

Syllabus and Curriculum
of
Diploma in Respiratory Therapy course

Uttar Pradesh State Medical Faculty, Lucknow.

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OBJECTIVES OF THE COURSE

The course shall be called as the “Diploma in Respiratory Therapy” It will be an Intensive full time course, which will include Bedside teaching, Classroom lectures and practical training in the Surgical Intensive Care Unit, Medical Intensive Care Unit, Neuro- Intensive Care Unit, High Dependency Unit, Coronary Care Unit, Cardio Thoracic Surgical Unit, Emergency, Respiratory Labs and Operation theaters.

At the end of the course the candidate will be fully trained in the Comprehensive Respiratory care of critically ill patients, which will include Assessment, Monitoring, Intubation, weaning, extubation and care of mechanically ventilated patients. They also will be trained in Pulmonary Function Testing, Advanced Cardio Respiratory physiotherapy, transportation of critically ill patients and Advanced Life Support system.

The evaluation will comprise theory, practical and VIVA examination at the end of each year, and the project submission at the end of third year.

Outline of Curriculum
of
Diploma in Respiratory Therapy course

FIRST YEAR

THEORY (Classes: 9 AM to 12 Noon)

First paper : Syllabus covers -

1. Anatomy, Physiology, Microbiology & Pharmacology.

Second paper : Syllabus covers -

1. Biochemistry, Pharmacology, Bio statistics and Physics.

Outline of Curriculum
of
Diploma in Respiratory Therapy course

SECOND YEAR

THEORY (classes:9 AM to 12 Noon)

First paper : Syllabus covers -

1. Respiratory, Cardiovascular Diseases, Diagnostic Techniques and Equipment in Cardio-Respiratory Diseases.

Second paper : Syllabus covers -

1. Respiratory Therapy Techniques I, II, Life support system and Cardio pulmonary rehabilitation,

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>	1. Anatomy, Physiology, Microbiology & Pharmacology.	75	25	100	50	3 Hours
<u>Second Paper Theory</u>	1. Biochemistry, Pharmacology, Bio statistics and Physics.	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.Respiratory, Cardiovascular Diseases, Diagnostic Techniques and Equipment in Cardio-Respiratory Diseases.	75	25	100	50	3 Hours
<u>Second Paper Theory</u>	1.Respiratory Therapy Techniques I, II, Life support system and Cardio pulmonary rehabilitation,	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. Anatomy, Physiology, Microbiology & Pharmacology.	250 Hrs
<u>Second Paper Theory</u>	1. Biochemistry, Pharmacology, Bio statistics and Physics.	250 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.Respiratory, Cardiovascular Diseases, Diagnostic Techniques and Equipment in Cardio-Respiratory Diseases.	380Hrs
<u>Second Paper Theory</u>	1.Respiratory Therapy Techniques I, II, Life support system and Cardio pulmonary rehabilitation,	300 Hrs
<u>Third Paper Practical</u>	As described in curriculum.	780 Hrs

Details of Curriculum for First Year
Diploma in Respiratory Therapy course

PAPER 1st Theory	Topics	Hours.
1. Anatomy, Physiology, Microbiology & Pharmacology.	1. Anatomy of the Upper and Lower airways	05 Hrs
	2. Pleura, Lungs	20 Hrs
	3. Surface marking of the lungs	06 Hrs
	4. Broncho pulmonary segments	02 Hrs
	5. Muscles of Respiration	30 Hrs
	6. Diaphragm	20 Hrs
	7. Nerve supply and Blood Supply of the respiratory system	25 Hrs
	8. Transportation of gases- O ₂ , CO ₂ , and Dissociation curves	10 Hrs
	9. O ₂ cascade, O ₂ flux, Lung volumes and Capacities	10 Hrs
	10. Nervous and chemical control of Respiration. Gas exchange, Work of breathing, Resistance, compliance	20 Hrs
	11. Anatomy of the heart, Pericardium	10 Hrs
	12. Conducting system	05 Hrs
	13. Cardiac cycle, cardiac output	10 Hrs
	14. Nervous control of heart	05 Hrs
	15. Nervous control of heart	05 Hrs
	16. Cardiac rhythm, ECG	20 Hrs
	17. Hemodynamics	10 Hrs
	18. Blood pressure	05 Hrs
	19. Auscultatory areas, Heart sounds	10 Hrs

