

SUMANDEEP VIDYAPEETH

(Declared as Deemed to be University under Section 3 of the UGC Act 1956)

Accredited NAAC 'A++' Grade with 3.61 CGPA out of 4

Conferred with UGC-Category-1 status

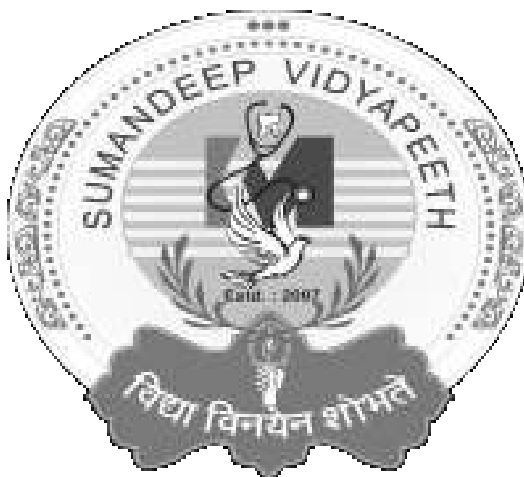
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CURRICULUM

DIPLOMA OPERATION THEATRE TECHNICIAN



Amended up to 2022

INTRODUCTION

Learning objectives:

- Direct observation in the surgical skills laboratory.
- Direct observation of supervised patient care on the surgical wards.
- Discussion of relevant patient care problems on teaching rounds and in conferences.
- Performance on standardized summative oral examination

Program outcomes

After the completion of program, operation theatre technician should be able to transport patients to and from the theatre and wards. Assist in preparing operating rooms for surgery. set up, check, connect and adjust surgical equipment. Provide technical assistance to surgeons, surgical nurses and anesthetists

Ethics and accountability

Students will understand core concepts of clinical ethics and law so that they may apply these to their practice as healthcare service providers. Program objectives should enable the students to:

- Describe and apply the basic concepts of clinical ethics to actual cases and situations
- Recognize the need to make health care resources available to patients fairly, equitably and without bias, discrimination or undue influence
- Demonstrate an understanding and application of basic legal concepts to the practice
- Employ professional accountability for the initiation, maintenance and termination of patient-provider relationships
- Demonstrate respect for each patient's individual rights of autonomy, privacy, and confidentiality

Commitment to professional excellence

The student will execute professionalism to reflect in his/her thought and action a range of attributes and characteristics that include technical competence, appearance, image, confidence level, empathy, compassion, understanding, patience, manners, verbal and non-verbal communication, an anti-discriminatory and non-judgmental attitude, and appropriate physical contact to ensure safe, effective and expected delivery of healthcare.

Eligibility for admission

- Candidate should have passed 10 + 2 with science(PCB)
- Minimum percentage of marks: 55% aggregate.

Duration of the course

Duration of the course is 3 years including Internship

Attendance

A candidate has to secure minimum 80% attendance in overall with at least-

1. 75% attendance in theoretical
2. 80% in Skills training (practical) for qualifying to appear for the final examination.

No relaxation, whatsoever, will be permissible to this rule under any ground including indisposition etc.

Medium of instruction:

English shall be the medium of instruction for all the subjects of study and for examination of the course.

Assessment:

Assessments should be completed by the academic staff, based on the compilation of the student's theoretical & clinical performance throughout the training programme. To achieve this, all assessment forms and feedback should be included and evaluated. Student must attain at least 50% marks in each Theory, Internal assessment and Practical independently / separately for each individual subject.

