# INTEGRAL UNIVERSITY, LUCKNOW

**INTEGRAL INSTITUTE OF ALLIED HEALTH SCIENCES & RESEARCH**

## DEPARTMENT OF ALLIED AND HEALTHCARE SCIENCES

## BACHELOR OF SCIENCE IN OPERATION THEATRE TECHNOLOGY (B.Sc. OTT)

## SYLLABUS

## YEAR/ SEMESTER: II/III

Integral University, Lucknow

Department of Allied and Healthcare Sciences

Study and Evaluation Scheme

Program: B.Sc. OTT Semester-III

| S. N. | Course code | Course Title | Type of Paper | Period Per hr/week/sem | | | Evaluation Scheme | | | | Sub. Total | Credit | Total Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | L | T | P | CT | TA | Total | ESE | | | |
| **THEORIES** | | | | | | | | | | | | | |
| 1 | OT201 | Pathology | Core | 2 | 1 | 0 | 40 | 20 | 60 | 40 | 100 | 2:1:0 | 3 |
| 2 | OT202 | Microbiology | Core | 2 | 1 | 0 | 40 | 20 | 60 | 40 | 100 | 2:1:0 | 3 |
| 3 | OT203 | Medical Biochemistry-II | Core | 2 | 1 | 0 | 40 | 20 | 60 | 40 | 100 | 2:1:0 | 3 |
| 4 | OT204 | Pharmacology | Core | 2 | 1 | 0 | 40 | 20 | 60 | 40 | 100 | 2:1:0 | 3 |
| 5 | OT205 | Principals and Equipment's related to Anesthesia Technology | Core | 2 | 1 | 0 | 40 | 20 | 60 | 40 | 100 | 2:1:0 | 3 |
| 6 | ES101 | Environmental Science | Core | 2 | 1 | 0 | 40 | 20 | 60 | 40 | 100 | 2:1:0 | 3 |
| **PRACTICAL** | | | | | | | | | | | | | |
| 1 | OT206 | Pathology & Microbiology Lab | Core | 0 | 0 | 2 | 40 | 20 | 60 | 40 | 100 | 0:0:1 | 1 |
| 2 | OT207 | Medical Biochemistry-II Lab | Core | 0 | 0 | 2 | 40 | 20 | 60 | 40 | 100 | 0:0:1 | 1 |
| 3 | OT208 | Principals and Equipment's related to Anesthesia Technology Lab | Core | 0 | 0 | 2 | 40 | 20 | 60 | 40 | 100 | 0:0:1 | 1 |
| 4 | OT209 | OT Posting | Core | 0 | 0 | 8 | 40 | 20 | 60 | 40 | 100 | 0:0:4 | 4 |
| **Total** | | | | **12** | **06** | **14** | **400** | **200** | **600** | **400** | **1000** | **25** | **25** |

| S. N. | Course code | Course Title | Type of Paper | Attributes | | | | | | | United Nation Sustainable Development Goal (SDGs) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Employability | Entrepreneurship | Skill Development | Gender Equality | Environment & Sustainability | Human Value | Professional Ethics | |
| **THEORIES** | | | | | | | | | | | |
| 1 | OT201 | Pathology | Core | √ | √ | √ | | | √ | √ | 3,4 |
| 2 | OT202 | Microbiology | Core | √ | √ | √ | | | √ | √ | 3,4 |
| 3 | OT203 | Medical Biochemistry-II | Core | √ | √ | √ | | | √ | √ | 3,4 |
| 4 | OT204 | Pharmacology | Core | √ | √ | √ | | | √ | √ | 3,4 |
| 5 | OT205 | Principals and Equipment's related to Anesthesia Technology | Core | √ | √ | √ | | | √ | √ | 3,4 |
| 6 | ES101 | Environmental Science | Core | | | | | √ | | | 6,13,14 & 15 |
| **PRACTICAL** | | | | | | | | | | | |
| 1 | OT206 | Pathology & Microbiology Lab | Core | √ | √ | √ | | | √ | √ | 3,4 |
| 2 | OT207 | Medical Biochemistry-II Lab | Core | √ | √ | √ | | | √ | √ | 3,4 |
| 3 | OT208 | Principals and Equipment's related to Anesthesia Technology Lab | Core | √ | √ | √ | | | √ | √ | 3,4 |
| 4 | OT209 | OT Posting | Core | √ | √ | √ | | | √ | √ | 3,4 |

**L:** Lecture **T:** Tutorials **P:** Practical **CT:** Class Test **TA:** Teacher Assessment **ESE:** End Semester Examination,

AE= Ability Enhancement, DSE- Discipline Specific Elective, **Sessional Total:** Class Test + Teacher Assessment **Subject Total:** Sessional Total + End Semester Examination (ESE)

# Integral University, Lucknow

| Effective from Session: 2025-26 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Course Code** | **OT201** | **Title of the Course** | **PATHOLOGY** | **L** | **T** | **P** | **C** |
| **Year** | **II** | **Semester** | I | **2** | **1** | **0** | **3** |
| **Pre-Requisite** | Nil | **Co-requisite** | Nil | | | | |
| **Course Objectives** | This course aims to provide an in-depth understanding of the mechanisms of **cell injury, inflammation, and neoplasms**, along with their role in disease processes. It covers the structure, function, and pathophysiology of the **vascular and cardiorespiratory systems**, as well as disorders affecting the **bones, joints, and muscular system**. Additionally, students will learn about the common pathological conditions of the **hepato-biliary, endocrine, and integumentary systems**, enabling them to correlate clinical findings with underlying disease mechanisms. | | | | | | |

| **Course Outcomes** | |
|---|---|
| **CO1** | Students able to understand the Explain the mechanisms of cell injury, the pathophysiology of inflammation, and the characteristics of neoplasms disease processes. |
| **CO2** | Students able to understand, describe the structure, function, and pathophysiology of the vascular and cardiorespiratory systems in health and disease. |
| **CO3** | Students able to understand, eexplain the structure, function, and common disorders of the bones, joints, and muscular system. |
| **CO4** | Students able to understand the Patho-physiology and associated problems of the hepato-biliary, endocrine, and integumentary systems. |
| **CO5** | Students able to learn the disease related to nervous system including Myopathies, Myasthenia gravis, Muscular dystrophy |

