OSMANIA UNIVERSITY – INDUSTRY HUB

ADVANCED P G DIPLOMA IN CARDIAC TECHNOLOGY

[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Scheme of Instructions & Examinations w e f 2011 - 2012

SEMESTER I

Sl.No	Course	Subject	Scheme of Instruction Hrs/Week		Scheme of Examinations		
			L/T	D/P	Duration in Hours	Maximum Marks	
						Univ. Exam	Sessional
THEORY							
1	Paper - I	ANATOMY AND PHYSIOLOGY-BASICS	3	-	3	80	20
2	Paper - II	MICROBIOLOGY AND BIOCHEMISTRY	3	-	3	80	20
3	Paper - III	PATHOLOGY	3	-	3	80	20
4	Paper - IV	PHARMACOLOGY	3	-	3	80	20
PRACTICALS							
5	Paper - I	ANATOMY, PHYSIOLOGY AND PATHOLOGY		8	3	100	--
6	Paper - II	MICROBIOLOGY AND BIOCHEMISTRY		8	3	100	--
TOTAL			**12**	**16**		**520**	**80**

L=Lecture T=Tutorial D=Demonstration P=Practical

ADVANCED P G DIPLOMA IN CARDIAC TECHNOLOGY

SEMESTER I

PAPER-I: ANATOMY AND PHYSIOLOGY - BASICS

Instructions: 3 H/w

U E Max Marks 50
I A Max Marks 25

UNIT I

1. **Surface Anatomy**

2. **Musculo Skeletal System:** Neuro muscular junction

3. **Cardio Vascular System:** Anatomy of the Heart, Coronary Circulation and peripheral Circulation

4. **Respiratory System:** Anatomy of Larynx, Trachea, Diaphragm Lungs and Bronco Pulmonary Segments

UNIT II

5. **Central Nervous System:** Anatomy of Brain, Spinal Cord, Epidural Space, Cranial Cavity

6. **Excretory System:** Anatomy of Kidneys, Typical Neuron

7. **Gastro Intestinal System:** Anatomy of Oropharynx, tongue, esophagus, liver, pancreas, Stomach and Intestines

UNIT III

8. **Physiology of Cardio Vascular System:** Cardiac cycle, Cardiac output, Blood pressure, E C G

9. **Physiology of Respiratory System:** Mechanics of breathing, control of respiration, assisted ventilation, artificial ventilation, oxygen – hypoxia.

10. **Physiology of Central Nervous System:** Nerve conduction, nuero muscular, transmission, CSF circulation, intra cranial tension.

UNIT IV

11. **Physiology of Excretory System:** Renal function, Drug excretion. Normal composition of urine.

12. **Physiology of Gastro Intestinal System:** Process of Digestion, absorption and Assimilation. Drug metabolism.

PAPER II: MICROBIOLOGY AND BIOCHEMISTRY

Instructions : 3 H/w

U E Max Marks 80
I A Max Marks 20

UNIT I

1. **Classification of Bacteria**
   i. Shapes and arrangement of Bacteria

2. **Structure of Bacterial Cell**

3. **Architecture of the Immune System**
   - Innate Immunity
   - Acquired Immunity
   - Acquired Immunity
   - Antibodies
   - Antigen antibody reactions in the laboratory

UNIT II

4. **Basics Of Virology**

5. **Quality Control**

   - Introduction to Quality Control
   - Infection control.
   - Cleaning and disinfections of dialysis equipment
   - Record keeping
   - Equipment maintenance

UNIT III

6. **Metabolism**
7. **Carbohydrates, proteins and Fats**
8. **Vitamins**
9. **Enzymes and Isoenzymes**
10. **Renal function Tests**
11. **Water and Electrolyte Balance and Imbalance**
12. **Acid base balance and Imbalance**

UNIT IV

13. **Routine Blood Biochemistry Investigations related to nephrology**
14. **Handling Glass Wares.**
15. **Biochemistry Test Values**

PAPER III: PATHOLOGY.

Instructions: 3 H/w U E Max Marks 80
I A Max Marks 20

UNIT I

1. Medical Terminology
2. Pathology of Inflammation and Repair
3. Pathology of Nutritional
   Disturbances: Malnutrition, Kwashikor, Marasmus, Osteoporosis, Rickets, Tetany, Iron Deficiency, Vitamin Deficiency

UNIT II

4. Necrosis, Gangrene and putrefaction
5. Circulatorydisturbances;-
   Ischemia,Thrombosis,Embolism,Infarction,Haemmorhage
6. Routine Hematological Investigations;-
   CBP, ESR, BT, CT, Blood Grouping And Cross Matching.

UNIT III

7. Pathology of Cardiovascular System:-
   Hypertension, congestive heart failure, arterisclerosis, aneurysms, ischemia
8. Pathology of Urinary System;-
   Acute Renal Failure, Chronic Renal Failure, Nephrotic Syndrome, Renal Calculi, Tumours, Nephritis.
9. Routine Analysis of Urine.

