. Micro neural repair
- viii. Tubal recanalization
- ix. Other applications of magnification

28. Vascular surgery

- i. Repair and reconstruction of vascular injuries of extremity below elbow & below knee
- ii. Vascular access (Artero-venous fistula) to Chronic renal diseases
- iii. Peripheral vascular aneurysms.

29. Burns and post burn sequel

- i. History of management of burns
- ii. Multi-disciplinary teams in burn management
- iii. Outpatient burn management and Pre-hospital care and transport
- iv. Pathophysiology of burns, burn shock and oedema
- v. Fluid therapy in burns and acute management
- vi. Management of airway and inhalation burns
- vii. Thermal burns
- viii. Electrical burns
- ix. Chemical burns
- x. Radiation burns
- xi. Cold induced injuries, frost bite
- xii. Burns of special areas: Facial, genital, hand burns
- xiii. Burns in pediatric and geriatric age groups and management
- xiv. Surgeries for burns Early excision late debrima and grafting
- xv. Various skin graft expansion techniques in large burns
- xvi. Burn wound management



- xvii. Infection in burns, sepsis, SIRS, Multi-organ failure
- xviii. Nutrition in burns
- xix. Prognostic factors
- xx. Skin substitutes
- xxi. Skin donation and banking
- xxii. Advances in management of burns
- xxiii. Post burn contractures – treatment of sequelae
- xxiv. Reconstruction of deformities and prevention
- xxv. Indication and use of skin grafts, flaps and expanders in reconstruction
- xxvi. Psychological management of burn patients
- xxvii. Comprehensive rehabilitation of burn patients
- xxviii. Prevention of burn injuries and first aid
- xxix. Principles of planning in event of burn disaster
- xxx. Organization of Burns Unit

30. Lymphology and surgery

- i. Detailed knowledge of pathophysiology of lymphedema
- ii. Management of lymphedema
- iii. Basic knowledge of neck, axillary, groin lymph node dissection
- iv. Lymph node free flap transfer
- v. Various surgical treatment for lymphedema reduction

31. Recent Advances in Plastic Surgery

Knowledge of recent advances should be acquired and given higher priority in learning. It should be updated with various CME activity learning, CME articles from recommended journals.



iii. SKILL DEVELOPMENT:

1. Clinical

- i. History, examination and documentation
- ii. Detailed physical examination should include general and systemic evaluation
- iii. Skills in writing up notes, maintaining problem oriented records, progress notes, and presentation of cases during ward rounds, planning investigations and making a treatment plan.
- iv. The resident should be able to analyse history and correlate it with clinical findings
- v. General, Physical and specific examinations of Maxillofacial & Hand, aesthetic face etc.
- vi. Be able to clinically analyse the patient & decide for pertinent investigations required for specific patient
- vii. Should be well versed with all radiological investigations like CT Angio, CT Face with 3D Reconstruction, MRI, DSA and plain radiographs.
- viii. Able to understand the maintain dental models, facial moulage, 3-D models, image guided 3-D templates of defects & models for planning and reconstruction
- ix. Evaluation of the defect, three dimensional description of the defect
- x. Evaluation of multiple options for the treatment
- xi. Discussion on the pros/cons of each
- xii. Concept of reconstructive ladder
- xiii. Planning in reverse of flap cover
- xiv. Able to evaluate and manage critical patients of trauma, burns and develop management skills, fluid balance, and choice of drugs

2. Operative

Operative skills in the various core specialities are developed by observing, assisting seniors, performing under supervision and performing procedures independently (depending on availability of patients & facilities)

Cadaveric dissection/ Simulation: Basic operative skills of procedures are developed with periodic cadaver dissections supervised by the faculty members.



