

Curriculum
For
M.Ch Surgical Oncology
(3-year course)



All India Institute of Medical Sciences
Nagpur

1. GOAL

The purpose of this program is to train surgeons as super specialists in Surgical Oncology. Surgical Oncology covers the treatment of solid tumours of the oro-esophago-gastrointestinal tract, of parenchymal and endocrine organs and of skin, mesenchymal, neurogenic, bone and soft tissues. Surgical Oncology also includes prevention, genetic counselling, specific diagnostic and staging procedures, rehabilitation and follow-up care. Surgical Oncology is focused on multimodality therapy. At the end of the course the candidate should have acquired knowledge, skills, aptitude and attitude to be able to function as an independent clinician/ consultant and a teacher. Candidate should be able to train other surgeons and perform basic as well as clinical research in the field of Surgical Oncology.

2. PROGRAM OUTCOMES

Upon completion of the **M.Ch Surgical Oncology** program, the trainee shall be able to acquire certain subject specific competencies in the cognitive, psychomotor, and affective domain which are as follows:

1. COGNITIVE DOMAIN	
S.No.	Competencies
1.1	Acquire a comprehensive knowledge of the basic sciences as relevant to Surgical Oncology which includes the General, genetics, path-physiology related to the different types of cancer.
1.2	Understand the genetic aberrations related to cancer development and their therapeutic implication both in paediatric and adult age groups.
1.3	Acquire a thorough knowledge of the normal variants and pathological changes related to the cancer.
1.4	Understand the concept behind basic drugs used including the pharmacology and drug interactions related to Oncology.
1.5	Identify socio-economic, environmental and emotional determinants in a given case, and take them into account for planning therapeutic measures
16	Understand the etiology, pathophysiology, diagnosis and management of all early and advanced malignancies operated by the surgical oncologist in routine

	and emergency settings.
1.6	Learn the basic principles of Radiotherapy.
1.6	Learn the basics principles behind the common radiological and nuclear medicine imaging techniques including various phases and interpretation of images including CT, MRI and nuclear scans.
1.7	Acquire knowledge of medicine and critical care relevant in perioperative management of surgical patients including acid base and electrolyte management, fluid management, principles of ventilation and rehabilitation.
1.8	Understand the principles of safe surgery including operability and inoperability. Learn the procedures performed in Surgical Oncology including minimally invasive and open surgeries in all sub-specialities, diagnostic hysteroscopy/Colposcopy, flexible laryngoscopy and bronchoscopy, Upper GI scope and colonoscopy.
1.9	Acquire a good working knowledge of all basic ward and OT procedures as well as a knowledge of the sophisticated and routine equipment used in Surgical Oncology such as Laparoscope, Upper and Lower GI scope, Colposcope, hysteroscope, bronchoscope and GI endoscope.
1.10	Understand the basic principles of scientific research and research methodologies including planning a study, data collection, analysis and interpretation. Also understand how to write a paper and critique the same based on methodology and statistics.
1.12	Understand the public health awareness and established screening program related to the cancer.
1.13	Recognize the importance of inter-disciplinary approach in the management and obtain relevant specialist / ancillary services' consultation where appropriate.
2. PSYCHOMOTOR DOMAIN	
S.No.	Competencies
2.1	Understand the presentation including symptoms and signs of cancer and through clinical examination.
2.2	Become capable of management of patients suffering from emergent and non-emergent oncological conditions including making a diagnostic programme for suspected tumours or metastasis, staging and classification of manifest tumours,