| **Unit No.** | **Title of the Unit** | **Content of Unit** | **Contact Hrs.** | **Mapped CO** |
|---|---|---|---|---|
| 1 | **CELL INJURY, INFLAMMATION & NEOPLASMS** | • Mechanisms and types of cell injury<br>• Cellular adaptations (Hypertrophy, Hyperplasia, Atrophy, Metaplasia)<br>• Inflammation: Types, Pathophysiology, and Healing Process<br>• Introduction to Neoplasms: Benign vs. Malignant Tumors<br>• Role of Pathology in OT: Handling Biopsy & Surgical Specimens | 6 | CO1 |
| 2 | **VASCULAR & CARDIORESPIRATORY SYSTEM** | • Common Cardiovascular Diseases: Hypertension, Atherosclerosis, Myocardial Infarction<br>• Respiratory Disorders in Surgery: COPD, ARDS, Pulmonary Embolism<br>• Importance of Cardiovascular and Respiratory Monitoring in OT | 6 | CO2 |
| 3 | **BONES, JOINTS & MUSCULAR SYSTEM:** | • Bone Healing and Fracture Management<br>• Common Musculoskeletal Disorders: Osteoarthritis, Rheumatoid Arthritis, Osteoporosis<br>• Neuromuscular Blockade in Anaesthesia<br>• Importance of Positioning and Handling of Patients in OT | 6 | CO3 |
| 4 | **HEPATO-BILIARY, ENDOCRINE & INTEGUMENTARY SYSTEM** | • Common Hepatic Disorders<br>• Pancreatic Disorders: Pancreatitis, Diabetes-related Complications<br>• Endocrine Disorders in Surgery: Thyroid, Adrenal, and Pituitary Diseases<br>• Prevention and Management of Pressure Ulcers in Surgical Patients | 6 | CO4 |
| 5 | **CENTRAL NERVOUS SYSTEM & UROLOGY** | • Common Neurological Disorders: Stroke, Epilepsy, Head Injuries, Spinal Cord Injuries<br>• Common Urological Conditions: Urinary Tract Infections (UTIs), Renal Stones, Prostate Disorders<br>• Role of OT Technicians in Neurosurgery and Urological Procedures | 6 | CO5 |

**Reference Books:**


1. Text book of Pathology - by Harsh Mohan
2. Textbook of Pathology By Boyd
3. General Pathology – by Bhende
4. Pathologic basis of diseases by Cotran, Kumar, Robbins


**e-Learning Source:**

1. https://youtu.be/WFm9j1rNkQs
2. https://youtu.be/vLCg_kyuyw4
3. https://youtu.be/xLEw7ceog8M
4. https://youtu.be/80bzLTdAN4w
5. https://youtu.be/dHURMD4v8Kk

**Course Articulation Matrix: (Mapping of COs with POs and PSOs)**

| PO-PSO / CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CO1** | 3 | 3 | - | 3 | - | 2 | - | - | 1 | 2 | - | **3** | - | **1** | **1** | - |
| **CO2** | 3 | 3 | - | 2 | - | 2 | - | - | 2 | 3 | - | **3** | - | **1** | **1** | - |
| **CO3** | 3 | 3 | - | 3 | - | 2 | - | - | 1 | 2 | - | **3** | - | **2** | **2** | - |
| **CO4** | 3 | 3 | - | 3 | - | 2 | - | - | 1 | 2 | - | **3** | - | **1** | **1** | - |
| **CO5** | 3 | 3 | - | 2 | - | 2 | - | - | 1 | 3 | - | **3** | - | **1** | **1** | - |

**1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation**

**Attributes & SDGs**

| Course Code | Course Title | Attributes | | | | | | | SDGs No. |
|---|---|---|---|---|---|---|---|---|---|
| | | Employability | Entrepreneurship | Skill Development | Gender Equality | Environment & Sustainability | Human Value | Professional Ethics | |
| OT201 | PATHOLOGY | √ | √ | √ | | | √ | √ | **3,4** |

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| Effective from Session: 2025-26 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Course Code** | **OT202** | **Title of the Course** | **MICROBIOLOGY** | **L** | **T** | **P** | **C** |
| **Year** | **II** | **Semester** | **III** | **2** | **1** | **0** | **3** |
| **Pre-Requisite** | **Nil** | **Co-requisite** | **Nil** | | | | |
| **Course Objectives** | This course equips students with essential microbiological knowledge, focusing on infection prevention, sterilization, and aseptic techniques in the operation theater. It enables them to identify and manage bacterial, viral, fungal, and parasitic infections, ensuring a sterile and safe surgical environment. | | | | | | |

| **Course Outcomes** | |
|---|---|
| **CO1** | Students able to understand explain bacterial structure, growth, and infection control measures in the operation theater. |
| **CO2** | Students able to understand immune responses, hypersensitivity, and the role of immunization in infection prevention. |
| **CO3** | Students able to understand and describe viral infections relevant to surgical settings and their prevention, including biosafety measures. |
| **CO4** | Students able to understand invagination of various types of fungal and parasitic infection & precautionary measurement against them. |
| **CO5** | Students able to understand and apply microbiological principles in sterilization, asepsis, and infection control in the OT environment |

| Unit No. | Title of the Unit | Content of Unit | Contact Hrs. | Mapped CO |
|---|---|---|---|---|
| 1 | **GENERAL BACTERIOLOGY** | • Introduction & History of Microbiology,<br>• Classification & Morphology of Bacteria,<br>• Growth & nutrition, Culture Media & Methods,<br>• Sterilization & Disinfection,<br>• antimicrobial susceptibility testing. | 6 | CO1 |
| 2 | **IMMUNOLOGY** | • Basics of the immune system (Innate & Adaptive immunity)<br>• Antigen, antibody, and immune response<br>• Hypersensitivity reactions and their surgical significance<br>• Vaccines and immunoprophylaxis in hospital settings<br>• Role of immunology in organ transplantation and graft rejection. | 6 | CO2 |
| 3 | **VIROLOGY** | • Structure and classification of viruses, Modes of viral transmission and infection<br>• Common viral infections in surgical patients (Hepatitis B & C, HIV, HPV)<br>• Prevention and control of viral infections in the OT<br>• Biosafety measures for handling viral contamination in OT settings | 6 | CO3 |
| 4 | **MYCOLOGY & PARASITOLOGY** | • Overview of medically important fungi and parasites<br>• Fungal infections in surgical patients (Candida, Aspergillus)<br>• Surgical wound contamination by fungal and parasitic infections<br>• Laboratory diagnosis of fungal and parasitic infections (Amoebiasis, Malaria, Helminthic infections) | 6 | CO4 |
| 5 | **APPLIED MICROBIOLOGY** | • Infection control and prevention in operation theatres<br>• Role of OT technicians in maintaining asepsis.<br>• Nosocomial (hospital-acquired) infections<br>• Handling and processing microbiological specimens in OT<br>• Post-operative infections: Risk factors and management | 6 | CO5 |

**Reference Books:**


1. Textbook of Parasitology- K. D. Chatterjee (12thEd.)
2. Text Book of Microbiology – Panikkar (9thEd.)
3. Essentials of Medical Microbiology-Sastry Apurba Shankar (1stEd.)
4. Textbook of Microbiology –P. Chakraborty