Details of Curriculum for First Year
Diploma in Respiratory Therapy course

PAPER 1st Theory	Topics	Hours.
1. Anatomy, Physiology, Microbiology & Pharmacology.	20. Neonatal and pediatric cardio respiratory anatomy and physiology, basic vitals and their significance.	20 Hrs
	21. Classification of microorganisms, size, shape, and structure of bacteria	10 Hrs
	22. Microbiology - Eukaryotic pathogens involving respiratory tract	05 Hrs
	23. Prokaryotic pathogens involving respiratory tract	05 Hrs
	24. Mycobacterium and common gram negative bacteria	05 Hrs
	25. Methods of sterilization and disinfection	10 Hrs
	26. Disinfection of respiratory equipment's	10 Hrs
	27. Disinfection of cvs equipment's	05 Hrs
	28. Infection control – Meaning, methods of transmission of diseases.	10 Hrs
	29. Pathology - Cellular adaptation	05 Hrs
	30. Cell Injury	02 Hrs
	31. Cell death	02 Hrs
	32. Causes of cell injury	02 Hrs
	33. Reversible and Irreversible cell injury	02 Hrs
	34. Examples of cell injury and necrosis	02 Hrs
	35. Acute and chronic inflammation, General features of inflammation	05 Hrs
	36. Systemic pathology - blood vessels, lymphatic and veins	10 Hrs
37. Lungs – Congenital anomalies, Obstructive and Restrictive pulmonary diseases, diseases of Pleura.	10 Hrs	

Details of Curriculum for First Year

Diploma in Respiratory Therapy course

PAPER 2nd Theory	Topics	Hours.
1. Biochemistry, Pharmacology, Bio statistics and Physics.	1. Carbohydrate, Protein, Fat – Structure, Synthesis,	05 Hrs
	2. Metabolism and sources	03 Hrs
	3. Vitamins, Minerals – Functions	02 Hrs
	4. Chemistry of Respiration	02 Hrs
	5. Acid base balance and Imbalance	10 Hrs
	6. Enzymes and Hormones functions	03 Hrs
	7. Biochemical Genetics, Inborn errors of metabolism	02 Hrs
	8. General information about drug administration	07 Hrs
	9. Bronchodilators and xanthines	03 Hrs
	10. Expectorants, Mucolytics and antihistamines	04 Hrs
	11. Corticosteroids and anti infective agents	05 Hrs
	12. Diuretics and anti hypertensive agents	15 Hrs
	13. Neuromuscular blocking agents	15 Hrs
	14. Sedatives and analgesics	10 Hrs
	15. Pharmacodynamics and pharmacokinetics	08 Hrs
	16. Introduction: Concepts, Types, significance and scope of statistics, Meaning data, sample, parameter, type and level of data and their measurement organization and presentation of data – Tabulation of data, Frequency distribution Graphical and tabular presentation.	02 Hrs
	17. Measures of central tendency: Mean, Median, Mode	45 Hrs
	18. Measures of variability: Range, Percentiles, Average deviation, Quartile deviation, Standard deviation.	03 Hrs
	19. Normal distribution: Probability, characteristics and application of normal probability curve, sampling error.	05 Hrs
	20. Measures of relationship: Correlation- need and meaning rank order correlation, Scatter diagram method, Product moment correlation, simple linear regression analysis and prediction.	05 Hrs

Details of Curriculum for First Year
Diploma in Respiratory Therapy course

PAPER 2nd Theory	Topics	Hours.
1. Biochemistry, Pharmacology, Bio statistics and Physics.	21. Significance of statistic and significance between two statics(Testing hypothesis)	15 Hrs
	22. Non parametric test- chi-sqaure test, sign, median test, Mann Whitney test.	10 Hrs
	23. Parametric test -‘t’ test, ANOVA, MANOVA, ANCOVA and reliability tests.	10 Hrs
	24. Gas Physics – States of matter and Gas laws,	01 Hrs
	25. Gas flows and diffusion, Pressure moments	30 Hrs
	26. Factors affecting Oxygenation and ventilation	130 Hrs