	prognostic assessment and interpreting the results of both laboratory and imaging investigation in light of history and examination findings.
2.3	Be able to define the role of surgery in a given classified disease reflecting the patient's general condition, including or excluding multimodality approaches in a pre-treatment discussion within a multidisciplinary team and monitor the effectiveness of the surgical intervention performed including identification of complications.
2.4	Capable of identifying the indications for operability as well as inoperability in all diseases relevant to Surgical Oncology, whether emergency or elective surgery is indicated. Be able to perform an adequate preoperative work-up.
2.5	Capable of performing all routine and emergency cancer surgeries within his/her specialty with high skill and quality.
2.6	Be able to diagnose, score and treat side-effects and complications of surgical treatment as well as decide on and perform adequate follow-up.
2.7	Be able to manage high risk patients with prolonged critical care requirements including management of fluid, electrolytes, acid base, nutrition, ventilation and other aspects of post op care.
2.8	Be able to perform palliative surgical treatment, supportive and terminal care.
2.9	Be able to assess the impact of surgical interventions on quality of life.
2.8	Capable of identifying the formulating multimodality treatment plans in coordination with other ancillary departments including in tumour boards, radiology, pathology, medical oncology and radiation oncology.
2.9	Be able to Implement national guidelines into local practice.
2.10	Capable of commanding a surgical team including the nursing and technical staff for coordinated patient management.
2.10	Be able to practice medicine in accordance with medical ethics and patient's rights
2.11	Capable of basic and advanced life support.
2.12	Capable of planning scientific studies based on sound statistical and research principle including prospective and retrospective analysis.
2.13	Capable of communicating effectively and empathetically with the patient and their relatives to provide all the relevant information for an informed consent as well as be able to break bad news and prognosticate in an empathetic and

	respectful manner. Be able to manage common psychologic reactions to crisis and final stage of life.
2.14	Be capable of planning public health programs like screening and interventions related to cancer.
2.15	Understand the administrative components of a Surgical Oncology department including the importance of effective medical record keeping, audits, morbidity and mortality assessments and effective follow up of patients in the long term.
2.16	Capable of presenting the research and institute data in seminars and conferences at the national and international level.
2.17	Capable of starting an independent Surgical Oncology department anywhere in the country.
3. AFFECTIVE DOMAIN	
3.1	Adopt ethical principles in all aspects of Surgical Oncology practice/ research – Professional honesty, integrity and humility.
	Respect patient's rights and privileges, right to information and right to seek a second opinion.
3.2	Demonstrate respect, compassion and integrity while dealing with patients, their relatives as well as the support staff.
3.3	Develop the skill of listening patiently to the concerns of the patients and their families and respect their wishes and treatment decisions.
3.4	Be able to educate and counsel patients effectively and empathetically.
3.5	Demonstrate the ability to lead the consult service through interactions with referring and primary doctor and multimodality teams.
3.6	Understand team work including effective and equitable distribution of roles among team members and be able to lead a surgical team including the nursing and technical staff among others in both emergency and elective settings.
3.7	Develop mutual respect and effectively interact with professional colleagues in the ancillary branches to plan effective multimodality treatment plans including in Tumour Board and Clinico-Radiology-Pathology meeting.
3.8	Be a sound and effective communicator and teacher and be able to teach the basic concepts of Surgical Oncology to undergraduate and post graduate students as well as the support staff, including in didactic lectures as well as seminar and

	one to one interactions and other teaching tools
3.9	Understand the importance of and perform the required documentation and follow up of patients.
3.10	Adhere to ethical standards and maintain professionalism while using social media platform for teaching, learning, and communicating.
3.11	Develop the skills for effective public health communication and education using various tools for education and presentation.
3.12	Develop and maintain the highest ethical standards in both clinical practice and while carrying out research.
3.13	Develop desired skills to independently manage emergency situations related to oncology and complications associated procedures /surgeries as mentioned above.
3.14	Develop an aptitude for performing administrative tasks such as audit of the patient care and surgeries, morbidity and mortality assessment and presentation of the same in departmental meetings.
3.15	Develop the public speaking and interactive skills required to effectively present institute data and research at the national and international conferences and forums.
3.16	Develop the aptitude to establish, develop and lead a new Surgical Oncology department.
3.17	Be humble and accept the limitation in his knowledge and skills to ask for help from colleagues when needed.

3. ELIGIBILITY CRITERIA

MS/DNB (GENERAL SURGERY) from an INI/NMC recognized institute shall be the minimum eligibility qualification.

4. SELECTION OF CANDIDATES

The selection shall be through the entrance test conducted by the competent authority.

5. DURATION OF TRAINING

The training shall be of 3 years duration and will follow the full-time residency pattern. During these years, the candidate shall work as senior resident, who will perform clinical, teaching, research and administrative activities as prescribed in the curriculum.

