

Shri Govind Guru University

(Established by Government of Gujarat Vide Gujarat Act no 24/2015)

Rules/Regulations & Syllabus

DIPLOMA IN OPERATION THEATER TECHNICIAN



With Effective from 2020-21

Website : www.sgggu.ac.in

UNIVERSITY (EXTERNAL) EXAMINATION:

PASSING CRITERIA:

Every student has to have an aggregate score of minimum 35% marks of both the internal and University (external) Examination of 100 % marks in theory and practical examination combined together to pass in the University Examination. It is not compulsory to pass in section – I and section – II separately.

But, the student has to score minimum 35 % of marks separately in theory and practical in the University Examination of 80 marks in theory and practical examination and internal examination.

R. DOT. 8: Promotion and A.T.K.T.

a. Candidates, who have passed separately in theory and practical of all subject heads (course) in F.Y.D.O.T and S.Y D.O.T Shall be promoted to degree certificate.

b. Candidates, who fail in **any three** of the subject heads (courses) in F.Y. D.O.T Shall be granted A.T.K.T. And shall be allowed to attend S.Y.D.O.T as the case may be. Candidate can re-appear in the following subject-heads in the subsequent exam.

c. Candidate would however not be allowed for certificate from. unless and untill s/he passes all subjects of F.Y. D.O.T

**DISTRIBUTION OF TEACHING HOURS FOR
FIRST YEAR DIPLOMA IN OPERATION THEATER TECHNICIAN**

Sr. No.	Subject	Course No.	Teaching Hours
Main Subjects			
1	Human Anatomy	DOT-101	60
	Practical – Anatomy	DOT-101(P)	30
2	Human Physiology	DOT-102	60
	Practical – Physiology	DOT-102(P)	30
3	Pathology	DOT-103	60
	Practical-Pathology	DOT-103(P)	30
4	Microbiology	DOT-104	60
	Practical- Microbiology	DOT-104(P)	30
5	Biochemistry	DOT-105	60
	Practical- Biochemistry	DOT-105(P)	30
Main Subjects- Teaching hours			450
Subsidiary subjects			
6	English	DOT-E-106	60
7	Computer Organization & PC Software	DOT-E-107	30
	Computer Organization & PC Software practical	DOT-E-107(P)	30
Subsidiary subjects- Teaching hours			120
Teaching hours-Theory/Practicals			570
Hospital Posting			360
Total Teaching hours			930

DISTRIBUTION OF SUBJECTS, CREDITS
AND SCHEME OF EXAMINATION FOR
FIRST YEAR DIPLOMA IN OPERATION THEATER TECHNICIAN

Table 1. Subjects, Credits and Scheme of Examination

Sr. No.	Subject	Course No.	No. Credits per week	Duration of Uni. Exam	External Marks	Internal Marks	Total	Grand Total
1	Human Anatomy	DOT-101	2	3	80	20	100	100
	Practical – Anatomy	DOT-101(P)	1	-	-	-	-	
2	Human Physiology	DOT-102	2	3	80	20	100	100
	Practical – Physiology	DOT-102(P)	1	-	-	-	-	
3	Pathology	DOT-103	2	3	80	20	100	100
	Practical-Pathology	DOT-103(P)	1	-	-	-	-	
4	Microbiology	DOT-104	2	3	80	20	100	100
	Practical- Microbiology	DOT-104(P)	1	-	-	-	-	
5	Biochemistry	DOT-105	2	3	80	20	100	100
	Practical- Biochemistry	DOT-105(P)	1	-	-	-	-	
Subsidiary subjects								
6	English	DOT-E-106	2	2	40	10	50	50
7	Computer Organization & PC Software	DOT-E- 107	1	2	40	10	50	50
	Practical- Computer Organization & PC Software	DOT-S- -107(P)	1	2	25	25	50	50
Total								650

SUBJECT NAME: HUMAN ANATOMY

Course code: DOT 101

Theory classes: 60 hours

Practical classes : 30 hours

Unit 1. Introduction: human body as a whole

Theory:

- Definition of anatomy and its divisions
- Terms of location, positions and planes
- Cell and its organelles
- Epithelium-definition, classification, describe with examples, function
- Glands- classification, describe serous & mucous glands with examples
- Basic tissues – classification with examples

Practical:

- Histology of types of epithelium
- Histology of serous, mucous & mixed salivary gland

Unit 2. Locomotion and support

Theory:

- Cartilage – types with example & histology
- Bone – Classification, names of bone cells, parts of long bone, microscopy of compact bone, names of all bones, vertebral column, intervertebral disc, fontanelles of fetal skull
- Joints – Classification of joints with examples, synovial joint (in detail for radiology)
- Muscular system: Classification of muscular tissue & histology
- Names of muscles of the body

Practical:

- Histology of the 3 types of cartilage
- Demo of all bones showing parts, radiographs of normal bones & joints
- Histology of compact bone (TS & LS)
- Demonstration of muscles of the body (as functional groups)
- Histology of skeletal (TS & LS), smooth & cardiac muscle

Unit 3. Cardiovascular system

Theory:

- Heart-size, location, chambers, exterior & interior
- Blood supply of heart
- Systemic & pulmonary circulation
- Branches of aorta, common carotid artery, subclavian artery, axillary artery, brachial artery, superficial palmar arch, femoral artery, internal iliac artery
- Peripheral pulse
- Inferior venacava, portal vein, portosystemic anastomosis
- Great saphenous vein
- Dural venous sinuses
- Lymphatic system- cisterna chyli & thoracic duct
- Histology of lymphatic tissues
- Names of regional lymphatics, axillary and inguinal lymph nodes in brief

Practical:

- Demonstration of heart and vessels in the body
- Histology of large artery, medium sized artery & vein, large vein
- Microscopic appearance of large artery, medium sized artery & vein, large vein
- pericardium
- Histology of lymph node, spleen, tonsil & thymus
- Normal chest radiograph showing heart shadows
- Normal angiograms

Unit 4. Gastro-intestinal system**Theory:**

- Parts of GIT, Oral cavity (lip, tongue (with histology), tonsil, dentition, pharynx, salivary glands, Waldeyer's ring)
- Oesophagus, stomach, small and large intestine, liver, gall bladder, pancreas
- Radiographs of abdomen

