



# **INTEGRAL UNIVERSITY, LUCKNOW**

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

**DEPARTMENT OF PARAMEDICAL SCIENCES**

## **BACHELOR OF SCIENCE IN ANESTHESIOLOGY AND INTENSIVE CARE TECHNOLOGY (B.Sc.AICT)**

**SYLLABUS**

**YEAR/ SEMESTER: II/III**



Integral University, Lucknow  
Department of Paramedical Sciences  
Study and Evaluation Scheme

Program: BAICT

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	AT201	Pathology	Core	2	1	0	40	20	60	40	100	2:1:0	3
2	AT202	Microbiology	Core	2	1	0	40	20	60	40	100	2:1:0	3
3	AT203	Medical Biochemistry-II	Core	3	1	0	40	20	60	40	100	3:1:0	4
4	AT204	Pharmacology	Core	3	1	0	40	20	60	40	100	3:1:0	4
5	AT205	Principals and Equipment’s related to Anesthesia Technology	Core	3	1	0	40	20	60	40	100	3:1:0	4
6	ES101	Environmental Science	Core	2	1	0	40	20	60	40	100	2:1:0	3
PRACTICAL													
1	AT206	Pathology & Microbiology Lab	Core	0	0	2	40	20	60	40	100	0:0:1	1
2	AT207	Medical Biochemistry-II Lab	Core	0	0	2	40	20	60	40	100	0:0:1	1
3	AT208	Principals and Equipment’s related to Anesthesia Technology Lab	Core	0	0	2	40	20	60	40	100	0:0:1	1
4	AT209	OT Posting	Core	0	0	2	40	20	60	40	100	0:0:1	1
Total				15	06	08	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	AT201	Pathology	Core	√	√	√			√	√	3,4
2	AT202	Microbiology	Core	√	√	√			√	√	3,4
3	AT203	Medical Biochemistry-II	Core	√	√	√			√	√	3,4
4	AT204	Pharmacology	Core	√	√	√			√	√	3,4
5	AT205	Principals and Equipment’s related to Anesthesia Technology	Core	√	√	√			√	√	3,4
6	ES101	Environmental Science	Core					√			6,13,14,& 15
PRACTICAL											
1	AT206	Pathology & Microbiology Lab	Core	√	√	√			√	√	3,4
2	AT207	Medical Biochemistry-II Lab	Core	√	√	√			√	√	3,4
3	AT208	Principals and Equipment’s related to Anesthesia Technology Lab	Core	√	√	√			√	√	3,4
4	AT209	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: 2023-24								
Course Code	AT201	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	Acquire the knowledge of concepts of cell injury & changes produced thereby in different tissues & organs-; capacity of the body in healing process. Recall the etiopathogenesis, the pathological effects & the clinico-pathological correlation of common infections & noninfectious diseases							