- At the end of the training, candidates should be able to learn various surgical procedures, the planning and principles elaborated in the syllabus and perform independently the basic techniques encompassing below mentioned procedures:
- i. Debridement, Fasciotomy, wound preparations for coverage.
 - ii. Burn wound excisions different types and techniques of excision and cover.
 - iii. Contracture release and coverage options
 - iv. Skin grafting-STSG/FTSG-harvesting, application, meshing, micro grafting techniques
 - v. Local Flaps-V-Y advancement flaps, Rotation, Transposition, Limber flaps etc. and its applications
 - vi. Z-Plasty, W-plasty etc. And its applications
 - vii. Pedicled / fasciocutaneous flap/ free flaps: Flap planning, designing, harvesting and transfer
 - viii. Fingertip defect coverage with flaps, various reconstruction techniques for thumb.
 - ix. Hand fracture reduction & Fixation-Closed, percutaneous pin and open techniques
 - x. Tendon repair: Volar/ dorsal region tendon repair techniques, tendon harvest and tendon transfers.
 - xi. Nerve injury Repair-Peripheral nerves, facial nerve, nerve graft harvesting etc.
 - xii. Brachial plexus exploration and nerve transfer techniques.
 - xiii. Vascular injury Repair-Micro vascular repairs and peripheral vascular injuries.
 - xiv. Arch bar fixation & intermaxillary Fixation-Different techniques of IMF.
 - xv. Osteosynthesis techniques, plating, osteotomes, mandibulectomy
 - xvi. Mandible fracture fixation including mandible condyles
 - xvii. Midface/zygoma fracture fixation,
 - xviii. Closed reduction of Nasal bone, zygoma fractures
 - xix. Harvest of Bone graft, cranial, rib, cancellous bone grafts from various sources.
 - xx. Repair of Eyelid
 - xxi. Repair of traumatic ear injuries, reconstruction of various defects, microtia and ear anomalies correction.
 - xxii. Harvest of costal cartilage.



- xxiii. Cleft Lip repair, Cleft palate repair, alveolar bone grafting
- xxiv. Cleft and aesthetic rhinoplasty, augmentation with various grafts, reduction techniques.
- xxv. Excision of benign tumours, lesions, vascular malformations.
- xxvi. Hair transplant team member, harvest and implantation techniques.
- xxvii. Liposuction-planning, different techniques of liposuction.
- xxviii. Body contouring procedures, Abdominoplasty, brachioplasty & lipectomy procedures of various body regions.
- xxix. Various fat grafting procedures, Use of implants for augmentation, and tissue expander insertions.
- xxx. Scar revision, excision of benign lesions.
- xxxi. Non-surgical aesthetic procedures, fillers, laser etc.
- xxxii. Planning and Harvest of free flaps of various regions.
- xxxiii. Micro-anastomosis and microneural repairs.
- xxxiv. Hypospadias repair, Repair of genital injuries and anomalies.
- xxxv. Techniques of vaginoplasty, cliteroplasty, sex reassignment, penile reconstruction.
- xxxvi. Aesthetic breast augmentation and reduction planning and techniques.
- xxxvii. Face lifts, various rhytidectomy procedures.
- xxxviii. Reconstruction post mastectomy breast reconstruction
- xxxix. Reconstruction of Oncological resection defects of different aetiologies.
 - xl. Reconstruction of traumatic defects of limb, soft tissue, and skeletal loss.
 - xli. Head and neck reconstruction, planning, various loco regional flaps and free flaps
 - xlii. Reconstruction of scalp and calvarial defects.
 - xliii. Reconstruction techniques for congenital hand anomalies, traumatic defects.
 - xliv. Osteotomy techniques for orthognathic surgery, genioplasty, BSSO, LeFort osteotomy.



I. ACADEMIC ACTIVITIES: ACTIVITIES OF LEARNING AND EFFECTIVE COMMUNICATION:

Didactic lectures are of lesser importance; small group discussion such as seminars, journal clubs, symposia, reviews and guest lectures should get priority for theoretical knowledge. Bedside teaching, grand rounds, structured interactive group discussions and clinical demonstrations should be the hallmark of clinical / practical learning with appropriate emphasis on e-learning. Student should have hands-on training in performing various procedures and ability to interpret various tests / investigations. Exposure to newer specialized diagnostic / therapeutic procedures concerning her/his subject should be given. Self-learning tools like assignments and case-based learning may be promoted.

