

Syllabus and Curriculum
of
Diploma in Anaesthesia and Critical care
Technician course

Uttar Pradesh State Medical Faculty, Lucknow.

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OBJECTIVES OF THE COURSE

To prepare a **Anaesthesia and critical care Technician** who –

- Can very well perform CPR, is well aware of BLS and ACLS.
- Can safely use all anaesthetic drugs.
- Can assist to anaesthetist during all anaesthesia and critical care procedures.
- Can maintain record.

Outline of Curriculum of Diploma in Anaesthesia and Critical care Technician course

FIRST YEAR

THEORY (Classes: 9 AM to 12 Noon)

First paper : Syllabus covers -

1. General Anatomy & Physiology (Cytology, Histology, Osteology and only basics of structure and functioning of all organ systems of body).
2. Only basics of relevant Pathology, Pharmacology & Microbiology

Second paper : Syllabus covers -

1. Various drugs used before,during and after Anaesthesia
2. Vital recording, first aid.
3. Hand hygiene & prevention of cross infection.
4. Basics life support (BLS) & Cardio-pulmonary resuscitation (CPR).

FIRST YEAR

PRACTICAL (Classes: 1 PM to 4 PM)

Practical classes will be after lunch; from 1 PM to 4 PM.

Students must present in the hospital for practicals.

During first year, they should be there only as “Observers” in practical classes.

Following subjects must be taught; though there will not be any exam from these-

1. Basic Computer skills.
2. Basic English.
2. **Soft skills like** - Interpersonal relationship skills & moral education.

Outline of Curriculum
of
Diploma in Anaesthesia and Critical care
Technician course

SECOND YEAR

THEORY (classes:9 AM to 12 Noon)

First paper : Syllabus covers -

1. Only relevant surgical & medical diseases .
2. Basic Nursing Procedures like vital recording, IM/IV/SC injection, IV cannula, Oxygen therapy, Nebulization,, catheterisation, IV infusion, Ryle's tubing.

Second paper : Syllabus covers -

1. Types of Anaesthesia and Tools and techniques used in different types of Anaesthesia.
2. Basics of sterilization practices and biomedical waste management.
3. Basic biomedical engineering physics of equipment & instruments used in Anaesthesia and critical care.

SECOND YEAR

PRACTICAL (classes:9 AM to 12 Noon)

Practical exams syllabus is described on page number 25.

ELIGIBILITY CRITERIA FOR ADMISSION & DURATION OF THE COURSE

COURSE DURATION:-

- It is 2 years, **full time** Diploma Course.

ELIGIBILITY:-

- Candidate must have passed 12th with
Physics, Chemistry, Biology

Or

Physics, Chemistry, Maths

with 35% marks in Intermediate exams.

(From UP board or any other recognised board).

- Candidate must have completed age of 17 years of age as on 31st December of admission year. There is no maximum age limit for the admission.

SCHEDULE OF EXAMINATION

FIRST YEAR

<u>Paper</u>	<u>Subjects</u>	<u>Mark</u>	<u>Internal Assessment Marks</u>	<u>Total Marks</u>	<u>Pass Marks</u>	<u>Duration of Exam.</u>
<u>First Paper Theory</u>	<p>1.General Anatomy & Physiology (Cytology, Histology, Osteology and only basics of structure and functioning of all organ systems of body).</p> <p>2. Only basics of relevant Pathology, Pharmacology & Microbiology</p>	75	25	100	50	3 Hours
<u>Second Paper Theory</u>	<p>1. Various drugs used before,during and after Anaesthesia</p> <p>2.Vital recording, first aid.</p> <p>3.Hand hygiene & prevention of cross infection.</p> <p>4.Basics life support (BLS) & Cardio-pulmonary resuscitation (CPR).</p>	75	25	100	50	3 Hours
<u>Practical</u>	Oral & Practical	75	25	100	50	3 Hours

