



D.Y. PATIL EDUCATION SOCIETY
[Deemed to be University], Kolhapur
Re-accredited by NAAC with 'A' Grade

LEARNING OUTCOMES AND GRADUATE ATTRIBUTES



Outcome Based Education (OBE) Platform

Institutional outcome:

- Knowledge and Skills
- Planning and Problem-solving abilities
- Communication
- Research Aptitude
- Professionalism and Ethics
- Leadership



School of Allied Health Science

Programme: B.Sc. Optometry

Graduate Attributes

- ❖ Develop the ability to diagnose and manage various vision abnormalities including refractive errors as well as various eye diseases.
- ❖ Develop the ability to practice various sub-specialties of Eye care industry like Contact lens, spectacle dispensing, Ortho-optics, Low Vision management, etc.
- ❖ Understand environmental consciousness and societal & Community Eye care concerns in achieving the goal of vision for all.
- ❖ Develop applying computer skills in Eye care system and taking entrepreneurial decisions. **(Entrepreneurship).**
- ❖ Applying systematized problem-solving techniques to identify and correct procedural errors to verify the accuracy of ophthalmic diagnosis obtained.
- ❖ Understanding the concepts & theories, techniques & Procedures used in optometry.
- ❖ Understanding & applying quality assurance, safety measures and maintenance of Ophthalmic instruments.
- ❖ Analysing eye environmental factors & selecting the relevant tools & optical mode of correction with optical correction techniques.

Learning Outcomes

Semester I

Course: Anatomy -1

1. Understand the concept & terminology of Human Anatomy
2. Be able to Enlist, memorize and recognize the structure, function & location of cells, Tissues and major human organs.
3. Understand relationship between different organs of the body with organ system.
4. Be Able to demonstrate the structural differences between skeletal, smooth and Cardiac muscles.
5. Be able to demonstration of various parts of male & female reproductive system from model/charts.
6. Be able to describe overall gross Anatomical positions of human body, positions.

Course: General Physiology

1. Understand the concepts & terminology of human physiology.
2. Enlisting and memorizing the function & structure of cells, tissues and major human organs systems/parts.
3. To understand function of various organ systems and employing its knowledge to identify diseases related to them.
4. Identifying and explaining the interrelation between different organ systems.



5. Differentiating various organs & organs system.
6. Able to understand the meaning of pulse rate, ECG, blood pressure, blood groups and blood composition/ components.

Course: Biochemistry-1

1. To understand the concepts and theories of Biochemistry.
2. To understand the chemistry of carbohydrates, proteins, lipids and amino acids.
3. Can analyse the mechanism of enzyme action, identify the classes and factors affecting actions.
4. To understand the biochemical testing and analysing the test result.
5. To understand the meaning of Reactions of monosaccharide's, disaccharides and starch. Glucose: Fructose, Maltose, lactose, Sucrose.
6. Have knowledge of Bio fluid of choice - blood, plasma, serum, Proteins, Urea, Bilirubin, Creatinine
7. Knowledge of analysis by Standard graphs.

Course: Microbiology

1. Have general insight into the history & basics of microbiology.
2. To understand about the characteristics of bacteria, viruses, fungi and parasites.
3. Be able to handle equipment's used in microbiology.
4. To understand the principles of sterilization and disinfection in hospital.
5. To understand the pathogenesis of the diseases caused by organisms in human body.
6. Understanding the knowledge of basic microbial laboratory practices, rules and Regulations

Semester II

Course: Anatomy -2

1. To understand the concept & terminology related to different life process of human body.
2. Be able to Enlist, memorize and recognize the structure, function & location of respiratory, digestive, nervous and reproductive system of human body.
3. To understand relationship between different organs of the body with organ system.
4. Be Able to demonstrate the structural differences between respiratory, digestive, nervous and reproductive system of human body.
5. Be able to identify various organs of male & female respiratory, digestive, nervous and reproductive system of human body.
6. Be able to describe overall gross Anatomy of the different systems present in the human body.

Course: Systemic Physiology

1. To understand the concepts & terminology of human general physiology.



2. Enlisting and memorizing the function and metabolism of basic biomolecules, excretory systems, endocrine, CNS.
3. To understanding of various organ systems and employing its knowledge to identify functions related to them.
4. Identifying and explaining the interrelation between different human physiological system.
5. Control and co-ordination between different organs systems.
6. Able to understand the meaning of digestion, regulation, hypo and hyper conditions, reproductive process, reflexes and special senses.

Course: Biochemistry-2

1. To understand the concepts and theories of Biochemistry.
2. To understand the chemistry of blood components, normal and abnormal constituents of urine. Energy metabolism and role of clinical technician.
3. Can analyze the mechanism of blood components, enzyme actions and body fluid distributions.
4. To understand the biochemical testing and analyzing the test result.
5. To understand the meaning of Reactions of monosaccharide's, disaccharides and starch.
6. Glucose: Fructose, Maltose, lactose, Sucrose, radio isotopes used in biochemistry, Rate limiting steps.
7. Have knowledge of Body fluid of choice - blood, plasma, serum, Proteins, Urea, Bilirubin, Creatinine. To understanding the role of technician with respect to quality assurance, preparation of specimen, collection etc.
8. Knowledge of analysis by Standard graphs, biochemical tests, colorimetric and spectrophotometric analysis.

Course: General Pathology

1. Have general insight into the history & basics of general pathology.
2. To understand about the knowledge of acute and chronic inflammation and events involved.
3. Tissue repair mechanisms.
4. Be able to understand general abnormal conditions of the human body.
5. To understand the principles of PEM, Role effects of metals.
6. To understand the pathophysiology of diabetes, arteriosclerosis, COPD.
7. Understanding the knowledge of pathological conditions and abnormalities associated with it.

Semester III

Course- Physical and geometrical optics

1. To understand and demonstrate fundamental knowledge and insight into geometrical optics.
2. In order to be able to understand and solve problems related to the eye and optical instruments/lenses, their function and correction.



3. Knowledge and understanding should be demonstrated in the areas of: (1) refraction at single spherical or plane surfaces, (2) thin lenses, (3) thick lenses, (4) aberrations, (5) apertures, (6) spherocylindrical lenses, (7) thin prisms, (8) mirrors, and (9) ophthalmic and optical instruments.
4. The aim is to achieve knowledge of the fundamentals of geometrical optics and how they apply to the human eye
5. To understand and demonstrate fundamental knowledge and insight into physical optics.
6. In order for the candidate to be able to understand and solve problems related to the eye and optical instruments/lenses, their function and correction.
7. Knowledge and understanding should be demonstrated in the areas of: (1) wave optics, (2) interaction of light on matter, (3) polarization, (4) transmission through successive polarizers, and (5) image quality.
8. The aim is to achieve knowledge of the fundamentals of physical optics and how they apply to the human eye.