Unit 5. Respiratory system**Theory:**

- Parts of RS, nose, nasal cavity, larynx, trachea, lungs, bronchopulmonary segments
- Histology of trachea, lung and pleura
- Names of paranasal air sinuses

Practical:

- Demonstration of parts of respiratory system.
- Normal radiographs of chest
- Histology of lung and trachea

Unit 6. Urinary system**Theory:**

- Kidney, ureter, urinary bladder, male and female urethra
- Histology of kidney, ureter and urinary bladder

Practical:

- Demonstration of parts of urinary system
- Histology of kidney, ureter, urinary bladder
- Radiographs of abdomen-IVP, retrograde cystogram

Unit 7. Reproductive system**Theory:**

- Parts of male reproductive system, testis, vas deferens, epididymis, prostate (gross & histology)
- Parts of female reproductive system, uterus, fallopian tubes, ovary (gross & histology)
- Mammary gland – gross

Practical:

- Demonstration of section of male and female pelvis with organs *in situ*
- Histology of testis, vas deferens, epididymis, prostate, uterus, fallopian tubes, ovary
- Radiographs of pelvis – hysterosalpingogram

Unit 8. Endocrine glands**Theory:**

- Names of all endocrine glands in detail on pituitary gland, thyroid gland, parathyroid gland, suprarenal glad – (gross & histology)

Practical:

- Demonstration of the glands
- Histology of pituitary, thyroid, parathyroid, suprarenal glands

Unit 9. Nervous system

Theory:

- Neuron
- Classification of NS
- Cerebrum, cerebellum, midbrain, pons, medulla oblongata, spinal cord with spinal nerve (Gross Anatomy)
- Histology of Cerebrum, cerebellum and spinal cord
- Meninges, Ventricles & cerebrospinal fluid
- Blood supply of brain (In Brief)
- Cranial nerves (Only Names)

Practical:

- Histology of peripheral nerve & optic nerve
- Demonstration of all plexuses and nerves in the body
- Demonstration of all part of brain
- Histology of cerebrum, cerebellum, spinal cord

Unit 10.Sensory organs:

Theory:

- Skin: Skin-histology
- Appendages of skin
- Eye: Parts of eye & lacrimal apparatus
- Extra-ocular muscles & nerve supply
- Ear:parts of ear- external, middle and inner ear and contents

Practical:

- Histology of thin and thick skin
- Demonstration and histology of eyeball
- Histology of cornea & retina

Unit 11.Embryology:

Theory:

- Spermatogenesis & oogenesis
- Ovulation, fertilization
- Fetal circulation
- Placenta

There shall be no University Practical Examination.

REFERENCE BOOKS

1 William Davis (P) understanding Human Anatomy and Physiology MC Graw Hill

2. Human Anatomy for Nursing & Allied Sciences - 1st edition
Dr. M.K.Anand, Dr. Meena Verma, The Arora Medical Publishers Pvt.Ltd

3. Fattana, Human anatomy
(Description and applied)
Saunder's & C P Prism Publishers, Bangalore – 1991

4. ESTER . M. Grishcimer,
Physiology & Anatomy with Practical Considerations, J.P. Lippin Cott. Philadelphia

SYLLABUS OF FIRST YEAR DIPLOMA IN OPERATION THEATER TECHNICIAN

SUBJECT NAME: HUMAN PHYSIOLOGY

Course code: DOT 102

Theory classes: 60 hours

Practical classes : 30 hours

Theory:

Unit 1. Blood and Muscle Physiology:

- Composition & Function of Blood
- Erythropoiesis and Leucopoiesis
- Hemostasis
- Action potential and mechanism of Muscle contraction
- Neuromuscular junction

Unit 2. Digestive System and Excretory System

- Movement and Alimentary tract
- Deglutition and Mechanism of Vomiting
- Digestive juices
- Micturition
- Mechanism of Urine formation
- Regulation of acid-base balance

Unit 3. Cardiovascular and Respiratory System

- Heart rate and sound
- Blood pressure
- Cardiac cycle and output
- Mechanism of breathing
- Oxygen and Carbon dioxide Transport
- Pulmonary volume and capacity

Unit 4. Endocrinology and Reproductive System

- Spermatogenesis and Menstrual cycle
- Puberty
- Pregnancy and Lactation
- Hormones of Pituitary, Thyroid & Parathyroid Glands
- Hormones of Adrenal Gland and Pancreas

Unit 5. Nervous System and Special Senses

- Neuron and Neuroglia
- Properties of nerve fibre
- Reflex mechanism and Receptors
- Mechanism of vision and hearing
- Taste and smell

Practical:

- Estimation of Haemoglobin
- Bleeding time
- Clotting time
- Blood Grouping
- Erythrocyte Sedimentation rate
- Packed Cell Volume
- Arterial Blood Pressure
- Pulse
- Heart rate
- Breathing rate

There shall be no University Practical Examination.

REFERENCE BOOKS

1. Guyton (Arthur) Text Book of Physiology.

- Latest Ed. Prism publishers
2. Ganong (William F) Review of Medical Physiology.
Latest Ed . Appleton
 3. Jain AK, Concise Physiology, Latest Ed.

SYLLABUS OF FIRST YEAR DIPLOMA IN OPERATION THEATER TECHNICIAN

SUBJECT NAME: PATHOLOGY

Course code: DOT 103

Theory classes: 60 hours

Practical classes : 30 hours

Theory

Unit 1. Histo Pathology

- Introduction to Histo Pathology
- Receiving of Specimen in the laboratory
- Grossing Techniques
- Mounting Techniques – various Mountants
- Maintenance of records and filing of the slides.
- Use & care of Microscope
- Various Fixatives, Mode of action, Preparation and Indication. Section Cutting
- Tissue processing for routine paraffin sections
- Decalcification of Tissues.
- Staining of tissues - H& E Staining
- Bio-Medical waste management

Unit 2. Clinical Pathology

- Introduction to Clinical Pathology
- Collection, Transport, Preservation, and Processing of various clinical Specimens
- Urine Examination – Collection and Preservation of urine. Physical, chemical, Microscopic Examination
- Examination of CSF and other body fluids.
- Sputum Examination.
- Examination of feces

Unit 3. Haematology

- Introduction to Haematology
- Normal constituents of Blood, their structure and function.
- Collection of Blood samples
- Various Anticoagulants used in Haematology
- Various instruments and glassware used in Haematology, Preparation and use of glassware
- Laboratory safety guidelines
- SI units and conventional units in Hospital Laboratory
- Hb, PCV
- ESR
- Normal Haemostasis
- Bleeding Time, Clotting Time, Prothrombin Time, Activated Partial Thromboplastin Time.