**e-Learning Source:**

1. https://youtu.be/BV3fDTNqFEQ
2. https://youtu.be/cMVyrrdgaYk
3. https://youtu.be/ev_mLporfOU
4. https://youtu.be/wdo3E2w0cI8

| | **Course Articulation Matrix: (Mapping of COs with POs and PSOs)** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PO-PSO CO** | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 | PSO6 |
| **CO1** | 3 | 3 | - | 1 | - | 1 | - | - | 1 | 1 | - | 2 | - | 1 | 1 | - | 3 |
| **CO2** | 2 | 3 | - | 2 | - | 2 | - | - | - | 1 | - | 3 | - | 2 | 2 | - | 2 |
| **CO3** | 3 | 3 | - | 1 | - | 1 | - | - | 1 | 1 | - | 2 | - | 1 | 1 | - | 3 |
| **CO4** | 2 | 3 | - | 1 | - | 2 | - | - | - | 1 | - | 2 | - | 1 | 1 | - | 2 |
| **CO5** | 2 | 3 | - | 1 | - | 2 | - | - | - | 1 | - | 3 | - | 1 | 1 | - | 2 |

**1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation**

**Attributes & SDGs**

| Course Code | Course Title | Attributes | | | | | | | SDGs No. |
|---|---|---|---|---|---|---|---|---|---|
| | | Employability | Entrepreneurship | Skill Development | Gender Equality | Environment & Sustainability | Human Value | Professional Ethics | |
| **OT202** | **MICROBIOLOGY** | √ | √ | √ | √ | | √ | √ | **3,4** |

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| Effective from Session: 2025-26 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Course Code** | **OT203** | **Title of the Course** | **MEDICAL BIOCHEMISTRY-II** | **L** | **T** | **P** | **C** |
| **Year** | **II** | **Semester** | **III** | **2** | **1** | **0** | **3** |
| **Pre-Requisite** | **Nil** | **Co-requisite** | **Nil** | | | | |
| **Course Objectives** | Upon completion of this course, students will understand the metabolism of **carbohydrates, proteins, and lipids** and their clinical relevance in perioperative care. They will be able to explain the pathophysiology, monitoring, and management of **diabetes mellitus** in surgical patients. Additionally, students will learn the importance of **acid-base balance** in anesthesia and critical care, enabling them to interpret **blood gas analysis** and manage metabolic disturbances in the OT setting. | | | | | | |

| **Course Outcomes:** After the successful course completion, learners will develop following attributes: | |
|---|---|
| **CO1** | Students will be able to learn about metabolism of carbohydrates, HMP pathway & ETC |
| **CO2** | Students will be able to learn about blood glucose regulation mechanism and its disorder, ex- Diabetes Mellitus |
| **CO3** | Students will be able to learn about Proteins and their metabolism. |
| **CO4** | Students will be able to learn about Lipids, their structure, metabolic pathways and cholesterol metabolism |
| **CO5** | Students will be able to learn about Acid-Base balance mechanism, Blood chemistry profile, various techniques to monitor blood chemistry. |

| Unit No. | Title of the Unit | Content of Unit | Contact Hrs. | Mapped CO |
|---|---|---|---|---|
| 1 | **Metabolism of Carbohydrates** | • Overview of carbohydrate metabolism (Glycolysis, Gluconeogenesis, Glycogen metabolism)<br>• Role of glucose in energy production<br>• Regulation of blood sugar levels<br>• Disorders related to carbohydrate metabolism (Hypoglycemia, Lactic Acidosis)<br>• Importance of glucose monitoring in perioperative care. | 8 | CO1 |
| 2 | **Diabetes mellitus** | • Types of diabetes (Type 1, Type 2, Gestational Diabetes)<br>• Pathophysiology and complications of diabetes<br>• Diabetic ketoacidosis and its perioperative management<br>• Monitoring and management of diabetic patients in surgery. | 8 | CO2 |
| 3 | **Proteins** | • Protein metabolism and nitrogen balance<br>• Clinical significance of serum proteins (Albumin, Globulin)<br>• Protein-energy malnutrition and its impact on wound healing<br>• Importance of protein balance in surgical recovery | 8 | CO3 |
| 4 | **Lipid** | • Types and metabolism of lipids (Fatty acid oxidation, Lipoproteins)<br>• Role of lipids in energy production and cell function<br>• Cholesterol metabolism and its clinical significance<br>• Lipid disorders and their surgical implications (Atherosclerosis, Fatty liver)<br>• Importance of lipid monitoring in critically ill patients | 8 | CO4 |
| 5 | **Acid & Base Balance** | • Concept of pH, Buffers, and Regulation of Acid-Base Balance<br>• Role of lungs and kidneys in maintaining pH<br>• Acid-base disturbances (Metabolic Acidosis, Alkalosis, Respiratory Acidosis, Alkalosis)<br>• Clinical importance of acid-base balance in anesthesia and critical care<br>• Blood gas analysis and its interpretation in surgical patients. | 8 | CO5 |

**Reference Books:**


1. D M Vasudevan, Text book of Medical Biochemistry, Jaypee Publishers.
2. M N Chatterjee &Rana Shinde, Text book of Medical Biochemistry, Jayppe Publications.
3. Michael Cox, David L. Nelson, Lehninger Principles of Biochemistry, 7th edition, W.H. Freeman.
4. Ranjana Chawla, Practical Clinical Biochemistry: Methods and Interpretations.


**e-Learning Source:**

1. https://youtu.be/t5DvF5OVr1Y
2. https://youtu.be/gggC9vctvBQ
3. https://youtu.be/ufvZ8bYtyO8
4. https://youtu.be/Q6R4o-oECxs

**Course Articulation Matrix: (Mapping of COs with POs and PSOs)**

| PO-PSO / CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CO1** | 1 | 3 | 2 | 2 | - | - | - | 1 | 2 | 1 | 2 | 2 | 1 | - | 1 | - |
| **CO2** | 1 | 3 | 1 | 3 | - | - | - | 2 | 3 | - | 3 | 3 | 2 | - | 2 | - |
| **CO3** | 1 | 3 | 1 | 2 | - | - | - | 1 | 2 | 2 | 2 | 3 | 1 | - | 1 | - |
| **CO4** | 1 | 3 | 1 | 2 | - | - | - | 1 | 3 | - | 3 | 2 | 1 | - | 1 | - |
| **CO5** | 1 | 3 | 1 | 2 | - | - | - | 1 | 2 | 1 | 2 | 2 | 1 | - | 1 | - |