Course-Ocular Anatomy, Physiology, and Biochemistry

1. To understand the anatomical directions/planes of the body, three coats of the eye, three chambers of the eye, structures found within each chamber.
2. To Understand the diameter of eye between anterior and posterior poles in inches and millimeters.
3. To understand Location and to know the function of the optic nerve, contrast visual axis to geometric axis.
4. To understand and know the Sources of oxygen and oxygen requirements.
5. To know the average front surface power of cornea in diopters and millimeters of radius.
6. To understand the knowledge of amplitude of accommodation and how it changes with age, and to locate and describe ciliary muscles, suspensory ligaments and layers of crystalline lens
7. To describe the location of the central retinal artery and central retinal vein, and their function and the location of vortex veins.
8. To understand the lymphocytes, monocytes, T-cells and the inflammatory mediator's histamine, kinin's, complement, and prostaglandins, inflammation and its bodily response.

Course- Ocular Disease

1. To cater the ability to order and interpret frequently needed laboratory and diagnostic procedures.
2. To understanding the critical-thinking skills needed to assess the patient's visual and physical status and to interpret and process the data to formulate and execute effective management plans.
3. To know the ability to prescribe or use ophthalmic materials, contact lenses, vision therapy, low vision devices, to treat and manage vision disorders and disease.
4. An understanding of nutritional influences on ocular physiology and systemic health and disease.



5. To know the ability to understand, evaluate and apply the use of contemporary imaging technologies in the provision of eye and vision care.
6. To know the ability to recognize and initiate the coordination of patient care requiring advanced medical, systemic, inter-professional or specialty care.
7. To know the ability to recognize life-threatening conditions and to initiate immediate Intervention.
8. To develop effective communication skills, both oral and written, as appropriate for maximizing successful patient care outcomes.

Course- Visual and optometric optics

1. To demonstrate fundamental knowledge and insight into visual optics in order to understand and solve problems related to image formation, both qualitative and quantitative.
2. To investigate the optics of the human visual system and refractive correction.
3. To understand and define, Illustrate and make use of optometric instruments.
4. To demonstrate knowledge, understanding and skills, and be able to discuss and undertake examinations of patients using investigative techniques.
5. To know the Knowledge and detection skills should be demonstrated of ocular pathology affecting the eye
6. To demonstrate knowledge and skills of optical appliances and dispensing and interaction of visual correction.

Semester IV

Course -Optometric instruments

1. To demonstrate fundamental knowledge and insight into optometric instruments in order to understand and solve problems related to working of optometric instruments both qualitative and quantitative
2. To investigate the optics of the human visual system and refractive correction by using instruments.
3. To understand and define, Illustrate and make use of optometric instruments.
4. To demonstrate knowledge, understanding and skills, and be able to discuss and undertake examinations of patients using optometric instruments.
5. To understanding the Knowledge and operating skills. affecting the eye.
6. To demonstrate knowledge and skills of optical instruments, its principle, working and Mechanism.

Course- Ocular pathology, Microbiology and pharmacology

1. To improve the understanding of referral pathways for common ocular conditions in the older population and to know when to refer appropriately, understanding both national and local protocols.
2. To improve the recognition of common ocular pathologies in the older population, such as cataract, glaucoma and AMD; to be able to differentiate patients with pathological changes from those with normal age-related physiological changes and so refer them appropriately.



3. To improve the recognition of common ocular pathologies in the older population, such as cataract, glaucoma and AMD; to be able to differentiate patients with pathological changes from those with normal age-related physiological changes and so refer them appropriately
4. The candidates should demonstrate fundamental knowledge and insight into general microbiology and pathology.
5. Knowledge and understanding should be demonstrated in the areas of general medical disorder and how they can affect (1) virology, (2) bacteriology, (3) mycology, (4) parasitology and the eye. (5) inflammation and repair, (6) cardiovascular diseases and the eye, (7) blood diseases and the eye, (8) endocrine diseases and the eye, (9) neurological diseases and the eye, (10) nutritional disorders, (11) infectious diseases. (12) tumors, (13) congenital and hereditary conditions.

Course- Dispensing optics

1. Understands a wide range of ocular examination techniques, diagnostic procedures and diagnostic drugs.
2. Understands and applies knowledge of theory, product and advancement in technology of ophthalmic lenses, in order to provide patients with the most appropriate optical appliances based on their visual function, lifestyle, occupational, leisure and protective need.
3. Understands and applies knowledge of anatomical features and development (especially in pediatric patients) and frame materials, features and construction, in order to provide (adapt where necessary) the most appropriate fit of frame, mount or appliance to all patients.
4. Understands and applies knowledge of geometric and visual optics, and accommodation, in order to dispense spectacles and understands the methods of assessing vision, refractive error, binocular status and visual acuity in all patients.
5. Understands and applies knowledge of geometric and visual optics, and accommodation, in order to dispense spectacles and understands the methods of assessing vision, refractive error, binocular status and visual acuity in all patients.

Course- Clinical Examination

1. To demonstrate knowledge of the clinical site's organization, administration, policies and procedures, organizational planning and operation.
2. To describe legal and facility standards related to fiscal, billing and reimbursement issues, fraud and abuse.
3. To review the Physical Therapy documentation including the PT POC, goals, and objectives:
 - A. Identifying major indications, contraindication, precautions and safety issues in the documents.
 - B. Identifying patient goals and outcomes in the documents.
4. To review the patient health record prior to treatment in order to:
 - A. Recognize any major change in medical status or new procedures,
 - B. Identify the reasons for interventions in the PT POC.



5. To describe safe environments, appropriate risk management strategies, and emergency responses/support activities/CPR to take when the safety of self, patient or others is at risk in the clinical setting.
6. To describe communication processes within the clinical arena including referral process, patient delegation, review of records, between health care team members, and methods for reporting patient status to the physical therapist.

Semester V

Course- Eye in Systemic Disease

1. To the primary care physician frequently encounters patients with ocular symptoms and signs that may signal serious underlying systemic disorders.
2. To provide a framework for approaching ocular manifestations of systemic disease, this program is organized according to disease types: congenital, traumatic, vascular, neoplastic, autoimmune, idiopathic, infectious, metabolic/endocrine, and drugs/toxins.
3. To avoid overlooking pathology that is important but subtle, the primary care physician should consider performing an eye examination for each patient.
4. The ocular manifestations are a feature of numerous congenital syndromes, including Down syndrome, Marfan's syndrome, myotonic dystrophy, tuberous sclerosis, metabolic disorders involving lysosomal storage and carbohydrate metabolism, and neurofibromatosis.
5. The shaken baby syndrome is increasingly evident in our society. Injuries in a child with a history that is not appropriate for the injury sustained should raise a suspicion of child abuse.