COURSE OF INSTRUCTION

Course Name	Course Code	Theory (In hrs.) (Class and lab)	Practical (In hrs.) (Clinical)	Total (in Hours)
First Year - Total Hours 500				
Anatomy	DOTT101	60	40	100
Physiology	DOTT102	60	40	100
Biochemistry	DOTT103	60	40	100
Pathology	DOTT104	60	40	100
Microbiology	DOTT105	60	40	100
2nd Year - Total Hours 300				
Surgical Techniques	DOTT201	60	40	100
Emergency Management	DOTT202	60	40	100
O.T. Equipments	DOTT203	60	40	100
3rd year - Internship				
Total hours- 2184				

SCHEME OF EXAMINATION

First Year				
SUBJECT CODE	SUBJECTS	EXAMINATION PATTERN		
		Internal	Final	TOTAL
DOTT101	Anatomy	20	80	100
DOTT102	Physiology	20	80	100
DOTT103	Biochemistry	20	80	100
DOTT104	Pathology	20	80	100
DOTT105	Microbiology	20	80	100
Practical- 50 Viva- 40 Journal- 10 Total marks: 100				
Second Year				
DOTT201	Surgical Techniques	20	80	100
DOTT202	Emergency Management	20	80	100
DOTT203	O.T. Equipments	20	80	100
Practical- 50 Viva- 40 Journal- 10 Total marks: 100				

FIRST YEAR DIPLOMA OPERATION THEATRE TECHNICIAN

DOTT101-ANATOMY

60 HOURS

THEORY:

- Introduction to Anatomy**
Basic Anatomical terminology
- Osteology**- Upper limb – clavicle, scapula, humerus, radius, ulna Lower limb - femur, hipbone, sacrum, tibia, fibula
- Vertebral column
- Thorax** – Intercostal space, pleura, bony thoracic cage, ribs sternum & thoracic vertebrae
- Lungs** – Trachea, bronchial tree
- Heart** – Surface anatomy of heart, chambers of the heart, valves of the heart, major blood vessels of heart, pericardium, coronary arteries.
- Skeleto-muscular system** – Muscles of thorax, muscles of upper

- limb (arm & fore arm) Flexor and extensor group of muscles
8. (origin, insertion, action)
 9. **Excretory system** – Kidneys, ureters, bladder

PRACTICAL

40 HOURS

1. **Mannequins to be provided for Teaching**
2. **Osteology** – Bones identification (right and left side) and prominent features and muscle attachment of the bone, clavicle, scapula, radius, ulna, humerus, femur, hip bone, sacrum, tibia, fibula.
3. Surface Anatomy,
4. Radiology, X-ray Chest PA view

DOTT102-PHYSIOLOGY

60 HOURS

UNIT 1-THE CELL:

- 1.1 Cell Structure and functions of the various organelles
- 1.2 Endocytosis and exocytosis
- 1.3 Acid base balance and disturbances of acid base balances (Alkalosis, Acidosis)

UNIT 2-THE BLOOD:

- 2.1 Composition of Blood, functions of the blood and plasma proteins, classification and protein.
- 2.2 Pathological and Physiological variation of the RBC.
- 2.3 Function of Hemoglobin
- 2.4 Erythrocyte Sedimentation Rate.
- 2.5 Detailed description about WBC-Total count (TC), Differential count (DC) and functions.
- 2.6 Platelets – formation and normal level and functions
- 2.7 Blood groups and Rh factor

UNIT 3-CARDIO-VASCULAR SYSTEM:

- 3.1 Physiology of the heart
- 3.2 Heart sounds
- 3.3 Cardiac cycle, Cardiac output.
- 3.4 Auscultatory areas.
- 3.5 Arterial pressures, blood pressure
- 3.6 Hypertension
- 3.7 Electro cardiogram(ECG)

UNIT 4-RESPIRATORY SYSTEM:

- 4.1 Respiratory movements.
- 4.2 Definitions and Normal values of Lung volumes and Lung capacities.

UNIT 5-EXCRETORY SYSTEM:

- 5.1 Normal Urinary output
- 5.2 Micturition
- 5.3 Renal function tests, renal disorders.

UNIT 6-REPRODUCTIVE SYSTEM:

- 6.1 Formation of semen and spermatogenesis.
- 6.2 Brief account of menstrual cycle.