**1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation**

**Attributes & SDGs**

| Course Code | Course Title | Attributes | | | | | | | SDGs No. |
|---|---|---|---|---|---|---|---|---|---|
| | | Employability | Entrepreneurship | Skill Development | Gender Equality | Environment & Sustainability | Human Value | Professional Ethics | |
| OT203 | MEDICAL BIOCHEMISTRY-II | √ | √ | √ | √ | | √ | √ | **3,4** |

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| **Effective from Session: 2025-26** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Course Code** | **OT204** | **Title of the Course** | **PHARMACOLOGY** | **L** | **T** | **P** | **C** |
| **Year** | **II** | **Semester** | **III** | **2** | **1** | **0** | **3** |
| **Pre-Requisite** | **Nil** | **Co-requisite** | **Nil** | | | | |
| **Course Objectives** | The course will provide training in general pharmacology with special emphasis on common drugs used, routes of ministration, types of formulations, dose and frequency of administration, side effects and toxicity, management of toxic effects, drug interactions, knowledge of chemical and trade name, importance of manufacturing and expiry dates and instructions for handling of drugs. | | | | | | |

| **Course Outcomes:** After the successful course completion, learners will develop following attributes: | |
|---|---|
| **CO1** | General Pharmacology & ANS: Possess a relevant knowledge in basic principles of pharmacology and its recent advances. |
| **CO2** | Autacoids, PNS & Resp. System: Understand the basic pharmacology of common drugs used, their importance in the overall treatment including Physiotherapy. |
| **CO3** | CVS, GIT & Miscellaneous: Understand the general principles of drug action and the handling of drugs by the body. |
| **CO4** | CNS & Hormones: Understand the contribution of both drug and other factors in the outcome of treatment |
| **CO5** | Anti - Microbial Agents: Learn the various drugs such as Anti-leprotic& Anti-fungal Drugs, Anti-malarial Drugs, Anti-tubercular Drugs |

| **Unit No.** | **Title of the Unit** | **Content of Unit** | **Contact Hrs.** | **Mapped CO** |
|---|---|---|---|---|
| 1 | **GENERAL PHARMACOLOGY** | • Introduction to Pharmacology: Definitions & Importance in OT<br>• Routes of Drug Administration & Drug Absorption, Distribution, Metabolism, and Excretion<br>• Drug Dosage,<br>• Adverse Drug Reactions (ADR), Drug Interactions & Safety Measures | 8 | CO1 |
| 2 | **CENTRAL NERVOUS SYSTEM & RESPIRATORY SYSTEM** | • CNS Drugs: General & Local Anesthetics, Sedatives, Hypnotics, Analgesics and Antiepileptic<br>• Respiratory Drugs: Bronchodilators, Antitussives, Mucolytics<br>• Drugs Used in Emergency Conditions: Asthma, COPD, Anaphylaxis, and ARDS | 8 | CO2 |
| 3 | **CARDIOVASCULAR SYSTEM & BLOOD** | • Drugs Affecting Blood Pressure<br>• Drugs Used in Cardiac Arrest & Arrhythmias<br>• Anticoagulants, Thrombolytics & Antiplatelet Drugs<br>• Blood & Plasma Volume Expanders: Indications & Transfusion Reactions | 8 | CO3 |
| 4 | **HORMONES AND GIT** | • Endocrine Pharmacology: Insulin & Oral Hypoglycemic Agents, Thyroid & Adrenal Drugs<br>• Hormonal Therapy in Surgery: Corticosteroids, Estrogens, and Androgens<br>• Drugs Used in Peptic Ulcer Disease<br>• Antiemetics, Laxatives & Antidiarrheal Drugs in Preoperative Care | 8 | CO4 |
| 5 | **CHEMOTHERAPY & MISCELLANEOUS** | • Antibiotics: Classification, Mechanism, and Perioperative Use in Infection Control<br>• Antifungal, Antiviral & Antitubercular Drugs Used in Surgery<br>• Chemotherapeutic Agents: Basic Concepts & OT Precautions in Handling Cytotoxic Drugs<br>• Emergency Drugs Used in OT: Adrenaline, Atropine, Naloxone, Dantrolene | 8 | CO5 |

**Reference Books:**


1. Dr. K.D. Tripathi Jaypee, Essential of Medical Pharmacology, Brothers Medical Publishers.
2. Gaddum Gaddum's Pharmacology
3. Dr. R.S. Satoskar & Dr. S.D. Bhandarkar, Pharmacology & Pharmacotherapeutics Revised 19th Edition 2005 by Popular Prakashan
4. Krantx, &Carr, Pharmacology principle of Medical practice, Williams &Wilkins.
5. Goodman Pharmacological basis of Therapeutics, L. S. Gilman A


**e-Learning Source:**

1. https://youtu.be/a0lWFQvQKw8
2. https://youtu.be/qhiMmNZjHRg
3. https://youtu.be/-znHCAu5OnY
4. https://youtu.be/t2tKyjj7u5Y

**Course Articulation Matrix: (Mapping of COs with POs and PSOs)**

| PO-PSO / CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CO1** | 2 | 3 | - | - | - | - | - | - | - | - | - | 1 | 3 | - | 1 | - | 2 |
| **CO2** | 3 | 3 | - | - | - | 2 | - | - | - | - | - | - | 3 | 3 | 2 | 3 | 3 |
| **CO3** | 2 | 3 | - | - | - | 2 | - | - | - | - | - | 1 | 3 | 2 | 1 | 3 | 2 |
| **CO4** | 3 | 3 | - | - | - | - | - | - | - | - | - | - | 2 | 3 | 2 | 2 | 3 |
| **CO5** | 3 | 3 | - | - | - | 3 | - | 1 | - | - | - | - | 3 | 3 | 2 | 3 | 3 |

**2- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation**

**Attributes & SDGs**

| **Course Code** | **Course Title** | **Attributes** | | | | | | | **SDGs No.** |
|---|---|---|---|---|---|---|---|---|---|
| | | Employability | Entrepreneurship | Skill Development | Gender Equality | Environment & Sustainability | Human Value | Professional Ethics | |
| **OT204** | **PHARMACOLOGY** | √ | √ | √ | | | √ | √ | **3,4** |