Course- Binocular vision -1

1. To study the Epidemiology; history and signs/symptoms manifest by patients in the age ranges noted Clinical techniques and tests to assess the development of children at various ages.
2. To understand the physical status fine and gross motor development, personal-social development & speech language development.
3. To study the clinical characteristics of children who deviate from normal patterns of development, and epidemiology of developmental disorders, mental & sensory abilities.
4. To understand the neuromuscular and physical abilities, personal-social behaviors, speech and language abilities.
5. To understand the tests that diagnose vision problems which may be associated with deviations from normal patterns of development, mental and sensory abilities (vision and hearing handicaps), neuromuscular and physical abilities.
6. To study the tests used by optometrists to determine a child's level of visual-perceptual development.



Course- Contact lens -1

1. To demonstrate knowledge, understanding and skills, and be able to discuss and undertake examinations and management of patients wanting to wear or who are already wearing contact lenses.
2. To understanding and testing skills should be demonstrated in the areas of treatment and management of refractive/oculomotor/sensory integrative conditions using contact lenses.
3. To study the lens types and materials: hard lenses; haptics; lathe cut, molded, and spin cast soft lenses.
4. To understand the optics of contact lenses: curves, zones, widths and tear lens effects, sagittal depth; center and edge thickness; flex, a sphericity and toric designs and quadratic specific designs, and oblong geometries with reverse curves.
5. To understand the theories and methods of fitting: lens design, specifications of orders, lens verification and evaluation, insertion and removal techniques, design of wearing schedules, fluorescein evaluation and fitting criteria.

Course -Low vision care and rehabilitation

1. To Understand the observation, inspection, recognition of signs, and techniques and skills including: Palpation of relevant structures.
2. To Study the diagnosis and management of marginal lid disease.
3. To understand the Lid Eversion Tonus and strength testing of facial and lid muscles by the third and seventh cranial nerves, tests for integrity of the fifth cranial nerve & Sinus evaluation (History, discharge, fever, etc.).
4. To understand the Observation, inspection, recognition of signs, and techniques and skills.
5. To Study Bio microscopy to highlight and describe morphology and location of irregularities, deposits, opacities, etc.
6. To Evaluation of preauricular and submandibular lymph nodes History and evaluation of oropharynx for associated upper respiratory illness

Semester VI

Course- Geriatric and pediatric optometry

1. To understand and study geriatric patient who suffers specific and characteristic visual symptoms and problems on the one hand, and has a reduced capacity for dealing with them on the other.
2. Be able to counsel the elderly
3. Be able to dispense spectacles with proper instructions.
4. Adequately gained knowledge on common ocular diseases.
5. To understand identify, investigate the age-related changes in the eyes.

Course- Binocular vision -2

1. To study the Epidemiology; history and signs/symptoms manifest by patients in the age ranges noted Clinical techniques and tests to assess the development of children at various ages.
2. To understand the Physical status Fine and gross motor development Personal-social development Speech language development.
3. To study the Clinical characteristics of children who deviate from normal patterns of



development, and epidemiology of developmental disorders Mental abilities Sensory abilities.

4. To understand the Neuromuscular and physical abilities Personal-social behaviors Speech and language abilities.
5. To understand the tests that diagnose vision problems which may be associated with deviations from normal patterns of development, mental & sensory abilities (vision and hearing handicaps), neuromuscular and physical abilities.
6. To study the tests used by optometrists to determine a child's level of visual-perceptual development.

Course- Contact lens -2

1. To demonstrate knowledge, understanding and skills, and be able to discuss and undertake examinations and management of patients wanting to wear or who are already wearing contact lenses.
2. To understanding and testing skills should be demonstrated in the areas of treatment and management of refractive/oculomotor/sensory integrative conditions using contact lenses.
3. To study the lens types and materials: hard lenses; haptics; lathe cut, moulded, and Spin cast soft lenses.
4. To understand the optics of contact lenses: curves, zones, widths and tear lens effects, sagittal depth; center and edge thickness; flex, a sphericity and toric designs and quadrant specific designs, and oblong geometries with reverse curves.
5. To understand the theories and methods of fitting: lens design, specifications of orders, lens verification and evaluation, insertion and removal techniques, design of wearing schedules, fluoresce in evaluation and fitting criteria.

Course-Occupational and community optometry

1. To concerned with the efficient and safe visual functioning of an individual within the occupational environment.
2. Binocular vision in adults and pediatric patients, general optometric clinical practice including contact lenses, and ocular emergency care among others.
3. Understand the relationship between eye, work, and work environment by the procedure called Visual Task Analyse.
4. The process aims at acquiring the information on visual demand (need) each job creates on the person at their work. The Optometrist, the eye care professional, collects the details that might influence your visual ability at work, by visiting your work place.
5. To understand the professional and occupational ethics in community optometry.
6. To understand the knowledge of proper functioning and effective working in occupational optometry.



Programme: B.Sc. Medical Laboratory Technology

Graduate Attributes

- ❖ Perform routine clinical laboratory testing.
- ❖ Make specimen-oriented decisions on predetermined criteria including working knowledge of critical values.
- ❖ Process information and ensure quality control as appropriate to routine laboratory procedures.
- ❖ Know the logical interpretation of clinical lab investigations.
- ❖ Extrapolate data acquired.
- ❖ Work on automated machine.
- ❖ Analysis of digital data.
- ❖ Interpretation of results and conclusions.

Learning Outcome

Semester I

Course: Anatomy -1

1. Understand the concept & terminology of Human Anatomy.
2. Be able to enlist, memorize and recognize the structure, function & location of cells, tissues and major human organs.
3. Understand relationship between different organs of the body with organ system.
4. Be Able to demonstrate the structural differences between skeletal, smooth and Cardiac muscles.
5. Be able to demonstration of various parts of male & female reproductive system from model/charts.
6. Be able to describe overall gross Anatomical positions of human body, positions.

Course: General Physiology

1. Understand the concepts & terminology of human physiology.
2. Enlisting and memorizing the function & structure of cells, tissues and major human organs systems/parts.
3. Understanding function of various organ systems and employing its knowledge to identify diseases related to them.
4. Identifying and explaining the interrelation between different organ systems.
5. Differentiating various organs & organs system
6. Able to understand the meaning of pulse rate, ECG, blood pressure, blood groups and blood composition/ components.

Course: Biochemistry-1

1. Understand the concepts and theories of Biochemistry.
2. Understand the chemistry of carbohydrates, proteins, lipids and amino acids.
3. Can analyze the mechanism of enzyme action, identify the classes and factors affecting actions.