UNIT 7-Central Nervous system:

- 7.1 Functions of CSF

UNIT 8-ENDOCRINE SYTEM:**UNIT 9-Digestive system (for the students of Diploma in Scope Support Technology)**

- 8.1 Physiological Anatomy of the GIT.
- 8.2 Food Digestion in the mouth, stomach, intestine
- 8.3 Absorption of foods
- 8.4 Role of bile in the digestion.

PRACTICAL**40 HOURS**

- 1. The compound Microscope
- 2. Determination of ESR-By westergren's method
- 3. Determination of Blood Groups.
- 4. Measurement of human blood pressure.
- 5. Examination of Respiratory system to count respiratory rate and measure inspiration and respiration

DOTT103-BIO-CHEMISTRY**60 HOURS****UNIT 1-CARBOHYDRATES**

- 1.1 Glucose and Glycogen Metabolism

UNIT 2-PROTEINS:

- 2.1 Classification of proteins and functions

UNIT 3-LIPIDS:

- 3.1 Classification of lipids and functions

UNIT 4-ENZYMES:

- 4.1 Definition – Nomenclature – Classification – Factors affecting enzyme activity – Active site – Coenzyme – Enzyme Inhibition – Units of enzyme – Isoenzymes – Enzyme pattern in diseases.

UNIT 5-VITAMINS & MINERALS:

- 5.1 Fat soluble vitamins(A,D,E,K) – Water soluble vitamins – B-complex vitamins- principal elements(Calcium, Phosphorus, Magnesium, Sodium, Potassium, Chlorine and sulphur)- Trace elements – Calorific value of foods – Basal metabolic rate(BMR) – respiratory quotient(RQ) Specific dynamic action(SDA) – Balanced diet – Marasmus – Kwashiorkor

UNIT 6-ACIDS AND BASES:

6.1 Definition, pH, Henderson – Hasselbalch equation, Buffers, Indicators, Normality, Molarity, Molality

DOTT104-PATHOLOGY

60 HOURS

UNIT 1 - CELLULAR ADAPTATION, CELL INJURY & CELL DEATH

- 1.1 Introduction to pathology.
- 1.2 **Overview:** Cellular response to stress and noxious stimuli. Cellular adaptations of growth and differentiation.
- 1.3 Overview of cell injury and cell death. Causes of cell injury.
- 1.4 **Mechanisms of cell injury.**
- 1.5 Reversible and irreversible cell injury. Examples of cell injury and necrosis

UNIT 2- INFLAMMATION

- 2.1 General features of inflammation
Historical highlights
- 2.2 Acute inflammation
- 2.3 Chemical mediators of inflammation Outcomes of acute inflammation Morphologic patterns of acute inflammation
Summary of acute inflammation
- 2.4 Chronic inflammation

UNIT 3- IMMUNITY DISORDERS

- 3.1 General features of the immune system Disorders of the immune system

UNIT 4-INFECTIOUS DISEASES

- 4.1 General principles of microbial pathogenesis Viral infections
- 4.2 Bacterial infections- Rheumatic heart disease. Fungal infections
- 4.3 Parasitic infections

UNIT 5- NEOPLASIA

- 5.1 Definitions
Nomenclature
- 5.2 Biology of tumor growth benign and malignant neoplasm Epidemiology
- 5.3 Carcinogenic agents and their cellular interactions Clinical features of tumors

UNIT 6- ENVIRONMENTAL AND NUTRITIONAL DISORDERS

- 6.1 Environmental and disease
- 6.2 Common environmental and occupational exposures Nutrition and disease

Microbiology as a value added subject in place of "Principle of Management" in first year (Board of Studies letter No.:FPMS/SV/BOS-MIN/1080/2021-22, dated 27/05/2022, and vide notification of Board of Management resolution Ref.:No. SVDU/R/3821/2021-22, dated 20/07/2022).