Unit 4. Blood Bank

- Introduction
- Blood grouping and Rh Types
- Cross matching

Practical:

- Urine Examination.
- Physical
- Chemical
- Microscopic
- Blood Grouping Rh typing.
- Hb Estimation, Packed Cell Volume[PCV], Erythrocyte Sedimentation rate{ESR}
- Bleeding Time, Clotting Time.
- Histopathology – Section cutting and H &E Staining.[For BSc MLT only]

There shall be no University Practical Examination.

REFERENCE BOOKS

1. Silvertone : Introduction to Medical Lab. Technology
2. Bancroft : Theory and Practical of Histology techniques

3. Textbook of Clinical Blood Banking Science by Zmijewski.
4. Manual for Clinical Pathology by Sabitry Sanyal
5. Practical Pathology by Dr.P.Chakraborty & Gargi Chakraborty
6. Haematology for students and practitioners by Ramnik Sood
7. Histological techniques by K.Laxminarayan

SYLLABUS OF FIRST YEAR DIPLOMA IN OPERATION THEATER TECHNICIAN

SUBJECT NAME: MICROBIOLOGY

Course code: DOT 104

Theory classes: 60 hours

Practical classes : 30 hours

Theory

Unit 1. Morphology

- Classification of microorganisms,
- Size, shape and structure of bacteria.
- Use of microscope in the study of bacteria.

Unit 2. Sterilisation and Disinfection

- Principles and use of equipments of sterilization namely Hot Air oven, Autoclave and serum inspissator. Pasteurization,
- Anti septic and disinfectants

Unit 3. Growth and nutrition

- Nutrition, growth and multiplications of bacteria,
- Use of culture media in diagnostic bacteriology.
- Antimicrobial sensitivity test

Unit 4. Immunology

- Infection & Immunity
- Antigen, Immunoglobuline (in brief)
- Principles and interpretation of commonly done serological tests namely Widal, VDRL, ASO, CRP, RF & ELISA. Rapid tests for HIV and HBsAg (Technical details to be avoided)
- Types of Vaccine and immunization schedule

Unit 5. Systematic Bacteriology

- Morphology, cultivation, diseases caused, laboratory diagnosis including specimen collection of the following bacteria (the classification, antigenic structure and pathogenicity to be avoided)
 - *Staphylococci, Streptococci, Pneumococci,*
 - *Gonococci, Meningococci,*
 - *C. diphtheriae, Clostridia, Bacillus,*
 - *Shigella, Salmonella, Esch coli,*
 - *Klebsiella, Proteus, Pseudomonas*
 - *Mycobacteria*
 - *Vibrio cholerae, &*
 - *Spirochetes-Treponema pallidum & Leptospira*

Unit 6. Parasitology

- Morphology, life cycle, laboratory diagnosis of following parasites
 - Protozoa - *E. histolytica, Plasmodium,*
 - Tape worms –*Taenia*
 - Intestinal nematodes – Round worm, Hookworm,

Unit 7. Mycology

- Morphology, diseases caused and lab diagnosis of following fungi.
 - *Candida, Cryptococcus,*
 - Dermatophytes ,
 - opportunistic fungi.

Unit 8. Virology

- General properties of viruses, diseases caused, lab diagnosis and prevention of following viruses,
 - Herpes,
 - Hepatitis,
 - HIV
 - Rabies and
 - Poliomyelitis.

Unit 9. Hospital infection

- Causative agents, transmission methods,
- Prevention and control Hospital infection.

Unit 10. Principles and practice Biomedical waste management

Practical

- Compound Microscope.
- Grams stain
- Acid Fast staining
- Demonstration and sterilization of equipments – Hot Air oven, Autoclave, Bacterial filters.
- Demonstration of commonly used culture media, culture methods
Nutrient broth, Nutrient agar, Blood agar, Chocolate agar, Mac conkey medium, LJ media, Robertson Cooked meat media, Potassium tellurite media with growth, Mac with LF & NLF, NA with staph
- Demonstration of commonly used Biochemical Reactions for identification of bacteria
 - Coagulase test
 - Catalase test
 - IMViC
 - TSI
 - Urease, Oxidase
- Antibiotic susceptibility test
- Anaerobic culture methods.
- Demonstration of common serological tests – Widal, VRDL, ELISA.
- Stool exam for Helminthic ova
- Visit to hospital for demonstration of Biomedical waste management.

There shall be no University Practical Examination.

REFERENCE BOOKS

1. Anathanarayana & Panikar Medical Microbioloty
2. Roberty Cruckshank – Medical Microbiology – The Practice of Medical Mircrobiology
3. Chatterjee – Parasitology – Interpretation to Clinical medicine.
4. Rippon – Medical Mycology
5. Monica Cheesebrough,

SYLLABUS OF FIRST YEAR DIPLOMA IN OPERATION THEATER TECHNICIAN

SUBJECT NAME: BIOCHEMISTRY

Course code: DOT 105

Theory classes: 60 hours

Practical classes : 30 hours

Theory

Unit.1 Introduction, specimen collection and Handling

- Introduction to Bio-chemistry including code of ethics for Medical Lab technicians and Medical Lab Organization.
- Reception, Registration and Bio-chemical parameters investigated.
- Types of vials used in blood /specimen collection
- Anticoagulants
- Preservatives
- Blood collection
- Precautions
- Safety, first aid, Biological and chemical hazards
- Processing of samples
- Preservation
- Disposal of samples
- Introduction to laboratory apparatus :
 - Pipettes - different types (Graduated, volumetric, Pasteur, Automatic etc.), Calibration of glass pipettes
 - Burettes, Beakers, Flasks, Funnels, Cuvettes,