4. Understand the biochemical testing and analyzing the test result.
5. Understand the meaning of reactions of monosaccharide's, disaccharides and starch.
Glucose: Fructose, Maltose, lactose, Sucrose
6. Have knowledge of Bio fluid of choice - blood, plasma, serum, Proteins, Urea, Bilirubin, Creatinine.
7. Knowledge of analysis by Standard graphs.

Course: Microbiology

1. Have general insight into the history & basics of microbiology.
2. Understand about the characteristics of bacteria, viruses, fungi and parasites.
3. Be able to handle equipment's used in microbiology.
4. Understand the principles of sterilization and disinfection in hospital.
5. Understand the pathogenesis of the diseases caused by organisms in human body.
6. Understanding the knowledge of basic microbial laboratory practices, rules and Regulations.

Semester II

Course: Anatomy -2

1. Understand the concept & terminology related to different life process of human body.
2. Be able to Enlist, memorize and recognize the structure, function & location of respiratory, digestive, nervous and reproductive system of human body.
3. Understand relationship between different organs of the body with organ system.
4. Be Able to demonstrate the structural differences between respiratory, digestive, nervous and reproductive system of human body.
5. Be able to identify various organs of male & female respiratory, digestive, nervous and reproductive system of human body.
6. Be able to describe overall gross Anatomy of the different systems present in the human body.

Course: Systemic Physiology

1. Understand the concepts & terminology of human general physiology.
2. Enlisting and memorizing the function and metabolism of basic biomolecules, excretory systems, endocrine, CNS.
3. Understanding of various organ systems and employing its knowledge to identify functions related to them.
4. Identifying and explaining the interrelation between different human physiological system.
5. Control and co-ordination between different organs systems.
6. Able to understand the meaning of digestion, regulation, hypo and hyper conditions, reproductive process, reflexes and special senses.

Course: Biochemistry-2

1. Understand the concepts and theories of Biochemistry.



2. Understand the chemistry of blood components, normal and abnormal constituents of urine. Energy metabolism and role of clinical technician.
3. Can analyze the mechanism of blood components, enzyme actions and body fluid distributions.
4. Understand the biochemical testing and analyzing the test result.
5. Understand the meaning of Reactions of monosaccharide's, disaccharides and starch. Glucose: Fructose, Maltose, lactose, Sucrose, radio isotopes used in biochemistry, Rate limiting steps.
6. Have knowledge of Body fluid of choice - blood, plasma, serum, Proteins, Urea, Bilirubin, Creatinine. Understanding the role of technician with respect to quality assurance, preparation of specimen, collection etc.
7. Knowledge of analysis by Standard graphs, biochemical tests, colorimetric and spectrophotometric analysis.

Course: General Pathology

1. Have general insight into the history & basics of general pathology.
2. Understand about the knowledge of acute and chronic inflammation and events involved, tissue repair mechanisms.
3. Be able to understand general abnormal conditions of the human body.
4. Understand the principles of PEM, Role effects of metals.
5. Understand the pathophysiology of diabetes, arteriosclerosis, COPD.
6. Understanding the knowledge of pathological conditions and abnormalities associated with it.

Semester III

Course: Clinical Biochemistry -I

1. To understand in detail, the structure and physio-chemical properties of carbohydrates from monosaccharide to polysaccharides.
2. To learn the significance of structural and storage polysaccharides in nature
3. To study the structures of PG, GAG and other complex Polysaccharides.
4. To describe the physiology of the carbohydrate Digestion in mammals.
5. To illustrate the metabolism of carbohydrates through various anabolic and catabolic pathways like glycolysis, Kerb's cycle, Glycogen metabolism, glucuronic acid cycle etc.
6. Relate the structure of DNA with its function in Replication and gene expression that include both transcription and translation.

Course: Immunology and Serology 1

1. To define antigen and describe how antigens affect the adaptive defenses.
2. To discuss the properties of antigens.
3. To understand the importance of haptens and adjuvants.
4. To explain the structure, properties and functions of antibodies.
5. To compare and contrast primary and secondary immune response.
6. To describe the mechanisms of hypersensitivity reactions (I-IV).



Course: Clinical Haematology 1

1. To provide in depth knowledge about the pathology and pathophysiology of haematological disorders
2. To help the students, read and evaluate laboratory values from routine blood examination and be able to differentiate between pathologies.
3. To enhance the student's ability to produce a differential diagnosis based on clinical examination and laboratory values.
4. To provide a basic understanding of the treatment protocols which are in place for hematology.
5. To Describe the investigative approach and management of a patient with anemia.
6. To understand Outline, the nutritional and metabolic aspects of iron metabolism, including dietary iron, iron absorption, body iron distribution and transport.

Course: Histopathology and Histotechniques 1

1. To outline the services provided by a hospital histology laboratory, and who uses them
2. To outline the processes involved in the preparation of tissue sections and explain the purpose of each of these processes
3. To identify a number of basic tissue-types from their microscopic appearance
4. To understand why histology is essential for accurate diagnosis and monitoring of disease progression.

Semester IV

Course: Clinical Biochemistry -2

1. To Understand the difference between the water soluble and fat-soluble vitamins and their key role in the metabolism as coenzymes
2. To Acquire the knowledge on the clinical consequences of nutritional deficiency
3. To Present a case study on the nutrition deficiency disorder.
4. To Describe the physiology of the carbohydrate Digestion in mammals.
5. To illustrate the metabolism of carbohydrates through various anabolic and catabolic pathways like glycolysis, Krebs's cycle, Glycogen metabolism, glucuronic acid cycle etc.
6. To Relate the structure of DNA with its function in Replication and gene expression that include both transcription and translation.

Course: Immunology and Serology 2

After going through this unit student shall be able to:

1. Detailed description of various types of tests.
2. The history and development of immunology
3. Describe surface membrane barriers and their protective functions.
4. The importance of phagocytosis and natural killer cells in innate body defense.
5. Describe the roles of different types of T cells, B cells and APCs.
6. Compare and contrast the origin, maturation process, and general function of B and T lymphocytes.



Course: Clinical Haematology 2

1. To describe the absorption of iron at the level of enterocyte and the importance of Hepcidin.
2. To understand outline the common causes of iron deficiency anemia
3. To identify questions which, on history-taking, help elucidate likely causes of iron deficiency anemia.
4. To describe the signs and symptoms of iron deficiency anemias and diseases associated it.
5. To understand outline, the investigations and management of a patient with iron deficiency anemias.
6. To differentiate, by laboratory tests, anemias due to iron deficiency from other causes of microcytic anemia.