6. SYLLABUS

A trainee in Surgical Oncology has to become familiar with the basic principles of:

- Surgery
- Radiotherapy
- Chemotherapy
- Endocrine therapy
- Immunotherapy
- Evaluation of the choices of treatments
- Adverse effects with these treatments
- Interactions of these treatment modalities with those of surgery

Part I

Basic Sciences

A broad knowledge is needed to plan optimal treatment for an individual cancer patient throughout the disease course. The trainee in Surgical Oncology must therefore have a knowledge of fundamental biology of cancer including etiology and epidemiology, natural history of malignant diseases, cancer biology as well as tumor immunology.

1. Etiology and epidemiology of malignant diseases

- Genetic Predisposition to Cancer
- Chemical Carcinogenesis
- Hormones and the Etiology of Cancer
- Ionizing Radiation
- Ultraviolet Radiation Carcinogenesis
- Physical Carcinogens
- Trauma and Inflammation
- Tumor Viruses
- Herpes viruses
- Papilloma viruses and Cervical Neoplasia
- Hepatitis Viruses
- Parasites
- Environmental factors in carcinogenesis

2. Prognosis and natural history of malignant diseases

- Mechanisms and patterns in local, regional and distant dissemination of malignant diseases
- Differences in natural history between hereditary and sporadic forms of cancer
- Diseases predisposing to malignancy e.g. Inflammatory bowel disease or primary sclerosing cholangitis
- Prognostic and predictive factors
- Genetics of hereditary malignant diseases

3. Cancer biology

- Cell kinetics, proliferation, apoptosis and the balance between cell death and cell proliferation
- Angiogenesis and lymphangiogenesis
- Genome maintenance mechanisms to prevent cancer
- Intercellular and intermolecular adhesion mechanisms and signaling pathways
- Potential effects of surgery and surgery-related events on cancer biology (e.g. Angiogenesis)

4. Tumor immunology

- Cellular and humoral components of the immune system
- Regulatory mechanisms of the immune system
- Tumor antigenicity
- Immune-mediated antitumour cytotoxicity
- Effect of cytokines on the tumor
- Effects of the tumor on anti-tumor immune mechanisms
- Potential adverse effects of surgery and surgery-related events (like blood transfusions) on the immunological responses

5. Cancer Screening and Early Detection

- Cancer screening and early detection

6. Basic principles of cancer treatment

A trainee in Surgical Oncology has to become familiar with the basic principles of

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Part II

1. Cancer Epidemiology

- Cancer Epidemiology

2. Cancer Prevention

- Prevention of tobacco-related cancers
- Nutrition in the etiology and prevention of cancer
- Chemo-prevention of cancer
- Cytokinetics
- Drug resistance and its clinical circumvention
- Principles of dose, schedule, and combination
- Chemotherapy
- Regional Chemotherapy
- Animal models in developmental therapeutics
- In vitro and in vivo predictive tests
- Pharmacology
- Toxicology by organ system

3. Chemotherapeutic Agents

- Folate Antagonists
- Pyrimidine and Purine Antimetabolites
- Alkylating Agents and Platinum Antitumor Compounds
- Anthracyclines and DNA Intercalators
- Epipodophyllotoxins / DNA Topoisomerases
- Microtubule – targeting anticancer drugs derived from plants and microbes
- Vinca Alkaloids, Taxanes, and Epothilones, Asparaginase
- Recent Advances/concepts

4. Principles of Endocrine Therapy

- Steroid Hormone Binding and Hormone Receptors
- Hypothalamic and Other Peptide Hormones
- Corticosteroids
- Estrogens and Anti-estrogens
- Clinical use of Aromatase Inhibitors in Breast Carcinoma
- Progestins
- Androgen Deprivation Strategies in the treatment of Advanced Prostate Cancer

5. Principles of Cancer Pathology

- Principles of cancer pathology

6. Principles of Imaging

- Imaging neoplasms of the head and neck and central nervous system
- Imaging neoplasms of the thorax
- Imaging neoplasms of the abdomen and pelvis
- Cross-sectional imaging of musculoskeletal neoplasms
- Imaging the breast
- Ultrasound in cancer medicine
- Radionuclide imaging in cancer medicine
- Perspectives in imaging
- Interventional radiology for the cancer patient