Unit 2. Units of measurements and Basics of Instrumentation

- Conventional and SI units
 - Molecular weight, equivalent weight of elements and compounds, normality, molarity,
 - Preparation of molar solutions, normal solutions, Percent solutions
- I. Colorimetry : Photoelectric methods, instrumentation, principles and laws involved, Operation, maintenance, applications.
- II. Spectrophotometry : Principle ,types and applications.
- III. Weighing : Different types of balances used, care and maintenance.
- IV. pH meter-Principle, Use, care and maintenance of pH meter and electrodes
- Basic lab operations like -Separation of Solids from liquids,
 - a) Centrifugation : Principle, Different types of Centrifuges, care and maintenance, applications
 - b) Filtration using funnel

Unit.3 Carbohydrates :

Definition, biological importance, classification, qualitative tests, Metabolism(brief), Blood glucose.

Unit.4 Lipids :

Definition, biological importance, classification, Acid value, Iodine value, saponification value, Metabolism(brief).

Unit.5 Aminoacids and Proteins :

Definition, biological importance, classification, qualitative tests.

Unit.6 Vitamins and Minerals :

Vitamins : Classification of Vitamins, Sources, Daily requirements, Deficiency diseases. (In Brief)
Minerals (Iron, calcium, Iodine): Sources, Daily requirements, Deficiency diseases .

Unit.7 Enzymes

Nature, Classification and Clinical enzymes.

Unit.8 Nucleic acids- Chemistry and functional aspects

Purine bases, Pyrimidine bases, nucleosides, Nucleotides, DNA & RNA, Their functions
Brief outline of Replication, Transcription, translation.

Unit.9

- PH, buffers, acid-base balance, disorders.
- Digestion and absorption of Biomolecules
- Water, Chemicals and related substances
- ★ Purity of chemicals
- ★ Corrosives

Practical:

- Reception and registration
- Collection of Capillary blood
- Collection of Venous blood
- Separation of Serum from clotted blood
- Separation of plasma from blood
- Lab glass ware
 - a) Identification
 - b) Handling
 - c) Care and Maintenance
 - d) Uses
- Lab instruments
 - a) Centrifuges
 - b) Balances
 - c) Photo Electric colorimeter
 - d) Spectrophotometer
- Preparation of
 - a) Percentage solutions
 - b) Normal solutions
 - c) Molar solutions
- Qualitative identification of tests of sugars
- Qualitative identification of tests of proteins
- Qualitative identification of tests for amino acids
- Estimation of Blood glucose
- Estimation of Blood urea
- Normal and pathological urine.

There shall be no University Practical Examination.

REFERENCE BOOKS

1. TEITZ – Clinical chemistry
Vasudevan (DM) Sreekumari(S) Text book of
Biochemistry for Medical students ,Latest Ed
2. Varley – Clinical chemistry
3. 3. Kaplan – Clinical chemistry

SYLLABUS OF FIRST YEAR DIPLOMA IN OPERATION THEATER TECHNICIAN

SUBJECT NAME: ENGLISH

Course code: DOT-E-106

Theory classes: 60 hours

Overall Objectives

The objectives are to develop abilities

- To process information using a variety of media
- To use appropriate phrases for performing language functions
- To edit, select and present information in a format / perspective
- To listen and reduce information to a point form
- To read and to expand from points to paragraph
- To predict, comprehend, infer and synthesize information
- To question, probe and arrive at information through discussions, dialogues and interviews
- To answer questions, choose and provide data etc.

A. Reading

The objectives are to enable the students to

- Read for information news features, articles, newspaper and text
- Read intensively a collection of short stories given in a compiled text (See for the text and the lessons selected from it below)

Book prescribed

- L.A.Hill (1970), **Contemporary Short Stories**. Chennai: Oxford University Press. The following stories have been selected for use on the course.
 - The happy Prince
 - A Horseman in the sky
 - The Wolves of Cernogratz
 - The half Mile
 - The Mark of Vishnu
 - The Halfyard Ham
 - Locomotion 38
 - The Ghost Ship
 - Uneasy Homecoming
 - The Trust Property

B. Writing

The objectives are to enable the students to

- Form words properly using prefixes / suffixes (See list 4 in the Appendix)
- Use phrasal verbs (See list 3 in the Appendix)
- Use appropriate and related registers (See list 5 in the Appendix)
- Writing paragraphs, developing points / ideas
- Writing resume, job applications, letters of invitations (inviting / accepting/ declining), letters of complaint to civil authorities
- Answering questions based on the prescribed text: **Contemporary Short Stories**

Books Recommended

- Champa Tickoo and Jaya Sasikumar (2000). **Writing with a Purpose**. Chennai, OUP
- David Jolly (1988). **Writing Tasks: An authentic task approach to individual writing needs**.

C. Listening

The objectives are to enable the students to listen and understand

- Short lecture, descriptions, and narrations, rapid talks, passages read aloud and/or dictated and identify Language functions (See list 2 in the Appendix)
- Conversations based on familiar situations, and
- Note Making

Books Recommended

- Spoken English-D Sasikumar and PV Dhamija (with Audio Cassette) Tata Mcgraw Hill

D. Speaking

The objectives are to enable the students to

- Use greeting and formula in everyday conversations.
- Use various notions and function of everyday usage (See list 2 in the Appendix)
- Use grammatically correct and appropriately structures to organize thought (See list 1 Containing Syntactic items in the Appendix)
- Give short formal and informal talks, speeches

Books Recommended

- Grant Taylor. English Conversation Practice. New Delhi: Tata McGraw Hill
- R.P.Bhatnagar and R.T.Bell (1999) **Communication in English**, Hyderabad: Orient Longman

SYLLABUS OF FIRST YEAR DIPLOMA IN OPERATION THEATER TECHNICIAN

SUBJECT NAME: COMPUTER ORGANIZATION & PC SOFTWARE

Course code: DOT-E-107

At the end of this course, a student would be able to :

- identify various components of computer hardware and
- Use some software in order to manage data related to the profession.

