



**MAHATMA GANDHI UNIVERSITY**  
*of*  
**MEDICAL SCIENCES & TECHNOLOGY**  
JAIPUR

# **Syllabus**

**B. Sc. Operation Theatre Technology**

**(Three Years Program)**

**Edition 2020-21**

## **Notice**

1. Amendments made by the Board of Management of the University in Rules/ Regulations of Graduate Medical Courses shall automatically apply to the Rules/ Regulations of the Mahatma Gandhi University of Medical Sciences & Technology.
2. The University reserves the right to make changes in the syllabus/ books/ guidelines, fee-structure or any other information at any time without prior notice. The decision of the University shall be binding on all.
3. The jurisdiction of all court cases shall be Jaipur Bench of Hon'ble Rajasthan High Court only.

RULES & REGULATIONS OF  
**B.Sc. MEDICAL TECHNOLOGY COURSES**  
(3 Years Degree Course)

**DURATION OF COURSE:**

The course shall be of 3 years duration from the date of commencement of academic session

**MEDIUM OF INSTRUCTION**

English shall be the medium of instruction.

**OBJECTIVES:**

At the end of the course, the learner should be able to:

- (1) This course is designed to provide comprehensive theoretical and practical knowledge required to assist anesthesiologist in using the equipment and supplies required to administer anesthesia and contribute to safe, efficient, and cost-effective anaesthesia care.
- (2) Trained to use anaesthesia machines, medical gases and scavenging systems and advanced monitoring equipment and techniques used in conjunction with anesthesia.
- (3) The candidates will be trained in advanced airway management, surgical airways, BCLS, ACLS and ATLS
- (4) To assist in Critical care Procedures.
- (5) To understand Peri-operative Patient care and material management, Operation Theater management and recording

**ELIGIBILITY FOR ADMISSION:**

- For admission a candidate should have passed the 10+2 (Senior Secondary) Examination or its equivalent Examination Science stream i.e. Physics, Chemistry and Biology Subjects with 50% marks in the aggregate from any recognized Board.
- Candidate should have completed the minimum age of 17 years as on 31st December of the year of admission to BSc. Medical Technology Course.

**SELECTION OF CANDIDATES:**

Selection for B.Sc. Medical Technology Courses shall be done by an Admission Board strictly on merit judged on the basis of University Entrance Examination conducted in the month of July / August every year.

**COMMENCEMENT OF THE COURSE**

The Course shall commence from the 1<sup>st</sup> August of every Academic year.

**RESERVATION:**

Reservation of seats shall be applicable in accordance with Rajasthan State Government reservation policy.

**ATTENDANCE:**

75% in theory and 75% in practical/clinical in each year. Any one failing to achieve this, shall not be allowed to appear in the University examination.

**ENROLMENT:**

Every candidate who is admitted to B.Sc. Operation Theater Technology Courses in Mahatma Gandhi Medical College & Hospital shall be required to get himself/herself

enrolled with the Mahatma Gandhi University of Medical Sciences & Technology after paying the prescribed eligibility/enrolment fees.

The candidate shall have to submit the application form duly filled in and forwarded to the University through Principal of the College for the enrolment/eligibility along with the original documents with the prescribed fees (upto November 30 of the year of admission without late fees and upto December 31 of the year of admission with late fees)

## SCHEME OF EXAMINATION

### 1. Theory

- Each Theory paper examination shall be of 3 hours duration and of maxmarks 70.
- Internal assessment shall be of 30 marks for Each Theory paper.
- The number of question papers shall be in accordance with the different subjects/areas covered during each of the B.Sc. three years course. The number of question papers shall vary from course to course as per the subjects covered in different disciplines of the B.Sc. Medical Technology Courses as under :

Name of Course		Theory			Paper Set & Evaluated by	
		Total Marks	Pass Marks	Papers	First and Second Year	Third (Final) Year
1	B.Sc. Radio Imaging Technology (RIT)	400	200	4 question papers for each year	4 Internal Paper Setters	3 Internals + 1 External paper setter
2	B.Sc. Medical Laboratory Technology (MLT)	300	150	3 question papers for each year	3 Internal Paper Setters	2 Internals + 1 External paper setter
3	B.Sc. Clinical Dietetics (CD)	300	150			
4	B.Sc. Physician Assistance Technology (PAT)	200	100	2 question papers for each year	2 Internal Paper Setters	1 Internal + 1 External paper setter
5	B.Sc. Operation Theater Technology (OTT)	200	100			
6	B.Sc. Ophthalmic Techniques and Optometry (OTO)	200	100			
7	B.Sc. Surgical Assistance (SA)	200	100			

- For the First and Second year examinations – these respective above question papers (four, three or two as the case may be) shall be set by the Internal Examiners covering their respective areas of syllabus. For each question paper there shall be a separate Internal Examiner. The answer books shall be evaluated by the concerned Internal Examiners (Papers Setters).
- In Third (Final) Year examination, one of the papers shall be set and evaluated by an External Examiner. In other words, one of the Internal has to be substituted by the External Examiner. The External Examiner (Paper Setter) shall evaluate his/her paper.
- The Paper Setter shall set the questions within the prescribed course of study of the concerned paper. There will be a set pattern of question papers duly approved by Academic Council. Model question paper is annexed herewith.
- It is to be noted that the Internal and External Examiners of all the three years (First, Second and Third year) shall be appointed by the President of the University. This exercise shall be conducted through the office of the Controller of the Examinations of the University. The External Examiner of Third year shall also be appointed by the President out of the panel of names submitted by the Concerned Coordinator of the course through the Dean to the Controller of Examinations for appointment of Examiners by the President of the University.

(h) Passing Marks: A candidate will have to obtain at least 50% marks in each Theory paper including internal assessment to pass. This means that he will have to score 50% marks in each paper. This shall include the marks obtained in Theory paper of 70 marks and internal assessment for that paper of 30 marks (Marks obtained in Theory paper + Marks obtained in internal assessment = the Total Marks obtained in respect of each paper).

## 2. Practical and Viva-Voce Examination

- (a) Each year there shall be one practical and viva-voce examination. It shall be conducted after the Theory examination is over.
- (b) The pattern of practical examination in different years of the course being not uniform shall vary in B.Sc. Operation Theater Technology degree course of different disciplines.
- (c) The pattern shall be as follows –

S. No.	Name of Course	Practical		Practical Examiners		
		Total Marks	Pass Marks	First year	Second year	Third year
1	B.Sc. R.I.T.	400	200	3 Internal Examiners (+Expert(s) if needed)	4 Examiners (3 Internal+ 1 External)	4 Examiners (3 Internal+ 1 External)
2	B.Sc. M.L.T.	300	150			
3	B.Sc. C.D.	300	150			
4	B.Sc. P.A.T.	200	100	2 Internal Examiners (+Expert(s) if needed)	3 Examiners (2 Internal+ 1 External)	3 Examiners (2 Internal+ 1 External)
5	B.Sc. O.T.T.	200	100			
6	B.Sc. O.T.O.	200	100			
7	B.Sc. S.A.	200	100			

- (d) The experts: There shall be the provision for the experts where needed to be inducted as adviser(s) who shall only help the Internal Examiners to evaluate the students in adjunct areas of the course which do not warrant the appointment of separate examiners. It is to be noted that the experts shall not award any marks. The Coordinator of the course shall submit the name(s) of the expert(s) which shall be approved by the President.
- (e) Total marks of the practical examination shall be equivalent to the total marks put together of the number of Theory papers in the B.Sc. Operation Theater Technology course.
- (f) It shall be left to the examiners – Internals and the External, as the case may be, to examine and evaluate the students in practical in the way they wish and award the marks without giving any specific details. The total marks obtained by the candidate in the practical examination shall be the aggregate of the marks awarded by all the examiners put together as one figure. This shall then be submitted to the University. For example in case of Radio Imaging Technology having four practical examiners, if a candidate scores 60 (first examiner), 50 (second examiner), 50 (third examiner) plus 60 (fourth examiner) – total 60+50+50+60 = 220 shall be submitted as one figure to the University. The award sheet shall be signed by all the practical examiners. The experts (where inducted) shall not sign the award sheet of the practical examination.