Course: Histopathology and Histotechniques 2

1. To outline the services provided by a hospital histology laboratory, and who uses them
2. To outline the processes involved in the preparation of tissue sections and explain the purpose of each of these processes
3. To identify a number of basic tissue-types from their microscopic appearance
4. To understand why histology is essential for accurate diagnosis and monitoring of disease progression.

Semester V

Course: Immunohematology

1. To Apply advanced blood bank and blood transfusion knowledge to make appropriate and effective on-the-job professional decisions.
2. To Perform and interpret commonly utilized procedures in the blood bank laboratory.
3. To Recognize normal and abnormal test results and correlate these data with appropriate pathologic conditions to accurately advise health care providers.
4. To Adapt immunohematology laboratory techniques and procedures when errors and discrepancies in results are obtained to effect resolution in a professional and timely manner.

Course: Clinical Enzymology

1. To Plan and execute an enzyme assay
2. To Analyze enzyme kinetic data
3. To Analyze kinetic inhibition data and to determine the mechanism of inhibition
4. To Perform library research on a specific enzyme topic.
5. To Prepare and deliver a PowerPoint seminar to their peers.

Course: Medical Microbiology

1. To Demonstrate theory and practical skills in microscopy and their handling techniques and staining procedures.



2. To Understand the basic microbial structure and function and study the comparative characteristics of prokaryotes and eukaryotes and also Understand the structural similarities and differences among various physiological groups of bacteria/archaea
3. To Know various Culture media and their applications and also understand various physical and chemical means of sterilization
4. To Know General bacteriology and microbial techniques for isolation of pure cultures of bacteria, fungi and algae
5. To Master aseptic techniques and be able to perform routine culture handling tasks safely and effectively
6. To Comprehend the various methods for identification of unknown microorganisms Understand the microbial transport systems and the modes and mechanisms of energy conservation in microbial metabolism – Autotrophy and heterotrophy

Course: Mycology and Virology

1. To Identify the distribution of fungi in nature.
2. To Discuss the systematic classification of fungi
3. To List the positive and the negative roles of fungi in life
4. To Describe the general characters of fungi.
5. To Recognize the characteristics of myxomycetes and their important genera
6. To List the different divisions related to Eumycota.
7. To Describe Mastigomycotina and some related genera.
8. To Compare between some genera related to Zygomycota.

Programme: B.Sc. Medical Radiography & Imaging Technology

Graduate Attributes

- ❖ Be able to assist in specialized radiological procedures.
- ❖ Be able to undertake, X- Rays, Mammography, CT scan and MRI procedures.
- ❖ Be able to assist radiologist in performing ultra- sonography and color Doppler.
- ❖ Be able to assist radiologist in conducting angiography procedures.
- ❖ Be able to do the image processing and handle all radiological and imaging equipment's independently.
- ❖ Undertake care and maintenance of all radiological and imaging equipment ensuring radiation protection and quality assurance.
- ❖ Able to manage emergency situations, receive and document verbal, written and electronic orders in the patient's medical record.
- ❖ Confidently perform all the duties diligently with utmost sincerity and honesty.
- ❖ To understand analyze, interpret, integrate and evaluate information with the ability to findings in a written or oral format.



Course Outcome

Semester I

Course: Anatomy -1

1. Understand the concept & terminology of Human Anatomy.
2. Be able to Enlist, memorize and recognize the structure, function & location of cells, and major human organs.
3. Understand relationship between different organs of the body with organ system.
4. Be Able to demonstrate the structural differences between skeletal, smooth and Cardiac.
5. Be able to demonstration of various parts of male & female reproductive system from model/charts.
6. Be able to describe overall gross Anatomical positions of human body, positions.

Course: General Physiology

1. Understand the concepts & terminology of human physiology.
2. Enlisting and memorizing the function & structure of cells, tissues and major human organs systems/parts
3. Understanding function of various organ systems and employing its knowledge to identify diseases related to them.
4. Identifying and explaining the interrelation between different organ systems.
5. Differentiating various organs & organs system
6. Able to understand the meaning of pulse rate, ECG, blood pressure, blood groups and blood composition/ components.

Course: Biochemistry-1

1. Understand the concepts and theories of Biochemistry.
2. Understand the chemistry of carbohydrates, proteins, lipids and amino acids.
3. Can analyze the mechanism of enzyme action, identify the classes and factors affecting actions.
4. Understand the biochemical testing and analyzing the test result.
5. Understand the meaning of Reactions of monosaccharide's, disaccharides, and starch.: Fructose, Maltose, lactose, Sucrose
6. Have knowledge of Bio fluid of choice - blood, plasma, serum, Proteins, Urea, Bilirubin,.
7. Knowledge of analysis by Standard graphs.

Course: Microbiology

1. Have general insight into the history & basics of microbiology.
2. Understand about the characteristics of bacteria, viruses, fungi and parasites.
3. Be able to handle equipment's used in microbiology.
4. Understand the principles of sterilization and disinfection in hospital.
5. Understand the pathogenesis of the diseases caused by organisms in human body.
6. Understanding the knowledge of basic microbial laboratory practices, rules and Regulations.



Semester II

Course: Anatomy -2

1. Understand the concept & terminology related to different life process of human body.
2. Be able to Enlist, memorize and recognize the structure, function & location of respiratory, digestive, nervous and reproductive system of human body.
3. Understand relationship between different organs of the body with organ system.
4. Be Able to demonstrate the structural differences between respiratory, digestive, nervous and reproductive system of human body.
5. Be able to identify various organs of male & female respiratory, digestive, nervous and reproductive system of human body.
6. Be able to describe overall gross Anatomy of the different systems present in the human body.

Course: Systemic Physiology

1. Understand the concepts & terminology of human general physiology.
2. Enlisting and memorizing the function and metabolism of basic biomolecules, excretory systems, endocrine, CNS.
3. Understanding of various organ systems and employing its knowledge to identify functions related to them.
4. Identifying and explaining the interrelation between different human physiological system.
5. Control and co-ordination between different organs systems.
6. Able to understand the meaning of digestion, regulation, hypo and hyper conditions, reproductive process, reflexes, and special senses.

Course: Biochemistry-2

1. Understand the concepts and theories of Biochemistry.
2. Understand the chemistry of blood components, normal and abnormal constituents of urine. Energy metabolism and role of clinical technician.
3. Can analyze the mechanism of blood components, enzyme actions and body fluid distributions.
4. Understand the biochemical testing and analyzing the test result.
5. Understand the meaning of Reactions of monosaccharide's, disaccharides and starch. Glucose: Fructose, Maltose, lactose, Sucrose, radio isotopes used in biochemistry, Rate limiting steps.
6. Have knowledge of Body fluid of choice - blood, plasma, serum, Proteins, Urea, Bilirubin, Creatinine. Understanding the role of technician with respect to quality assurance, preparation of specimen, collection etc.
7. Knowledge of analysis by Standard graphs, biochemical tests, colorimetric and spectrophotometric analysis.