Details of Curriculum for Second Year Diploma in Respiratory Therapy course

PAPER 1st Theory	Topics	Hours.
Relevant medical and surgical diseases	1. Assessment & Classification of Pulmonary diseases	15 Hrs
	2. Hypoventilation & Hyperventilation	05 Hrs
	3. Diffusion Defects, Acid Base Disorders	02 Hrs
	4. Ventilation & Perfusion Abnormalities	08 Hrs
	5. COPD (Chronic Obstructive Pulmonary Diseases)	20 Hrs
	6. Asthma and Management	30 Hrs
	7. Chronic Bronchitis and Management	50 Hrs
	8. Emphysema and Management	20 Hrs
	9. Bronchiectasis and management	30 Hrs
	10. Acute chest trauma, Pulmonary fibrosis	10 Hrs
	11. Atelectasis and pulmonary collapse	10 Hrs
	12. Acute Respiratory distress Syndrome	20 Hrs
	13. Ventilator Associated Pneumonia	30 Hrs
	14. Community Acquired Pneumonia	20 Hrs
	15. Interstitial Lung disease	50 Hrs
	16. Neuromuscular disorders (GBS, Myasthenia Gravis) and Management	10 Hrs
	17. Pulmonary embolism and management	05 Hrs
	18. Pulmonary Tuberculosis and management	10 Hrs

Details of Curriculum for Second Year Diploma in Respiratory Therapy course

PAPER 1st Theory	Topics	Hours.
Relevant medical and surgical diseases	19.Shock - Cardiogenic	10 Hrs
	20.Heart Failure ➤ Systolic Failure ➤ Diastolic Failure ➤ Right ventricular Failure	10 Hrs
	21. Acute left ventricular failure	10 Hrs
	22. Pulmonary edema	05 Hrs
	23.Pulmonary hypertension	02 Hrs
	24. Pulmonary embolism	02 Hrs
	25.Ischemic heart disease	10 Hrs
	26.Myocardial Infarction	05 Hrs
	27. Valvular Heart Disease ➤ Mitral Stenosis ➤ Mitral Regurgitation	10 Hrs
	28. Endocarditis	05 Hrs
	29. Myocarditis and Cardiomyopathy	05 Hrs
	30. Congenital Heart Diseases ➤ TOF ➤ Atrial Septal Defect ➤ Ventricular Septal Defect ➤ Patent Ductus Arteriosus	10 Hrs

Details of Curriculum for Second Year Diploma in Respiratory Therapy course

PAPER 1st Theory	Topics	Hours.
Relevant medical and surgical diseases	31. Arrhythmias ➤ Tachy Arrhythmias ➤ Brady Arrhythmias	20 Hrs
	32. Arterial Blood Gas interpretation	20 Hrs
	33. Pulseoximetry	10 Hrs
	34. Capnography	10 Hrs
	35. Systematic interpretation of chest x-ray	20 Hrs
	36. Pulmonary function Test	20 Hrs
	37. DLCO	20 Hrs
	38.FRC	05 Hrs
	39.Spirometry	20 Hrs
	40. Ventilator Graphy	20 Hrs
	41.Sleep Study	20 Hrs
	42. Body Plethismography	20 Hrs
	43. ECG interpretation	20 Hrs
	44. Echo Cardio Graphy	05 Hrs
	45. Treadmill Test	05 Hrs
	46. CT / MRI - Chest	20 Hrs
	47.Medical Gas Pipelines	10 Hrs
	48. Oxygen Flow meters	05 Hrs
	49. Humidifiers	05 Hrs
	50.Heat & Moisture Exchanger	05 Hrs

Details of Curriculum for Second Year
Diploma in Respiratory Therapy course

PAPER 1st Theory	Topics	Hours.
Relevant medical and surgical diseases	51.Heated Humidifier	05 Hrs
	52. Defibrillators	05 Hrs
	53.Capnography	05 Hrs
	54.Pulse Oximeter	05 Hrs
	55.Cuff Pressure manometer	05 Hrs
	56.Peak Expiratory flow meter	05 Hrs
	57. AMBU	05 Hrs
	58. Spirometer	10 Hrs
	59. Artificial airways – Basic & Advanced	20 Hrs
	60.Various routes of O ₂ administration	10 Hrs
	61. Aerosol therapy	10 Hrs
	62. Nebulizer – Jet, Ultrasonic	10 Hrs
	63.ICD System	10 Hrs
	64. NIV	10 Hrs
	65. Ventilator	20 Hrs
	66.O ₂ Analyser	20 Hrs
	67.Laryngoscope, Bronchoscope	20 Hrs

Details of Curriculum for Second Year
Diploma in Minimal Access Surgery
Technician (DMAST) course