## 3. Result :

1. A candidate will have to obtain at least 50% marks separately in each Theory paper including internal assessment and a minimum of 50% marks in the practical examination for him to be declared pass.
2. A Candidate who has failed in theory paper/s will reappear in respective theory papers/s in supplementary examination.

3. Candidate who has failed in Practical examination only will reappear only in practical examination in Supplementary examination.

**4. Supplementary Examination:**

- (a) Eligibility for the failed candidates to appear at the supplementary examination shall be as below –
  - i. Failed in Theory Paper(s) and failed in Practical – shall reappear in the respective failed Theory paper(s) and Practical examination.
  - ii. Failed in Theory paper/papers and passed in Practical examination – shall reappear only in the concerned failed Theory paper(s).
  - iii. Passed Theory papers but failed in Practical – shall reappear only in the Practical Examination.
- (b) There shall be a supplementary examination within two months of the declaration of the result of the main examination. Internal assessment marks obtained in main examination in the concerned failed paper/papers shall be carried forward for working out the result of supplementary Theory paper(s) examination. Such candidate who has secured less than 50% marks in the internal assessment will be allowed to improve his internal assessment marks in the repeat supplementary internal assessment examination.
- (c) Marks secured by the candidate in passed main examination/supplementary examination Theory paper(s) and/or practicals, as the case may be, will be carried forward for working out his result.
- (d) Result:
  - i. A candidate obtaining at least 50% marks in the supplementary Theory paper(s) and 50% marks in the supplementary practical examination, as the case may be, shall be declared successful.
  - ii. A candidate who has failed in supplementary theory paper(s) examination shall have to reappear only in the failed theory paper(s) at the subsequent examination.
  - iii. A candidate who has failed in supplementary practical examination shall have to reappear both in theory (all papers) and practical at the next main examination.

**5. Promotion to Second/Third Year**

- A candidate failed in theory paper(s) /Practical examination only shall be promoted to next year.
- (b) A candidate will be allowed to appear for the Final (3<sup>rd</sup>)year examination only when the backlog of all papers (theory and practical) of 1<sup>st</sup> and 2<sup>nd</sup> year Exams is cleared
  - (c) The student is required to complete the course within 6 years from the joining of the course

**6. Result - Division:** Successful candidates will be categorized as under-

1.	Those, securing 50% and above but less than 60% in the aggregate marks of First, Second & Third year taken together	Pass
2	Those, securing 60% and above but less than 75% in the aggregate marks of First, Second & Third year taken together	Pass with I Division
3	Those, securing 75% and above in the aggregate marks of First, Second & Third year taken together	Pass with Honors

## PAPER SETTER/EXAMINER

1. All the examiners, paper setters, theory examination answer books evaluators, Internal and External Examiners for Practical examinations shall be appointed by the President of the University.
2. Qualification of the Paper setter / Examiner: Senior Demonstrator and above.
3. Paper setter can be an examiner

## REVALUATION / SCRUTINY

Re-evaluation of answer book(s) of the B.Sc. Operation Theater Technology courses may be permissible in not more than 25% of the theory papers within 15 days from the date of declaration of examination result on submission of his/her application on the prescribed form alongwith the requisite fees. Such answer book(s) shall be re-evaluated as per University rules. Reevaluation of answer book(s) shall not be permitted for second attempt in any paper.

Scrutiny (re-totaling) of answer book(s) of the B.Sc. Operation Theater Technology courses may be permissible within 15 days from the date of declaration of examination result on submission of his/her application on the prescribed form alongwith the requisite fees as per University Rules.

## GRACE MARKS

1. A student who appears in the whole examination in first attempt and obtains the required minimum pass marks in the total aggregate of an examination but fails to obtain the minimum pass marks in one subject (in theory and / or practical as the case may be) will be awarded the grace marks up to a maximum of 05 marks according to the following scale, provided the candidate passes the examination by award of such grace marks:

<b>Marks obtained by the candidate above the required minimum aggregate pass marks</b>		<b>Grace marks can be given up to</b>
Up to 6 marks	-	02
Up to 12 marks	-	03
Up to 18 marks	-	04
19 marks and above	-	05

2. No grace marks would be awarded to a candidate who appears in part/ supplementary/remand examination. Non appearance of a candidate in any part of the examination on account of any reason will make him ineligible for grace marks.
3. A candidate who passes the examination after the award of grace marks in a paper/practical or the aggregate will be shown in the marks sheet to have passed the examination by grace. Grace marks will not be added to the marks obtained by a candidate from the examiners.
4. A candidate who is awarded grace marks in any subject to pass the examination will not be entitled for distinction in any subject.

## Selection of Generic Elective and skills Enhancement Courses

Every student has to select any one elective subject out of seven elective subjects mentioned below at the beginning of the academic year during his/her course duration. The Examination of these subjects shall be conducted at the college level.

Sr. No.	Subject	Teaching hours		
		Theory	Practical	Total
1.	Disaster Management	45	15	60
2.	Information and Communication Technology in Health Education	45	15	60
3.	Clinical Nutrition	45	15	60
4.	Yoga	45	15	60
5.	Effective English	45	15	60
6.	Health Care	50	-	50
7.	Constitution of India	50	-	50

### Distribution of marks

S. No.	Subject	Theory	Internal Assessment	Total
1	Disaster Management	70	30	100
2	Information and Communication Technology in Health Education	70	30	100
3	Clinical Nutrition	70	30	100
4	Yoga	70	30	100
5	Effective English	70	30	100
6	Health Care	70	30	100
7	Constitution of India	70	30	100

A candidate can appear in the elective subject examinations to be conducted at the college level before the University examinations at the end of I year or II year or III year. Only such candidates shall be eligible to fill University examination form of III year (final year) who have passed their elective subject. It shall be mandatory to obtain 50% marks in the aggregate of prescribed total marks (i.e. 50 out of 100) to pass the elective subjects. Marks of all such candidates who have passed their elective subject shall be sent in the following format by the Principal of the college to the University while sending their examination forms of III year (final year) :



<b>S. No.</b>	<b>University Roll No.</b>	<b>Name of the student</b>	<b>Father's Name</b>	<b>Name of elective subject</b>	<b>Marks obtained</b>	<b>Result</b>

Those candidates who do not pass their elective subjects shall not be eligible to submit their III year (final year) University examination form and accordingly they will not be permitted to appear in the University examination of III year (final year) of the course.