UNIT IV

10. Pathology of Nervous System.;- Meningitis,Encephalopathy,Spinalcord Diseases
11. Pathology Of Respiratory System:-Asthama,Lungs Tumour,Pulmonary Hypertension,Copd,
12. Pathology Of Reproductive System: - Benign Prostatic Hypertrophy, Uterine Tumours, Carcinoma Of Breast.

PAPER IV: PHARMACOLOGY

Instructions : 3 H/w U E Max Marks 80
I A Max Marks 20

UNIT – I:

1. Principles involved in drug activity.
2. Autonomic nervous system.
    - Anatomy & functional organisation
    - List of drugs acting on ANS including dose, route of administration, indications, contra indications and adverse effects.
3. Cardiovascular drugs- Enumerate therapeutic uses and side effects of:
    - Antihypertensives
        - Beta Adrenergic antagonists
        - Alpha Adrenergic antagonists
        - Peripheral Vasodilators
        - Calcium channel blockers
    - Antiarrhythmic drugs
    - Cardiac glycosides
    - Sympathetic and nonsympathetic inotropic agents.
    - Coronary vasodilators.
    - Antianginal and anti failure agents
    - Lipid lowering & anti atherosclerotic drugs.
    - Drugs used in Haemostais – anticoagulants, thrombolytics and antithrombolytics.
    - Cardioplegic drugs- Principles and types of cardioplagia.
    - Primary solutions –Principles & types.
    - Drugs used in the treatment of shock.

UNIT – II: Anaesthetic agents.

4. General anaesthetics and their classification. Intravenous general anaesthetic agents.
5. Local anaesthetics, their classification and mechanism of action.
6. Analgesics-Definition and classification, side effects and management of non opioid and opioid analgesics
7. Antihistamines and antiemetics- Classification, Mechanism of action.
8. CNS stimulants and depressants-Alcohol, sedatives, hypnotics and narcotics, neuromuscular blocking agents and muscle relaxants.
9. Pharmacological protection of organs during CPB. Inhalational gases and emergency drugs.

UNIT – III: Pharmacotherapy of respiratory disorders

10. Introduction – Modulators of bronchial smooth muscle tone and pulmonary vascular smooth muscle tone
11. Pharmacotherapy of bronchial asthma
12. Pharmacotherapy of cough
13. Mucokinetic and mucolytic agents
14. Use of bland aerosols in respiratory care.

15. Corticosteroids – Classification, mechanism of action.
16. Diuretics
17. Renal physiology and action of diuretics

UNIT – IV: Chemotherapy of infections

18. Classification and mechanism of action of antimicrobial agents
19. Combination of antimicrobial agents
20. Chemoperophylaxis.
21. Classification, spectrum of activity, dose, routes of administration and adverse effects of penicillin, cephalosporins, aminoglycosides, tetracyclines, chloramphenicol, antitubercular drugs.
22. Others:
    - IV fluids- various preparations and their usage.
    - Electrolyte supplements
    - Immunosuppressive agents
    - New drugs included in perfusion technology.
    - Drugs used in metabolic and electrolyte imbalance.

PRACTICALS

PAPER- I ANATOMY, PHYSIOLOGY AND PATHOLOGY

Instructions : 8 H/w U E Max Marks 100

Familiarization with Basic Medical Sciences including Anatomy, Physiology, Pathology Radiology and Imaging Procedures.

1) Familiarization of Hospital Procedures of Admission, Different Laboratory Techniques, Nomenclature, Individual Tests, Procedures.
2) General Examination of Patient & History taking. Ward Management & Equipment Required presenting a Case, Doctor patient relation and rights, Infection control and measures, important symptoms & signs.
3) Laboratory methods pertaining to Pathology.

PAPER – II MICROBIOLOGY AND BIOCHEMISTRY

Instructions : 8 H/w U E Max Marks 100

1) Collection, processing, storage and transportations of laboratory specimens: Urine, Stool, Sputum, Blood and CSF.
2) Recording of Vital signs.
3) Recording of Blood Pressure.
4) Basic Laboratory methods pertaining to Microbiology and Biochemistry
5) Blood grouping

OSMANIA UNIVERSITY – INDUSTRY HUB

ADVANCED P G DIPLOMA IN CARDIAC TECHNOLOGY

[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Scheme of Instructions & Examinations w e f 2011-2012