SCHEDULE OF EXAMINATION

SECOND YEAR

<u>Paper</u>	<u>Subjects</u>	<u>Mark</u>	<u>Internal Assessment Marks</u>	<u>Total Marks</u>	<u>Pass Marks</u>	<u>Duration of Exam.</u>
<u>First Paper Theory</u>	1. Only relevant surgical & medical diseases . 2. Basic Nursing Procedures like vital recording, IM/IV/SC injection, IV cannula, Oxygen therapy, Nebulization,, catheterisation, IV infusion, Ryle's tubing.	75	25	100	50	3 Hours
<u>Second Paper Theory</u>	1. Types of Anaesthesia and Tools and techniques used in different types of Anaesthesia. 2. Basics of sterilization practices and biomedical waste management. 3. Basic biomedical engineering physics of equipment & instruments used in Anaesthesia and critical care.	75	25	100	50	3 Hours
<u>Practical</u>	Oral & Practical	75	25	100	50	3 Hours

SCHEDULE OF COURSE

(List of holidays, Total hours, Subject wise allotment of hours)

- **List of Holidays:-**

Sundays	- 52 days
Summer vacation	- 10 days
Winter vacation	- 10 days
Gazetted holidays	- 23 days
Preparatory holidays	- 10 days
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Total Holidays	- 105 days
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- **Total Hours :-**

Theory classes per day	- 3 Hours
Practical classes per day	- 3 Hours
Total hours per day	- 6 Hours
Total days & hours in One year (after deduction of holidays)	- 260 days or - 1560 Hours

SCHEDULE OF COURSE

Subject wise allotment of hours

FIRST YEAR

Theory (780 Hours) Practical (780 Hours)

<u>First Paper Theory</u>	1.General Anatomy & Physiology (Cytology, Histology, Osteology and only basics of structure and functioning of all organ systems of body).	250 Hrs
	2. Only basics of relevant Pathology, Pharmacology & Microbiology	100 Hrs
<u>Second Paper Theory</u>	1. Various drugs used before,during and after Anaesthesia	250 Hrs
	2. Vital recording, first aid.	50Hrs
	3. Hand hygiene & prevention of cross infection.	10 Hrs
	4. Basic life support (BLS) & Cardio-pulmonary resuscitation (CPR).	40 Hrs
<u>Third Paper Practical</u>	As described in curriculum	780 Hrs
<u>Theory: Other Subjects</u> (These subjects must be taught, though there will not be any exam from these)	1. Basic Computer skills.	30 Hrs
	2. Basic English.	30 Hrs
	3. Soft skills like - Interpersonal relationship skills & moral education	10 Hrs

SCHEDULE OF COURSE

Subject wise allotment of hours

SECOND YEAR

Theory (780 Hours) Practical (780 Hours)

<u>First Paper Theory</u>	1. Only relevant surgical & medical diseases .	380Hrs
	2. Basic Nursing Procedures like vital recording, IM/IV/SC injection, IV cannula, Oxygen therapy, Nebulization,, catheterisation, IV infusion, Ryle's tubing.	20 Hrs
<u>Second Paper Theory</u>	1. Types of Anaesthesia and Tools and techniques used in different types of Anaesthesia.	300 Hrs
	2. Basics of sterilization practices and biomedical waste management.	20 Hrs
	3. Basic biomedical engineering physics of equipment & instruments used in anaesthesia. and critical care	60 Hrs
<u>Third Paper Practical</u>	As described in curriculum.	780 Hrs

**Details of Curriculum for First Year
Diploma in Anaesthesia and Critical care Technician course**

PAPER 1st Theory	Topics	Hours.
1.General Anatomy & Physiology (Cytology, Histology, Osteology and only basics of structure and functioning of all organ systems of body).	1. General Orientation about parts of human body. Various terms used in Anatomy. Total numbers of bones, their names & location. Basic idea about organization of body ,from cell to organ systems.	06 Hrs
	2. Structure of Animal cell, Cell organelles & their functions	06 Hrs
	3. Human tissue, types, structure & functions.	10 Hrs
	4. Osteology: Names, location, identification and basic details of all bones. (Details of skull bones is not required).	20 Hrs
	5. Joints: types, basic structure & examples.	06 Hrs
	6. Skin & appendages.	02 Hrs
	7. GIT: : Location, Gross structure, various parts & their functions.	20 Hrs
	8. Respiratory tract: Location, Gross structure, various parts & their functions. Details of breathing mechanism, different respiratory volumes. (Microscopic structure is not required.)	40 Hrs
	9. Urinary tract: Gross structure, various parts & their functions. (Microscopic structure is not required.) Process of urine formation & voiding.	20 Hrs
	10. Male reproductive system: Only gross structure & functions of different parts. (Microscopic structure is not required.)	10 Hrs
	11. Female reproductive system: Only gross structure & functions of different parts. (Microscopic structure is not required.) Menstrual cycle.	10 Hrs