Marks obtained by the candidates in their elective subject shall be mentioned separately in the marks sheets of the University examinations. These marks shall not be counted for preparing the merit list.

## **B.Sc. Operation Theater Technology**

### **Recommended Teaching Hours of Instruction for each subject**

#### **First Year B.Sc. Operation Theater Technology Course**

<b>S. No.</b>	<b>Course Title</b>	<b>Hours</b>
1.	Basic Sciences	100
2.	Basic Surgery, CSSD Procedures, Basics of Intensive care, Fundamentals of medical and surgical nursing.	100
3.	Practical	200
	<b>Total hours :</b>	<b>400</b>

#### **Second Year B.Sc. Operation Theater Technology Course**

<b>S. No.</b>	<b>Course Title</b>	<b>Hours</b>
1.	Applied Basic Sciences	100
2.	Principles of Anesthesia	100
3.	Practical	200
	<b>Total hours :</b>	<b>200</b>

#### **Third Year B.Sc. Operation Theater Technology Course**

<b>S. No.</b>	<b>Course Title</b>	<b>Hours</b>
1.	Organization of OT	100
2.	Peri operative management and Assisting Surgical procedures.	100
3.	Practical	200
	<b>Total hours :</b>	<b>400</b>

**Total Hours- 400+400+400= 1200**

## Marks Distribution

### First Year B.Sc. Operation Theater Technology Course

Code No	Subject	Written			Practical		
		Theory	I.A. Theory	Total Theory	Practical + Oral	I.A. Practical	Total Practical
7241	Basic Sciences	70	30	100			
7242	Basic Surgery, CSSD Procedures, Basics of Intensive care, Fundamentals of medical and surgical nursing.	70	30	100			
7243	Practical	-	-	-	140	60	200
<b>Total</b>		<b>140</b>	<b>60</b>	<b>200</b>	<b>140</b>	<b>60</b>	<b>200</b>

### Second Year B.Sc. Operation Theater Technology Course

Code No	Subject	Written			Practical		
		Theory	I.A. Theory	Total Theory	Practical + Oral	I.A. Practical	Total Practical
7244	Applied Basic Sciences	70	30	100			
7245	Principles of Anesthesia	70	30	100			
7246	Practical	-	-	-	140	60	200
<b>Total</b>		<b>140</b>	<b>60</b>	<b>200</b>	<b>140</b>	<b>60</b>	<b>200</b>

### Third Year B.Sc. Operation Theater Technology

Code No	Subject	Written			Practical		
		Theory	I.A. Theory	Total Theory	Practical + Oral	I.A. Practical	Total Practical
7247	Organization of OT	70	30	100			
7248	Peri operative management and Assisting Surgical procedures.	70	30	100			
7249	Practical	-	-	-	140	60	200
<b>Total</b>		<b>140</b>	<b>60</b>	<b>200</b>	<b>140</b>	<b>60</b>	<b>200</b>

**Total Marks- 400+400+400=1200**

**First Year B.Sc. Ophthalmic Techniques and Optometry  
(1 Year Duration)**

**Paper-I**

**Basic Sciences**

Theory Hours: 100

**Total: 100**

**Anatomy**

- (1) Musculo skeletal system- vertebral column, thoracic cage, bones of limb, important skeletal muscles of chest, abdomen, back and limbs.
- (2) Nervous system- brain, spinal cord, meninges, epidural space, sympathetic chain, cranial and spinal nerves, cervical plexus, brachial plexus, major nerves relevant to regional blocks.
- (3) Respiratory system- upper airway- nasopharynx, larynx, trachea, bronchial tree.
- (4) Cardio-vascular system Normal cardiac function, ECG, abnormal cardiac rhythms, blood pressure, hypertension, hypotension.
- (5) Urinary system – kidney, ureter, urinary bladder, urethra.
- (6) Reproductive system – male & female and basics of obstetrics.

**Physiology**

- (1) The Cell and homeostasis:
  - (a) Cell Structure and functions of the various organelles.
  - (b) Acid base balance and serum electrolytes (Alkalosis, Acidosis)
- (2) The Blood:
  - (a) Composition of Blood, functions of the blood components and plasma proteins,
  - (b) Blood groups and Rh factor and blood transfusion
- (3) Cardio-Vascular System:
  - (a) Physiology of the heart, Cardiac cycle, Cardiac output.
  - (b) Pulse rate, rhythm, volume
  - (c) Normal blood pressure, Hypertension
  - (d) Electro cardiogram (ECG)
- (4) Respiratory system:
  - (a) Respiratory movements.
  - (b) Definitions and Normal values of Lung volumes and Lung Capacities.
- (5) Excretory system:
  - (a) Normal Urinary output
  - (b) Renal function tests, renal disorders.
- (6) Reproductive system:
  - (a) Formation of semen and spermatogenesis.
  - (b) Brief account of menstrual cycle, normal pregnancy, abnormal pregnancy
- (7) Central Nervous system:
  - (a) Functions of CSF, intra cranial tension
  - (b) Normal mental status, Glasgow coma scale
- (8) Endocrine system:
  - (a) Functions of the pituitary, thyroid, parathyroid, adrenal and pancreatic glands
  - (b) Hormones.
- (9) Digestive system:
  - (a) Physiological Anatomy of the GIT.
  - (b) Food Digestion in the mouth, stomach, intestine

(c) Normal and abnormal digestive secretions

**Biochemistry**

- (1) Carbohydrate, Protein and Fat metabolism
- (2) Normal blood glucose, hyperglycemia , hypoglycemia
- (3) Understanding of Normal and abnormal blood chemistry

**Paper – II**  
**Basics of Surgery, CSSD Procedures, Basics of Intensive care, Fundamentals of medical and surgical nursing**

Theory Hours: 100

**Total: 100**

**Basics of Surgery**

- (1) History of Surgery, role of the surgeon, importance of team work and anticipating the needs of surgeons; Stresses that may arise during operative procedure.
- (2) Surgical terminology, types of incision and indications for the use of particular incision.
- (3) Haemorrhage-signs and symptoms of internal and external; classification and management.
- (4) Identification of types of tourniquets, reasons for use and duration of application, dangers of use.
- (5) Wounds, types, process of healing, treatment and complications; inflammation; wound infections-causes and Treatment; incision and drainage of abscesses; importance of personal cleanliness and aseptic techniques.
- (6) Pre-operative and post-operative care of the surgical patient; Emergency procedures.
- (7) Knowledge of surgical asepsis, skin preparation for invasive procedures.