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| Effective from Session: 2025-2026 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Course Code** | **OT205** | **Title of the Course** | **PRINCIPLES AND EQUIPMENTS RELATED TO OPERATION THEATRE TECHNOLOGY** | **L** | **T** | **P** | **C** |
| **Year** | **II** | **Semester** | **III** | **2** | **1** | **0** | **3** |
| **Pre-Requisite** | **Nil** | **Co-requisite** | **Nil** | | | | |
| **Course Objectives** | | | | | | | |

| **Course Outcomes** | |
|---|---|
| **CO1** | Students able to understand basic of gas supply in anaesthesia and also in operations theatres. |
| **CO2** | Students able to Understand Face Masks & Airway Laryngoscopes |
| **CO3** | Students able to understand about the Machine Breathing System |
| **CO4** | Students able to understand the Familiarization of OT and OT Techniques |
| **CO5** | Students able to understand about the CSSD, Instrumentation, Store and Inventory |

| Unit No. | Title of the Unit | Content of Unit | Contact Hrs. | Mapped CO |
|---|---|---|---|---|
| 1 | **OT TECHNIQUES** | • Zoning of OT<br>• OT disinfection & sterilization: Cleaning, carbolisation, fumigation, fogging<br>• Theatre clothes, PPE, Lead aprons, goggles<br>• Scrubbing, gowning, gloving<br>• Handling of sterilized articles in OT<br>• OT table, OT lights, image intensifier: Handling and maintenance | 8 | CO1 |
| 2 | **MEDICAL GAS SUPPLY** | • Types of Medical Gases Used in OT: Oxygen, Nitrous Oxide, Carbon Dioxide, Compressed Air<br>• Central Pipeline System & Cylinder Supply System<br>• Storage, Transport, and Safety Measures of Medical Gases<br>• Pressure Regulators, Flowmeters & Vaporizers<br>• Hazards of Medical Gases and Emergency Management | 8 | CO2 |
| 3 | **FACE MASKS & AIRWAY LARYNGOSCOPES** | • Types of Face Masks<br>• Airway Devices<br>• Endotracheal Intubation: Indications, Procedure, and Complications<br>• Laryngoscope Types, Handling, Maintenance & Sterilization<br>• Cuff Inflation Techniques | 8 | CO3 |
| 4 | **MACHINE BREATHING SYSTEM** | • Introduction to Anesthesia Machines: Components & Functions<br>• Open, Semi-Open, Semi-Closed & Closed Breathing Circuits<br>• Oxygenation & Ventilation Techniques in OT | 8 | CO4 |
| 5 | **FAMILIARIZATION OF OT TECHNIQUES** | • Layout & Zones of Operation Theater (Sterile & Non-Sterile Areas)<br>• Principles of Asepsis, Antisepsis & Infection Control in OT<br>• Surgical Handwashing & Gowning Techniques<br>• Role of OT Technician in Preoperative, Intraoperative & Postoperative Phases<br>• Handling of Surgical Waste & Biomedical Waste Disposal in OT | 8 | CO5 |

**Reference Books:**


1. Miller's Basics of Anesthesia, 8th Edition
2. Short Textbook of Anesthesia by Ajay Yadav
3. The Anesthesia Technician and Technologist's Manual, Lippincott Williams & Wilkins
4. Basics of Anesthesia, Ronald D. Miller, Manuel Pardo (Jr.)
5. Nurse Anesthesia Secrets, Mary Karlet


**e-Learning Source:**

1.
2.
3.

| | **Course Articulation Matrix: (Mapping of COs with POs and PSOs)** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PO-PSO CO** | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| **CO1** | 3 | 3 | - | 1 | - | 1 | - | - | 1 | 1 | - | 1 | 2 | - | 1 | 1 | - |
| **CO2** | 2 | 3 | - | 2 | - | 2 | - | - | - | 1 | - | 2 | 3 | - | 2 | 2 | - |
| **CO3** | 3 | 3 | - | 1 | - | 1 | - | - | 1 | 1 | - | 1 | 2 | - | 1 | 1 | - |
| **CO4** | 2 | 3 | - | 1 | - | 2 | - | - | - | 1 | - | 2 | 2 | - | 1 | 1 | - |
| **CO5** | 2 | 3 | - | 1 | - | 2 | - | - | - | 1 | - | 2 | 3 | - | 1 | 1 | - |

**1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation**

**Attributes & SDGs**

| **Course Code** | **Course Title** | **Attributes** | | | | | | | **SDGs No.** |
|---|---|---|---|---|---|---|---|---|---|
| OT205 | Principles And Equipments Related To Operation Theatre Technology | Employability | Entrepreneurship | Skill Development | Gender Equality | Environment & Sustainability | Human Value | Professional Ethics | **3,4** |
| | | √ | √ | √ | | | √ | √ | |

# Integral University, Lucknow

| Effective from Session: 2025-2026 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Course Code** | **ES101** | **Title of the Course** | **ENVIRONMENTAL STUDIES** | **L** | **T** | **P** | **C** |
| **Year** | **II** | **Semester** | **III** | **2** | **1** | **0** | **3** |
| **Pre-Requisite** | **Nil** | **Co-requisite** | **Nil** | | | | |
| **Course Objectives** | To study about the Environment and the Ecosystem. To study about the Natural Resources. To study about Biodiversity and Conservation. To study Environmental pollution, its policies and practices. To study Human Population and Environmental Ethics. | | | | | | |

| **Course Outcomes** | |
|---|---|
| **CO1** | Gain knowledge about environment and ecosystem |
| **CO2** | Students will learn about natural resource, its importance and environmental impacts of human activities on natural resource. |
| **CO3** | Gain knowledge about the conservation of biodiversity and its importance. |
| **CO4** | Aware students about problems of environmental pollution, its impact on human and ecosystem and control measures. |
| **CO5** | Students will learn about increase in population growth and its impact on environment. |

| Unit No. | Title of the Unit | Content of Unit | Contact Hrs. | Mapped CO |
|---|---|---|---|---|
| 1 | **INTRODUCTION TO ENVIRONMENT AND ECOSYSTEM** | • Environment, its components and segments,<br>• Multidisciplinary nature of Environmental studies,<br>• Concept of Sustainability and sustainable development,<br>• Environmental movements, Ecosystem,<br>• Structure & Function, Energy flow in the Ecosystem,<br>• Ecological Pyramids and Ecological Succession. | 6 | CO1 |
| 2 | **NATURAL RESOURCES** | • Renewable and non-renewable,<br>• Soil erosion and desertification,<br>• Deforestation, Water: Use and over exploitation,<br>• Impacts of large Dams,<br>• Case studies | 6 | CO2 |
| 3 | **BIODIVERSITY AND CONSERVATION** | • Levels of biological diversity, Hot spots of biodiversity, India as a Mega Diversity Nation,<br>• Endangered and endemic species of India,<br>• Threats to Biodiversity, Conservation of Biodiversity,<br>• Ecosystem and biodiversity services. | 6 | CO3 |
| 4 | **ENVIRONMENTAL POLLUTION, POLICIES AND PRACTICES** | • Environmental pollution, Solid waste management,<br>• Ill effects of fireworks, Climate change,<br>• Ozone layer depletion, acid rain and impacts on human communities and Environment, Environmental Laws: Environment Protection Act,<br>• Wildlife protection Act, Forest conservation Act,<br>• Convention on Biological Diversity (CBD), Tribal rights,<br>• Human wildlife conflicts. | 6 | CO4 |
| 5 | **HUMAN POPULATION AND THE ENVIRONMENT** | • Human population growth: Impacts on environment,<br>• human health and welfare,<br>• Resettlement and rehabilitation of project affected persons,<br>• Environmental ethics,<br>• Environmental communication and public awareness, case studies. | 6 | CO5 |

