# OPJS UNIVERSITY, CHURU (RAJASTHAN)

## Syllabus

For

Certificate in Anesthesia Technology (CAT)

**Duration of Course : 1 year**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Paper code</th>
<th>Name of Papers</th>
<th>M.M.(T-S-P)</th>
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<tbody>
<tr>
<td>1.</td>
<td>CAT-101</td>
<td>Anatomy and Physiology &amp; Introductory Biology</td>
<td>50+30+20=100</td>
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<tr>
<td>2.</td>
<td>CAT-102</td>
<td>Anesthesia Equipment, Drugs &amp; Techniques</td>
<td>50+30+20=100</td>
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<td>3.</td>
<td>CAT-103</td>
<td>Biochemistry &amp; Microbiology</td>
<td>50+30+20=100</td>
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<td>4.</td>
<td>CAT-104</td>
<td>Communication &amp; Soft Skills.</td>
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<td>5.</td>
<td>CAT-105</td>
<td>Practical</td>
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Details of Syllabus

CAT-101-Anatomy and Physiology & Introductory Biology

Anatomy:
1. Introduction to Anatomy & Histology, Structure of cell, epithelial tissue, Muscular tissue, nervous tissue.
2. Skeletal system-Structure of Bones, Types of bones, Bones of cranium, face, vertebral column, Upper & lower limbs, fracture of bones, movements of joints.
4. Circulatory system- Structure of heart, names and position of main blood vessels.
5. Digestive system- Parts of gastrointestinal tract and associated glands.
6. Respiratory system- Parts of respiratory system.
7. Urinary system- Parts of urinary system.
8. Skin & sense organs- Eye, Ear, Nose, Tongue(taste buds)
9. Nervous system- Parts of Brain, spinal cord. Cranial nerve, spinal cord, Peripheral nerves, Blood supply of Brain and spinal cord.
10. Reproductive system- male & female reproductive organs.
11. Endocrine Glands- Thyroid, Parathyroid, Adrenal, pituitary, pancreas and sex glands.

Physiology :
2. Cardiovascular System- Circulation of blood, function of heart and blood vessels, control of heart rate, pulse, regulation of blood pressure.
3. Respiratory System- Functions of lungs, mechanism of breathing & exchange of gases in the lungs, regulation of respiration, respiration disorder like anoxia, Hypoxia, dyspnea, lung function test.
4. Digestive systems- Digestion and absorption of food.
5. Excretory system- Structure and function of kidney and urinary bladder, mechanism of urine formation, Disorder of Kidney, ureter, urinary bladder.
7. Reproductive system- physiology and Female reproductive organs.
8. Endocrine Glands- functions of endocrine glands and hormones secreted by them.

**Introductory Biology :-**
1. Living World- Biology & its branches, characters of living organisms.
2. Cell & cell division:- cell as a basic unit of life, unicellular and multi cellular organisms, compound microscope, electron microscope.
3. Cell organelles & their functions-
4. Genetics- Continuity of life - heredity, variation; Chromosomes - sex linked inheritance; mutation DNA as a genetic material - its structure and replication; structure of RNA and its role in protein synthesis; Gene expression – transcription and translation in prokaryotes and eu karyotes.

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**CAT-102- Anesthesia Equipment, Drugs & Techniques.**

**Anesthesia Equipment (PART-A)**
1. Boyle’s Machine & It’s functioning
2. Magill’s breathing circuit, Bains breathing circuit, pediatrics anesthesia circuit
3. Gas cylinders & flow maters
5. Suction apparatus foot operated, electrically operated
6. Ambu bag & laryngoscope, endo tracheal tubes
7. catheters, face masks, ventimasks

**Drugs(PART-B)**
1. General Principles- Pharmacological classification of Drugs, Route of drug administration, precautions in administration, principles of drug toxicity, prevention & treatment of poisoning adverse drug reaction.
2. Sedatives & hypnotics, barbiturates, morphine & others.
3. Important groups of drugs- antimicrobial agents anti allergy drugs, anti-diuretics, NSAIDS.
4. Pre-anesthetic medication
5. Local-Anesthetic agents
6. Spinal anesthetic agents
7. General anesthetic agents.

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**CAT-103- Biochemistry & Microbiology**

**BIOCHEMISTRY (PART-A)**
Estimation of calcium, sodium, potassium, glucose, ABG, BT & CT

**MICROBIOLOGY (PART-B)**

**CHAPTER 1: INTRODUCTION TO MICROBIOLOGY:**
Discovery of microorganisms. Classification and general characteristics of microorganisms, nutritional requirements of Micro-organisms.

**CHAPTER 2: PRINCIPLES OF MICROBIAL CONTROL:** Sterilization, importance of sterilization in OT techniques various methods-physical UV rays

**CHAPTER 3:** Biomedical waste management.

**CHAPTER 4:** Hospital acquired infections.

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**CAT-104- Communication & Soft Skills.**

**UNIT I.**
**Essentials of Grammar:**
• Parts of Speech • Punctuation • Vocabulary Building • Phonetics

**UNIT II.**
**Office Management:**
• Types of Correspondence • Receipt and Dispatch of Mail • Filing Systems
• Classification of Mail. • Role & Function of Correspondence • MIS • Managing

**UNIT III.**
**Group Discussion & Presentation:**
• Definition • Process • Guidelines • Helpful Expressions • Evaluation
(Note: Every student shall be given 15 minutes. of presentation time & 45 minutes of discussion on his/ her presentation.)

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CAT-105- Practical

1. Anatomy- Identification of bones & other organs of the body & viva voice as theory syllabus
2. Physiology- venepuncture, finger pricking techniques, HB estimation, blood groups, HIV, BT, CT & viva voice
3. Anaesthesia equipment & drugs – Identification & demonstration of the working of equipments & viva voice
4. Study of parts of compound microscope
5. Instrument trolley setting for common anaesthetic procedures.
6. Estimation of calcium, sodium, potassium, glucose, ABG, BT & CT
7. Methods of scrubbing, donning of gown, gloves wearing, head covers & mask.

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