7. Principles of Surgical Oncology

- Principles of Surgical Oncology
- Vascular access in cancer patients

8. Principles of Radiation Oncology

- Physical and biologic basis of Radiation Oncology
- Principles of Hyperthermia
- Photodynamic Therapy for cancer

9. Principles of Medical Oncology

- Principles of Medical Oncology

10. Principles of Biotherapeutics

- Immunostimulants
- Active specific immunotherapy with vaccines
- Interferons
- Cytokines: biology and applications in cancer medicine
- Hematopoietic Growth Factors.
- Monoclonal Serotherapy
- Cancer Gene Therapy
- Hepatitis Viruses
- Parasites

11. Neoplasms of the Thorax

- Cancer of the Lung
- Malignant Mesothelioma
- Thymomas and Thymic Tumors

12. Neoplasms of the Female Reproductive Organs

- Neoplasms of the vulva and vagina
- Neoplasms of the cervix
- Endometrial cancer
- Neoplasms of the fallopian tube
- Ovarian cancer
- Gestational Trophoblastic Disease

13. Neoplasms of the Breast

- Neoplasms of the breast

14. Neoplasms of the Skin

- Neoplasms of the skin

15. Malignant Melanoma

- Malignant melanoma

16. Neoplasms of the Bone and soft Tissue

- Bone Tumors & Sarcoma of non- osseous tissues

17. Neoplasms of the Hematopoietic System

- Myelodysplastic Syndrome
- Acute Myeloid Leukemia in adults
- Chronic Myeloid Leukemia
- Acute Lymphocytic Leukemia
- Chronic Lymphocytic Leukemia
- Tumors of the heart and great vessels
- Primary germ cell tumors of the Thorax
- Metastatic tumors in the Thorax
- Hairy – Cell Leukemia

- Hodgkin's Disease
- Non – Hodgkin's Lymphomas
- Mycosis Fungoides and the Sezary Syndrome
- Plasma cell tumors
- Mast cell Leukemia and other mast cell neoplasms
- Polycythemia vera and essential thrombocythemia

18. Neoplasms of the Alimentary Canal

- Neoplasms of the Esophagus
- Neoplasms of the Stomach
- Primary Neoplasms of the Liver
- Treatment of Liver Metastases
- The Gallbladder
- Diagnosis and Management of Biliary Tract Cancer
- Neoplasms of the Ampulla of Vater
- Neoplasms of the Exocrine Pancreas
- Neoplasms of the small intestine, vermiform appendix, and peritoneum, colon and rectum & anal canal

19. Neoplasms of the Genitourinary Tract

- Renal Cell Carcinoma
- Neoplasms of the Renal Pelvis and Ureter
- Bladder Cancer
- Neoplasms of the Prostate
- Neoplasms of the Penis
- Neoplasms of the Testis
- Neoplasms in Acquired Immunodeficiency Syndrome

20. Neoplasms of Unknown Primary Site

- Neoplasms of unknown primary site

21. Neoplasms in Children

- Principles and practice of pediatric oncology
- Incidence, origins, epidemiology
- Principles of pediatric radiation oncology
- Late effects of treatment of cancer in children and adolescents
- Childhood Acute Lymphoblastic Leukemia
- Pediatric Acute Myeloid Leukemia
- Hodgkin's disease in children and adolescents
- Non – Hodgkin's Lymphoma in children

- Langerhan's Cell Histiocytosis
- Hepatic tumors
- Renal tumors of childhood
- Germ cell tumors
- Neuroblastoma
- Soft tissue sarcoma of childhood

22. Complications of Cancer and its Treatment

- Management of cancer pain
- Anorexia and Cachexia
- Antiemetic Therapy
- Neurologic complications
- Dermatologic complications of cancer chemotherapy
- Skeletal complications
- Hematologic complications of cancer
- Blood bank support
- Coagulopathic complications of cancer
- Urologic complications
- Cardiac complications
- Respiratory complications
- Liver function and hepatotoxicity in cancer
- Gastrointestinal complications
- Oral complications
- Gonadal complications
- Endocrine complications
- Secondary cancers : incidence, risk factors, and management