**Reference Books:**


1) Agarwal, K.C. 2001 Environmental; Biology, Nidi Pub. Ltd. Bikaner.
2) Bharucha Erach, The Biodiversity of India, Mapin Pub. Pvt. Ltd., Ahemdabad-380, India.
3) Brunner R.C. 1989. Hazardous waste incineration, Mc Graw Hill
4) Clark R.S. Marine Pollution, Clanderon Press Oxford (TB)
5) Cunningham W.P.2001.Cooper, T.H. Gorhani, E & Hepworth, Environmental encyclopedia, Jacob Publication House, Mumbai.
6) De. A.K. Environmental chemistry Willey Eastern Limited.
7) Glick, H.P.1993 water in crisis, Pacific Institute for studies in dev, Environment & security, Stockholm Env, Institute, Oxford Univ, Press 473 p.
8) Hawkins R .E. Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay.
9) Heywood, V.H. & Watson, R. T.1995.Global biodiversity Assessment.Cambridge Univ. Press 1140 p.
10) Jadhave, H. and Bhosale, V. M. 1995 Environmental protection and laws, Himalaya pub, house, Delhi.284 p.
11) Mckinnery, M.L. and School, R. M.1996 Environmental science systems and solutions, web enhanced edition.
12) Mhaskar A.K. Matter Hazardous, Techno Science Pub (TM)
13) Miller T.G. Jr, Environmental Ecology, W. B. Saunders Co.USA,574 p. 16
14) Odum, E.P.1997.Fundamental chemistry, Goel Pub House Meerut.
15) Survey of the Environment, The Hindu (M).
16) Sharma B.K.2001.Environmental Chemistry, Goel Pub House Meerut


**e-Learning Source:**

1. https://byjus.com/biology/difference-between-environment-and-eCOsystem.
2. https://www.youtube.com/watch?v=dRPl4TB8w7k
3. https://www.youtube.com/watch?v=3fbEVytyJCk
4. https://www.vedantu.com/biology/conservation-of-biodiversity
5. https://youmatter.world/en/definition/soil-erosion-degradation-definition/
6. https://byjus.com/biology/difference-between-environment-and-eCOsystem.

# Integral University, Lucknow

| | Course Articulation Matrix: (Mapping of COs with POs and PSOs) | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PO-PSO CO** | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| **CO1** | - | - | - | - | - | - | - | - | - | - | - | 2 | - | - | - | - | - |
| **CO2** | - | - | - | - | - | - | - | - | - | - | - | 2 | - | - | - | - | - |
| **CO3** | - | - | - | - | - | - | - | - | - | - | - | 2 | - | - | - | - | - |
| **CO4** | - | - | - | - | - | - | 2 | - | - | - | - | 2 | - | - | - | - | - |
| **CO5** | - | - | - | - | - | - | 1 | 1 | - | - | 1 | 2 | - | - | - | 1 | 1 |

**2- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation**

**Attributes & SDGs**

| Course Code | Course Title | Attributes | | | | | | | SDGs No. |
|---|---|---|---|---|---|---|---|---|---|
| | | Employability | Entrepreneurship | Skill Development | Gender Equality | Environment & Sustainability | Human Value | Professional Ethics | |
| ES101 | ENVIRONMENTAL STUDIES | | | | | √ | | | **6,13,14,& 15** |

# Integral University, Lucknow

| Effective from Session: 2025-26 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Course Code** | **OT206** | **Title of the Course** | **PATHOLOGY & MICROBIOLOGY- LAB** | **L** | **T** | **P** | **C** |
| **Year** | **I** | **Semester** | **I** | **0** | **0** | **2** | **1** |
| **Pre-Requisite** | **Nil** | **Co-requisite** | **Nil** | | | | |
| **Course Objectives** | The student will be able to demonstrate the practical knowledge in pathology and microbiology needed for the study and practice of anaesthesia and critical care technology. | | | | | | |

| **Course Outcomes** | |
|---|---|
| **CO1** | To understand about the basic of pathological practical and also know the how to handle the equipment's. |
| **CO2** | |
| **CO3** | |
| **CO4** | To understand about the basic of microbiological practical and also know the how to handle the equipment's. |
| **CO5** | |

| Unit No. | Title of the Unit | Content of Unit | Contact Hrs. | Mapped CO |
|---|---|---|---|---|
| 1 | **BASIC HAEMATOLOGY** | ➢ Hb Estimation-Sahli's method & Cyanmethaemoglobin method<br>➢ RBC Count<br>➢ Preparation of blood smears and staining with Leishman stain<br>➢ WBC Count<br>➢ WBC -Differential Count<br>➢ Platelet Count<br>➢ Absolute Eosinophil Count<br>➢ ESR- Westergren & Wintrobe's method,<br>➢ PCV.<br>➢ Sickling test-Demonstration<br>➢ Bone Marrow Smear preparation & staining procedure- Demonstration<br>➢ Demonstration of Malarial Parasite. | 20 | CO1-5 |
| 2 | **MICROBIOLOGY** | ➢ Focusing, handling and care of Microscopes<br>➢ Hanging drop preparation<br>➢ Simple stain<br>➢ Gram stain<br>➢ ZN stain<br>➢ Sterilization and Disinfection. | 10 | CO1-5 |

**Reference Books:**


1. Text book of Pathology - by Harsh Mohan
2. Textbook of Pathology By Boyd
3. General Pathology – by Bhende
4. Pathologic basis of diseases by Cotran, Kumar, Robbins
5. Textbook of Parasitology- K. D. Chatterjee (12thEd.)
6. Text Book of Microbiology – Panikkar (9thEd.)
7. Essentials of Medical Microbiology-Sastry Apurba Shankar (1stEd.)
8. Textbook of Microbiology –P. Chakraborty


**e-Learning Source:**

1. https://youtu.be/WFm9j1rNkQs
2. https://youtu.be/vLCg_kyuyw4
3. https://youtu.be/xLEw7ceog8M
4. https://youtu.be/BV3fDTNqFEQ
5. https://youtu.be/cMVyrrdgaYk

| | **Course Articulation Matrix: (Mapping of COs with POs and PSOs)** | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PO-PSO CO** | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| **CO1** | 1 | 3 | 1 | 2 | - | - | - | 1 | 2 | - | - | - | 1 | - | 1 | - |
| **CO2** | 1 | 3 | 1 | 3 | - | - | - | 1 | 3 | - | - | - | 2 | - | 2 | - |
| **CO3** | 1 | 3 | 1 | 2 | - | - | - | 1 | 2 | - | - | - | 1 | - | 1 | - |
| **CO4** | 1 | 3 | 1 | 2 | - | - | - | 1 | 3 | - | - | - | 1 | - | 1 | - |
| **CO5** | 1 | 3 | 1 | 2 | - | - | - | 1 | 2 | - | - | - | 1 | - | 1 | - |