**CSSD Procedures**

- (1) Waste disposal, collection of used items from user area, reception protective clothing and disinfections safe guards.
- (2) Use of disinfectants, sorting and classification of equipment for cleaning purposes, sharps, blunt lighted etc. contaminated high risk care - delicate instruments or hot care instruments.
- (3) Cleaning process - use of detergents. Mechanical cleaning apparatus, cleaning instruments, cleaning jars, receivers bowls etc. trays, basins and similar hard ware utensils. Cleaning of catheters and tubings, cleaning glass ware, cleaning syringes and needles.
- (4) Materials used for wrapping and packing, assembling pack contents.
- (5) Types of packs prepared. Inclusion of trays and gallipots in packs. Method of wrapping and making use of indicators to show that a pack of container has been through a sterilization process date.
- (6) General observations principles of sterilization. Moist heat sterilization. Dry heat sterilization. Ethylene oxide gas sterilization. H2O2 gas plasma vapor sterilization

**Basics of Intensive care**

- (1) Setting trolley for CPR,
- (2) Training in basic life support (BCLS), advance life support (ACLS).
- (3) Suction machine, diathermy machine, Defibrillator, Baby resuscitation trolley, trolley for difficult intubation.
- (4) Trauma Resuscitation / assessment / ABC and volume replacement

**Fundamentals of Medical, Surgical Nursing**

- (1) Maintaining the body in dynamic equilibrium, Maintaining the circulation of blood, body fluid component and body electrolyte components.
- (2) Assessment, prevention and replacement therapy for fluid and electrolyte imbalance. Pharmacology of drugs acting on different systems, emergency drugs:

- (a) Inflammation: types, causes, pathology, complications and management ulceration-causes, symptomatology, treatment, Gangrene: causes, types, pathology and management Wound: types, symptomatology, pathology and management Tumors and malignancy, stress on early diagnosis
- (b) Medical and surgical nursing management of patient with Circulatory disorders: CAD, Angina, MI, RHD, peripheral arterial disease, hypertension, arrhythmias, anemias, leukemias, immunological problems
- (c) Digestive disorders, liver and biliary disorders
- (d) Respiratory disorders: investigations, COPD, pneumonia, lung abscess
- (e) Renal disorders: ARF, CRF, infections of urinary tract, nephrotic syndrome
- (f) Poisoning and its management
- (3) Orthopaedic nursing: Principles of care of orthopaedic treatment- Fractures and dislocations Diseases of bones, joints, muscles and bursae, bone TB, Orthopaedic surgery and nursing care, Replacement of hip & knee joint,
- (4) Ophthalmic nursing: Review of the anatomy and physiology of eye Common eye conditions, styes, conjunctivitis, Squints, corneal ulcers, Glaucoma, Trachoma, cataract Retinal detachment, ophthalmic emergencies ,
- (5) ENT (Ear, Nose, and Throat) Nursing:
  - (a) Review of the anatomy and physiology of ear, nose and throat, common ear diseases or conditions. Common nursing procedures done in ENT , Common investigations done in ENT
  - (b) Common conditions of Ear ,nose and throat
  - (c) Management of patient with laryngectomy and tracheostomy
- (6) Skin and communicable diseases: Diseases of skin- venereal diseases, Principles of communicable diseases control - planning, control measures and immunization, HIV/AIDS, Plague, Tuberculosis
- (7) Gynae nursing: Gynaecological examination of patient, care of parturient and patient with gynaecological diseases
- (8) Management of Unconscious patient and neurological disorders

### **Practical**

Practical Hours: 200

**Total: 200**

#### **viva voce Examination**

- (1) Case presentation (1)
  - (a) Fundamentals of clinical examinations and various investigations
- (2) Stations Related Oral Viva
  - (a) Drugs used for routine surgical patients and disinfectants.
  - (b) BCLS, ACLS

**Second Year B.Sc. Ophthalmic Techniques and Optometry  
(1 Year Duration)**

**Paper - I**

**Applied Basic Sciences**

Theory Hours: 100

**Total: 100**

**Applied Anatomy and physiology**

- (1) Respiratory system
  - (a) Obstruction in airways Movement of vocal cords, Cord palsies maintenance of airway
  - (b) Trachea & Bronchial tree - Tracheal tug - signs, hiccup, reflexes, bronchospasm.
  - (c) Lung volumes - dead space, Pulmonary function tests, vital capacity, FRC etc.
  - (d) Pleural cavity - intrapleural pressure, pneumothorax. airway resistance, compliance
  - (e) Respiratory failure, type, clinical features, causes, hypoxia, cyanosis.
  - (f) Transfer of gases - oxygen & carbondioxide, pulmonary gas exchange.
  - (g) Acid base status, acidosis, Alkalosis, buffers in the body.
  - (h) Anaemia, cyanosis, Hypoxia , Oxygen therapy
- (2) Cardiovascular system
  - (a) Angina, coronary artery disease, myocardial infarction etc.
  - (b) Management and care of hypertension, hypotension, shock, cardiac arrhythmias, congestive heart failure and valvular heart diseases.
- (3) Blood transfusion, fluids and electrolytes
  - (a) Diagnosis and management of hypovolaemia and shock
  - (b) Body Fluids – Composition, Water, sodium and potassium balance
  - (c) I.V. Fluids - composition & administration
  - (d) I.V. Cannulation.
  - (e) Blood grouping, storage, administration, transfusion and management of transfusion reactions and anaphylaxis.

**Clinical pharmacology**

- (1) Adrenaline: Isoprenaline Atropine, bicarbonate, calcium, ephedrine, xylocard, Inotropes: dopamine, dobutamine, amiodarone Aminophylline, hydrocortisone, antihistaminics, potassium.
- (2) Cardiovascular drugs, Antihypertensives Antiarrhythmics , Beta – Blockers, Ca Channel blockers, Vasodilators - nitroglycerin & sodium nitroprusside
- (3) Bronchodilators, respiratory stimulants Broncholytic agents
- (4) Renal system - Diuretics, furosemide, mannitol
  - (a) Obstetrics - oxytocin, methergin
  - (b) Analgesics and hypnotics- Morphine, Fentanyl, paracetamol, diclofenac, ibuprofen, ketorolac, Midazolam etc.
  - (c) Miscellaneous - Antibiotics, - IV fluids, crystalloids, colloids, heparin, protamine, insulin.
- (5) Drugs used for anaesthesia like –induction agents, muscle relaxants, premedicants etc.
- (6) Emergency drugs.

**Microbiology**

- (1) Sterilization & decontamination- Dry Heat Moist Heat, Chemical methods, Gaseous methods, Filtration



- (2) Wound Infection & Urinary Tract Infections, Blood stream Infections, Respiratory tract Infection, Catheter, IV associated Infections
- (3) Knowledge of various micro organisms , types of infections and infestations.
- (4) Hospital acquired infections & prevention of hospital acquired infections
- (5) Standard safety precaution and Infection control program

### **Pathology**

- (1) Cellular adaptation, Cell injury & cell death, Cellular response to stress and noxious stimuli, cell necrosis
- (2) Inflammation
  - (a) Acute inflammation
  - (b) Chemical mediators of inflammation, Outcomes of acute inflammation
  - (c) Morphologic patterns of acute inflammation
  - (d) Chronic inflammation
- (3) Immunity disorders
  - (a) General features of the immune system
  - (b) Disorders of the immune system
- (4) Neoplasia
  - (a) Biology of tumor growth benign and malignant neoplasms
  - (b) Preservation of various tissues and secretions
- (5) Environmental disorders
  - (a) Common environmental and occupational exposures
- (6) Disorder of haemopoietic system- Anaemias , coagulation disorders
- (7) Common Diseases of CVS,
- (8) Respiratory system – asthma, pneumonia,
- (9) Kidney & Urinary tract - acute renal failure, Haemodialysis, Transplant,
- (10) Liver and biliary tract disease
- (11) Endocrinology and metabolism - Diabetes mellitus, thyroid disorders etc.
- (12) Infectious diseases,
- (13) Sample collection, preservation of different biopsis, cultures and other samples.