SEMESTER II

Sl.No	Course	Subject	Scheme of Instruction Hrs/Week		Scheme of Examinations		
			L/T	D/P	Duration in Hours	Maximum Marks	
						Univ. Exam	Sessional
THEORY							
1	Paper - I	MEDICINE RELEVANT TO CARDIAC TECHNOLOGY	3	-	3	80	20
2	Paper - II	CARDIAC TECHNOLOGY-- CLINICAL	3	-	3	80	20
3	Paper - III	CARDIAC TECHNOLOGY – APPLIED	3	-	3	80	20
4	Paper - IV	CARDIAC TECHNOLOGY – ADVANCED	3	-	3	80	20
PRACTICALS							
5	Paper - I	CARDIAC TECHNOLOGY-- CLINICAL		8	3	100	--
6	Paper - II	CARDIAC TECHNOLOGY– APPLIED		8	3	100	--
TOTAL			**12**	**16**		**520**	**80**

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ADVANCED P G DIPLOMA IN CARDIAC TECHNOLOGY

SEMESTER II

PAPER I: MEDICINE RELEVANT TO CARDIAC TECHNOLOGY

Instructions: 3 H/w U E Max Marks 80
I A Max Marks 20

Unit – I: Cardiovascular System:

1. Brief information about the cardiac conditions given below:
    - Ischaemic heart diseases
    - Rheumatic heart disease
    - Congenital heart disease
    - Hypertension
    - Aortic Aneurysms
    - Cardiomyopathy
    - Peripheral vascular disease
    - Pulmonary edema and LV failure
2. Hematology: Brief information about Anaemia, Bleeding Disorders
3. Laboratory tests used to diagnose bleeding disorders (in brief)

Unit – II: Brief information about the Respiratory System

4. Chronic obstructive airway diseases (COPD)
5. Concept of obstructive versus restrictive pulmonary disease
6. PFT and its interpretation

Unit – III: Brief information about the Renal System

7. ARF & CRF
8. End stage renal disease
9. Role of dialysis and renal transplantation in its management

Unit – IV: Brief information about the CNS

- Automatic nervous system (Sympathetic & Parasympathetic system)
- Brief mention of CNS disorders & their etiology
- DM
- Obesity
- Pregnancy
- Pediatric Patient (neonate/Infant)
- Elderly patient

PAPER II: CARDIAC TECHNOLOGY – CLINICAL

Instructions: 3 H/w U E Max Marks 80
I A Max Marks 20

UNIT – I:

1. ECG procedure and patient preparation.
2. 2D ECHO procedure for equipment preparation and patient preparation.
3. Brief information about the interpretation of Normal ECG and Basic abnormalities of ECG in RHD, IHD & CHD

UNIT – II:

4. Brief information about the Echo in rheumatic heart disease, Brief information about the Echo in congenitial heart disease
5. Brief information about the Echo in ischemic heart disease. Brief information about the Echo in other cardiovascular diseases.
6. Brief information about the Assessment of Cardiac function.

UNIT – III:

7. Brief information about the Echo in pericardial disease.
8. Brief information about the Cardiac catheterisation laboratory – general details of cardiac catheterization equipment, how to handle the machine, common problems one may come across and how to over come it, radiation hazards

UNIT – IV:

9. Brief information about the materials used in the cathlab- all catheters, balloons, guidewires, pacemakers contrast material and other material used in the cardiac catheterization laboratory an sterilization of all these materials

12. Brief information about the Right heart catheterization, Left heart catheterization, Coronary angiogram and Peripheral angiogram.

PAPER III: CARDIAC TECHNOLOGY – APPLIED

Instructions: 3 H/w U E Max Marks 80
I A Max Marks 20

UNIT – I:

1. ECG in myocardial infarction- definition of myocardial infarction. Brief information about the diagnosis and ECG criteria for myocardial infarction.

2. ECG in rheumatic heart disease – definition of rheumatic heart disease. Brief information about the valvular invovement in rheumatic heart disease, ECG in mitral stenosis, mitral incompetence, aortic stenosis and aortic incompetenance

3. ECG in hypertension- definition of hypertension, how to record blood pressure, ECG in hypertension

UNIT – II:

4. ECG in congenital heart disease- Brief information and definitions of the ECG changes in common congenital heart disease ASD, VSD, PDA, pulmonary stenosis, aortic stenosis, coarctation of aorta, TOF, all these conditions.

5. Dobutamine Test and Procedure

7. Brief information about the ECG in other conditions – ECG in various types of cardiomyopathy, myxoedema, pericardial effusion, acute pericardities and other vascular diseases. Bundle branch block, WPW syndrome, dextrocardia

8. Brief information about the Trans esophageal echocardiogram.

UNIT – III:

9. Stress Echo- procedure and indications

10. Peripheral Doppler – Procedure and usefulness of peripheral Doppler

11. Brief information about the Coronary angioplasty, Peripheral angioplasty and Angioplasty of coarctation of aorta

UNIT – IV:

12. Fetal echocardiogram – Procedure, basic interpretation

13. Contrast echocardiogram– procedure and usefulness of contrast echocardiogram

14. Myocardial contrast echo- Basic knowledge

15. Defibrillators It Mechanism To Use And Advantages

PAPER IV: CARDIAC TECHNOLOGY – ADVANCED

Instructions: 3 H/w U E Max Marks 80
I A Max Marks 20

UNIT – I:

1. Cardiac monitoring – definition, purpose of cardiac monitoring, how to set up a intensive coronary care unit and usefulness of ICCU

2. Brief information about the Interpretation of TMT, use of defibrillator- indications, how to use the defibrillator, complications during the procedure and its management

UNIT – II:

3. Brief information about the management of cardiac arrest – definition, causes external cardiac massage, artificial respiration and other drugs and procedures used in the management of Cardiac arrest

4. Myocardial perfusion scan – procedures and usefulness of myocardial perfusion scan

5. Brief information about the Cardiac arrhythmias – bradyarrhythmia and tachy arrhythmias and ECG diagnosis of all rhythm disturbances. Sinus arrhythmia.

UNIT – III:

7. Electrolyte disturbances – ECG in hypokelemia, hyperkelemia etc,.

8. Holter monitoring – procedure and usefulness

9. Brief information about the Valvoplasties. Brief information about the Coil closure and device closure of PDA.

UNIT – IV:

10. Brief information about the Device closure of ASD and Device closure of VSD.

11. Electrophysiological studies – basic knowledge of EP studies and ablation

12. Oxymetry – handling of the instrument and usefulness of the instrument, normal and abnormal values. Pulse Oxymeter-types application and use.

PRACTICALS

PAPER – I: CARDIAC TECHNOLOGY – CLINICAL

Instructions: 8 H/w U E Max Marks 100

Interpretation of Normal ECG and Basic abnormalities of ECG in RHD, IHD & CHD

1. Echo in other cardiovascular diseases.

2. Assessment of Cardiac function.
3. Cardiac catheterization laboratory – general details of cardiac catheterization equipment

4. Coronary angiogram and Peripheral angiogram -various pictures recorded in various angles and gross interpretation.

PAPER – II: CARDIAC TECHNOLOGY – APPLIED

Instructions: 8 H/w U E Max Marks 100

1. ECG in hypertension- how to record blood pressure, ECG in hypertension

2. Trans esophageal echocardiogram – indications.
3. Stress Echo- procedure and indications

4. Peripheral Doppler – Procedure.

5. Fetal echocardiogram – Procedure, basic interpretation

6. Myocardial contrast echo- Basic knowledge

ADVANCED P G DIPLOMA IN CARDIAC TECHNOLOGY

[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

SEMESTER III

[Only Practical Examinations will be conducted. NO Theory Examinations]

Sl.No	Course	Subject	Scheme of Instruction Hrs/Week		Scheme of Examinations		
			L/T	D/P	Duration in Hours	Maximum Marks Univ. Exam	
1	Case Presentation – I	Diagnostic Cardiology		8	3	100	
2	Case Presentation – II	Intensive Coronary Care Unit		8	3	100	
				16	6	200	

1. CASE PRESENTATION – I DIAGNOSTIC CARDIOLOGY

1. Ward record in Diagnostic Cardiology
2. 10 cases of 2D Echo, E.C.G.
3. Cases of Catheterization
4. 2D Echo, E.C.G techniques.
5. Common complications reported.

2.CASE PRESENTATION – II- INTENSIVE CORONARY CARE UNIT

1. Patient record in I.C.C.U.
2. 10 cases of different types of Intensive Coronary Care Unit.
3. Diagnostic test for various heart diseases.
4. Instrumentation techniques for cardiac technology.
5. Common complications reported.

ADVANCED P G DIPLOMA IN CARDIAC TECHNOLOGY

[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

SEMESTER IV

[Only Practical Examinations will be conducted. NO Theory Examinations]

Sl.No	Course	Subject	Scheme of Instruction Hrs/Week		Scheme of Examinations		
			L/T	D/P	Duration in Hours	Maximum Marks Univ. Exam	
1	Project – I	Cardiac Technology – Clinical		8	3	100	
2	Project – II	Cardiac Technology – Applied		8	3	100	
				16	6	200	

ADVANCED P G DIPLOMA IN DIALYSIS TECHNOLOGY

[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Scheme of Instructions & Examinations w e f 2011 - 2012

SEMESTER I

Sl.No	Course	Subject	Scheme of Instruction Hrs/Week		Scheme of Examinations		
			L/T	D/P	Duration in Hours	Maximum Marks	
						Univ. Exam	Sessional
THEORY							
1	Paper - I	ANATOMY AND PHYSIOLOGY-BASICS	3	-	3	80	20
2	Paper - II	MICROBIOLOGY AND BIOCHEMISTRY	3	-	3	80	20
3	Paper - III	PATHOLOGY	3	-	3	80	20
4	Paper - IV	PHARMOCOLOGY RELATED TO DIALYSIS	3	-	3	80	20
PRACTICALS							
5	Paper - I	ANATOMY, PHYSIOLOGY AND PATHOLOGY		8	3	100	--
6	Paper - II	MICROBIOLOGY AND BIOCHEMISTRY		8	3	100	--
TOTAL			**12**	**16**		**520**	**80**