**1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation**

**Attributes & SDGs**

| Course Code | Course Title | Attributes | | | | | | | SDGs No. |
|---|---|---|---|---|---|---|---|---|---|
| | | Employability | Entrepreneurship | Skill Development | Gender Equality | Environment & Sustainability | Human Value | Professional Ethics | |
| **OT206** | **PATHOLOGY & MICROBIOLOGY- LAB** | √ | √ | √ | | | √ | √ | **3,4** |

# Integral University, Lucknow

| Effective from Session: 2025-26 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Course Code** | **OT207** | **Title of the Course** | **MEDICAL BIOCHEMISTRY- II LAB** | **L** | **T** | **P** | **C** |
| **Year** | **II** | **Semester** | **III** | **0** | **0** | **2** | **1** |
| **Pre-Requisite** | **Nil** | **Co-requisite** | **Nil** | | | | |
| **Course Objectives** | | | | | | | |

| **Course Outcomes** | |
|---|---|
| **CO1** | Students will be able to learn about Picrate method, Benedict's/ Uristix method |
| **CO2** | Students will be able to learn about Rothera Nitroprusside test, Serum Amylase, Serum Lipase estimation |
| **CO3** | Students will be able to learn about Malloy–Evelyn method, BCG method |
| **CO4** | Students will be able to learn about Uricase/ PAP method |
| **CO5** | Students will be able to learn about Semi Autoanalyzer, Flame Photometer |

| **Unit No.** | **Title of the Unit** | **Content of Unit** | **Contact Hrs.** | **Mapped CO** |
|---|---|---|---|---|
| 1 | Picrate method. | 1. Estimation of Serum Creatinine by Alkaline Picrate method. | 30 | CO1 |
| 2 | Benedict's/ Uristix method | 2. To perform urine sugar by Benedict's/ Uristix method. | | CO1 |
| 3 | Rothera Nitroprusside test | 3. To perform urine Ketone body analysis by Rothera Nitroprusside test. | | CO2 |
| 4 | Serum Amylase | 4. Estimation of Serum Amylase. | | CO2 |
| 5 | Serum Lipase | 5. Estimation of Serum Lipase. | | CO3 |
| 6 | Malloy –Evelyn method | 6. Estimation of Serum Total Bilirubin by Malloy –Evelyn method. | | CO3 |
| 7 | BCG method | 7. Estimation of Serum Albumin by BCG method and calculation of Globulin & A/Gratio. | | CO4 |
| 8 | Uricase/ PAP method | 8. Estimation of Serum uric acid by Uricase/ PAP method. | | CO4 |
| 9 | Semi Autoanalyzer | 9. Demonstration of Semi Autoanalyzer. | | CO5 |
| 10 | Flame Photometer | 10. Demonstration of Flame Photometer. | | CO5 |

**Reference Books:**


1. Ranjna Chawla, Practical Clinical Biochemistry: Methods and Interpretations.
2. Praful B. Godkar,DarshanP.Godkar, Textbook of Medical Laboratory Technology.
3. DrRamnikSood, Medical Laboratory Technology: Methods and Interpretations.
4. Bishop,FodyandSchoeff,ClinicalChemistry,techniques,principlesandcorrelations.
5. Singh &Sahni, Introductory Practical Bio chemistry.


**e-Learning Source:**

1. https://youtu.be/t5DvF5OVr1Y
2. https://youtu.be/gggC9vctvBQ
3. https://youtu.be/ufvZ8bYtyO8
4. https://youtu.be/Q6R4o-oECxs

**Course Articulation Matrix: (Mapping of COs with POs and PSOs)**

| PO-PSO / CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CO1** | 1 | 3 | 2 | 2 | - | - | - | 1 | 2 | 1 | 2 | - | 2 | 2 | 1 | - |
| **CO2** | 1 | 3 | 1 | 3 | - | - | - | 2 | 3 | - | 3 | - | 1 | 1 | 1 | - |
| **CO3** | 1 | 3 | 1 | 2 | - | - | - | 1 | 2 | 2 | 2 | - | 1 | 1 | 1 | - |
| **CO4** | 1 | 3 | 1 | 2 | - | - | - | 1 | 3 | - | 3 | - | 1 | 2 | 1 | - |
| **CO5** | 1 | 3 | 1 | 2 | - | - | - | 1 | 2 | 1 | 2 | - | 1 | 1 | 1 | - |

**1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation**

**Attributes & SDGs**

| **Course Code** | **Course Title** | **Attributes** | | | | | | | **SDGs No.** |
|---|---|---|---|---|---|---|---|---|---|
| OT208 | MEDICAL BIOCHEMISTRY- II LAB | Employability | Entrepreneurship | Skill Development | Gender Equality | Environment & Sustainability | Human Value | Professional Ethics | |
| | | √ | √ | √ | | | √ | √ | **3,4** |

# Integral University, Lucknow

| Effective from Session: 2025-26 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Course Code** | **OT208** | **Title of the Course** | **PRINCIPALS AND EQUIPMENT'S RELATED TO OPERATION THEATRE TECHNOLOGY LAB** | **L** | **T** | **P** | **C** |
| **Year** | **II** | **Semester** | **III** | **0** | **0** | **2** | **1** |
| **Pre-Requisite** | **Nil** | **Co-requisite** | **Nil** | | | | |
| **Course Objectives** | The student will be able to demonstrate the practical knowledge in equipment's used in OT, needed for the study and practice of anaesthesia and critical care technology. | | | | | | |

| **Course Outcomes** | |
|---|---|
| **CO1** | To understand about the equipment's used in OT. To understand the Anesthesia Machine. |
| **CO2** | Students able to understand basic of gas supply in anesthesia and also in operations theatres. |
| **CO3** | Students able to Understand Face Masks & Airway Laryngoscopes |
| **CO4** | Students able to understand about the Machine Breathing System |
| **CO5** | Students able to understand the Familiarization of OT and OT Techniques |

| **Unit No.** | **Title of the Unit** | **Content of Unit** | **Contact Hrs.** | **Mapped CO** |
|---|---|---|---|---|
| 1.<br>2. | EQUIPMENT'S RELATED TO ANESTHESIA TECHNOLOGY | 1. Cylinders, suction apparatus, endotracheal tubes, laryngoscopes, Imo, oropharyngeal airway.<br>2. Anesthesia machine – description, parts, safety features | 20 | CO1-5 |