**Paper – II**  
**Principles of Anesthesia**

Theory Hours: 100  
**Total: 100**

**Medical Gas Supply**

- (1) Compressed gas cylinders,
- (2) Colour coding,
- (3) Cylinder valves; pin index,
- (4) Gas piping system,
- (5) Recommendations for piping system,
- (6) Alarms & safety devices.

**Anesthesia Machine**

- (1) Hanger and yoke system,
- (2) Cylinder pressure gauge, Pressure regulator,
- (3) Flow meter assembly
- (4) Vaporizers - types, hazards
- (5) Maintenance, filling and draining

**Breathing system**

- (1) Common components - connectors, adaptors, reservoir bags
- (2) Methods of humidification
- (3) Classification of breathing system and circuits – recognition, assembling and maintenance
- (4) Non rebreathing valves - Ambu valves, The circle system, Soda lime, Indicators
- (5) Laryngoscopes and Endotracheal tubes - Types, sizes, Fixing, removing and inflating cuff, checking tube position, complications.
- (6) Difficult airway trolley with all equipments
- (7) Face masks & airway oxygen: properties, storage, supply, oxygen therapy

**Anaesthesia ventilator and working principles.**

- (1) Monitoring
  - (a) ECG, SpO<sub>2</sub>, IBP, CVP, PA Pressure, LA Pressure

**Basic anaesthetic techniques**

- (1) Pre-op preparation: Complete pre anesthetic assessment, patient identification and review of check list of drugs and procedure

**Investigations**

- (1) Routine - normal and abnormal values, their significance
  - (a) Haematological, Urine, E.C.G., Chest X – ray, ECHO, angioplasty
- (2) Special - Case acceptance: ASA grading - I, II, III, IV, V

**Anesthesia drugs and techniques**

- (1) Inhalational anaesthesia
- (2) Regional anaesthesia
- (3) Intravenous anaesthesia
- (4) Emergency and resuscitation drugs

**Intraoperative Management**

- (1) Monitoring - minimum
- (2) Noninvasive & Invasive monitoring
- (3) Induction - drugs used
- (4) Endotracheal intubation
- (5) Maintenance of anesthesia
- (6) Positioning of the patient
- (7) Blood / fluid & electrolyte balance
- (8) Reversal from anesthesia - drugs used
- (9) Transferring the patient
- (10) Recovery room – set up and things needed

### **Post Operative Complications & Management**

- (1) Airway management, Post operative hypoxia, haemorrhage, shock
- (2) Oxygen therapy
- (3) Pain management and analgesia
- (4) Maintenance of Epidural catheters, CVP and arterial lines, chest drains and other drains

### **Medical Ethics**

- (1) Code of conduct, Confidentiality, Malpractice and negligence - Rational and irrational drug therapy
- (2) Autonomy and informed consent - Right of patients
  - (a) Care of the terminally ill - Do Not Resuscitation protocol
  - (b) Organ transplantation
    - 1) Medico legal aspects of medical records – Medicolegal case and type- Records and document related to MLC.
    - 2) Ownership of medical records - Confidentiality Privilege
    - 3) Communication - Release of medical information
    - 4) Unauthorized disclosure - retention of medical records -other various aspects

## **Practical**

Practical Hours: 200

**Total: 200**

### **Viva voce Examination**

- (1) Case presentation
  - (a) Patients posted for routine surgeries – management, evaluation and preparation
- (2) Stations Related to Oral Viva
  - (a) Anaesthesia machine (knowledge of parts, Pre-anaesthesia checking, safety devices etc.)
  - (b) Identification and checking of Breathing Circuits.
  - (c) Anaesthesia and CSSD related instruments and equipments.
  - (d) Drugs and IV therapy used during anaesthesia and surgery
  - (e) Post operative Care

**Third Year B.Sc. Ophthalmic Techniques and Optometry  
(1 Year Duration)**

**Paper - I**

**Organization of OT**

Theory Hours: 100

**Total: 100**

**Organization of OT**

- (1) OT allocation, Staff management, duties and responsibilities of OT technician, Job analysis and description of subordinate staff operating room attire.
- (2) Communication, Co-ordination and co-operation, Complaints and grievances
- (3) Standard procedure instructions
- (4) Orientation and training, Coaching and counseling
- (5) Performance appraisal – Health and safety of Personnel
- (6) Consumer Protection Act as applicable to health care services
- (7) Inventory Management – Dividend policies – Valuations of Shares – Financial
- (8) Perioperative management of patients and OT list.
- (9) Management in a hospital – Third party payments on behalf of patients.
- (10) Insurance – health schemes and policies

**Surgical Instruments**

- (1) Suture materials
- (2) OT tables
- (3) Instruments, sets for various surgical procedures
- (4) Positions and Draping for surgical procedures.

**Maintenance of Equipments**

- (1) Cautery, Endoscopes, Microscopes, drills, image intensifier, Laparoscopic assembly, Monitors etc.

**Sterilisation, Asepsis and Preparation of Operation Theater**

- (1) Morning cleaning of OT and all OT Equipment.
- (2) Standard safety measures
- (3) Infection control : fumigation, Fogging
- (4) Disinfection and sterilization
- (5) Scrubbing Procedures, Gowning and Gloving
- (6) Scavenging System
- (7) Biomedical waste management
- (8) Prevention of accidents and hazards in OT

## **Paper – II**

### **Preoperative Management and Assisting Surgical Procedures**

Theory Hours: 100

**Total: 100**

#### **General surgical procedures**

- (1) Hernia, hydrocele, varicocele etc
- (2) Laparotomies, Cholecystectomy
- (3) Laparoscopic surgeries etc
- (4) Urological Procedures
- (5) PCNL, TURP, ureterolithotomy etc.
- (6) Nephrectomy, nephrolithotomy, open prostatectomy

#### **Orthopaedic surgeries**

- (1) Open reductions with Nails, plates
- (2) Deformities corrections etc

#### **Obstetrical & Gynaecological Surgeries**

- (1) Differences between a pregnant and a normal lady
- (2) Precautions to be taken in obstetric Patients
- (3) Normal delivery, LSCS,
- (4) Regional and general anaesthesia in obstetric patient
- (5) Resuscitation of the new born, Apgar score
- (6) Emergencies in obstetrics like evacuation, manual removal of placenta, A.P.H., P.P.P.H., ruptured uterus, Ectopic Pregnancy, eclampsia
- (7) Hysterectomies, Endoscopic surgeries, Dilatation and curettage, Evacuations etc

#### **Paediatric surgical procedure**

- (1) Theater setting
- (2) Check list
- (3) Premedication – modes, Induction, Intubation - Securing the ETT, Reversal & extubation – Problems, Pain management Transferring / ICU management, hernia, hydrocele, syndactyly etc
- (4) TOF, congenital diaphragmatic hernia etc

#### **ENT procedures**

- (1) Adenotonsillectomy, mastoidectomy
- (2) Bronchoscopy and oesophagoscopy, FESS
- (3) Foreign body removal

#### **Ophthalmic Surgeries**

- (1) ECCE, SICS, phaco
- (2) Corrective surgeries

#### **Knowledge of instruments, equipments and assisting and peri operative care in Specialised Surgeries**

- (1) Mitral valvotomy, CABG, Patent ductus arteriosus, thoracotomies
- (2) Renal transplant, hepatic transplant

- (3) Bariatric surgeries
- (4) Joint replacements
- (5) Neurosurgeries and
- (6) Polytrauma
- (7) Geriatric anaesthesia

### **Postoperative care and advanced Critical care**

- (1) Angina Arrhythmias Dyspnoea
- (2) Special investigations: echo cardiography, angiography
- (3) Weaning of CPB
- (4) I.C.U management.
- (5) Chest tube and drains management
- (6) Anaesthesia for Trauma & Shock
  - (a) Resuscitation
  - (b) Preop investigation and assessment
  - (c) Circulatory management
  - (d) Management of anaesthesia
  - (e) Rapid sequence induction
  - (f) Other problems
  - (g) Pain management

### **Major catastrophes**

- (1) Mortality, Causes of death, Cerebral damage, Prevention.