Documentation of each of the below activity is to be maintained in the Log book with counter signature of teacher / moderator on daily basis.

- i. Small group discussion
- ii. Lectures
- iii. Journal Club
- iv. Subject Seminar
- v. Student Symposium
- vi. Tutorials
- vii. Ward Rounds
- viii. Clinico– Pathological Conference
- ix. Inter Departmental Meetings
- x. Teaching activity
- xi. Continuing Medical Education Programs
- xii. Conferences/work shop presentation
- xiii. Rotation and posting in other departments

1. Activities of Research

In accordance with respective university guidelines.



v. TEACHING SKILLS:

The candidates should be encouraged and acquire teaching skills to enable them to teach post graduates of surgery, under graduate medical students and paramedical students (if any). Use of PowerPoints, other teaching aids, conducting small group discussions and practical sessions are necessary. This activity is monitored by the faculty members and considered as an essential skill to acquire so as to qualify as teachers in medical colleges.

1. Personal Attributes: Professionalism, Attitude and Effective Communication.
 - i. Professionalism in patient care
 - a. The student will show integrity, accountability, respect, compassion and dedicated patient care. The student will demonstrate a commitment to excellence and continuous professional development.
 - b. The student should demonstrate a commitment to ethical principles relating to providing patient care, confidentiality of patient information and informed consent.
 - c. The student should show sensitivity and responsiveness to patients' culture, age, gender and disabilities.
 - ii. Professionalism with Colleagues
 - a. Caring attitudes
 - b. Initiative
 - c. Communication Skill (With teachers and seniors, With colleagues, With paramedics)
 - d. Aptitude for counselling
 - e. Organizational ability
 - f. Potential to cope with stressful situations and undertake responsibility
 - g. Trustworthiness and reliability
 - h. To behave in a manner which establishes professional relationships with patients and colleagues
 - i. Ability to work in a team
 - j. A critical inquiring approach to the acquisition of knowledge.



- k. The methods used mainly consist of observation. It is appreciated that these items require a degree of subjective assessment by the guide, supervisors and peers.

2. Monitoring Learning Activity & Assessments

Assessment should be comprehensive & objective. It should address the stated competencies of the course. The assessment needs to be spread over the duration of the course. There are two types of assessments:

Formative (during the course) and

i. Formative Assessment:

Formative assessment should be continual and should assess medical knowledge, patient care, procedural & academic skills, interpersonal skills, professionalism, self-directed learning and ability to practice in the system.

ii. General Principles:

Internal Assessment should be frequent, cover all domains of learning and used to provide feedback to improve learning; it should also cover professionalism and communication skills. The Internal Assessment should be conducted in theory and clinical examination.

iii. Quarterly assessment during the training should be based on following educational activities:

- a. Journal based / recent advances learning
- b. Patient based / Laboratory or Skill based learning
- c. Self-directed learning and teaching
- d. Departmental and interdepartmental learning activity
- e. External and Outreach Activities / CMEs

The student to be assessed periodically as per categories listed in post graduate student appraisal form(Annexure1)

Summative (at the end of training)

i. Summative Assessment:

i.e., assessment at the end of training

Following record is to be maintained during the training period:



ii. Maintaining Log Book:

The log book is a record of the important activities of the candidate during his training. Internal assessment should be based on the evaluation of the logbook. Collectively, logbooks are a tool for the evaluation of the training program of the institution by external agencies. The record includes:

- a. All academic activities as well as the presentations and procedures carried / assisted / Observed out by the candidate.
- b. Record of Seminars
- c. Record of Journal Club
- d. Record of clinical cases
- e. Leave records
- f. Record of research work and progress

iii. Record of Clinical Cases with Photographs

- iv. Periodic theory and practical examination as per university guidelines; Desirable is once in every 6 months.