Teaching hours:	Theory:	30 hours
	Practicals:	30 hours

Curriculum:

SECTION A

Unit 1. Computer Organization -I

Generations of a computer, types of a computer, some important terms: hardware, software, program, operating system, interpreter, compiler, assembler, high level languages, bits and bytes.

Introduction to number systems

Unit 2. Computer Organization -II

Processors, CPU organization, primary memory, memory addresses, secondary memory, memory hierarchies, magnetic disks, CDROMs, DVDs, input/output devices: keyboards, monitors, mice, printers, modems

The concept of character codes

SECTION B

Unit 1: PC Software- I

Introduction to spreadsheets, the concept of cells and cell addresses, formulas, some important functions, introduction to charts

Introduction, features and applications of a DBMS Database objects

Tables – creation, modification, deletion

Working with data – insertion, modification, finding, sorting, grouping, viewing and sharing data

Unit 2. PC Software- II

Forms – creation of forms; modification, viewing and validating data using forms, subforms Reports – creation, modification, opening, viewing

Creating mailing labels

REFERENCE BOOKS:

- Tanenbaum A. S., Structured Computer Organization, 4th Edition, Prentice-Hall of India Pvt. Ltd., 2002.
- Elmasri, Navathe, Somyajulu, Gupta, Fundamentals of Database Systems, Pearson Education, 2006.
- Progue, Irwin, Roardon, Microsoft Office Access 2007 Bible, Wiley Publishing Inc., 2007.
- Taxali R. K., P C Software for Windows 98 Made Simple, Tata McGraw-Hill, 2001.
- Hall D. V., Microprocessors and Interfacing, McGraw-Hill Book Company, 1986.
- Desai Bipin C., An introduction to Database Systems, 7th Edition, Pearson Education Asia, 2001.

..... **COMPLITION OF FIRST YEAR DIPLOMA IN OPERATION THEATER TECNICIAN**.....

DISTRIBUTION OF TEACHING HOURS FOR
SECOND YEAR DIPLOMA IN OPERATION THEATER TECHNICIAN

Sr. No.	Subject	Course No.	Teaching Hours
Main Subjects			
1	Basic Anesthesia Technology	DOT-201	60
2	Advanced Anesthesia Technology	DOT-202	60
3	Medicines relevant to OT	DOT-203	60
4	Introduction to Operation Theater Technology	DOT-204	60
	Introduction to Operation Theater Technology- Practical	DOT-204-P	60
5	Health Care	DOT-205	45
Main Subjects- Teaching hours			345
Subsidiary subjects			
6	English	DOT-E-206	25
	English Practical	DOT-E-206-(P)	25
7	Computer skills	DOT-7-207	20
Subsidiary subjects- Teaching hours			70
Teaching hours-Theory/Practicals			415
Laboratory Posting			330
Total Teaching hours			745

DISTRIBUTION OF SUBJECTS, CREDITS
AND SCHEME OF EXAMINATION FOR
SECOND YEAR DIPLOMA IN OPERATION THEATER TECHNICIAN

1	Basic Anesthesia Technology	DOT- 201	2	3	80	20	100	100
2	Advanced Anesthesia Technology	DOT-202	2	3	80	20	100	100
3	Medicines relevant to OT	DOT-203	2	3	80	20	100	100
4	Introduction to Operation Theater Technology	DOT- 204	1	2	80	20	100	100
5	Introduction to Operation Theater Technology- Practical	DOT-204-(p)	1	2	40	10	50	50
6	Health Care	DOT-205	2	2	40	10	50	50
	Subsidiary subjects							
7	English	DOT-E- 206	1	2	40	10	50	50
		DOT-E-206(P)	1	1	25	25	50	50
8	Computer skills	DOT-E-202	2	3	40	10	50	50
Total								650

SYLLABUS OF SECOND YEAR DIPLOMA IN OPERATION THEATER TECHNICIAN

SUBJECT NAME: BASIC ANAESTHESIA TECHNOLOGY

Course code: DOT-201

Theory classes: 60 hours

S.NO.	TOPIC	Domain	Hours as per MCI
1	<u>Medical Gas</u>	Must Know 1. compressed gas cylinders 2.Colour coding different gas cylinder and pipe line system 3. Cylinder storage space and things to remember while empty and full cylinder storing. 4.Diameter index safety system 5. Medical gas pipe line system and station outlets. 6. Alarms and safety devices in pipe line gas supply. Desirable to Know 7. Oxygen concentrator working principle, their uses and care. Nice to know 8.Air compressor	8 Hrs
2	<u>Gas administration devices</u>	Must Know 1.Anaesthesia masks : Types / sizes 2.Flow meters 3.Gas Regulators Desirable to Know 1.Flow restrictors	8 Hrs
3	<u>Oxygen Therapy</u>	Must Know 1. Definition, causes and responses to hypoxemia. 2. Clinical signs of hypoxemia. 3. Goals of oxygen therapy. 4.Evaluation of patients receiving oxygen therapy 5. Hazards of oxygen therapy.	8 Hrs
4	<u>Anaesthesia Machine</u>	Must Know 1.Boyles Machine and its function. 2.Modern anaesthesia machine. 3.Hanger and Yoke system 4.Cylinder pressure gauge 5.Pin index 6.Pressure regulator 7. Vaporizers- TYPES, Hazards, Maintenance, Filling and drainage. 8.Flow meter assembly	11 Hrs
5	<u>Breathing System</u>	Must Know	9Hrs