Course Outcomes	
CO1	Students able to understand the structure & functions of Cell, Cardinal sign of inflammation and neoplasm.
CO2	Students able to understand the Vascular & Cardiorespiratory System.
CO3	Students able to understand the bones and joints diseases.
CO4	Students able to understand the Patho-physiology and associated problems.
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	<b>Cells:</b> Brief out line of cell injury, hypertrophy, atrophy, degeneration, necrosis and gangrene. <b>Inflammation:</b> Definition, vascular and cellular phenomena, difference between transudate and exudates, granuloma. <b>Neoplasm:</b> Definition, characteristic features, benign and malignant tumor, spread of tumor, cancer pain syndrome	6	CO1
2	VASCULAR & CARDIORESPIRATORY SYSTEM	<b>Circulatory Disturbance:</b> Odema, Hemorrhage, Embolism, Thrombosis, Infraction, Shock, Volkmann's ischemic contracture. <b>Blood Disorder:</b> Concepts of Anemia, Bleeding disorder- Hemophilia. <b>Cardio Vascular System (CVS):</b> Etiopathogenesis and Gross pathology of Atherosclerosis, coronary heart disease, Rheumatic heart disease. <b>Respiratory System:</b> Chronic Bronchitis, Asthma, Bronchiectasis, Emphysema	6	CO2
3	BONES, JOINTS & MUSCULAR SYSTEM:	<b>Bones:</b> Etiopathogenesis and gross pathology of fallowing conditions: Rickets/Osteomalacia, Osteoporosis, Osteomyelitis, Hyper parathyroidism <b>Joint:</b> Osteoarthritis, Rheumatoid Arthritis, Gout, Spondyloarthopathy (including Ankylosing Spondylitis), Osteonecrosis, Paget's disease. <b>Muscles:</b> Myositis ossificans, Myofascial Pain syndrome, Septic arthritis	6	CO3
4	HEPATO-BILIARY, ENDOCRINE & INTEGUMENTARY SYSTEM	<b>Hepato-Biliary System:</b> Jaundice Types, Etiopathogenesis and diagnosis. <b>Endocrine:</b> Diabetes Mellitus, Non-Neoplastic lesion of thyroid-Thyrototoxicosis, Myxedema. <b>Skin:</b> Brief outline of Scleroderma, Psoriasis, Pressure Ulcer, and Burn.	6	CO4
5	CENTRAL NERVOUS SYSTEM & UROLOGY	<b>CNS:</b> Etiopathogenesis and gross pathology of fallowing conditions- Meningitis, Encephalitis, Parkinson's, Amyotrophic lateral sclerosis, Ataxias, Multiple sclerosis, Neuropathies (Carcoat Marie Tooth disease, Compression and Entrapments, diabetics G.B. Syndrome), malformation, CVA, Extradural and Intra Dural Hematoma. <b>Muscle Neuropathies:</b> Poliomyelitis, Myopathies, Myasthenia gravis, Muscular dystrophy. Renal Function Tests, Nephrotic Syndrome, Nephritic Syndrome, Urolithiasis, Pap Smear.	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](https://youtu.be/vLCg_kyuyw4)
3. <https://youtu.be/xLEw7ceog8M>
4. <https://youtu.be/80bzLTdAN4w>
5. <https://youtu.be/dHURMD4v8Kk>

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

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

### Attributes & SDGs

Course Code	Course Title	Attributes								SDGs No.
AT201	PATHOLOGY	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics		3,4
		√	√	√			√	√		



# Integral University, Lucknow

Effective from Session: 2023-24

Course Code	AT202	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	At the end of the course, the candidate will have sound knowledge of the agent responsible for causing human infections, pertaining to Immunology, Virology, Bacteriology, & Miscellaneous condition. Microbiology involves the study of common organisms causing diseases including nosocomial infections and precautionary measures to protect one from acquiring infections. The knowledge and understanding of Microbiology of diseases is essential to institute appropriate treatment or suggest preventive measures to the patient.						

## Course Outcomes

CO1	Students able to understand Morphology, Nutritional Requirements, Metabolism, Growth, Classification and identification of Microbii.
CO2	Students able to understand nature of immunity like innate and acquired.
CO3	Students able to understand invagination of various types of bacteria.
CO4	Students able to understand invagination of various types of viruses.
CO5	Students able to understand various types of Parasitology and precautionary measurement against them.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	<b>GENERAL BACTERIOLOGY</b>	Introduction & History of Microbiology, Classification & Morphology of Bacteria, Growth & nutrition, Culture Media & Methods, Sterilization & Disinfection, Fundamental aspects of antibacterial agents and antimicrobial susceptibility testing.	6	CO1
2	<b>IMMUNOLOGY</b>	Infection, Immunity, Immunization schedule, applications of antigen antibody reactions, Hypersensitivity, Tumor & Transplantation Immunology.	6	CO2
3	<b>VIROLOGY</b>	Introduction to virology, viral hepatitis, poliomyelitis, Rabies, Human immunodeficiency virus.	6	CO3
4	<b>MYCOLOGY &amp; PARASITOLOGY</b>	Introduction to mycology, pathogenic yeasts & fungi, Introduction to parasitology, Amoebiasis, Malaria, Helminthic infections.	6	CO4
5	<b>APPLIED MICROBIOLOGY</b>	Outline of common bacterial diseases, treatment & prevention-Respiratory tract infections (upper & lower), Meningitis (septic & aseptic), Enteric infections (food poisoning & gastro enteritis), Anaerobic infections, Skin & soft tissue infections, Urinary tract infections, sexually transmitted diseases, Tuberculosis & Leprosy, Hospital acquired infections, Biomedical waste management.	6	CO5