V.. RECOMMENDED BOOKS & JOURNALS:

Books:

1. Grabb & Smiths Plastic Surgery, 8th edition. Thorne C.H. (ed), Lippincott, Williams & Wilkins, Philadelphia, 2019.
2. Plastic Surgery Vol. I–VI, 4th edition, Neligan PC. Elsevier—Saunders, New York, 2017.
3. Textbook of Plastic, Reconstructive and Aesthetic Surgery. Agrawal K.(ed.) Thieme ,2017.
4. Greens Operative Hand Surgery Volume I & II, 7th edition. Wolfe Scott, Pederson William, Kozin Scott H Cohen Mark. Elsevier, 2016.
5. The Hand—Master Techniques .3rd edition. Maschke SD. Lippincott, Williams & Wilkins, 2016.
6. Fundamental Techniques of Plastic Surgery and their Surgical Applications 10th edition. McGregor, Alan D. Churchill Livingstone, 2004.
7. Oral & Maxillofacial Trauma, 4th edition. Fonseca (ed), Elsevier—Saunders, 2013.
8. Oral & Maxillofacial Surgery Vol. I-III, 3rd Edition. Fonseca, Saunders 2017.
9. Contemporary Oral and Maxillofacial surgery, 7th Edition. James R. Hupp Elsevier 2019.
10. Clinician's Handbook of Oral and Maxillofacial Surgery, 2nd edition. Daniel M.Laskin. Quintessence Publishing 2018.
11. Maxillofacial Trauma and Esthetic Facial Reconstruction, 2nd edition Booth, Peter Ward(Ed), Saunders, 2012.
12. Current Therapy in Plastic Surgery, 1st edition. McCarthy, Joseph, Saunders, 2006.
13. Surgery of the Injured Hand. R. Venkataswami (ed). Jaypee Brothers, 2009.
14. Acland's Practical Manual for Microvascular Surgery, 3rd edition. Acland R & Sabhpathy R. The Indian Society for Surgery of the Hand, 2008.
15. Liposuction Principles and Practice. Shiffman, M A. Springer, 2016.
16. Total Burn Care, 5th edition. David Herndon. Saunders—Elsevier , 2017.
17. Achauer and Soods Burn Surgery Reconstruction and Rehabilitation, 1st edition, Sood, R. Saunders, 2006.
18. Paediatric Burns. Hanumadass ML & Ramakrishnan Mathangi. Paras Publishers , 2011.
19. Techniques in Ophthalmic Plastic Surgery, 2nd edition. Nerad Jeffrey. Saunders Elsevier, 2020.



20. Oculoplasty and Reconstructive Surgery, 1st edition. Garg, Ashok. Jaypee Brothers, 2016.
21. Essentials of Septorhinoplasty Tardy & Behrbohm. Thieme, 2017.
22. Grabbs Encyclopaedia of Flaps: Head and Neck Vol I-III, 4th edition. Strauch, Berish (ed). Lippincott, 2015.
23. Flaps and Reconstructive Surgery, 2nd edition. Chan Wei Fu & Mardani. Saunders, 2016.
24. Evolution and Revolution of Perforator Flaps, Jeong Tae Kim. Medic Medicine, 2017
25. Colour Atlas of Microsurgical Anatomy: Vasculature of Skin Flaps. Heping Zheng (ed). Academa pub,2008.
26. Local Flap Reconstruction: A Practical Approach. Penington, Anthony. McGraw Hill, 2007.
27. Plastic Surgery: Indications and Practical Vol I & II, Guyuron, Bahman. Saunders, 2009.
28. Wound Healing. Falabella, Anna. F.Taylor & Francis, 2005.
29. Surgical Wound Healing and Management ,2nd edition. Granick, Mark S. Informa Health care, 2007.
30. An Atlas of Surgical Anatomy: Surgical Commentary. Masquelet ,AC. Taylor & Francis, 2005.
31. Textbook of Dental Anatomy, Physiology & Occlusion. Rashmi G S.Jaypee Brothers, 2019.
32. Pigmentary Disorders—A Comprehensive Compendium. Lahiri K, Chatterjee M, Sarkar R.Jaypee Brothers, 2014.
33. Lymphedema Surgery—Principle and Practice, 2nd edition. Cheng, Chang D,Patel K.Elsevier,2021.
34. Listers—The Hand Diagnosis and Indications—4th Edition, Smith, Paul.Mosby,2002.