23. Infections in Patients with Cancer

- Infections in patients with cancer

24. Oncologic Emergencies

- Oncologic Emergencies

Other areas in which knowledge is to be acquired:

- Biostatistics, Research Methodology and Clinical Epidemiology
- Ethics
- Medico legal aspects relevant to the discipline
- Health Policy issues as may be applicable to the discipline

Rotation and Posting in Other Departments

Name of service/dept.	Duration	
Radiation Oncology	1 month	• To learn basic principles of Radiotherapy • Understand basic RT protocol, dosage and treatment planning, side effects and its management.
Medical Oncology	1 month	• To learn basic principles of chemotherapy and immunotherapy • Understand pharmacokinetic-dynamic of various drugs, side effects and management • To learn patient based management.
Pathology	3 weeks	• Basic knowledge about pathological presentation about different cancer. • To understand basic and newer modalities pathology like Frozen section, IHC, NGS etc

Research Methodology and Basic Statistics

Types of studies, selecting the appropriate research methodology, collection of data including cluster sampling, systematic bias, analysis of data, basic statistics and statistical analysis, randomization, critical analysis of research articles.

7. PRACTICAL COMPETENCIES AND SURGICAL SKILLS TO BE ACHIEVED

The trainee in Surgical Oncology must achieve knowledge and skills in performing complex cancer operations in her/his specialty. The final aim with surgical training is to develop skills in performing RO (radical) resections, adequate diagnostic procedures, lymph node dissections and meaningful palliative procedures. The numbers of operations are not fixed but should be guidance to what is needed to accomplish relevant skills.

A. SURGICAL SKILL:

The trainee should have experience in the following procedures:

Breast Unit:

- Modified radical mastectomy
- Radical Mastectomy
- Breast conservation surgery – wide local excision + axillary clearance
- Lumpectomy
- Breast reconstruction

Gastrointestinal unit

- Total radical gastrectomy + reconstruction
- Partial Radical gastrectomy + reconstruction – lower & upper
- Duodenal local excision + reconstruction
- Whipples pancreatic duodenectomy
- Total pancreatoco duodenectomy
- Distal pancreatectomy
- Splenectomy
- Segmental small bowel resection with reconstruction
- Right & left hemicolectomy
- Total colectomy
- Extended colectomy
- APR with TME
- Anterior resection
- Hartmann's procedure
- Pelvic exenteration – anterior / posterior / total
- Wide local excision of rectal / anal tumors
- Colostomy
- Ileostomy
- Mesenteric tumors excision
- Retro peritoneal tumor excision
- Right & left hepatectomy
- Extended right & left hepatectomy
- Segmentectomy
- Non Anatomical resection
- Excision of extra biliary tumors with reconstruction

Genitourinary Unit

- Radical Nephrectomy
- Radical cystectomy with reconstruction
- Partial cystectomy
- Radical Prostatectomy
- Pelvic lymphadenectomy
- Ureteric Tumor excision with reconstruction
- RPLND
- Radical/High Orchiectomy
- Hemi scrotectomy
- Penectomy – Partial/Total
- Inguinal/Ilio-Inguinal lymphadenectomy

Thoracic Oncology Unit

- Pneumonectomy (R) & (L)
- Lobectomy
- Segmental resection
- Non-Anatomical resection

- Hilar lymphadenectomy
- Mediastinal Tumors resection
- Transhiatal Esophagectomy
- RAO
- Ivor-lewis transthoracic Esophagectomy
- Mckeowns three stage Esophagectomy
- Total Esophagectomy with three field lymphadenectomy

Bone & Soft tissue Oncology

- Amputations/Disarticulation
- Forequarter
- Shoulder Disarticulation
- Above and below elbow Disarticulation
- Above and below elbow Amputation
- Ray Amputation
- Hemipelvectomy
- Hind quarter Amputation
- Extended Hemipelvectomy
- Above/Below Knee Amputation
- Hip disarticulation
- Symes Amputation
- Transmetatarsal Amputation
- Limb conserving procedures
- Wide excision with reconstruction with or without Lymphadenectomy of soft tissue and skin tumors
- Compartmental excision with reconstruction