DOTT105-MICROBIOLOGY 60 HOURS

UNIT 1: History of Microbiology

- 1.1. Contributions done by Louis Pasteur, Rober Koch, Antony van Leuwenhoek and Joseph Lister

Unit 2: Morphology and Physiology of bacteria

- 2.1. Prokaryotic cell vs Eukaryotic cell
- 2.2 Bacteria shape, size and arrangements
- 2.3 Bacterial cell wall
- 2.4 Growth and nutritional requirements of bacteria
- 2.5 Growth curve

Unit 3: Sterilization and Disinfection

- 3.1 Physical methods: Dry heat method, Moist heat method, Radiation and Filtration
- 3.2 Chemical disinfectants use in hospital
- 3.3 Spaulding classification
- 3.4 Newer methods of sterilisation

Unit 4: Immunology

- 4.1 Infection: definitions, types, source, method of transmission and prevention of infection
- 4.2 Immunity
- 4.3 Antigen
- 4.4 Antibody
- 4.5 Antigen-antibody reactions- Agglutination test, ELISA

Unit 5: Bacteriology

- 5.1 Gram Positive Cocci: Staphylococcus, Streptococcus
- 5.2 Gram negative bacilli: E. coli, Pseudomonas, Klebsiella
- 5.3 Gram positive bacilli: Clostridium tetani, Clostridium perfringens

Unit 6: Virology

- 6.1 HIV
- 6.2 Hepatitis viruses

6.3 Corona Virus

Unit 7: Infection prevention and control

7.1 Standard precautions: Hand Hygiene, environmental disinfection, Biomedical waste management, use of PPE, Donning, Doffing, OT sterilization, spillage management

7.2 Needle stick injuries and Post exposure prophylaxis for HIV and Hepatitis B

7.3 Introduction to CSSD, Layout of CSSD, Maintenance of CSSD, Roles and responsibilities of OT technician in CSSD, Zones of CSSD, Aim of CSSD, Instrument cleaning process

Practical:

(40 HOURS)

Aseptic practices in laboratory and safety precaution

1. Microscope- parts and functions
2. Staining of bacteria- Gram stain and ZN stain
3. Demonstration of Autoclave, Disinfectants, Fumigation and Fogging
4. Demonstration of different Culture media and methods
5. Identification of bacteria
6. Collection and transport of various clinical specimens like sputum, pus, swabs, urine, blood, CSF
7. Visit to CSSD lab
8. Collection and processing of swabs from OT.
9. Infection control: Hand hygiene, BMW management, spillage etc

Each student shall undergo training in Skill Simulation Laboratory for learning certain basic clinical skills like IV/IM injection, setting IV-line, Cardio-pulmonary resuscitation (CPR), and Life support skills in the beginning of second year, for duration of continuous four days. (Board of Studies letter No.:FPMS/SV/BOS-MIN/0006/2016-17, dated 19/01/2017, and vide notification of Board of Management resolution Ref.:No. SVDU/R/2017-18/5056, dated 09/01/2018).

SECOND YEAR DIPLOMA OPERATION THEATRE TECHNICIAN

DOTT201-SURGICAL TECHNIQUES

60 HOURS

UNIT 1-INFECTION

- 1.1 General principles of asepsis. Specific infections like tetanus, gas gangrene, cellulites, carbuncle, abscess etc.

UNIT 2- DRESSING, SUTURES, BANDAGES & PLASTERS

- 2.1 Give broad ideas about the following, with emphasis on surgical positions, instruments required in the case and role of Assistant:
- 2.2 Swelling in necks
- 2.3 G.I. surgery eg. Appendix, gall bladder, Int, Obst., hernia etc.
- 2.4 Genito-urinary surgery eg. Prostate, Kidney stones
- 2.5 Plastic surgery – burns, graft etc.
- 2.6 Hemorrhoids, fistula, fissure etc.