Journals:

1. Indian Journal of Plastic Surgery
2. Plastic & Reconstructive Surgery
3. Clinics in Plastic Surgery
4. Journal of Plastic, Reconstructive and Aesthetic Surgery
5. Journal of Hand Surgery (British/ Asia Pacific /American)
6. Burns
7. Indian Journal of Burns
8. The Cleft Palate-Craniofacial Journal



9. Journal of Cleft Lip Palate and Craniofacial anomalies
10. Journal of Reconstructive Microsurgery
11. Oral and Maxillofacial Surgery Clinics of North America
12. British Journal of Oral and Maxillofacial Surgery
13. Annals of Plastic Surgery
14. European journal of Plastic Surgery



Vii. REFERENCES:

1. Recommendation of APSI Committee for Formulating Uniform Curriculum, 2016-2017.
2. Medical Council of India, Post graduate Medical Education Regulations, 2000, amended up to July 2017. Published in Part-III, Section 4 of Gazette of India, dated the 7th October, 2000.
<https://www.mciindia.org/documents/rulesAndRegulations/Postgraduate-Medical-Education-Regulations-2000.pdf>
3. MCI, PG Curricula: www.mciindia.org/ActivitiWebClient/informationdesk/PGCurricula.
4. Plastic Surgery Vol. I–VI, 4th edition, Neligan PC. Elsevier—Saunders, New York, 2017.
5. Textbook of Plastic, Reconstructive and Aesthetic Surgery (Vol.1). Agrawal K, Bhattacharya S.(ed). Thieme, Delhi, 2017
6. Grabb & Smith's Plastic Surgery 8th Edition. Thorne C.H. (ed), Lippincott Williams & Wilkins, Philadelphia, 2019.
7. Regulations and Curricula for Post Graduate Degree and Diploma Courses in Medical Sciences 2000. volume I II: Clinical Subjects. M.Ch. in Plastic and Reconstructive Surgery. Rajiv Gandhi University of Health Sciences, Bangalore Karnataka.
www.rguhs.ac.in/courses_rguhs/medical_ordinances/.../Plastic%20Surgery.doc
8. Plastic surgery Curriculum in United Kingdom.
http://www.gmc-uk.org/ISCP_Plastic_surgery_Syllabus_01.pdf_30535489.pdf
9. Curriculum for M.Ch. Plastic Surgery, PGIMER, Chandigarh, 2008.
10. Curriculum-M.Ch. Plastic Surgery-Baba Farid University of Health Sciences, Faridkot, Punjab-151203
<http://bfuhs.ac.in/Examination/Syllabus/MCh%20Plastic%20Surgery.pdf>
11. M.Ch Plastic and Reconstructive Surgery Curriculum and Syllabus 2014. SRM University, Tamil Nadu
http://www.srmuniv.ac.in/sites/default/files/2017/MCh_Plastic_Surgery_curriculum.pdf
12. Syllabus for M.Ch. Plastic and Reconstructive Surgery, Aligarh Muslim University, Aligarh, UP.
[https://www.amu.ac.in/newdata/depttmom/8985.Ch.%20\(Plastic%20Surgery\).pdf](https://www.amu.ac.in/newdata/depttmom/8985.Ch.%20(Plastic%20Surgery).pdf)



7. **13.** Academic curriculum, Department of Plastic Surgery, Madras Medical College, The Tamil Nadu Dr MGR Medical University, Chennai.
(<http://www.mmc.tn.gov.in/Department/plastic%20surgery/academics.html>)
- 14.** Short Notes in Plastic Surgery is a series of notes compiled by Ravin Thatte for the Association of Plastic Surgeons of India.
([short notes in plastic surgery. wordpress.com/](http://shortnotesinplasticsurgery.wordpress.com/))