L=Lecture T=Tutorial D=Demonstration P=Practical

ADVANCED P G DIPLOMA IN DIALYSIS TECHNOLOGY

SEMESTER I

PAPER-I: ANATOMY AND PHYSIOLOGY - BASICS

Instructions: 3 H/w

U E Max Marks 80
I A Max Marks 20

UNIT I

1. **Surface Anatomy**

2. **Musculo Skeletal System:** Neuro muscular junction

3. **Cardio Vascular System:** Anatomy of the Heart, Coronary Circulation and peripheral Circulation

4. **Respiratory System:** Anatomy of Larynx, Trachea, Diaphragm Lungs and Bronco Pulmonary Segments

UNIT II

5. **Central Nervous System:** Anatomy of Brain, Spinal Cord, Epidural Space, Cranial Cavity

6. **Excretory System:** Anatomy of Kidneys, Typical Neuron

7. **Gastro Intestinal System:** Anatomy of Oropharynx, tongue, esophagus, liver, pancreas, Stomach and Intestines

UNIT III

8. **Physiology of Cardio Vascular System:** Cardiac cycle, Cardiac output, Blood pressure, E C G

9. **Physiology of Respiratory System:** Mechanics of breathing, control of respiration, assisted ventilation, artificial ventilation, oxygen – hypoxia.

10. **Physiology of Central Nervous System:** Nerve conduction, nuero muscular, transmission, CSF circulation, intra cranial tension.

UNIT IV

11. **Physiology of Excretory System:** Renal function, Drug excretion. Normal composition of urine.

12. **Physiology of Gastro Intestinal System:** Process of Digestion, absorption and Assimilation. Drug metabolism.

PAPER II: MICROBIOLOGY AND BIOCHEMISTRY

Instructions : 3 H/w

U E Max Marks 80
I A Max Marks 20

UNIT I

6. Classification of Bacteria

i. Shapes and arrangement of Bacteria

7. Structure of Bacterial Cell

8. Architecture of the Immune System

7. Innate Immunity
8. Acquired Immunity
9. Acquired Immunity
10. Antibodies
11. Antigen antibody reactions in the laboratory

UNIT II

9. Basics Of Virology

10. Quality Control

a. Introduction to Quality Control
b. Infection control.
c. Cleaning and disinfections of dialysis equipment
d. Record keeping
e. Equipment maintenance

UNIT III

16. Metabolism
17. Carbohydrates, proteins and Fats
18. Vitamins
19. Enzymes and Isoenzymes
20. Renal function Tests
21. Water and Electrolyte Balance and Imbalance
22. Acid base balance and Imbalance

UNIT IV

23. Routine Blood Biochemistry Investigations related to nephrology
24. Handling Glass Wares.
25. Biochemistry Test Values

PAPER III: PATHOLOGY.

Instructions: 3 H/w

U E Max Marks 80
I A Max Marks 20

UNIT I

1. Medical Terminology
2. Pathology of Inflammation and Repair
3. Pathology of Nutritional

   Disturbances: Malnutrition, Kwashikor, Marasmus, Osteoporosis, Rickets, Tetany, Iron Deficiency, Vitamin Deficiency

UNIT II

4. Necrosis, Gangrene and putrefaction
5. Circulatorydisturbances;-Ischemia,Thrombosis,Embolism,Infarction,Haemmorhage
6. Routine Hematological Investigations;-

   CBP, ESR, BT, CT, Blood Grouping And Cross Matching.

UNIT III

7. Pathology of Cardiovascular System:-

   Hypertension, congestive heart failure, arterisclerosis, aneurysms, ischemia
8. Pathology of Urinary System;-

   Acute Renal Failure, Chronic Renal Failure, Nephrotic Syndrome, Renal Calculi, Tumours, Nephritis.
9. Routine Analysis of Urine.

UNIT IV

10. Pathology of Nervous System.;- Meningitis,Encephalopathy,Spinalcord Diseases
11. Pathology Of Respiratory System:-Asthama,Lungs Tumour,Pulmonary Hypertension,Copd,
12. Pathology Of Reproductive System: - Benign Prostatic Hypertrophy, Uterine Tumours, Carcinoma Of Breast.