Course: General Pathology

1. Have general insight into the history & basics of general pathology.
2. Understand about the knowledge of acute and chronic inflammation and events involved, issue repair mechanisms.



3. Be able to understand general abnormal conditions of the human body.
4. Understand the principles of PEM, Role effects of metals.
5. Understand the pathophysiology of diabetes, arteriosclerosis, COPD.
6. Understanding the knowledge of pathological conditions and abnormalities associated with it.

Semester III

Course: Radiation Physics

1. To learn about the behavior of physical bodies it provides the basic concepts related to the motion of all the objects around us in our daily life.
2. To lay foundation of various applied field in science and technology; especially in the field of mechanical engineering. The course comprises of the study vectors, laws of motion, momentum, energy, rotational motion, gravitation, fluids, elasticity and special relativity.
3. To perform and understand basic experiments related to mechanics and also get familiar with various measuring instruments would learn the importance of accuracy of measurements.
4. To learn about one of the fundamental interactions of electricity and magnetism, both as separate phenomena and as a singular electromagnetic force. The course contains vector analysis, electrostatics, magnetism, electromagnetic induction and Maxwell's equations. The course is very useful for the students in almost every branch of science and engineering.
5. To understand Basic experiments of modern physics such as: Determination of Plank's & Boltzmann's constants, Determination of ionization potential, Wavelength of H-spectrum, Single and double slit diffraction, Photo electric effect and determination of e/m
6. The students would gain the knowledge of Basic Electronics circuits, network theorems and measuring instruments: They would know about common solid state devices: Semiconductor diodes and transistors. The topics also include the Rectifiers, Filters and their applications, number systems and logic gates which are foundation blocks of digital electronics.

Course: Fundamentals of imaging devices

1. To develop an insight and knowledge base of the various underlying concepts of construction and working principles of image intensifier.
2. To understanding the Knowledge of properties, characteristics, quantity and quality of X-ray.
3. Should be able in processing of latent imaging.
4. Should be able to demonstrate general characteristic features of fluoroscopic techniques.
5. To understanding the Knowledge of portable and mobile equipment used in radio imaging techniques.

Course: Radiological positioning-1

1. To determine appropriate patient interaction and preparation for all Radiographic examinations.



2. To understand Critique Radiographs for applicable anatomy, proper position and correct exposure index.
3. To Formulate appropriate technical factors for radiographic procedures.
4. To understand and explain the required breathing instructions, patient position, usable surface landmarks and suitable radiation protection during radiographic procedures.
5. To understand professional ethics in radiological positioning.

Course: Radiographic procedure 1

1. To describe central ray direction, Image Receptor (IR) placements, marker location, source-to-image receptor distance (SID).
2. To demonstrate obtaining the correct patient history, patient care, required breathing
3. To study instructions, patient position, usable surface landmarks and anatomy demonstrated in each procedure.
4. To Demonstrate by role play and phantom radiography mastery of learned procedures.
5. To understanding the appropriate technical factors and radiation protection devices.
6. To Demonstrate interpersonal and organizational skills when conducting radiographic procedures.

Semester IV

Course: USG and Colour Doppler

1. To prepare competent entry level sonographers in the cognitive (knowledge), psychomotor (skills), and affective (behaviour) learning domains for the abdominal sonography extended concentration
2. Possess critical thinking skills to adapt to changing clinical environments and patient needs, demonstrating knowledge and understanding of abdominal and superficial anatomy, physiology, and pathology.
3. Exhibit professionalism through consistent, responsible, and ethical behavior
4. Demonstrate knowledge of understanding of acoustic physics, Doppler ultrasound principles, and ultrasound instrumentation to create diagnostic ultrasound images of abdominal and superficial anatomy.
5. Demonstrate effective communication skills.

Course: Radiation protection and preventive medicine

1. The purpose of the course is to inform students of the hazards of working with radiation in a medical environment and the different techniques available for minimizing radiation exposure.
2. The second half of the semester the student will understand the effects of ionizing radiation in the biologic systems.
3. This course is divided into two basic categories. The first half of the semester will be devoted to radiation protection of patient and personnel, which will be applicable during their clinical training.
4. The second half of the semester the student will understand the effects of ionizing



radiation in the biologic systems.

Course: Radiological positioning-2

1. To determine appropriate patient interaction and preparation for all Radiographic examinations.
2. To understand Critique Radiographs for applicable anatomy, proper position and correct exposure index.
3. To Formulate appropriate technical factors for radiographic procedures.
4. To understand and explain the required breathing instructions, patient position, usable surface landmarks and suitable radiation protection during radiographic procedures.
5. To understand professional ethics in radiological positioning.

Course: Radiographic procedure -2

1. To describe central ray direction, Image Receptor (IR) placements, marker location, source-to-image receptor distance (SID).
2. To demonstrate obtaining the correct patient history, patient care, required breathing
3. To study instructions, patient position, usable surface landmarks and anatomy demonstrated in each procedure.
4. To Demonstrate by role play and phantom radiography mastery of learned procedures.
5. To understanding the appropriate technical factors and radiation protection devices.
6. To Demonstrate interpersonal and organizational skills when conducting radiographic procedures.

Semester - V

Course: Interventional Radiology and Nuclear medicine

1. To Function effectively as consultants, integrating all of the Can MEDS Roles to provide optimal, ethical, and patient-centred medical care.
2. To Establish and maintain clinical knowledge, skills, and behaviors appropriate to Interventional Radiology.
3. To contribute development, dissemination, and translation of new knowledge and practices.
4. To understand that comprises a wide range of minimally invasive, image-guided diagnostic and therapeutic and diagnostic procedures
5. The expertise in: diagnostic imaging and radiation safety; image-guided minimally Invasive Procedures; the evaluation and management of patients suitable for image-guided interventions; the management of complications occurring as a consequence of image-guided interventions, including but not limited to provision of inpatient care; and continual invention and innovation of new techniques, devices, and procedures.

Course: Mammography

1. To Demonstrate patient care skills. Practice universal precautions and radiation safety.



2. To Perform quality assurance tests required by the ACR for all digital mammography equipment. Observe, assist with or participate in specialty exams (augmented breasts/interventional/special procedures).
3. To understand the American Cancer Society (ACS) guidelines for screening mammography, patient dosage, and the possibility for additional projections and/or other breast imaging procedures with the patient. Document patient clinical history relevant to the performance and interpretation of the mammography exam.
4. To Identify and label the anatomical structures of the breast. Compare breast anatomical structures to mammographic anatomical structures.
5. Perform screening and/or diagnostic mammograms on both full field digital and digital breast tomosynthesis (3D) mammography equipment. Perform mammograms by positioning the patient and equipment according to department protocol or requisition.
6. Select equipment appropriate to the patient and the examination to be performed. Select and record exposure factors based upon breast tissue density, patient's age, numerical compression scale and equipment characteristics.