UNIT 3-PREPARATION OF PATIENT, ASEPTIC TECHNIQUES & DRAPING.

UNIT 4- UNIVERSAL PRECAUTION FOR HIV POSITIVES, HBAS ANTIGEN.

4.1 ORTHOPEDIC:

- 4.1.1 Give broad ideas with emphasis on Assistant's role such as making positions, plasters, preparation of instrument trays etc of the following:
- 4.1.2 Fractures such as closed reduction, open reduction applications of plasters
- 4.1.3 Surgery on the Spine
- 4.1.4 Implants eg. THR, TKR, shoulder
- 4.1.5 Handling of C – Arm
- 4.1.6 Application of tourniquets

4.2 GYNAE & OBSTETRIC:

- 4.2.1 Introduction of Gynae & Obst Instruments used in normal delivery, forceps etc
- 4.2.2 LSCS including instruments required, Emergency LSCS
- 4.2.3 Neonatal resuscitation
- 4.2.4 Pain relief in Labour
- 4.2.5 MTP & Cauterization of Cx, D&C, hysterectomy Abdominal, vaginal & lap assisted (LAVH)
- 4.2.6 Laparoscopic sterilization, Laparocator & Laparoscope
- 4.2.7 Diagnostic aids in pregnancy and labour
- 4.2.8 Ectopic pregnancy

4.3 ENT & EYES:

- 4.3.1 Give broad ideas about the surgery with emphasis on position, instruments required and Assistant's role in keeping & maintenance of microscopes etc.
- 4.3.2 Tonsil & adenoids
- 4.3.3 Septoplasty, Mastoid & tympanoplasty
- 4.3.4 Instruments & positions
- 4.3.5 Tracheostomy, Laryngectomy, Tracheal repair.

4.4 EYE SURGERY:

- 4.4.1 Broad idea about surgery but emphasis on role of technician as assistant in position, bandaging, preparation of instruments, cataract, squint, penetrating injury, syringing etc.

4.5 SPECIAL EQUIPMENT:

- 4.5.1 Endoscope, bronchoscope, oesophago scope, fiberscope, laproscope, cystoscope, imaging equipment, X-ray & C-arm, ultrasound care maintenance and sterilization.

4.6 NURSING CARE

- 4.6.1 Pre-operative management of patient
- 4.6.2 Post-operative management of patient
- 4.6.3 PACU: Post Anesthesia Care Unit
- 4.6.4 Transportation of critically ill. Transportation ambulance.
- 4.6.5 Shifting patients, monitoring of vital functions, detection of life threatening problems, eg, shock respiratory failure, vomiting etc.
- 4.6.6 Transportation of patient to and from the operation theatre.

4.7 EMERGENCY MANAGEMENT

- 4.7.1 First Aid
- 4.7.2 Road side accident
- 4.7.3 Shock, cardiac arrest, CPR
- 4.7.4 Disaster Management
- 4.7.5 Shifting of critical patients

4.8 I C U (INTENSIVE CARE UNIT):

- 4.8.1 Setup, services rendered, rules, procedures, discipline, management of asepse.
- 4.8.2 Types of patients, care & physiotherapy of unconscious patients.
- 4.8.3 Equipments used in ICU, their functions, operation and maintenance.
Suction catheters and tubes, CVP lines, Respiratory Ventilator, Methods of suctioning
- 4.8.4 Humidifier, Cardiac monitor, ABG, Spirometer, Central gas pipeline, Intra arterial canulation
- 4.8.5 Duties of Assistant in ICU.
- 4.8.6 Types of beds, Ventilation of patient in crises mouth to mouth, mouth to tube AMBU bag
- 4.8.7 ICU lab
- 4.8.8 Management of tetanus patients
- 4.8.9 Psychological aspect of patient, relatives
- 4.8.10 Haemo filtration
- 4.8.11 ECG, EMG, EEG DOT 205