**Details of Curriculum for First Year
Diploma in Anaesthesia and Critical care Technician course**

PAPER 1st Theory	Topics	Hours.
1.General Anatomy & Physiology (Cytology, Histology, Osteology and only basics of structure and functioning of all organ systems of body).	12. Endocrine system: Hormones secreted by Pituitary, Thyroid, Parathyroid, Pancreas, Adrenal cortex, Adrenal medulla, Gonads & functions of different hormones. (Details of structure of these glands not required).	10 Hrs
	13. Gross structure of brain & spinal cord. Functions of different parts of brain & spinal cord.(Details not required.)	10 Hrs
	14. Blood: Composition & Functions. Details about Plasma, RBCs, WBCs, Platelets, Clotting system.	10 Hrs
	15. Gross structure & functions of sensory Organs - Eye, Ear, Nose, Tongue.(Details not required).	20 Hrs
	16. Basic gross structure of heart, vessels opening into heart & Leaving the heart. Arterial & Venous tree of body.	20 Hrs
	17. Lymphatic system: Structure & Functions.	10 Hrs
	18. Immune system: Components & various mechanisms of defense.	10 Hrs

Details of Curriculum for First year of Diploma in Anaesthesia and Critical care Technician course

PAPER 1stTheory	Topics	Hours.
2.Only basics of relevant Pathology, Pharmacology & Microbiology.	1. Basic steps of Acute & chronic inflammation and Healing of wound.	05 Hrs
	2. Basics of Necrosis & apoptosis.	02 Hrs
	3. Basics of Shock.	02 Hrs
	4. Basics of Disorders of blood coagulation system.	08 Hrs
	5. Basics of Disorders of Immune system of body.	05 Hrs
	6. Modes of disease transmission & prevention of infection.	05 Hrs
	7. Sterilization & methods of sterilization used in hospitals.	10 Hrs
	8. Basic idea about types of Bacteria, Virus, Fungi.	20 Hrs
	9. Routes of drug administration.	02 Hrs
	10. Adverse effects & side effects of drugs.	02 Hrs
	11. Basic idea of Analgesics : Opioid & NSAIDs.	02 Hrs
	12. Basic idea of Drugs use in Cough & expectoration.	01 Hrs
	13. Basic idea of Drugs used in B.asthma & COPD.	02 Hrs
	14. Basic idea of Drugs used in GIT.	03 Hrs
	15. Basic idea of Anti Microbials.	30 Hrs
	16. Basic idea of Anti H-1 Histaminics & Corticosteroids.	01 Hrs
	17. Drugs used in anaemia.	02 Hrs

Details of Curriculum for First Year
Diploma in Anaesthesia and Critical care Technician course

PAPER 2nd Theory	Topics	Hours.
1. Various drugs used before, during and after Anaesthesia.	1. Details of Muscle relaxants: Central & peripheral.	20 Hrs
	2. Details of Emergency drugs e.g. Adr, NA, Dopamine, Atropine, Glycopyrrolate, Vasopressin.	20 Hrs
	3. Details of IV fluids.	30 Hrs
	4. Details of Analgesics- Opioids, non- opioids and NSAIDs.	30 Hrs
	5. Details of medical gases.	20 Hrs
	6. Details of anti hypertensives.	10 Hrs
	7. Details of induction agents.	20 Hrs
	8. Details of local anaesthetic agents.	20 Hrs
	9. Details of general anaesthetic agents- Volatile and Injectables.	40 Hrs
	10. Details of drugs used in ANS (Related to Anaesthesia only)	30 Hrs
	11. Basics of anti arrhythmic drugs.	10 Hrs

**Details of Curriculum for First Year
Diploma in Anaesthesia and Critical care Technician course**

PAPER 2nd Theory	Topics	Hours.
2.Vital recording, first aid.	1. Vitals recording :- Manual & with multipara monitors.	10 Hrs
	2. How to record ECG.	15 Hrs
	3. Use of defibrillator.	5 Hrs
	4. Common types of bandaging.	15 Hrs