PAPER 2nd Theory	Topics	Hours.
Respiratory Therapy Techniques I, II, Life support system and Cardio pulmonary rehabilitation	1.Mechanical Ventilation	10 Hrs
	2.Initiation of Mechanical ventilation	05 Hrs
	3.Modes of mechanical ventilation	05 Hrs
	4.Different types of ventilation	10 Hrs
	5.Monitoring during mechanical ventilation	05 Hrs
	6.Care of patients with mechanical ventilation	05 Hrs
	7.Troubleshooting during mechanical ventilation	10 Hrs
	8.Complications during mechanical ventilation	25 Hrs
	9.Weaning during mechanical ventilation	10 Hrs
	10.PEEP, Auto PEEP	05 Hrs
	11.Weaning criteria	10 Hrs
	12.Post extubation care	10 Hrs
	13.Lung recruitment maneuvers	05

Details of Curriculum for Second Year
Diploma in Minimal Access Surgery
Technician (DMAST) course

PAPER 2nd Theory	Topics	Hours.
Respiratory Therapy Techniques I, II, Life support system and Cardio pulmonary rehabilitation	14. Prone Ventilation	05 Hrs
	15. Non Invasive mechanical ventilation	05 Hrs
	16. Indication	05 Hrs
	17. Contra indication	05 Hrs
	18. Modes	05 Hrs
	19. Monitors	05 Hrs
	20. Complication	05 Hrs
	21. Oxygen therapy <ul style="list-style-type: none"> ➤ High flow oxygen therapy ➤ Low flow oxygen therapy 	05 Hrs
	22. Aerosol Therapy <ul style="list-style-type: none"> ➤ Indication ➤ Procedure ➤ complication 	05 Hrs
	23. Humidification <ul style="list-style-type: none"> ➤ Different types of humidification ➤ HME vs. heated humidifier 	05 Hrs
	24. Suctioning method <ul style="list-style-type: none"> ➤ Indication ➤ Contraindication ➤ Procedure ➤ Complication 	05 Hrs
25. Intercostal drainage - Insertion, complication Endo tracheal tube intubation <ul style="list-style-type: none"> ➤ Indication ➤ Route of intubation ➤ Difficult intubation ➤ Complication 	05 Hrs	

Details of Curriculum for Second Year
Diploma in Minimal Access Surgery
Technician (DMAST) course

PAPER 2nd Theory	Topics	Hours.
Respiratory Therapy Techniques I, II, Life support system and Cardio pulmonary rehabilitation	26.Transport of Critically ill patients	05 Hrs
	27.Extra Corporeal Membrane Oxygen (ECMO) Therapy	05 Hrs
	28.Basic Life Support	05 Hrs
	29.Recognition of Cardiac arrest	05 Hrs
	30.Respiratory arrest	05 Hrs
	31.AED	05 Hrs
	32.Lay rescuer Resuscitation	05 Hrs
	33.Advanced Cardiac Life support	10 Hrs
	34.Tachyarrhythmia	05 Hrs
	35.Bradyarrhythmia	05 Hrs
	36.Pulseless arrest	05 Hrs

Details of Curriculum for Second Year
Diploma in Minimal Access Surgery
Technician (DMAST) course

PAPER 2nd Theory	Topics	Hours.
Respiratory Therapy Techniques I, II, Life support system and Cardio pulmonary rehabilitation	37.Difference between Synchronized Cardio version / Defibrillation	05 Hrs
	38.Advanced Trauma Life support	05 Hrs
	39.Primary Survey A,B,C,D,E	05 Hrs
	40.Secondary Survey	05 Hrs
	41.Head-to-toe evaluation	05 Hrs
	42.Complete history and physical examination	05 Hrs
	43.Reassessment of all vital signs	05 Hrs
	44. Pulmonary Rehabilitation	05 Hrs
	45.Definition and Aims	05 Hrs
	46.Benefits of pulmonary rehabilitation	05 Hrs
	47.Selection of patients	05 Hrs
	48.Patient assessment for pulmonary rehabilitation	05 Hrs
	49.Assessment of dyspnea	05 Hrs
	50.Quality of life	05 Hrs
	51.Pulmonary rehabilitation team	05 Hrs
	52.Structure of pulmonary rehabilitation	05 Hrs
	53. Cardiac Rehabilitation	05 Hrs
	54.Goals	05 Hrs
56.Cardiac rehabilitation team	05 Hrs	
57.Rationale for cardiac rehabilitation	05 Hrs	