PAPER IV: PHARMOCOLOGY RELATED TO DIALYSIS

Instructions: 3 H/w

U E Max Marks 80
I A Max Marks 20

UNIT – I:

1. Iv Fluid Therapy With Special Emphasis In Renal Diseases
2. Diuretics – Classification, Actions, Dosage, Side Efeects & Contraindications
3. Anti Hypertensives – Classification, Actions, Dosage, Side Efeects & Contraindications, Special Reference During Dialysis, Vasopressors, Drugs Used In Hypotention
4. Drugs & Dialysis – Dose & Duration Of Administration Of Drugs

UNIT – II:

5. Dialysable Drugs : Phenobarbitone, Lithium, Methanol Etc.
6. Vitamin D & Its Analogues, Phosphate Binders, Iron, Folic Acid And Other Vitamins Of Therapeutic Value
7. Erythropoietin In Detail
8. Heparin Including Low Molecular Weight Heparin

UNIT – III:

9. Protamine Sulphate
10. Formalin, Sodium Hypochlorite, Hydrogen Peroxide – Role As Disinfactants & Adverse Effects Of Residual Particles Applicable To Formalin
11. Haemodialysis Concentrates – Composition & Dilution (Acetate & Bicorbonates)

UNIT – IV:

12. Peritoneal Dialysis Fluid In Particular Hypertonic Solutions – Composition
13. Potassium Exchange Resins With Special Emphasis On Mode Of Administration

PRACTICAL

PAPER- I: ANATOMY, PHYSIOLOGY AND PATHOLOGY

Instructions : 8 H/w U E Max Marks 100

4) Familiarization with Basic Medical Sciences including Anatomy, Physiology, Pathology Radiology and Imaging Procedures.
5) Familiarization of Hospital Procedures of Admission, Different Laboratory Techniques, Nomenclature, Individual Tests, Procedures.
6) General Examination of Patient & History taking. Ward Management & Equipment Required presenting a Case, Doctor patient relation and rights, Infection control and measures, important symptoms & signs.
7) Laboratory methods pertaining to Pathology.

PAPER – II MICROBIOLOGY AND BIOCHEMISTRY

Instructions : 8 H/w U E Max Marks 100

6) Collection, processing, storage and transportations of laboratory specimens: Urine, Stool, Sputum, Blood and CSF.
7) Recording of Vital signs.
8) Recording of Blood Pressure.
9) Basic Laboratory methods pertaining to Microbiology and Biochemistry
10) Blood grouping

OSMANIA UNIVERSITY – INDUSTRY HUB

ADVANCED P G DIPLOMA IN DIALYSIS TECHNOLOGY
[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Scheme of Instructions & Examinations w e f 2011-2012

SEMESTER II

Sl.No	Course	Subject	Scheme of Instruction Hrs/Week		Scheme of Examinations		
			L/T	D/P	Duration in Hours	Maximum Marks	
						Univ. Exam	Sessional
THEORY							
1	Paper - I	BASICS OF DIALYSIS TECHNOLOGY	3	-	3	80	20
2	Paper - II	APPLIED DIALYSIS TECHNOLOGY –I	3	-	3	80	20
3	Paper - III	APPLIED DIALYSIS TECHNOLOGY –II	3	-	3	80	20
4	Paper - IV	CONCEPTS OF RENAL DIALYSIS AND ITS MANAGEMENT	3	-	3	80	20
PRACTICALS							
5	Paper - I	APPLIED DIALYSIS TECHNOLOGY –I		8	3	100	--
6	Paper - II	APPLIED DIALYSIS TECHNOLOGY – II		8	3	100	--
TOTAL			**12**	**16**		**520**	**80**

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ADVANCED P G DIPLOMA IN DIALYSIS TECHNOLOGY
SEMESTER II

PAPER I: BASICS OF DIALYSIS TECHNOLOGY

Instructions: 3 H/w

U E Max Marks 80
I A Max Marks 20

UNIT – I: DIALYSIS

1. Indications Of Dialysis
2. Types Of Dialysis
3. Principles Of Dialysis – Definition
4. Haemodialysis Apparatus – Types Of Dialyser & Membrane
5. Types Of Vascular Access For Haemodialysis
6. Introduction To Haemodialysis Machine
7. Priming Of Dialysis Apparatus
8. Dialyser Reuse
9. Common Complications Of Haemodialysis
10. Monitoring Of Patients During Dialysis

UNIT – II: NUTRITION

11. **Introduction To Science Of Nutrition**
    - Definition, Food Pattern And Its Relation To Health
    - Factors Influencing Food Habits, Selection And Food Stuffs
    - Superstitions, Culture, Religion, Income, Composition Of Family, Age, Occupation, Special Group Etc
    - Food Selection, Storage & Preservation
    - Prevention Of Blood Adulteration
12. **Classification Of Nutrients**
    - Macronutrients And Micronutrients
    - Proteins – Types, Sources, Requirements And Defiencies Of Proteins
    - Carbohydrates Sources, Requirements & Deficiency
    - Fats – Types, Sources, Requirements And Deficiency Of Fats
    - Water – Sources Of Drinking Water, Requirements, Preservation Of Water
    - Minerals:Types, Sources, Requirements Deficiencies of minerals
    - Vitamins -Types, Sources, Requirements Deficiencies Of Vitamins