PAPER 2nd Theory	Topics	Hours.
3.Hand hygiene & prevention of cross infection.	1. Hand hygiene & method of Hand washing.	05 Hrs
	2. Prevention of cross infection.	05 Hrs

PAPER 2nd Theory	Topics	Hours.
4.Basic life support (BLS) & Cardio-pulmonary resuscitation (CPR).	1. Code blue.	05 Hrs
	2. Details of basic life support (BLS) & Cardio-pulmonary resuscitation (CPR).	35 Hrs

Curriculum
for
Practical :- First Year
Diploma in Anaesthesia and Critical care Technician course

	Topics
Practical	Hands on training of:- 1. Vitals recording (Manual & with multipara monitors).
	2. Hand hygiene and scrubbing.
	3. Vital recording
	4. BLS and CPR
	5. Observation in OT as assistant anaesthesia technician.
	6. Basic nursing procedures like injection, IV cannulation, Urinary catheterization, Ryles tubing, Nebulization.

**Details of Curriculum for Second Year
Diploma in Anaesthesia and Critical care Technician course**

PAPER 1st Theory	Topics	Hours.
1. Only relevant surgical & medical diseases .	1. History taking. General examination of the patient. Filling Case-sheet. Common clinical words. Glas Gow coma scale.	15 Hrs
	2. Hypertension:- Def, Causes, Pathology, Clinical features, Investigation & Management. Hypotension :- Def, Causes, Pathology, Clinical features, Investigation & Management.	07 Hrs
	3. Diabetes mellitus :- Def, Causes, Pathology, Clinical fectures, Investigation & Management.	05 Hrs
	4. <u>Diseases of blood</u> :- Anaemia, Basics of coagulation Bleeding disorders & Haemophilia.	10 Hrs
	5. <u>Respiratory Tract</u> :- Pneumonia, Tuberculosis, B.asthma, COPD, Bronchiectasis, Collapse of lung, Pneumonitis, Pleural effusion, Pneumothorax, Empyema thoracis, Cancer lung.	30 Hrs
	6. <u>Diseases of GIT & Liver & GB</u> :-Reflux Oesophagitis, Peptic ulcers, Gastritis, Instestinal Obstruction, Hepatitis, Cirrhosis of liver, Cholecystitis, appendicitis, Hernia, Piles, Fissure, Fistula, Pancreatitis, Pancreatic Cancer.	40 Hrs
	7. <u>Diseases of Nervous system</u> :- Stroke, Meningo-encephalitis, Glasgow coma scale, Epilepsy, Facial n. palsy.	30 Hrs
	8. <u>Diseases of Urinary tract</u> :- Urolithiasis, Benign prostatic hyperplasia, Hydrocoele, Cancer prostate, urethral stricture, Hypo & epi-spadias.	30 Hrs
	9. <u>Endocrine system</u> :- Diabetes mellitus, hypo & Hyper thyroidism.	10 Hrs
	10. <u>Miscellaneous</u> :- Hypo & Hyper Natraemia, Hypo & Hyper Kalaemia, Hypo & Hyper Calcaemia and other electrolyte imbalances.	10 Hrs
	11. <u>Infections diseases</u> :- TB, Typhoid, Malaria, Dengue fever, Leprosy, AIDS,	30 Hrs

**Details of Curriculum for Second Year
Diploma in Anaesthesia and Critical care Technician course**

PAPER 1st Theory	Topics	Hours.
1.Only relevant surgical & medical diseases .	12. Head injury & Intracranial bleed.	30 Hrs
	13. D's of G& O: Caesarian section, fibroid uterus, Cancer uterus, prolapse uterus, PID, Emergency delivery.	20 Hrs
	14. Basics about fracture & management.	30 Hrs
	15. PIVD,Potts spine, spinal injury.	10 Hrs
	16. Eye d's : Cataract, Glaucoma, chemical injuries.	15 Hrs
	17. ENT:. CSOM, ASOM, Laryngeal tumor, Nasal poyp, DNS.	15 Hrs
	18. Basic idea of Thoracic injury.	13 Hrs
	19. Basic idea of Blunt & penetration abdominal injuries.	20 Hrs
	20. Shock- types ,causes, clinical features and treatatment	10 Hrs