Course: Computed tomography

1. To Operate CT equipment and perform CT exams under the direct supervision of qualified CT Technologists until they have successfully passed clinical experience evaluations on CT exams.
2. To understand Failure to observe these requirements may result in immediate dismissal from the clinical site and possibly the CT Program.
3. To Demonstrate a total of 125 repetitions in 59 CT Procedures as required by the Program in 6 categories per ARRT requirements (Head, Spine and Musculoskeletal; Neck and Chest; Abdomen and Pelvis; Additional Procedures; Image Display and Post Processing, and Quality Assurance),
4. Ideally completing 65 CT procedures per clinical course. The CT program objectives are based on ARRT Computed Tomography Certification Requirements.

Course: Magnetic Resonance Imaging

1. To demonstrate procedural skill development to competently perform diagnostic imaging Procedures.
2. To demonstrate the knowledge of safety and screening procedures to provide a safe imaging environment for the patient, themselves, and other healthcare professionals.
3. To determine the need to modify standard procedures and technical factors to accommodate patient conditions and other variables.
4. To demonstrate critical thinking and problem-solving skills in the clinical setting.
5. It indicates satisfaction with the effectiveness of graduates as entry-level imaging professionals.
6. Graduates will indicate that the educational experience received adequately prepared them for employment as entry-level imaging professionals.



Programme: B.Sc. Operation Theatre Technology

Graduate Attributes

- ❖ Able to handle the latest technology and high-end biomedical equipment in Operation Theatre.
- ❖ Able to do patient data collection, pain clinics, patient education and administrative tasks.
- ❖ Able to help the anesthesiologist in administering anesthesia, assist in various procedures and also help in continuous monitoring of patients during surgery.
- ❖ Able to manage medical gases and pipeline system, Central sterile supply department and assist in Disaster and emergency situations.
- ❖ Able to regulate the sterilization of surgical and anesthesia equipment's and maintain the records.
- ❖ Able to assist anesthesiologists in developing and plummeting patient anesthesia care plans, including pre-operative, surgical theatre, recovery room, and post-operative intensive care procedures.
- ❖ Able to do catheter insertion, airway management, monitoring of regional and peripheral nerve blockades, support therapy, adjusting aesthetic levels during surgery, inter-monitoring, postoperative procedures,
- ❖ Able to do routinely used operational practices in OTT.
- ❖ To understand Analyze, interpret, integrate and evaluate information with the ability to findings in a written or oral format.

Learning Outcome

Semester I

Course: Anatomy -1

1. Understand the concept & terminology of Human Anatomy.
2. Be able to enlist, memorize and recognize the structure, function & location of cells, and major human organs.
3. Understand relationship between different organs of the body with organ system.
4. Be Able to demonstrate the structural differences between skeletal, smooth and Cardiac muscles.
5. Be able to demonstration of various parts of male & female reproductive system from model/charts.
6. Be able to describe overall gross Anatomical positions of human body, positions.

Course: General Physiology

1. Understand the concepts & terminology of human physiology.
2. Enlisting and memorizing the function & structure of cells, tissues and major human organs systems/parts
3. Understanding function of various organ systems and employing its knowledge to identify diseases related to them.
4. Identifying and explaining the interrelation between different organ systems.
5. Differentiating various organs & organs system



6. Able to understand the meaning of pulse rate, ECG, blood pressure, blood groups and blood composition/ components.

Course: Biochemistry-1

1. Understand the concepts and theories of Biochemistry.
2. Understand the chemistry of carbohydrates, proteins, lipids and amino acids.
3. Can analyze the mechanism of enzyme action, identify the classes and factors affecting actions.
4. Understand the biochemical testing and analyzing the test result.
5. Understand the meaning of Reactions of monosaccharide's, disaccharides and starch.
Glucose: Fructose, Maltose, lactose, Sucrose
6. Have knowledge of Bio fluid of choice - blood, plasma, serum, Proteins, Urea, Bilirubin,
7. Knowledge of analysis by Standard graphs.

Course: Microbiology

1. Have general insight into the history & basics of microbiology.
2. Understand about the characteristics of bacteria, viruses, fungi and parasites.
3. Be able to handle equipment's used in microbiology.
4. Understand the principles of sterilization and disinfection in hospital.
5. Understand the pathogenesis of the diseases caused by organisms in human body.
6. Understanding the knowledge of basic microbial laboratory practices, rules and regulations.

Semester II

Course: Anatomy -2

1. Understand the concept & terminology related to different life process of human body.
2. Be able to Enlist, memorize and recognize the structure, function & location of respiratory, digestive, nervous and reproductive system of human body.
3. Understand relationship between different organs of the body with organ system.
4. Be Able to demonstrate the structural differences between respiratory, digestive, nervous and reproductive system of human body.
5. Be able to identify various organs of male & female respiratory, digestive, nervous and reproductive system of human body.
6. Be able to describe overall gross Anatomy of the different systems present in the human body.

Course: Systemic Physiology

1. Understand the concepts & terminology of human general physiology.
2. Enlisting and memorizing the function and metabolism of basic biomolecules, excretory systems, endocrine, CNS.
3. Understanding of various organ systems and employing its knowledge to identify functions related to them.
4. Identifying and explaining the interrelation between different human physiological system.



5. Control and co-ordination between different organs systems.
6. Able to understand the meaning of digestion, regulation, hypo and hyper conditions, reproductive process, reflexes and special senses.

Course: Biochemistry-2

1. Understand the concepts and theories of Biochemistry.
2. Understand the chemistry of blood components, normal and abnormal constituents of urine. Energy metabolism and role of clinical technician.
3. Can analyze the mechanism of blood components, enzyme actions and body fluid distributions.
4. Understand the biochemical testing and analyzing the test result.
5. Understand the meaning of reactions of monosaccharide's, disaccharides and starch. glucose: fructose, maltose, lactose, sucrose, radio isotopes used in biochemistry, Rate limiting steps.
6. Have knowledge of Body fluid of choice - blood, plasma, serum, proteins, Urea, Bilirubin, Understanding the role of technician with respect to quality assurance, preparation of specimen, collection etc.
7. Knowledge of analysis by Standard graphs, biochemical tests, colorimetric and spectrophotometric analysis.