**Reference Books:**

1. **Miller's Basics of Anesthesia, 8th Edition**
2. Short Textbook of Anesthesia by Ajay Yadav
3. **The Anesthesia Technician and Technologist's Manual, Lippincott Williams & Wilkins**
4. **Basics of Anesthesia, Ronald D. Miller, Manuel Pardo (Jr.)**
5. **Nurse Anesthesia Secrets, Mary Karlet**

**e-Learning Source:**

1.
2.
3.
4.
5.

| | **Course Articulation Matrix: (Mapping of COs with POs and PSOs)** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PO-PSO CO** | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| **CO1** | 3 | 3 | - | 1 | - | 1 | - | - | 1 | 1 | - | 1 | 2 | - | 1 | 1 | - |
| **CO2** | 2 | 3 | - | 2 | - | 2 | - | - | - | 1 | - | 2 | 3 | - | 2 | 2 | - |
| **CO3** | 3 | 3 | - | 1 | - | 1 | - | - | 1 | 1 | - | 1 | 2 | - | 1 | 1 | - |
| **CO4** | 2 | 3 | - | 1 | - | 2 | - | - | - | 1 | - | 2 | 2 | - | 1 | 1 | - |
| **CO5** | 2 | 3 | - | 1 | - | 2 | - | - | - | 1 | - | 2 | 3 | - | 1 | 1 | - |

**2- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation**

**Attributes & SDGs**

| **Course Code** | **Course Title** | **Attributes** | | | | | | | **SDGs No.** |
|---|---|---|---|---|---|---|---|---|---|
| **OT208** | **PRINCIPALS AND EQUIPMENT'S RELATED TO ANESTHESIA TECHNOLOGY LAB** | Employability | Entrepreneurship | Skill Development | Gender Equality | Environment & Sustainability | Human Value | Professional Ethics | |
| | | √ | √ | √ | | | √ | √ | **3,4** |

# Integral University, Lucknow

| Effective from Session: 2025-26 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Course Code** | **OT209** | **Title of the Course** | **OT POSTING** | **L** | **T** | **P** | **C** |
| **Year** | **II** | **Semester** | **III** | 0 | 0 | 8 | 4 |
| **Pre-Requisite** | Nil | **Co-requisite** | Nil | | | | |
| **Course Objectives** | Students will engage in clinical practice in Physiotherapy departments in the musculoskeletal, neurology, cardiopulmonary, sports settings to enhance their clinical skills and apply contemporary knowledge gained during teaching sessions. | | | | | | |

| Course Outcomes | |
|---|---|
| **CO1** | To learn the punctuality and interaction with colleague and supporting staff during clinical training. |
| **CO2** | To develop assessment skills. |
| **CO3** | To develop appropriate treatment protocol. |
| **CO4** | To understand the importance of documentation of the case record and case presentation. |
| **CO5** | To develop discipline and improve overall quality of clinical work. |

## CLINICAL POTING ASSESSMENTN FORM

| | | | |
|---|---|---|---|
| **Name of Student:** | | **Session:** | |
| **Enrolment Number:** | | **Date:** | |
| **Name of Subject:** | **OT POSTING** | **Subject code:** | OTT209 |
| **Topics:** | | | |

| S. No. | Point to be Considered | Max. Marks | Marks Obtained |
|---|---|---|---|
| **1.** | Punctuality | 4 | |
| **2.** | Interaction with colleagues and supporting staff | 2 | |
| **3.** | Maintenance of case records | 3 | |
| **4.** | Presentation of case during rounds | 2 | |
| **5.** | Maintained OT records | 2 | |
| **6.** | OT Manners | 2 | |
| **7.** | Rapport with patients | 2 | |
| **8.** | Assistance during operatives procedures | 3 | |
| **9.** | Discipline | 2 | |
| **10.** | Overall quality of clinical work | 3 | |
| | TOTAL SCORE | **25** | |

**(Name and signature of Incharge)** **(Head, Paramedical)**

### GUIDELINES FOR CLINICAL TRAINING PROGRAM

The students of Graduate B.Sc. OTT program must spend above mentioned allotted time period in the hospital based clinical training for specified clinical experiences to meet the objectives of the training program. This period of practical and theoretical experience will enable the students to acquire competency and experience to perform as an independent practice and will enable to adjust to the real practical life in different units in the hospital settings.

| S.No. | Program Name | Year/Semester | Duration of Training |
|---|---|---|---|
| **1.** | B.Sc. OTT | IInd Year/ IIIrd Semester | 4 Months |
| **2.** | | IInd Year/ IVth Semester | 4 Months |
| **3.** | | IIIrd Year/ Vth Semester | 4 Months |
| **4.** | | IIIrd Year/ VIth Semester | 4 Months |

By the successful completion of this clinical training period, the student is expected to fulfil the objectives of the program and will be examination as given below:

| S.No. | Program Name | Year/Semester | Case file | Practical on Case | Voice/Viva | Attendance |
|---|---|---|---|---|---|---|
| **1.** | B.Sc. OTT | IIrd Year/ IIIrd Semester | 10 Marks | 10 Marks (1 Long Case and 2 Short Case) | 25 Marks | 5 Marks |
| **2.** | | IIrd Year/ IV th Semester | | | | |
| **3.** | | IIIrd Year/ Vth Semester | | | | |
| **4.** | | IIIrd Year/ VIth Semester | | | | |

### EVALUATION OF CLINICAL POSTING

B.Sc. OTT - Students has to prepare 1 long case and 2 short cases during their clinical posting. The evaluation for internal clinical examination of 50 marks will be distributed:

Cases during clinical posting=**25 marks**.

Viva voce =**20 marks**

Attendance=**5 marks**

| | Course Articulation Matrix: (Mapping of COs with POs and PSOs) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PO-PSO CO** | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 |
| **CO1** | 2 | 3 | 3 | 2 | 3 | 2 | 3 | 1 | 2 | 1 | - | 3 | 2 | 3 | 3 | 2 |
| **CO2** | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 1 | 3 | - | 2 | 2 | 3 | 2 | 3 |
| **CO3** | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 1 | 3 | - | 3 | 2 | 2 | 2 | 3 |
| **CO4** | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 1 | 3 | - | 2 | 3 | 2 | 2 | 3 |
| **CO5** | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 1 | 3 | - | 3 | 2 | 3 | 3 | 2 |

**1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation**

**Attributes & SDGs**

| Course Code | Course Title | Attributes | | | | | | | SDGs No. |
|---|---|---|---|---|---|---|---|---|---|
| | | Employability | Entrepreneurship | Skill Development | Gender Equality | Environment & Sustainability | Human Value | Professional Ethics | |
| **OT209** | **OT POSTING** | √ | √ | √ | | | √ | √ | **3,4,11** |