## Reference Books:

1. Textbook of Parasitology- K. D. Chatterjee (12<sup>th</sup>Ed.)
2. Text Book of Microbiology – Panikkar (9<sup>th</sup>Ed.)
3. Essentials of Medical Microbiology-Sastry Apurba Shankar (1<sup>st</sup>Ed.)
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](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	PO12	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	-	1	-	1	-	-	1	1	-	1	2	-	1	1	-	3
CO2	2	3	-	2	-	2	-	-	-	1	-	2	3	-	2	2	-	2
CO3	3	3	-	1	-	1	-	-	1	1	-	1	2	-	1	1	-	3
CO4	2	3	-	1	-	2	-	-	-	1	-	2	2	-	1	1	-	2
CO5	2	3	-	1	-	2	-	-	-	1	-	2	3	-	1	1	-	2

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

## Attributes & SDGs

Course Code	Course Title	Attributes							SDGs No.
AT202	MICROBIOLOGY	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	3,4
		√	√	√	√		√	√	



# Integral University, Lucknow

Effective from Session: 2023-2024

Course Code	AT203	Title of the Course	MEDICAL BIOCHEMISTRY-II	L	3	T	1	P	0	C	4
Year	II	Semester	III								
Pre-Requisite	Nil	Co-requisite	Nil								
Course Objectives	This course deals with fundamentals of metabolism, metabolic disorders, laboratory test and instruments of Clinical Biochemistry.										

**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	Introduction of Metabolism, Metabolism of Carbohydrates: Glycolysis, TCA cycle, Gluconeogenesis, Glycogenesis, Glycogenolysis, Hexose monophosphate Pathway. Biological Oxidation and Electron Transport Chain.	8	CO1
2	Diabetes mellitus	Blood glucose homeostasis and its regulation, Insulin, glucagon, C- peptide. Diabetes mellitus, types, clinical features, diabetic profile test, HbA1C, Fructosamine, GTT, Glycosuria, Hyperglycemia and Hypoglycemia.	8	CO2
3	Proteins	Metabolism of Proteins: Formation of ammonia, Transamination, Deamination, Urea, Cycle, Significance of Urea cycle, metabolism of Aromatic and Branched chain amino acids, Aminoaciduria.	8	CO3
4	Lipid	Metabolism of Lipids: Fatty acid synthesis, Beta oxidation of fatty acids, Ketone bodies and ketosis, Cholesterol metabolism, metabolism of Lipoproteins, Lipid profile, Hyperlipidemia, Dyslipidemia and Atherosclerosis.	8	CO4
5	Acid & Base Balance	1. Acid- Base balance and pH: pH and its Regulation, Metabolic and Respiratory Disorders. 2. Principle, application, calibration and maintenance of colorimeter, Blood Chemistry analyzer, ABG analyzer, Flame photometer, Turbidimetry, Nephelometry.	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, Jaypee Publications.
3. Michael Cox, David L. Nelson, Lehninger Principles of Biochemistry, 7<sup>th</sup> 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	PO12	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.
AT203	MEDICAL BIOCHEMISTRY-II	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	3,4
		√	√	√	√		√	√	