UNIT – III: PLANNING DIETS

13. Need For Planning Diets
14. Concept Of A Balanced Diet
15. Food Group & Balanced Diet
16. Influence Of Age, Sex, Occupation & Physiological State
17. Recommended Dietary Intake In Planning Diet
18. Steps In Planning Balanced Diet
19. Planning Renal Diet

UNIT – IV: INTRODUCTION TO COOKERY

20. Purposes And Methods Of Cooking
21. Effects Of Heat On Cooking Of Foods
22. Preparation Of Basic Recipes – Clear Fluids
23. Full Fluids, Vegetable Preparation, Egg Recipes, Fish And Meat Recipes, Light Puddings

PAPER II: APPLIED DIALYSIS TECHNOLOGY – I

Instructions: 3 H/w U E Max Marks 80
I A Max Marks 20

UNIT – I:

1. Indications Of Dialysis
2. History & Types Of Dialysis
3. Theory Of Haemodialysis – Diffusion, Osmosis, Ultrafilteration & Solvent Drag
4. Haemodialysis Appratus – Types Of Dialyser & Membrane, Dialysate

UNIT – II:

5. Physiology Of Peritoneal Dialysis

6. Vascular Access For Haemodialysis & Associated Complications
7. Peritoneal Access Devices – Types Of Catheter, Insertion Techniques & Associated Complications

8. Dialysis Machines - Mechanism Of Functioning & Management
    - Haemodialysis Machine
    - Peritoneal Dialysis Machine

UNIT – III:

9. Complications Of Dialysis
    - Haemodialysis – Acute & Long Term Complications
    - Peritoneal Dialysis – Mechanical & Metabolic Complications
10. Biochemical Investigations Required For Renal Dialyss

UNIT – IV:

10. Adequacy Of Dialysis
    - Haemodialysis
    - Peritoneal Dialysis
    - Peritoneal Equilibriation Test (Pet)
11. Anti Coagulation
12. Peritonitis & Exit Site Infection
13. Withdrawal Of Dialysis Criteria
    - Acute Dialysis
    - Chronic Dialysis

PAPER III: APPLIED DIALYSIS TECHNOLOGY – II

Instructions: 3 H/w

U E Max Marks 80
I A Max Marks 20

UNIT – I: DIALYSIS IN SPECIAL SITUATIONS

i. Patients With Congestive Cardiac Failure
ii. Advanced Liver Disease
iii. Patients Positive For HIV, HBSAG & HCV
iv. Failed Transplant
v. Poisioning Cases
vi. Pregnancy

UNIT – II:

7. Plasmapheresis
8. Special Problems In Dialysis Patients
    - Psychology & Rehabilitation
    - Diabetes
    - Hypertension
    - Infections
    - Bone Diseases
    - Aluminium Toxicity

UNIT – III:

9. Recent Advances In Haemodialysis
    - Nocturnal Dialysis
    - Online Dialysis
10. Daily Dialysis

UNIT – IV:

11. Telemedicine In Dialysis Practice
12. Water Treatment System
13. Renal Anaemia Management
14. Chronic Dialysis

PAPER IV: CONCEPTS OF RENAL DIALYSIS AND ITS MANAGEMENT

Instructions: 3 H/w

U E Max Marks 80
I A Max Marks 20

UNIT – I:

1. Acute Renal Failure
2. Nephrotic Syndrome – Primary & Secondary
3. Nephritic Syndrome

UNIT – II:

4. UTI – Urinary Tract Infections
5. Asymptomatic Urinary Abnormalities
6. Chronic Renal Failure

UNIT – III:

7. Renal Stone Diseases
8. Obstructive Uropathies

UNIT – IV:

9. Congenital & Inherited Renal Diseases
10. Tumors Of Kidney
11. Pregnancy Associated Renal Diseases
12. Renal Vascular Disorders & Hypertension Associated Renal Diseases

PRACTICALS

PAPER – I: APPLIED DIALYSIS TECHNOLOGY – I

Instructions: 8 H/w U E Max Marks 100

Ward work including

5. Setting Up Dialysis Machine For Dialysis
6. A V Cannulation
7. A V Fistula/A V Graft Cannulation
8. Initiation Of Dialysis Through Central Venous Catheters Like Internal Jugular, Femoral & Subclavian Vein
9. Packing & Sterilisation Of Dialysis Trays
10. Closing Of Dialysis
11. Preparation Of Concentrates Depending On The Situations

PAPER – II: APPLIED DIALYSIS TECHNOLOGY – II

Instructions: 8 H/w U E Max Marks 100

7. Reuse Of Dialysis Apparatus
8. Isolated Ultrafiltration
9. Performance Of Peritoneal Dialysis Exchange Manually
10. Setting Up Of Automated Peritoneal Dialysis Equipment
11. First Assistant In Minor Procedures
12. Skin Suturing
13. CPR Demonstrations

ADVANCED P G DIPLOMA IN DIALYSIS TECHNOLOGY

[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

SEMESTR –III

[Only Practical Examinations will be conducted. NO Theory Examinations]

Sl.No	Course	Subject	Scheme of Instruction Hrs/Week		Scheme of the Practical Examinations		
			L/T	D/P	Duration in Hours	Maximum Marks Univ. Exam	
1	Case Presentation – I	Haemo Dialysis		8	3	100	
2	Case Presentation – II	Peritoneal Dialysis		8	3	100	
				16	6	200	

1. Case Presentation – I Haemo Dialysis

6. Ward record in haemodialysis.
7. 10 cases of haemodialysis.
8. Infected cases in haemodialysis.
9. Av sites and techniques.
10. Common complications reported.