### **Advanced Intensive Care**

- (1) Monitoring and Diagnostic Procedures in I.C.U.
- (2) Central Venous access, ECG monitoring, Invasive hemodynamic monitoring

### **General Care of Patient in I.C.U.**

- (1) Eye
- (2) Bladder, Skin
- (3) Care of mechanically ventilated patient
- (4) Tracheostomy, humidification
- (5) Vascular lines - arterial, venous line
- (6) Radiography
- (7) Physiotherapy - chest physiotherapy
- (8) Fluid balance and parenteral nutrition
- (9) Cardiovascular failure- inotropic support, vasodilator drugs.
- (10) Renal failure & liver failure
- (11) Head injury AND Neuro surgical care
- (12) Principles of transfusion therapy- whole blood, erythrocyte products, plasma components

## **Practical**

Practical Hours: 200

**Total: 200**

### **Viva voce Examination**

- (1) Case presentation
  - (a) Patients posted for speciality surgeries, Trauma and critically ill care, management preparation for surgery and OT management
- (2) Stations Related to Oral Viva
  - (a) Ancillary surgical equipments and instruments including various specialities and super specialities
  - (b) Drugs -used in BCLS, ATLS, ACLS, Critically ill patients
  - (c) Investigations interpretation: ECG, X-rays (Chest, neck etc.), ABG and others.
  - (d) CSSD and OT protocols and OT organization



**MODEL PAPER**

**B.Sc. OTT-I  
7241**

**Bas.Sci.-I**

B. Sc Operation Theater Technology  
Part-I (Main) Examination Month Year

Paper I  
**Basic Sciences**

**Time: Three Hours**  
Maximum Marks: 70

Attempt all questions

All the parts of one question should be answered at one place in sequential order  
Student shall be allowed to take only one supplementary copy along with one main answer  
book.

- Q.1 Describe Anatomy of kidney and its blood supply. 15  
OR  
Describe Anatomy of lungs and the Tracheo bronchial tree
- Q.2 Describe methods to measure blood pressure. Discuss normal and abnormal blood  
pressure values. 15  
OR  
Discuss normal electrocardiogram and various ECG leads and their importance.
- Q.3 **Write short note on: (Attempt any Five)** 40  
(a) Acidosis  
(b) Biomedical waste disposal codes  
(c) Glasgow coma scale  
(d) Oxygen therapy  
(e) Liver Function tests  
(f) Hyperglycemia and hypoglycemia  
(g) Physiological changes in pregnancy

**MODEL PAPER**

**B.Sc. OTT-I  
7242**

**BSCP BICFMSN.-II**

B.Sc Operation Theater Technology  
Part-I (Main) Examination Month Year

Paper II

**Basics of Surgery, CSSD Procedures, Basics of Intensive care,  
Fundamentals of medical and surgical nursing**

**Time: Three Hours**

Maximum Marks: 70

Attempt all questions

All the parts of one question should be answered at one place in sequential order  
Student shall be allowed to take only one supplementary copy along with one main answer  
book.

Q.1 What are symptoms and signs of hemorrhage? Describe how a case of severe hemorrhage is managed. 15

OR

Describe various methods used to sterilize surgical instruments.

Q.2 A patient is admitted to ICU with H/o sudden unconsciousness. Describe this patient's care and monitoring. What investigations will be required? 15

OR

Write pre-operative, intra operative and post-operative care and precautions in a seventy yrs old patient with fracture shaft femur.

Q. 3. **Write short note on: (Attempt any Five)** 40

- (a) Skin Preparation before surgery
- (b) Adrenaline
- (c) Epistaxis
- (d) BCLS
- (e) Jaundice
- (f) Nebulisation
- (g) Suture materials

**MODEL PAPER**

**B.Sc. OTT-II  
7244**

**Appl. Bas. Sci - I**

B. Sc Operation Theater Technology  
Part-II (Main) Examination Month Year

Paper I  
**Applied Basic Sciences**

**Time: Three Hours**  
Maximum Marks: 70

Attempt all questions

All the parts of one question should be answered at one place in sequential order  
Student shall be allowed to take only one supplementary copy along with one main answer book.

- Q.1 A patient with intestinal obstruction is posted for laparotomy. Write the Pre operative investigations and management of the patient. 15  
OR  
A patient with swelling in neck wants surgical removal. Write the investigations and management of the patient.
- Q.2 Explain about care of instruments before and after use in operation Theater. 15  
OR  
Explain environmental control - cleaning and disinfection of O.T. corridor.
- Q.3 **Write short note on: (Attempt any Five)** 40  
(a) Hospital Acquired infection  
(b) Gangrene  
(c) Colloids  
(d) Syntocinon  
(e) Urine output  
(f) Post operative Hypoxia  
(g) General Anaesthetics

## MODEL PAPER

B.Sc. OTT-II  
7245

Princ. Anaes. - II

B.Sc Operation Theater Technology  
Part-II (Main) Examination Month Year

Paper II

### Principles of Anaesthesia

**Time: Three Hours**

Maximum Marks: 70

Attempt all questions

All the parts of one question should be answered at one place in sequential order  
Student shall be allowed to take only one supplementary copy along with one main answer  
book.

Q.1 What are local anaesthetic drugs. Write different preparations and uses of local anaesthetic drugs. 15

OR

Write in detail about preparation of anaesthesia trolley (Drugs & instruments) for major surgery under general anaesthesia.

Q.2 What is Epidural anaesthesia. List material and instruments required in an epidural set. Explain how to take care of Epidural catheter. 15

OR

A patient in severe Ante partum haemorrhage is brought to OT for urgent LSCS. What preparation will be required for this patient?

Q.3 **Write short note on: (Attempt Any Five)** 40

- (a) Informed consent
- (b) Ventilators
- (c) Invasive blood Pressure
- (d) Endo tracheal intubation
- (e) SpO<sub>2</sub>
- (f) Soda lime
- (g) Pre anaesthetic check up

**MODEL PAPER**

**B.Sc. OTT-III**  
**7247**

**Org. OT. - I**

B.Sc Operation Theater Technology  
Part-III (Main) Examination Month Year

Paper I

**Organization of OT**

**Time: Three Hours**

Maximum Marks: 70

Attempt all questions

All the parts of one question should be answered at one place in sequential order  
Student shall be allowed to take only one supplementary copy along with one main answer  
book.