		1.Open, Semi closed and Closed Circuits, Classification of breathing system 2.Mapleson breathing system 3.Jackson and Rees system 4.Bain circuit 5.Non rebreathing valves- Ambu valves	
6	<u>Injection Techniques</u>	Must Know 1. Intra muscular and insertion of Intra Venous cannulas. 2. Handling of sterilized syringes and needles.	7Hrs
7	<u>Fluids and Electrolytes</u>	Must Know 1.Type of fluid (Crystalloids & Colloids) 2.Steps to prepare I.V. drip 3.Indication of specific fluid and their complication	7 Hrs
8	<u>Gas Analyzers and monitoring</u>	Must know 1.Pulse oxymeter 2.Oxygen Analyser / sensor 3.EtCO2 Monitor / Capnography Nice to Know 4.Transcutaneous oxygen monitor	8 Hrs
9	<u>Resuscitation Techniques</u>	Must know 1.Basic life support (Airway, Breathing, and Circulation) 2.Equipment utilized for it, 3.Drugs used in CPR, 4.Defibrillation	8 Hrs
10	<u>Artificial Airways</u>	Must Know 1.Types of airways (Nasal/Oral) and features, 2. Sizes, colour coding, and methods of insertion 3.Indications for use	8 Hrs
11	<u>Pre op and Post op care</u>	Must Know 1.Checking and preparation of Anaesthesia trolley and Eqpt 2. Pre operative preparation of patient. 3. Management of pre operative and post operative rooms. 4. Transportation Techniques of patient in conscious, semi conscious and unconscious patient to and fro – operation theatre.	10 Hrs
12	<u>Anesthesia Equipment Maintenance / sterilization</u>	Must Know 1. Cleaning, Disinfection & sterilisation 2. Physical / chemical methods	8 Hrs

3. Testing of sterilization
 4. Critical /semicritical /Non critical devices
 5. Levels of Disinfection
- Desirable to Know**
1. Reusable items

SYLLABUS OF SECOND YEAR DIPLOMA IN OPERATION THEATER TECHNICIAN

SUBJECT NAME: ADVANCED ANAESTHESIA TECHNOLOGY

Course code: DOT-202

Theory classes: 60 hours

S.NO.	TOPIC	Domain	Teaching Hours
1	<u>Anaesthesia</u>	<p>Must know</p> <ol style="list-style-type: none"> 1. Evolution of modern anaesthesia. 2. Peripheral pulse – locations 3. Methods of BP measurement 4. Dye allergies, 5. Monitoring, Equipment options in the MRI <p>Nice to know</p> <ol style="list-style-type: none"> 1. History of anaesthesia 	10 Hrs
2	<u>Anaesthesia Gadgets Tubes.</u>	<p>Must know</p> <ol style="list-style-type: none"> 1. Different type of laryngoscopes and blades 2. Description of plain and cuffed endotracheal tubes, 3. Indication, Method of insertion, complications 4. Sterilization 5. Specialised ET Tubes: Armored tubes, Ring, Adair and Elwyn tube (RAE), Micro laryngeal tubes, Double lumen tubes, Bronchial blocker 7. LMA, Supraglottic airway devices (SAD), Ambu bag, 8. Tracheotomy <p>Nice to Know</p> <ol style="list-style-type: none"> 1. Protocol for tracheotomy decannulation 	10 Hrs
3	<u>Anaesthesia Monitoring</u>	<p>Must know</p> <ol style="list-style-type: none"> 1. Monitoring during anesthesia. 2. Multi parameter monitor 3. Arterial blood pressure – NIBP, IBP, Manual BP 4. Electrocardiogram (ECG) 5. SpO₂, EtCO₂ 6. Neuromuscular monitoring 7. Clinical monitoring 	9 Hrs
4	<u>Suction Apparatus</u>	<p>Must know</p>	8 Hrs

		<p>1. Foot operated, 2. Electrically operated suction apparatus and its General Principal, uses and care 3. Central pipeline suction, colour coding</p>	
5	<u>Medical Ethics</u>	<p>Must know 1. Relevant medico legal aspects. 2. Responsibilities and duties. 3. Ethical behavior and conduct Nice to Know 1. Medico legal aspects and relation to consumer protection act.</p>	7 Hrs
6	<u>Drugs used in OT / ICU</u>	<p>Must know 1. Drugs used during General anaesthesia and Regional anaesthesia, 2. Intravenous anaesthetic agents uses and complications. 3. Inhalational Anaesthetics 4. Pre- medication indication, Type of drugs used for premedication, Doses and side effects. 5. Narcotic agents and other Analgesics 6. Anti hypertensive drugs Desirable to Know 1. Anticholinesterase drugs 2. Antiarrhythmic, Nice to Know 1. Vasopressors 2. Anticoagulant drugs.</p>	16 Hrs
7	<u>Blood Transfusion</u>	<p>Must know 1. Various types of blood and blood products 2. Pre transfusion Checks 4. Blood administration set 3. Transfusion reactions Desirable to Know 1. Grouping and cross matching</p>	7 Hrs
8	<u>Mental Sickness and Cardiology</u>	<p>Must know 1. Various ECG leads, their placement and normal ECG. 2. Shock : Types, signs & symptoms and management 3. Electroconvulsive (ECT) shock therapy, drug effects on seizure duration Desirable to Know 1. Hemodynamic responses and appropriate treatment</p>	9 Hrs
9	<u>Artificial Ventilation and Related Equipment</u>	<p>Must know 1. Operation room Ventilators and ICU ventilators 2. Complication in patients on Ventilators 3. General care of patient on Ventilator 4. Disinfection and sterilization of ventilators</p>	8 Hrs
10	<u>Anesthesia techniques</u>	<p>Must know 1. General Anaesthesia Technique 2. Regional / Local Anaesthesia Techniques</p>	17 Hrs

3.Topical Anaesthesia Technique
 4.TIVA
 5.Balanced Anaesthesia
 6.MAC

SYLLABUS OF SECOND YEAR DIPLOMA IN OPERATION THEATER TECHNICIAN

SUBJECT NAME: MEDICINE RELEVANT TO OPERATION THEATRE

Course code: DOT-203

Theory classes: 60 hours

S.NO.	Topic	Domain	Teaching Hours
1	Diabetes Mellitus	Must Know 1.Signs and symptoms Diabetes Mellitus 2. Causes- Type- 1, Type -2 3. Prevention 4.Management 5.Diabetic emergencies -Complications Desirable to know 1.Gestational diabetes, 2.Other types Nice to Know 1.Lifestyle, Medications, Surgery, Support	4 Hrs
2	Hypertension	Must Know 1. Signs and symptoms 2.Causes 3.Prevention Desirable to know 1.Diagnosis 2.Management Nice to Know 1.Pathophysiology	4 Hrs
3	Ischemic heart disease	Must Know 1. Signs and symptoms IHD 2.Risk factors Desirable to know	4 Hrs