Head and Neck Oncology

- Tracheostomy
- Neck Dissections
- Radical Neck dissection
- Modified neck dissections
- Selective neck dissections
- Hemi mandibulectomy
- Marginal mandibulectomy
- Alveolectomy
- Total Glossectomy
- Hemi glossectomy
- Composite resections
- Partial Maxillectomy
- Total Maxillectomy
- Orbital tumors
- Enucleation
- Exenteration
- Skull Base surgeries

- Wide field laryngectomy
- Conservative laryngectomy
- Laryngopharyngo Oesophagectomy
- Trchio Esophagal Prosthesis (TEP)
- Superficial parotidectomy
- Radical parotidectomy
- Excision of submandibular gland tumors
- Hemi thyroidectomy
- Total thyroidectomy
- Wide excision & reconstruction of scalp tumor & other skin tumor of Head and Neck

Gynec Oncology

- Cone excision/ LEEP
- Radical hysterectomy for ca cervix
- Staging laporatomy for ca ovary
- Anterior / Total exenteration

Endoscopic & Laparoscopic procedures

- Eg. TURPT, TURBT, Polypectomy
- Diagnostic & therapeutic Laparoscopic procedures Laparoscopic surgery
- Staging laparoscopy for GI cancer
- Staging laparoscopy for malignant lymphoma
- Laparoscopic resection of malignant tumours

OTHERS

- Melanoma and sarcoma:
- Excision of melanoma
- Regional node dissection
- Regional perfusion
- Surgery of abdominal sarcomas
- Surgery of trunk and limb sarcomas

The surgical oncologist should be involved with clinical and basic science research activities in oncology and should help to organize clinical protocols for the study of cancer patients. Management of each patient's care should be coordinated with medical oncologists, radiation therapists, and other disciplines in the practice of medicine as needed, in order to establish the highest possible standards of care for treatment of cancer. Finally, surgical oncologists must lead fellow surgeons who remain the primary treatment source for most patients with malignant disease. Such leadership includes establishment of protocols for research, convincing colleagues that patients should be entered into clinical trials and other studies, helping to explain the results of such trials, and being critical of ineffective or poorly conceived studies.

Thus the surgical oncologist will both direct and stimulate better investigation and treatment, and also provide a critical viewpoint as new and innovative management approaches come to the clinical arena.

B.CLINICAL SKILLS

1. Elicit the pertinent history and examination details
2. Order and interpret relevant investigations including laboratory/radiological/nuclear scans and endoscopic investigations
3. Prepare a working diagnosis and management plan
4. Identify level of care required including emergency/elective; primary/secondary/tertiary care
5. Identify the normal and abnormal perioperative course, pick up complications early and formulate a management plan for the same
6. Capable of managing perioperative patients in a holistic manner including:
 - Critical care management, ICU and HDU level care
 - Management of ventilators, identify ALI/ VAP and manage
 - Acid base and fluid management
 - Manage vascular complications including DVT
 - Manage perioperative cardiac and renal issues including AKI/ MI/ arrhythmias
 - Rational blood use – blood components, indications for each, complications related to transfusion including TRALI and their management, avoidance of overuse of blood products, massive transfusion protocols
 - Post-operative Rehabilitation of patients including speech therapy, lymphedema management, exercise, diet and respiratory and extremity physiotherapy
 - Appropriate Nutritional management
 - Postoperative physiotherapy – respiratory and physical
 - Stoma care and management, stoma counselling, identification and management of complications related to various kinds of stomas including ileostomy, colostomy, urostomy and longstanding intestinal fistulas.
7. Maintain appropriate records and follow-up

8. Identify & coordinate with multidisciplinary team for multimodality treatment plan
9. Able to attend intradepartmental consults and seek help where needed
10. Capable of interpreting the following radiological investigations :
 - Mammography
 - Limb X-ray for bony lesion
 - CT and its different protocol as well as phases
 - MRI and its different phases
 - PET scan and nuclear scans including DTPA, DMSA, PSMA, DTATATE, DOTATOC, DOTANOC, Bone scans , RAI
11. Capable of taking informed consent
12. Develop a respectful attitude towards patients and colleagues; good communication skills and ethical values in practice
13. Be capable of identifying and reporting rare diseases/ idiosyncratic reactions