- Q.1 Explain in detail role of the Operation Theater Technician. 15  
OR  
Explain environmental control - cleaning and disinfection of O.T. corridor.
- Q.2 Explain about care of Laparoscopic instruments before and after use in Theater. 15  
OR  
Write in detail instrument set for Neuro surgery
- Q.3 **Write short note on:- ( Attempt Any Five)** 40  
(a) Informed consent  
(b) Ventilators  
(c) Invasive blood Pressure  
(d) Endo tracheal intubation  
(e) SpO<sub>2</sub>  
(f) Soda lime  
(g) Suture materials

**MODEL PAPER**

**B.Sc. OTT-III  
7248**

**Peri. Manag. & Asst. Surg. Proc. - II**

B.Sc Operation Theater Technology  
Part-III (Main) Examination Month Year

Paper II

**Perioperative management and  
Assisting surgical procedures**

**Time: Three Hours**

Maximum Marks: 70

Attempt all questions

All the parts of one question should be answered at one place in sequential order  
Student shall be allowed to take only one supplementary copy along with one main answer  
book.

- Q.1 Explain about tray set-up for PCNL. 15  
OR  
Write in detail the instruments and assisting exploratory laparotomy.
- Q.2 How will you lay the OT table and assist Total hip replacement. 15  
OR  
Describe the assisting procedure and equipments for FESS
- Q.3 **Write short note on: (Attempt Any Five)** 40  
(a) Tracheostomy  
(b) VAS Score  
(c) Dilatation and Curettage  
(d) CPR  
(e) Nasogastric Feeding  
(f) Herniotomy  
(g) Blood Transfusion reaction

**Elective Paper- Non – University Examination**  
**DISASTER MANAGEMENT**

Theory Hours: 45  
Practical Hours: 15  
**Total Hours: 60**

**Introduction to Disasters**

- a. Concepts, and definitions (Disaster, Hazard, Vulnerability, Resilience, Risks)
- b. Disasters
- c. Classification Causes, Impacts (including social, economic, political, environmental, health, psychosocial, etc.)
- d. Differential impacts- in terms of caste, class, gender, age, location, disability Global trends in disasters. urban disasters, pandemics, complex emergencies, Climate Change

**Approaches to Disaster Risk reduction**

- a. Disaster cycle - its analysis, Phases, Culture of safety, prevention, mitigation and preparedness community based DRR, Structural- non structural ensures, roles and responsibilities of- community, Panchayati Raj Institutions/Urban Local Bodies (PRIs/ULBs), states, Centre, and other stake- holders.

**Inter-relationship between Disasters and Development**

- a. Factors affecting Vulnerabilities, differential impacts, impact of Development projects such as dams, embankments, changes in Land-use etc. Climate Change Adaptation. Relevance of indigenous knowledge, appropriate technology and local resources

**Disaster Risk Management in India**

- a. Hazard and Vulnerability profile of India Components of Disaster Relief: Water, Food, Sanitation, Shelter, Health, Waste Management institutional Arrangements (Mitigation, Response and Preparedness, DM Act and Policy, Other related policies, plans, programmes and legislation).

**Project Work: (Field Work, Case Studies)**

- a. The project /fieldwork is meant for students to understand vulnerabilities and to work on reducing disaster risks and to build a culture of safety. Projects must be conceived creatively based on the geographic location and hazard profile of the region where the college is located

**Suggested Reading list:**

- Alexander David, Introduction in 'Confronting Catastrophe', Oxford University Press, 2000
- Andharia J. Vulnerability in Disaster Discourse, JTCDM, Tata Institute of Social Sciences Working Paper no. 8, 2008
- Blaikie, P, Cannon T, Davis I, Wisner B 1997. At Risk Natural Hazards, Peoples' Vulnerability and Disasters, Routledge.
- Coppola P Damon, 2007. Introduction to International Disaster Management,

- Cuny, F. 1983. Development and Disasters, Oxford University Press.

## **INFORMATION AND COMMUNICATION TECHNOLOGY IN HEALTH EDUCATION**

Theory Hours: 45

Practical Hours: 15

**Total Hours: 60**

### **Learning objectives**

Upon successful completion of this subject, students should

1. To obtain the basic knowledge on computer, devices used in computers.
2. To know the uses of computers like MS office, Power point Presentations, Excel documents.
3. To know about uses of internet, its advantages in regular updating the knowledge in Occupational therapy profession.

### **SYLLABUS**

#### **Introduction**

1. Introduction to computers-History of Computer, Generation of Computer, Classification of Computers, Input Devices, Output Devices, Central Processing Unit, Components of CPU, Memory Unit, Peripheral Devices
2. Introduction to M.S. Windows
3. Internet and its applications
4. MGUMST web forum & portal
5. Google Applications
6. Introduction to M.S. Office - Word, Power Point, Excel,
7. Publisher

#### **The Digital Age**

Computer and communications, the five operations of a computer-and communication system- input, processing, output, storage and communications as well as the corresponding categories of hardware, five major categories of computers, development I communication Technology.

#### **Applications Software**

Applications and systems software, ethics of copying software, four types of applications software, entertainment education and reference, productivity and business and specialized, key functions of word processors, spreadsheets, database managers, graphics programs and suites, group-ware, and internet web browsers.

#### **Storage Devices**

Units of storage capacity, primary and secondary storage, data compression, data storage on diskette, hard disks, optical disks, and magnetic tape and describe the purposes of storage media.

#### **Communications**



Usage of communications technology, telephone-related services, online information services, the internet

### **Multimedia**

What is multimedia – Multimedia PC– Multimedia Hardware - Central processor – color display, Multimedia accessories – CD ROM – Digital Audio – Audio speakers – Digital video– MIDI – Hard disc Read/write storage device- Multimedia software

### **Radio propagation:**

Use of computers in physical therapy – Application Packages used in statistical analysis.

### **Recommended books**

1. Free T. Hotstetter, —Multimedia Literacy|| McGraw Hill,
2. Simon J. Gibbs, Dinoyios C. Tsichritziz, —Multimedia programming|| Addison Wesley
3. John F.Koefgel Buford, —Multimedia Systems|| Addison Wesley
4. John Vince, —Virtual Reality Systems|| Addison Wesley.
5. AndressF.Molisch, —Wideband Wireless digital communication|| Pear Education Asia

## CLINICAL NUTRITION

Theory Hours: 45  
Practical Hours: 15  
**Total Hours: 60**

### **COURSE OBJECTIVE:**

The objective of this course is that after 30 hours of L, D, P the student shall be able to understand the basic knowledge about Diet, balanced diet, metabolism, malnutrition, under nutrition, over nutrition, deficiency disease.

### **COURSE OUTCOME:**

1. Become familiar about the nutritive values of food.
2. Explain about the food sources from which we obtain vitamins.
3. Become familiar with various compositions of food.
4. Well versed with digestion at each stages of digestive system.
5. Become familiar with different cooking methodologies.
6. Know and explain about food preparations by food manufacturer.
7. Explain thoroughly about the advantages and disadvantages of various convenience foods.

### **UNIT ISOURCES OF FOOD**

1. Nutritive value of foods,
2. Food Sources from which key vitamins are derived

### **UNIT II DIGESTIVE SYSTEM**

1. Digestion and absorption –Digestion at each stage of the digestive system
2. Dietary guidelines- Factors affecting food requirements. Planning and serving of family meals. Meals for all ages and occupations.