Course: General Pathology

1. Have general insight into the history & basics of general pathology.
2. Understand about the knowledge of acute and chronic inflammation and events involved, tissue repair mechanisms.
3. Be able to understand general abnormal conditions of the human body.
4. Understand the principles of PEM, Role effects of metals.
5. Understand the pathophysiology of diabetes, arteriosclerosis, COPD.
6. Understanding the knowledge of pathological conditions and abnormalities associated with it.

Semester-III

Course: Introduction to OT technology

1. To study the aspects related to surgery performed at the operation theatre
2. To understand and learn skill of field.
3. To understand and to impart knowledge of this field so that these professionals can help experts perform various procedures smoothly.
4. The courses in Operation Theatre Technology intend These technicians are in great demand in surgery units, emergency departments, and various intensive care units at hospitals.

Course: Surgical Equipment's and Machines

1. To understand Specialized Surgical modalities covered include endoscopy, microsurgery, therapeutic surgical energies, and other integrated science technologies



2. It will be able prepare instruments and supplies necessary for the continual function of the operating room.
3. To understand and learn the effective communication skills with members of the healthcare team and develop a basic understanding of the disease process.
4. To understand the knowledge of Multifunction disciplines in the hospital and specialty settings.
5. To understand the knowledge of professional ethics and moralities in while handling surgical equipment's and machines.
6. To understand the smooth working of instruments.

Course: Basic Anaesthesia Technology

1. To understand the knowledge of Intra-operative intra-aortic balloon pump setup, operating and Monitor. Swan-Ganz pulmonary artery catheter insertion and monitoring.
2. To understand the knowledge of Intra-operative blood salvage setup, operating and monitoring. Material blood gas analysis, including maintenance of analysers
3. To understand the knowledge of Arterial line insertion and monitoring. Peripheral IV line Insertion, Cardiopulmonary resuscitation.
4. To understand the knowledge of basic methods in anesthesia.
5. To understand the knowledge of medicines used in anesthesia.
6. To understand the knowledge of Pre & Post anesthesia technology.

Course: Medicine Relevant to OT

1. To understand the use of syringes and wheelchairs to cardiac pacemakers and medical imaging technologies.
2. To understand the medical devices who can play number of roles in maintaining and restoring health.
3. To understand and know the knowledge of anesthesia, paralytics, benzodiazepines, antibiotics, analgesics, anticoagulants, antiemetic, and stool softeners.
4. To study the Operating rooms are designed for surgeons and surgical staff to perform surgical operations that require time, patience, focus, and safety.
5. To understand the appropriate operation theatre equipment at their disposal to ensure that all surgical procedures are conducted safely.

Course: Applied OT Technology

1. To study the aspects related to surgery performed at the operation theatre
2. To understand and learn skill of field.
3. To understand and to impart knowledge of this field so that these professionals can help experts perform various procedures smoothly.
4. The courses in Operation Theatre Technology intend These technicians are in great demand in surgery units, emergency departments, and various intensive care units at hospitals.

Course: Advance Anaesthesia Technology



1. To understand the knowledge of Intra-operative intra-aortic balloon pump setup, operating and Monitor. Swan-Ganz pulmonary artery catheter insertion and monitoring.
2. To understand the knowledge of Intra-operative blood salvage setup, operating and monitoring. Material blood gas analysis, including maintenance of analysers
3. To understand the knowledge of Arterial line insertion and monitoring. Peripheral IV line Insertion, Cardiopulmonary resuscitation.
4. To understand the knowledge of basic methods in anesthesia.
5. To understand the knowledge of medicines used in anesthesia.
6. To understand the knowledge of Pre & Post anesthesia technology.

Course: CSSD Procedures and techniques

1. To understand the role of health central sterile processing technician, who plays a vital role in maintaining the cleanliness, functionality and inventory care instrumentation and equipment.
2. To know the work that ensures patients don't acquire infections and that doctor, Nurses.
3. Allied health professionals are able to access the instrumentation and equipment.
4. To know the risk of developing infection as a result of their compromised cleaning, disinfection & sterilization protocols or during instrument reprocessing

Course: Basic Intensive Care

1. To study and competently provide safe, efficient and effective care to critically ill patients.
2. To Apply appropriate evidence-based theory to underpin and rationalize the delivery of nursing in critical care
3. To understand and analyze the contemporary issues influencing the delivery of critical care services
4. To Competently provide safe, efficient and effective care to critically ill patients.
5. To understand and critically evaluate the disease process and related nursing management to complex critical illness
6. To understand and critically articulate complex contemporary issues, developing original solutions which support the development of critical care practice
7. To understand and apply the theories underpinning anatomy and pathophysiology in the context of nursing patients with critical illness

Semester -V

Course: Advance OT Technology

1. The courses in Advanced Operation Theatre Technology intend These technicians are in great demand in surgery units, emergency departments, and various intensive care units at hospitals.
2. To understand and to impart knowledge of this field so that these professionals can help experts perform various procedures smoothly.
3. To understand and learn Advanced skill of field.
4. To study the aspects related to surgery performed at the operation theatre



Course: Anaesthesia for Speciality Surgery

1. To understand the knowledge of Intra-operative intra-aortic balloon pump setup, operating and Monitor. Swan-Ganz pulmonary artery catheter insertion and monitoring.
2. To understand the knowledge of Intra-operative blood salvage setup, operating and monitoring. Arterial blood gas analysis, including maintenance of analysers
3. To understand the knowledge of Arterial line insertion and monitoring. Peripheral IV line Insertion, Cardiopulmonary resuscitation.
4. To understand the knowledge of basic methods in anesthesia.
5. To understand the knowledge of medicines used in anesthesia.
6. To understand the knowledge of Pre & Post anesthesia technology.

Course: Post Anaesthesia Care

1. To understand and know the knowledge of post Aesthetical operative procedures.
2. To understand basic skills in post aesthetical care.
3. To understand the mechanism of action of number of aesthetic drugs and medicines.
4. To understand standard and implement basic guidelines for post anesthetic care
5. To be able to deal with critical conditions and help doctors in their respective procedures.
6. To understand the value and importance of aesthetic care for each and every individual

Course: Medico legal applied to OTT

1. To understand and know medical condition in which law enforcement agencies seek to investigate and fix the responsibility regarding the said injury or medical condition.
2. To understand the different aspects of medico legal studies with respect to case studies.
3. To understand and study basic laws, acts, rules and regulations for medico legal conditions.
4. To be able to deal with people diplomatically and help sort problems.
5. To understand the knowledge of medical jurisprudence and medical laws.



Dr V. V. Bhosale
Registrar

Registrar,
D. Y. PATIL EDUCATION SOCIETY
(Deemed to be University)
869, 'E', Kasaba Bawada
KOLHAPUR-416006