8. ACADEMIC ACTIVITY

The fundamental components of the teaching programme should include:

Sr No	Teaching/Learning Activity	Frequency
1.	Clinical Case presentation	Once a week
2.	Clinical grand rounds	Once a week
3.	Journal Club	Once in Month
4.	Seminars/Webinars	Once Month
5.	Multi-disciplinary tumour board	Once a Month
6.	Faculty lecture teaching	Once in 2 Month
7.	Mortality and Morbidity meets/Audit	Once in 3 Month
8.	Dissertation review	Once every 6 months

9. DISSERTATION

A dissertation based on either a clinical or a basic science research topic will be carried out by each trainee as an essential component of the curriculum. This will be performed under the guidance of a recognized postgraduate teacher with the purpose of inculcating in the trainees a scientific bent of mind and capabilities to perform independent research. Dissertation work will be carried out in accordance with institutional protocol.

Activity	January admission	July admission
Selection of topic in consultation with PG Guide	March/ April	September/October
Approval by Department PG Committee		
Institute Scientific Committee approval	May / June	November/December
Institute Ethics Committee approval		
Final approval letter by Academics Section	30 th June	31 st December
Final submission to academic section	30 th June (Third Year)	31 st December (Third Year)

10. LOG BOOK

The candidate must maintain a log book of the work carried out by them and the training program undergone during the period of training including details of procedures assisted or done independently by the trainees. The log book shall be checked and assessed periodically by the faculty members imparting the training. Maintenance of performance record in log book is mandatory.

11. ASSESSMENT

FORMATIVE ASSESSMENT

- **TOTAL 1200 MARKS** – 600 FOR THEORY AND 600 FOR PRACTICALS
- THEORY INTERNAL EXAM SCHEDULE

S. No.	SCHEDULE	MARKS	PATTERN
1.	End of First Year	100	10 Questions x 10 marks each
2.	End of Second Year	100	10 Questions x 10 marks each
3.	Pre professional Exam	400	As per the Final Professional Exam
	Total	600 marks	

- PRACTICAL INTERNAL EXAM SCHEDULE

S. No.	SCHEDULE	MARKS	PATTERN
1.	End of First Year	100 (1 paper)	• 2 CASES X 30 MARKS EACH • 20 MARKS – HISTOPATHOLOGY AND RADIOLOGY • 20 MARKS – VIVA VOCE
2.	End of Second Year	100 (1 paper)	
3.	Pre professional Exam	400 (4 x 100 mark papers)	As per the Final Professional Exam
	Total	600 marks	

SIX MONTHLY PROGRESS REPORT:

The progress of the trainees will be monitored with the help of a **six monthly structured report**. The report will contain details pertaining to attendance, teaching-learning activities, clinical duties, teaching assignments, practical work, marks obtained at intermediate examinations, papers / posters presented, research publications and progress of dissertation work. The performance of the student will be graded by the PG Guide and the Head of the Department. The report will be submitted as per the following schedule:

Report	July Session		January Session	
	Period	Submission date	Period	Submission Date
First	July to December	7 th January	January to June	7 th July
Second	January to June	7 th July	July to December	7 th January
Third	July to December	7 th January	January to June	7 th July
Fourth	January to June	7 th July	July to December	7 th January
Fifth	July to December	7 th January	January to June	7 th July
Sixth	January to June	10 th June	July to December	10 th November

ESSENTIAL PRE-REQUISITE TO APPEAR FOR SUMMATIVE ASSESSMENT

- Minimum 80% attendance
- Minimum of four satisfactory reports out of six, 6th monthly progress reports
- Acceptance of the Dissertation
- Minimum **one** scientific paper/poster presentation at International / National / State Conference
- Minimum **one** research paper – published / accepted for publication / sent for publication in a peer-reviewed indexed scientific Journal
- Successful completion of research methodology program at induction.
- Minimum 50% marks in theory and practical separately in the formative assessment

SUMMATIVE ASSESSMENT/ FINAL PROFESSIONAL EXAMINATION

At the end of the training, summative assessment will be carried out in the following pattern:

THEORY	4 PAPERS X 100 MARKS = 400 MARKS
PRACTICAL	500 MARKS
TOTAL	900 MARKS

• THEORY

There shall be 4 papers; each of 3 hours duration carrying 100 marks each

PAPER I	Basic and Allied Sciences Principles of Surgical Oncology	• Each paper will have 10 questions of 10 marks each • 10 ques x 10 marks = 100 marks each • Total = 400 marks
PAPER II	Multidisciplinary cancer care The practice of surgical Oncology 1	
PAPER III	Multidisciplinary cancer care The practice of surgical Oncology 2	
PAPER IV	Research and New Therapies Investigations	

- **PRACTICAL**

COMPONENT	MARKS ALLOTTED
Long case – One	150
Short cases – Three (50X 3)	150
Ward Round -Two (25 X 2)	50
VIVA VOICE	150
• Radiology : 25	
• Pathology : 25	
• Recent advances & Clinical trial: 25	
• Research Methodology and Dissertation based viva: 25	
• Operative Procedure and Instruments : 50	
Total	500

In order to be declared successful in summative assessment, the candidate must score:

1. Minimum 40% marks in each theory paper and aggregate of 50% marks in order to be declared pass in theory exam.
2. Minimum 50% marks required in Theory & Practical separately, in order to be declared successful in summative exam.

12. RECOMMENDED TEXT BOOKS AND JOURNALS

Molecular biology

- Molecular Biology for Oncologist, Yarnold.J.R. et al
- Cancer Medicine, Holland. J .F.et al
- Important Advances in Oncology, Devitha,V.T
- Cancer Principle And Practice Of Oncology, Devitha,V.T. et al
- AJCC Cancer Staging Manual (Americal Joint Committee on Cancer)

Head & Neck Oncology

- Head & Neck cancer: A Multidisciplinary approach, Harrison L.B.
- Color Atlas of Head & Neck Surgery Face, Skull & Neck , Shah.J.P
- Comprehensive Management of Head and Neck tumors, Thawley.S.E et.al

Oral Oncology

- Burker's Oral Medicine: Diagnosis and Treatment .Lynch. M.A
- Malignant Tumor's of the Mouth. Jaws and Salivary Glands, Langdonj. I.D & Henk. J.M

Gynecologic oncology

- Practical Gynaecologic Oncology, Berekj & Hacker .W.F
- Gynecological oncology : Guide to Clinical Management, Blake Peter et.al
- Gynaecologic Oncology: Fundamental Principles & Clinical Practice, Coppregon. M

Pediatric oncology

- Manual of Pediatric Hematology and Oncology .Lanzkowsky Philip.
- Principles & Practice of Pediatric Oncology. Pizzo.P.A & Popla CK

Journals

- Annals of Surgical Oncology
- American Journal of Pediatrics
- Acta Oncologica
- Hematology / Oncology
- British Journal of Cancer

- Cancer
- CA.A.Cancer Journal For Clinicians
- Cancer Detection & Prevention
- Cancer Genetics and Cytogenetics
- Cancer Journal (Scientific American) (NP)
- Cancer Survey (NP)
- Cancer Treatment Review
- Clinical Oncology
- Current Problem In Cancer
- Current Opinion In Oncology
- European Journal of Surgical Oncology
- European Journal of Surgical Oncology
- Genes, Chromosomes And Cancer
- Gynecologic Oncology
- Hematological Oncology
- Hematology Oncology Clinics of North America
- Indian Journal of Cancer (Indian)
- International Journal of Cancer (UICC)
- International Journal of Gynecological Cancer
- International Journal of Radiation Oncology
- Journal of Cancer Education (NP)
- Journal of Clinical Oncology
- Journal of National Cancer Institute (Gift)
- Journal of Psycho Social Oncology
- Journal of Surgical Oncology
- Medical & Pediatric Oncology
- Nutrition and Cancer
- Oncology (NP)
- Psycho-Oncology
- Radiotherapy & Oncology
- Seminars In Oncology
- Seminars In Oncology Nursing

- Seminars In Radiation Oncology
- Seminars In Surgical Oncology
- Surgical Oncology Clinics of North America