# Integral University, Lucknow

Effective from Session: 2023-2024

Course Code	AT204	Title of the Course	PHARMACOLOGY	L	T	P	C
Year	II	Semester	III	3	1	0	4
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 physiotherapy 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-various terminologies-sources & routes of drug administration-Absorption & Factors modifying drug absorption – Distribution of drugs- Metabolism: Phase II, - Excretion: routes, modes & kinetics of elimination-Excretion- Mechanism of drug action in brief, synergism & antagonism and Factors modifying drug action-Adverse drug reactions-ADR reporting & monitoring – Drug interactions.	8	CO1
2	CENTRAL NERVOUS SYSTEM & RESPIRATORY SYSTEM	Introduction to CNS and Neurotransmitters, drugs used in insomnia, Sedatives and hypnotics-diazepam-alprazolam, anti-anxiety drugs, Antiepileptic-phenytoin, carbamazepine, sodium valproate, General Anesthetics – halothane, isoflurane, sevoflurane – Local Anesthetics – lignocaine – list of other drugs, Alcohols – ethyl alcohol –disulfuram, Anti parkinsonians – levodopa – carbidopa, Opioids – morphine – naloxone – tramadol – pentazocine, NSAIDs – aspirin – diclofenac – ibuprofen – paracetamol – Cox 2 inhibitors. Drugs used in bronchial asthma and cough	8	CO2
3	CARDIO VASCULAR SYSTEM & BLOOD	Drugs used in ischemic heart disease-nitrates-Calcium channel blockers-nifedipine, verapamil-list of other drugs – Beta blockers – propranolol, atenolol – metoprolol and antiplatelets – aspirin, clopidogrel, and names of other drugs-fibrinolytic drugs-streptokinase and other drugs, Drugs used in CCF-digoxin and list of other drugs useful in CCF, Shock. Diuretics: 4 groups – Thiazides, Loop diuretics, Potassium sparing and osmotic diuretics. Hypertension – outline of drugs used in hypertension, Rennin angiotensin system – ACE inhibitors – captopril, ramipril and names of other drugs – Receptor antagonist – losartan and list of other drugs, Antiarrhythmic drugs-classification – Quinidine, Lignocaine and amiodaron – Drugs for Hypercholesterolemia – statins. Drugs for anemia – oral & parenteral iron preparations, folic acid, vit B12 and erythropoietin. Coagulants and anticoagulants	8	CO3
4	HORMONES AND GIT	Contraceptives – oral and injectable, Corticosteroids – glucocorticoids – hydrocortisone-prednisolone-dexamethasone and names of topical steroids – Insulin – Oral hypoglycemic –sulphonyl urea's, biguanides and others, Thyroid and Antithyroid drugs, Sex Hormones-Estrogen and antiestrogens, Progesterin and Anti progesterin's, Androgen And anti-androgens. Emetics and anti-emetics-metoclopramide and domperidone, Drugs used in peptic ulcer, constipation-lactulose & Diarrhea-ORS-Loperamide.	8	CO4
5	CHEMOTHERAPY AND MISCELLANEOUS	Introduction – Beta lactum antibiotics: Penicillin's – natural, semi synthetic penicillin's – amoxicillin – cloxacillin-claunvulinic acid – sulbactam – Cephalosporin's – cephalexin – cefuroxime – cefixime –ceftriaxone-cefepime, Broad spectrum antibiotics – Doxycycline – chloramphenicol-imipenem-Macrolides – erythromycin, azithromycin and others – Quinolones- ciprofloxacin and list of other drugs and sulfonamides- cotrimoxazole-Amino glycosides-gentamycin, amikacin and names of other drugs Anti TB-first line drugs, Anti leprosy-dapsone and clofazimine Anti-malarial- chloroquine-mefloquine and artemisinins, Anti-fungal- amphotericin B- fluconazole and topical drugs & Anti viral drugs- acyclovir and anti-HIV, Anti protozoals- metronidazole – Anthelmintics- albendazole-praziquantel. Anti-cancer drugs-Introduction – Anti metabolites- methotrexate- 6 mercapto purine- Alkylating agents-cyclophosphamide- busulphan and cisplatin – Plant products- vinblastin- vincristine-taxanes, antibiotics-actinomycin D- monoclonal antibodies. Immuno modulators- cyclosporine, tacrolimus, azathioprine and steroids.	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 19<sup>th</sup> 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/t2tKvj7u5Y>

## 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.
AT204	PHARMACOLOGY	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	3,4
		√	√	√			√	√	





## Integral University, Lucknow

**Effective from Session: 2023-2024**

Course Code	AT205	Title of the Course	PRINCIPLES AND EQUIPMENTS RELATED TO ANESTHESIA TECHNOLOGY	L	T	P	C
Year	II	Semester	III	3	1	0	4
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.	Mappe d CO
1	MEDICAL GAS SUPPLY	Compressed gas cylinders, Colour coding, Cylinder valves, pin index, Gas piping system, Alarms & safety devices.	8	CO1
2	FACE MASKS & AIRWAY LARYNGOSCOPES	1) Endotracheal tubes – Types, sizes, (RAE Tube, Flexo metallic). Complications – Use care and maintenance of anaesthesia equipment 2) Laryngoscopes in Anaesthesia	8	CO2
3	MACHINE BREATHING SYSTEM	1. Anaesthesia Machine: Hanger and yoke system, Cylinder pressure gauge, Pressure regulator, Flow meter assembly, Vapourizers-types, hazards, maintenance, filling & draining, etc. 2. Breathing System a. General considerations: humidity & heat b. Common components – connectors, adaptors, reservoir bags, Capnography; Pulse oximetry, Methods of humidification, Classification of breathing system, Mapleson system – a b c d e f, Jackson Reesystem, Bain circuit, Non rebreathing valves – ambu valves, The circle system, Components, Soda lime, indicators	8	CO3
4	FAMILIARIZATION OF OT AND OT TECHNIQUES	Familiarization of OT and OT Techniques	8	CO4
5	CSSD, INSTRUMENTATION, STORE AND INVENTORY	CSSD, Instrumentation, Store and Inventory	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.
AT205	PRINCIPLES AND EQUIPMENTS RELATED TO ANESTHESIA TECHNOLOGY	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	3,4
		√	√	√			√	√	