DOTT202-EMERGENCY MANAGEMENT

60 HOURS

- 1. First Aid
- 2. Road side accident
- 3. Shock, cardiac arrest, CPR
- 4. Disaster Management
- 5. Shifting of critical patients

PRACTICAL ANESTHESIA

40 HOURS

INTRODUCTION TO O.T:

- 1. Principles of sterilization of O.T. – fumigation, carbonization, zonal practices, Anesthesia machine
- 2. Anesthesia drugs
- 3. Incubating equipment
- 4. I.V. infusion – preparation of drip, allergic reactions
- 5. Suction machine
- 6. Understanding sterile techniques, gowning & wearing of gloves
- 7. Different types of anesthesia
- 8. Taking pulse, B.P., monitoring equipment, making positions for surgeries and anesthesia
- 9. Airway management
- 10. Injections
- 11. O2 therapy

12. Table and positions, bandaging plasters
13. Pre op & post op management of patient
14. Technique of operating autoclaves
15. Instrument & linen preparation
16. Record keeping

O.T. EQUIPMENTS:

1. Maintenance of special surgical equipment
2. Types of scopes eg. Bronchoscope, fibre optic scope, laryngoscope, cystoscope.
3. Microscope – Care & maintenance
4. Techniques of handling of laser based equipment.
5. Ventilation of O.T., Air conditioning & control of pollution
6. Defibrillator—mechanisms, care & maintenance, uses, safety & Precautions

INTERNSHIP (INTEGRATED PRACTICE) - TOTAL HOURS 1440

- The internship will span 1 Year. This will include 6 hours of practice a day, totaling to 1440 hours during internship year. As a part of this, the students will maintain a work logbook which will be duly endorsed by the supervisor or trainer. At the end of internship, the candidate shall submit the work log book along with certificate from the training institute.
- The internship time period provides the students the opportunity to continue to develop confidence and increased skill in clinical delivery of services. Students will demonstrate competence in beginning and intermediate procedures. Students will observe the advanced and specialized procedures. The student will complete the clinical training by practicing all the skills learned in classroom and clinical instruction. The students are expected to work for minimum 6 hours per day and this may be more depending on the need and the healthcare setting.

CODE OF PROFESSIONAL CONDUCT

1. The Code of Professional Conduct is designed and set out as guidance for the clinical practitioner within the relationship that exists with every patient receiving health care.
2. Essential to that relationship is the patient's trust in the practitioner. This trust hangs upon the patient's assurance of being the practitioner's first concern during their clinical encounter, and upon the patient's confidence that the care received will be competent, whether in diagnosis, therapy or counseling.

STANDARD OF PRACTICE AND CARE:

- Patients are entitled to the highest standard of practice and care. The essential elements of this are professional competence, good relationships with patients and colleagues and observance of professional ethical obligations.

In providing care you must therefore:

1. Recognize the limits of your professional competence.
2. Be willing to consult colleagues
3. Keep clear, accurate and contemporaneous patient records which report the relevant findings.
4. Keep colleagues informed.
5. Pay due regard to the efficacy and the prudent use of resources.

6. Be competent, truthful, and accurate, when reporting on investigations.
7. Be competent when giving or arranging treatment.

Patient's rights:

1. Listen to patients and respect their views.
2. Treat patients politely and considerately.
3. Respect patients' privacy and dignity.
4. Give information to patients in a way they can understand.
5. Respect the right of patients to be fully involved in decisions about their care.
6. Respect the right of patients to refuse treatment or to take part in teaching or research, reporting the refusal to the person requesting the procedure.
7. Respond to complaints promptly and constructively.
8. Ensure that your views about a patient's life style, culture, beliefs, race, colour, sex, sexuality, age, social status, or perceived economic worth, do not prejudice the service you give.

CONFIDENTIALITY:

- Patients have a right to expect that you will not pass on any personal information which you learn in the course of your professional duties, unless they agree