### **UNIT III COMPOSITION OF FOOD**

Composition and value of the main foods in the diet - Milk, meat, fish, cheese, eggs, margarine and butter cereals (wheat, rice, maize, millets, oats) fruits and vegetables

### **UNIT IV PROCESSING OF FOOD**

1. Cooking of food -Transfer of heat by conduction, convection and radiation.
2. Principles involved in the different methods of cooking – boiling, stewing, grilling, baking, roasting, frying, steaming, pressure cooking, cooking in a microwave oven.

### **FOOD PREPARATION**

1. Convenience foods- Foods partly or totally prepared by a food manufacturer – dehydrated, tinned, frozen, ready to eat. Intelligent use of these foods.
2. Advantages and disadvantages

**Text Book:**

1. Agarwal, Textbook of human nutrition, JP, 1 Ed, 2014

**Reference:**

1. Kenneth F. Kiple, Kriemhild Coneè Ornelas, The Cambridge world history of food, Cambridge University Press, 1st ed, 2000

## YOGA

Theory Hours: 45  
Practical Hours: 15  
**Total Hours: 60**

### **COURSE OBJECTIVE:**

The objective of this course is that after 30 hours of lectures & demonstrations, the student will be able to understand the basic concepts about Asanas and its effects, therapeutics effects of Yoga

### **COURSE OUTCOME:**

1. Demonstrate the introduction and principles of yoga.
2. Knowledge of history of yoga and yoga in modern India.
3. Outline of yoga background and importance of yoga in modern world.
4. Learning the types and forms of Asanas and description of physiological effect of yoga.
5. Understanding the role of yoga in Occupational Therapy

### **UNIT-I Introduction to Yoga**

1. Introduction to Yoga
2. Principles of Yoga

### **UNIT- II Patanjali**

1. History of Yoga
2. Yoga in Ancient and Modern India

### **UNIT- III Folds of Yoga**

1. Types & Forms of Yoga
2. Asanas & its physiological effects

### **UNIT- IV Yogic Science**

1. Scientific background of Yoga
2. Yoga in modern world

### **UNIT -V Advantages of Yoga**

1. Physiological Effects of Yoga
2. Therapeutic Uses of Yoga

### **Textbook:**

1. BKS Iyengar, Light of Yoga, JP, 1st Ed, 2012.

### **Reference:**

1. PayalGidwaniTiwari, Body Gaurders, CBS, 2nd Ed, 2009

## EFFECTIVE ENGLISH

Theory Hours: 60

**Total Hours: 60**

### **Course Objective:**

The objectives of this course is that after 40 hours of lectures, demonstrations and practicals the student will be able to Speak fluently, intelligibly and appropriately to teachers, Colleagues, Doctors, Patients and friends at the college, Hospital and hostel etc. about academic or (occupational) areas of interest. Course Outcome:

1. Students can gain knowledge about the various traditions writer and followed in English
2. Individuals can gain self – confidence in their own voice and speak out their opinions with confidence
3. Students will gain the ability to become a accomplished active readers
4. Helps to build the knowledge and understanding simultaneously through listening and give their point of view
5. Students will be able to write effectively in variety of professional and social setting
6. Acquire the ability to read and understand the literature and have the ability to identify the topics and formulate questions
7. Good communication skills which helps in easy rapport between the patient and therapist
8. Gain the fluency in speaking which helps in easy teaching method and presentation

### **UNIT – I INTRODUCTION**

1. History of the language
2. Regional distribution
3. Variation in dialect and accent

### **UNIT – II PHONOLOGY**

1. Consonants and vowels
2. Phontactics
3. Stress, rhythm and intonation
4. Regional variation

### **UNIT – III GRAMMER**

1. Noun, Pronoun
2. Verb, Tense
3. Adjuncts
4. Adjectives

### **UNIT – IV SYNTAX**

1. Clause syntax
2. Auxillary verbs
3. Vocabulary
4. Word formation

5. Pronunciation

**UNIT – V PRESENTATION**

1. Oral presentation & Panel discussion
2. Interview preparation
3. Clarity and specificity

**Text Book:**

1. O' Connor, I.D., Better English Pronunciation - Cambridge, Cambridge University.2009

**Reference:**

1. Water F.V.A , Proficiency Course in English – Hodder and Stronghton, London.1994
2. Tone Daniel, I.M. , English Pronouncing Dictionary –Dent and sons Ltd. London.2004

## HEALTH CARE

Theory Hours: 50

**Total Hours: 50**

### **Introduction to Health**

1. Definition of Health, Determinants of Health, Health Indicators of India, Health Team Concept.
2. National Health Policy
3. National Health Programmes (Briefly Objectives and scope) Population of India and Family welfare programme in India

### **Introduction to Nursing**

1. What is Nursing? Nursing principles. Inter-Personnel relationships. Bandaging: Basic turns; Bandaging extremities; Triangular Bandages and their application.
2. Nursing Position, Bed making, prone, lateral, dorsal, dorsal re-cumbent, Fowler's positions, comfort measures, Aids and rest and sleep.
3. Lifting and Transporting Patients: Lifting patients up in the bed. Transferring from bed to wheel chair. Transferring from bed to stretcher.
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.
5. Methods of Giving Nourishment: Feeding, Tube feeding, drips, transfusion Care of Rubber Goods
6. Recording of body temperature, respiration and pulse, Simple aseptic technique, sterilization and disinfection. Surgical Dressing: Observation of dressing procedures

### **First Aid:**

1. Syllabus as for Certificate Course of Red Cross Society of St. John's Ambulance Brigade.

### **Reference Books:**

1. Preventive and Social Medicine by J.Park
2. Text Book of P & SM by Park and Park
3. Counseling & Communicate skills for medical and health, Bayne- Orient Longman Pvt. Ltd.

## **Constitution of India**

Theory Hours: 50

**Total Hours: 50**

### **Unit-I:**

Meaning of the term 'Constitution'. Making of the Indian Constitution 1946- 1950.

### **Unit-II:**

The democratic institutions created by the constitution Bicameral system of Legislature at the Centre and in the States.

### **Unit-III:**

Fundamental Rights and Duties their content and significance.

### **Unit – IV:**

Directive Principles of States Policies the need to balance Fundamental Rights with Directive Principles.

### **Unit – V:**

Special Rights created in the Constitution for: Dalits, Backwards, Women and Children and the Religious and Linguistic Minorities.

### **Unit-VI:**

Doctrine of Separation of Powers legislative, Executive and Judicial and their functioning in India.

### **Unit – VII:**

The Election Commission and State Public Service commissions.

### **Unit – VIII:**

Method of amending the Constitution.

### **Unit – IX:**

Enforcing rights through Writs:

### **Unit – X:**

Constitution and Sustainable Development in India.

### **Reference Books:**

1. J. C. Johari: The Constitution of India- A Politico-Legal Study-Sterling Publication, Pvt. Ltd. New Delhi.
2. J. N. Pandey: Constitution Law of India, Allahbad, Central Law Agency, 1998.
3. Granville Austin: The Indian Constitution – Corner Stone of a Nation-Oxford, New Delhi, 2000.