## Integral University, Lucknow

Effective from Session: 2023-2024							
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.	Mappe d CO
1	INTRODUCTION TO ENVIRONMENT AND ECOSYSTEM	Environment, its components and segments, Multidisciplinary nature of Environmental studies, Concept of Sustainability and sustainable development, Environmental movements, Ecosystem, Structure & Function, Energy flow in the Ecosystem, Ecological Pyramids and Ecological Succession.	6	CO1
2	NATURAL RESOURCES	Renewable and non-renewable, Soil erosion and desertification, Deforestation, Water: Use and over exploitation, Impacts of large Dams, Case studies	6	CO2
3	BIODIVERSITY AND CONSERVATION	Levels of biological diversity, Hot spots of biodiversity, India as a Mega Diversity Nation, Endangered and endemic species of India, Threats to Biodiversity, Conservation of Biodiversity, Ecosystem and biodiversity services.	6	CO3
4	ENVIRONMENTAL POLLUTION, POLICIES AND PRACTICES	Environmental pollution, Solid waste management, Ill effects of fireworks, Climate change, Ozone layer depletion, acid rain and impacts on human communities and Environment, Environmental Laws: Environment Protection Act, Wildlife protection Act, Forest conservation Act, Convention on Biological Diversity (CBD), Tribal rights, Human wildlife conflicts.	6	CO4
5	HUMAN POPULATION AND THE ENVIRONMENT	Human population growth: Impacts on environment, human health and welfare, Resettlement and rehabilitation of project affected persons, Environmental ethics, 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 Uni v. Press 1140 p.
10) Jadhve, 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 639 p.
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. <a href="https://byjus.com/biology/difference-between-environment-and-eCOsystem">https://byjus.com/biology/difference-between-environment-and-eCOsystem</a> .
2. <a href="https://www.youtube.com/watch?v=dRPI4TB8w7k">https://www.youtube.com/watch?v=dRPI4TB8w7k</a>
3. <a href="https://www.youtube.com/watch?v=3fbEVtyJCK">https://www.youtube.com/watch?v=3fbEVtyJCK</a>
4. <a href="https://www.vedantu.com/biology/conservation-of-biodiversity">https://www.vedantu.com/biology/conservation-of-biodiversity</a>
5. <a href="https://youmatter.world/en/definition/soil-erosion-degradation-definition/">https://youmatter.world/en/definition/soil-erosion-degradation-definition/</a>
6. <a href="https://byjus.com/biology/difference-between-environment-and-eCOsystem">https://byjus.com/biology/difference-between-environment-and-eCOsystem</a> .

Course Articulation Matrix: (Mapping of COs with POs and PSOs)																	
PO-PSO	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.
ES101	ENVIRONMENTAL STUDIES	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	6,13,14,& 15
						√			





## Integral University, Lucknow

Effective from Session: 2023-24							
Course Code	AT206	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	
<b>CO1</b>	To understand about the basic of pathological practical and also know the how to handle the equipment's.
<b>CO2</b>	
<b>CO3</b>	
<b>CO4</b>	To understand about the basic of microbiological practical and also know the how to handle the equipment's.
<b>CO5</b>	