Details of Curriculum for Second Year
Diploma in Anaesthesia and Critical care Technician course

PAPER 1st Theory	Topics	Hours.
2. Basic Nursing Procedures like vital recording, IM/IV/SC injection, Oxygen therapy, Nebulization,, catheterisation, IV infusion, Ryle's tubing.	1. Temperature monitoring & Fever.	02 Hrs
	2. Pulse monitoring.	01 Hr
	3. BP monitoring.	01 Hr
	4. Respiration monitoring.	01 Hr
	5. Types of Injection routes.	01 Hr
	6. IM Injection.	01 Hr
	7. IV Injection.	01Hr
	8. SC Injection.	01 Hr
	9. Oxygen Therapy.	03 Hrs
	10. Nebulization	01 Hr
	11. IV Infusion (Also with infusion pump).	01 Hr
	12. Care of Unconscious patient.	02 Hrs
	13. Urinary Catheterization.	03 Hrs
	14. Nasogastric Intubation.	03 Hrs

**Details of Curriculum for Second Year
Diploma in Anaesthesia and Critical care Technician course**

PAPER 2nd Theory	Topics	Hours.
1.Types of Anaesthesia and Tools and techniques used in different types of Anaesthesia	1. Positioning of patients for different surgeries.	15 Hrs
	2. Airway management, intubation and oxygen therapy	25 Hrs
	3. IV access: peripheral and central.	10 Hrs
	4. Aspiration prophylaxis.	10 Hrs
	5. Use of Boyle's machine.	15 Hrs
	6. Use of Anaesthesia work station.	30 Hrs
	7. Use of various medical gases.	20 Hrs
	8. Non-invasive & invasive monitoring.	20 Hrs
	9. Aseptic techniques used in O.T.	20 Hrs
	10. Regional anaesthesia - types,, equipments, positioning, indications, contraindications, techniques, adverse effects etc.	60 Hrs
	11. General anaesthesia- types,, equipments, positioning, indications, contraindications, techniques, adverse effects etc	60 Hrs
	12. Anaesthesia consent, high risk anaesthesia	05 Hrs
	13. Pre anaesthetic checkup.	05 Hrs
	14. Record keeping.	05 Hrs

**Details of Curriculum for Second Year
Diploma in Anaesthesia and Critical care Technician course**

PAPER 2nd Theory	Topics	Hours.
2.Basics of sterilization practices and biomedical waste management.	1. Various methods of Sterilization.	10 Hrs
	2. Aseptic practices.	05 Hrs
	3. Basics of Bio-medical waste managment.	05 Hrs

PAPER 2nd Theory	Topics	Hours.
3.Basic biomedical engineering physics of equipment & instruments used in anaesthesia and critical care.	1. Multipara monitors.	05 Hrs
	2. Ventillators.	05 Hrs
	3. Bi-PAP, C-PAP	05 Hrs
	4. Infusion pump	05 Hrs
	5. Nebulizers.	03 Hrs
	6. Boyles machine and anaesthesia work station.	07 Hrs
	7. Pulse Oxymeter	03 Hrs
	8. Cardiac monitor	02 Hrs
	9. Defibrillator	05 Hrs
	10. Glucometer	03 Hrs
	11. Oxygen concentrator	07 Hrs
	12. Medical Gas supply	10 Hrs

Curriculum
for
Practical :- Second Year
Diploma in Anaesthesia and Critical care Technician course

	Topics
Practical	1. Positioning of patients for different surgeries.
	2. Airway management, intubation and oxygen therapy.
	3. IV access: peripheral and central.
	4. Aspiration prophylaxis.
	5. Use of Boyle's machine.
	6. Use of Anaesthesia work station.
	7. Use of various medical gases.
	8. Non-invasive & invasive monitoring.
	9. Aseptic techniques used in O.T.
	10. Assisting Regional anaesthesia
	11. Assisting General anaesthesia
	12. Anaesthesia consent, high risk anaesthesia
	13. Pre anaesthetic checkup.
	14. Record keeping.