		3.Diagnosis 4.Prevention 5.Management	
4	Obesity	Must Know 1.Classification of obesity 2.Effects on health 3.Causes Nice to Know 1. Management	4 Hrs
5	Elderly patient	Must Know 1.Differences between adult and geriatric medicine 2.Aging-associated diseases Desirable to Know 1.Pharmacology 2.Practical concerns	4 Hrs
6	Pregnancy shock	Must Know 1. Shock 2.Types and Causes of pregnancy shock 3.Managements of various types of shocks Desirable to Know 1.Clinical Picture of various Shocks	4 Hrs
7	COPD	Must Know 1. Signs and symptoms of COPD 2.Cause of COPD Desirable to Know 1Pathophysiology 2. Diagnosis 3.Management	4 Hrs
			3.Prevention
8	Anemia	Must Know 1. Signs and symptoms 2.Causes Desirable to Know 1.Diagnosis 2.Treatments Nice to Know 1.Epidemiology	4 Hrs
9	Chronic renal failure	Must Know 1.Signs and symptoms 2.Causes Nice to Know 1.Diagnosis 2.Treatment	4 Hrs
10	Chronic liver disease/failure	Must Know	3 Hrs

		<p>1. Causes of chronic liver disease</p> <p>2.Physical signs Nice to Know Desirable to Know</p> <p>1.Recognition</p> <p>2.Risk factors for various liver diseases</p> <p>3.Treatment</p>	
11	Paediatric patient infant/neonate	<p>Desirable to Know</p> <ul style="list-style-type: none"> • What is Pediatrics? <ul style="list-style-type: none"> ○ Physical characteristics of newborn ○ Internal physiological changes at birth <p>Nice to Know</p> <p>2.Neonatal Nursing : Care and feeding of newborn</p> <p>3.Potential diseases of neonatal period</p>	4 Hrs
12	Epilepsy	<p>Must Know</p> <p>1.Signs and symptoms</p> <p>2.Causes Nice to Know</p> <p>3.Prevention</p> <p>4.Management Must Know</p> <p>Desirable to Know</p> <p>1.Pathophysiology</p> <p>2.Diagnosis</p>	4 Hrs
13	CVA	<p>Must Know</p> <p>1. Types of stroke</p> <p>2.Causes</p> <p>Nice to Know</p> <p>1.Pathophysiology</p>	3 Hrs

2.Evaluation

3.Treatment

SYLLABUS OF SECOND YEAR DIPLOMA IN OPERATION THEATER TECHNICIAN

SUBJECT NAME: INTRODUCTION TO OPERATION THEATRE TECHNOLOGY, SURGICAL EQUIPMENTS & MACHINERY

Course code: DOT-204

Theory classes: 60 hours

Practical classes: 60 hours

S.NO.	Topic	Domain	Teaching Hours
I	<u>OT Techniques</u>	<p>Must Know</p> <ol style="list-style-type: none">1. Cleaning, Carbolization and Maintenance of OT.2. Scrubbing Techniques.3. Handling sterilized articles in operation theatre.4. Types of Operation Lights and other sources of lights their care and handling.	14 Hrs

		5.Setting and use of Image intensifier 6. O.T. environment and storing in OT	
2	<u>Sterilization and CSSD</u>	<p>Must Know</p> <ol style="list-style-type: none"> 1. Methods of instruments cleaning, cleaning agents, detergents, mechanical washing ultrasonic cleaner. 2. Lubrication and inspection of instruments. 3. Care of micro surgical and titanium instruments. 4.Principal of sterilization and disinfection 5.Different methods of sterilization 6.Precaution to be taken during sterilization 7. Methods of checking for efficiency of sterilization. 8.CSSD <p>Desirable to Know</p> <ol style="list-style-type: none"> 1.Recent advances in the methods of sterilization 2. Recent amendment in EPA(Environmental Protection Agency) with reference to waste disposable. 	15 hrs
3	<u>Introduction of surgery</u>	<p>Must Know</p> <ol style="list-style-type: none"> 1. Basic principal of surgery. 2. Asepsis 	14 Hrs
4	<u>Wound Management</u>	<p>Must know</p> <ol style="list-style-type: none"> 1. Different types of bandages. 2. Surgical Needle & Needle holders. 3. Types of suture material. 4. Techniques of stitching and removal of stitches. 	13 Hrs
5	<u>Surgical Instruments</u>	<p>Must know</p> <ol style="list-style-type: none"> 1. Instruments used for cleaning and draping for a surgical procedure. 2. Classification of General surgical instruments 3. Orthopedic surgery instruments 4. Obstetrics and Gynecological surgery instruments 5. Laparoscopic instruments used for Cholecystectomy and Laparoscopic Gynecology procedures <p>Desirable to Know</p> <ol style="list-style-type: none"> 1. Urological surgery Instruments 2. Reconstructive surgery instruments 	15 Hrs
6	<u>Applied Surgery</u> Eye injury.	<p>Must Know</p> <ol style="list-style-type: none"> 1. Intra-operative & postoperative problems and complications of general surgery. 2. Management of emergency caesarean section. 3. Laparoscopic gynecology procedures. 4. Surgical management of Fracture, Joint replacement and arthroscopy. 5. Surgical management of endoscopies. 6. Care and maintenance of Para surgical equipment (Cautery, OT lights, OT Table) 7. Esmarch bandage, simple tourniquet, pneumatic 	29 Hrs

	<p>tourniquet uses, care and maintenance</p> <p>8. Major abdominal incision.</p> <p>Desirable to know</p> <p>9. Positioning of patient for different operation.</p> <p>10. Surgical Consideration in TURP and PCNL</p> <p>11. Surgical management in major burns.</p> <p>Nice to Know</p> <p>12. Surgical management of laryngectomy and cochlear implant.</p> <p>13. Management of perforating</p>	
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REFERENCES:

RECOMMENDED BOOKS FOR STUDY

1. Anatomy and Physiology for nurses Author Ross & Wilson
2. Principles and practice of nursing Author Sister Nancy
3. Introduction to Medical Laboratory Technology Author Dr E.J. Baker
4. Operation Theatre Technique Author Brigden
5. Safety in Operating Theatre Author Mainland and Dudley
6. Operation Room Technique Author Berry
7. Central sterile Supply Author Oxford University Press
8. Introduction to anaesthesia Author Dripps /Vandam/Eckenhoff
9. Anaesthesia Equipments Author Ward
10. Clinical application of ventilator support Author Robert R Kirby
11. Monitoring in Anaesthesia and critical care Medicine Author Caesey D.Blitt
12. Electronic Techniques in Anaesthesia and Surgery Author D.W.Hill

SYLLABUS OF SECOND YEAR DIPLOMA IN OPERATION THEATER TECHNICIAN

SUBJECT NAME: HEALTH CARE

Course Code: DOT-205

Theory classes: 45 hours

Unit 1. Introduction to Health

- Definition of Health
- Determinants of Health
- Health Indicators of India
- Health Team

Unit 2. Health Policy and Programmes

- Concept.
- National Health Policy
- National Health Programmes (Briefly Objectives and scope)
- Population of India and Family welfare programme in India

Unit 3. Introduction to Nursing

- What is Nursing ? Nursing principles.
- Inter-Personnel relationships.

Bandaging : Basic turns; Bandaging extremities; Triangular Bandages and their application.

- Nursing Position, Bed making, prone, lateral, dorsal, dorsal re-cumbent, Fowler's positions, comfort measures, Aids and rest and sleep.

Lifting And Transporting Patients: Lifting patients up in the bed. Transferring from bed to wheel chair. Transferring from bed to stretcher.

Unit 4. Bed Side Management:

- Giving and taking Bed pan, Urinal :
- Observation of stools, urine. Observation of sputum,
- Understand use and care of catheters, enema giving.
- **Methods Of Giving Nourishment:** Feeding, Tube feeding, drips, transfusion
- Recording of body temperature, respiration and pulse,
- **Simple aseptic technique:** Sterlization and disinfection.
- Surgical Dressing: Observation of dressing procedures

Unit 5. First Aid :

- Syllabus as for Certificate Course of Red Cross Society

SUGGESTED BOOKS/LITERATURE:

- MEDICAL HEALTH CARE, by C.M.Francis, Jaypee Brothers
- Current Problems in HEALTH CARE, by George V. Lobo, St. Paul's Society, Allahabad.
- Hospital management Nurses & Patients by H.P. Dunn, St. Pauls Bandar, Mumbai.

SYLLABUS OF SECOND YEAR DIPLOMA IN OPERATION THEATER TECHNICIAN

SUBJECT NAME: ENGLISH

Course Code: DOT-E-206

Teaching hours:	Theory:	25 hours
	Practicals:	25 hours

Curriculum:

The objectives are to develop writing and short hand skills

- To process information using a variety of media
- To use appropriate phrases for performing language functions
- To edit, select and present information in a format / perspective
- To listen and reduce information to a point form
- To read and to expand from points to paragraph
- To predict, comprehend, infer and synthesize information
- To question, probe and arrive at information through discussions, dialogues and interviews
- To answer questions, choose and provide data etc.
Communication with patients and management.

(Theory) : 2 Credits : 2 hours week

E. Reading

The objectives are to enable the students to

- Read for information news features, articles, newspaper and text
- Read intensively a collection of short stories given in a compiled text (See for the text and the lessons selected from it below)

Practical exam:

Writing

The objectives are to enable the students to

- Form words properly using prefixes / suffixes (See list 4 in the Appendix)
- Use phrasal verbs (See list 3 in the Appendix)
- Use appropriate and related registers (See list 5 in the Appendix)
- Writing paragraphs, developing points / ideas
- Short hand note in detail.
- Communication with patients and management.

Book prescribed

L.A.Hill (1970), **Contemporary Short Stories**. Chennai: Oxford University Press. The following stories have been selected for use on the course.

- The happy Prince
- A Horseman in the sky
- The Wolves of Cernogratz
- The half Mile
- The Mark of Vishnu
- The Halfyard Ham
- Locomation 38
- The Ghost Ship
- Uneasy Homecoming
- The Trust Property
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SYLLABUS OF SECOND YEAR DIPLOMA IN OPERATION THEATER TECHNICIAN

SUBJECT NAME: COMPUTER SKILLS

Course Code: DOT-E-207

Theory classes: 20 hours

Objective:

At the end of this course, a student would be able to :

- identify various components of computer hardware and
- use some software in order to manage data related to the profession.

Unit 1. Computer Organization -I

Generations of a computer, types of a computer, some important terms: hardware, software, program, operating system, interpreter, compiler, assembler, high level languages, bits and bytes.

Introduction to number systems

Processors, CPU organization, primary memory, memory addresses, secondary memory, memory hierarchies, magnetic disks, CDROMs, DVDs, input/output devices: keyboards, monitors, mice, printers, modems

The concept of character codes

Unit 2. Computer Organization –II

MICROSOFT OFFICE

Introduction to spreadsheets, the concept of cells and cell addresses, formulas, some important functions, introduction to charts

Tables – creation, modification, deletion

Working with data – insertion, modification, finding, sorting, grouping, viewing and sharing data

Forms – creation of forms; modification, viewing and validating data using forms, subforms Reports – creation, modification, opening, viewing

Creating mailing labels

REFERENCE BOOKS:

1. Tanenbaum A. S., Structured Computer Organization, 4th Edition, Prentice-Hall of India Pvt. Ltd., 2002.
2. Elmasri, Navathe, Somyajulu, Gupta, Fundamentals of Database Systems, Pearson Education, 2006.
3. Progue, Irwin, Roardon, Microsoft Office Access 2007 Bible, Wiley Publishing Inc., 2007.
4. Taxali R. K., P C Software for Windows 98 Made Simple, Tata McGraw-Hill, 2001.
5. Hall D. V., Microprocessors and Interfacing, McGraw-Hill Book Company, 1986.
6. Desai Bipin C., An introduction to Database Systems, 7th Edition, Pearson Education Asia, 2001.

COMPLITION OF SECOND YEAR DIPLOMA IN MEDICAL LAB TECNICIAN

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