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	<b>BASIC HAEMATOLOGY</b>	1. Hb Estimation-Sahli's method & Cyanmethaemoglobin method 2. RBC Count 3. Retic Count 4. Preparation of blood smears and staining with Leishman stain 5. WBC Count 6. WBC -Differential Count 7. Platelet Count 8. Absolute Eosinophil Count 9. ESR- Westergreens & Wintrobe's method, 10. PCV. 11. Sickling test-Demonstration 12. Bone Marrow Smear preparation & staining procedure- Demonstration 13. Demonstration of Malarial Parasite.	20	CO1-5
2	<b>MICROBIOLOGY</b>	1. Focusing, handling and care of Microscopes 2. Hanging drop 3. Simple stain 4. Gram stain 5. ZN stain 6. 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 (12<sup>th</sup>Ed.)
6. Text Book of Microbiology – Panikkar (9<sup>th</sup>Ed.)
7. Essentials of Medical Microbiology-Sastry Apurba Shankar (1<sup>st</sup>Ed.)
8. Textbook of Microbiology –P. Chakraborty

### e-Learning Source:

1. <https://youtu.be/WFm9j1rNkQs>
2. [https://youtu.be/vLCg\\_kyuyw4](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	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5
CO																	
CO1	1	3	1	2	-	-	-	1	2	-	-	2	-	1	-	1	-
CO2	1	3	1	3	-	-	-	1	3	-	-	3	-	2	-	2	-
CO3	1	3	1	2	-	-	-	1	2	-	-	2	-	1	-	1	-
CO4	1	3	1	2	-	-	-	1	3	-	-	3	-	1	-	1	-
CO5	1	3	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.
<b>AT206</b>	<b>PATHOLOGY &amp; MICROBIOLOGY- LAB</b>	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	<b>3,4</b>
		√	√	√			√	√	



## Integral University, Lucknow

**Effective from Session: 2023-2024**

Course Code	AT207	Title of the Course	MEDICAL BIOCHEMISTRY- II LAB	L	0	T	0	P	4	C	2
Year	II	Semester	III								
Pre-Requisite	Nil	Co-requisite	Nil								
Course Objectives											

### Course Outcomes

CO1	Students will be able to learn about Picratemethod, Benedict's/ Uristixmethod
CO2	Students will be able to learn about Rothera Nitroprussidetest, 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 aboutSemi 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/ Uristixmethod	2. Toperform urine sugar by Benedict's/ Uristix method.		CO1
3	Rothera Nitroprussidetest	3. Toperform urine Ketone body analysis by Rothera Nitroprussidetest.		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. Ranjana 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, Fodyand Schoeff, Clinical Chemistry, techniques, principles and correlations.
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	PO12	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.
AT208	MEDICAL BIOCHEMISTRY- II LAB	Employability	Entrepreneurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	3,4
		√	√	√			√	√	



## Integral University, Lucknow

Effective from Session: 2023-24

Course Code	AT208	Title of the Course	PRINCIPALS AND EQUIPMENT'S RELATED TO ANESTHESIA TECHNOLOGY 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 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.	Mappe d CO
1.	EQUIPMENT'S RELATED TO ANESTHESIA TECHNOLOGY	1. Cylinders, suction apparatus, endotracheal tubes, laryngoscopes, Imo, oropharyngeal airway.	20	CO1-5
2.		2. Anesthesia machine – description, parts, safety features		

### 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.
AT208	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: 2023-24**

Course Code	AT209	Title of the Course	OT POSTING	L	T	P	C
Year	II	Semester	III	0	0	10	5
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 POSTING ASSESSMENT FORM

Name of Student:		Session:	
Enrolment Number:		Date:	
Name of Subject:	OT POSTING	Subject code:	AT209
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 operative 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 Post Graduate BAICT 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.	BAICT	IIInd Year/ IIIrd Semester	4 Months
2.		IIInd 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.	BAICT	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

BAICT- 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	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	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.
AT209	OT POSTING	Emple yability	Entrepre neurship	Skill Development	Gender Equality	Environment & Sustainability	Human Value	Professional Ethics	
		√	√	√			√	√	3,4,11



**INTEGRAL UNIVERSITY, LUCKNOW**  
**INTEGRAL INSTITUTE OF ALLIED HEALTH SCIENCES & RESEARCH**

**DEPARTMENT OF PARAMEDICAL SCIENCES**

**BACHELOR OF SCIENCE IN ANESTHESIOLOGY  
AND INTENSIVE CARE TECHNOLOGY  
(B.Sc.AICT)**

**SYLLABUS**

**YEAR/ SEMESTER: II/IV**