2. Case Presentation – II- Peritoneal Dialysis

6. Patient record in peritoneal dialysis.
7. 10 cases of different types of peritoneal dialysis.
8. Infected cases in peritoneal dialysis.
9. Sites and techniques.
10. Common complications reported.

ADVANCED P G DIPLOMA IN DIALYSIS TECHNOLOGY

[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Semester – IV

[Only Practical Examinations will be conducted. NO Theory Examinations]

Sl. No	Course	Subject	Scheme of Instruction Hrs/Week		Scheme of Examinations		
			L/T	D/P	Duration in Hours	Maximum Marks Univ. Exam	
1	Project – I	Dialysis Technology – Clinical		8	3	100	
2	Project – II	Dialysis Technology – Applied – I		8	3	100	
				16	6	200	

OSMANIA UNIVERSITY – INDUSTRY HUB
ADVANCED P G DIPLOMA IN EMERGENCY MEDICAL CARE
[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Scheme of Instructions & Examination w e f 2011-2012

SEMESTER – I

S. No	Course	Subject	Scheme of Instruction Hrs/week		Scheme of Examinations		
			L/T	D/P	Duration in hours	Maximum Marks	
						Univ. Exam	Sessional
THEORY							
1	Paper-I	English Language Competence	3	-	3	80	20
2	Paper-II	Fundamentals of IT	3	-	3	80	20
3	Paper-III	Microbiology & Biochemistry	3	-	3	80	20
4	Paper-IV	Basic Anatomy and Physiology & Pathology	3	-	3	80	20
PRACTICALS							
5	Paper-I	Spoken English &Fundamentals of IT Lab		8	3	100	--
6	Paper-II	Microbiology , Biochemistry, Anatomy, Physiology & Pathology		8	3	100	--
TOTAL			12	16		520	80

L=Lecture T=Tutorial D=Demonstration P=Practical

SEMESTER-I
ADVANCED P G DIPLOMA IN EMERGENCY MEDICAL CARE

Paper-I : ENGLISH LANGUAGE COMPETENCE

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

Unit I:

1. Importance of Language in Communication: Structure of English and Common Errors; Pronunciation; common mispronounciations, Medical vocabulary: active and passive.

Unit II:

2. Verbal Communication: Listening Comprehension, Speech sounds in English, Mother Tongue Influence, Writing for a specific purpose: business letters, summarizing and expansion, technical writing.

Unit III:

3. Non- Verbal Communication: Kinesics: Proxemics, Paralanguage, Communication and Etiquette.

Unit IV:

4. Interpersonal Communication: Client interaction, interaction with subordinates and Superiors, Formal and Informal Communication.

Paper-II: FUNDAMENTALS OF INFORMATION TECHNOLOGY

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

Unit – I:

1. Introduction to Computers: Overview, computers for the individual users, Computers for Organizations, Parts of Computer system, Essential Computer Hardware and Software.
2. Interacting with computers: Keyboard, Mouse, Hand net devices, Optical input devices, Audiovisual input devices, Monitors, Printers.
3. Overview of Data Processing, Modern CPUs, Storage devices and Operating systems.

Unit – II:

4. Software: Overview of Microsoft Office. Microsoft Word: Laying out a Document, working with documents, Desktop publishing, writing reports and papers.
5. Microsoft excel: Excel Basics, Excel Formulas and Functions, Chart Wizard, Working with Pivot tables.

Unit – III:

6. Microsoft Power Point: Creating a Power Point Presentation, customizing the presentation, showing a presentation.
7. Microsoft Access: Creating a Database, Build your own Database tables, sorting, filtering and querying a database, generating reports and mailing labels.

Unit – IV:

8. Accounting: Types of Accounting, Rules of Debit and Credit, Accounting Principles, Accounting systems, Recording transactions in Journal, Ledger, Trial Accounts, Final accounts, Adjustment entries.
9. Introduction to Tally: Accounting information, Groups, Managing groups, Ledgers, Vouchers in Tally, Configuring vouchers, Displaying vouchers, Predefined vouchers.
10. Inventory Information: Stock groups, Stock categories, Stock item, voucher types, Purchase orders, Sales orders, Invoices, Reports, Trial balance, Balance sheet, Profit & Loss Account, Stock summary, Ratio Analysis, Display menu.

Suggested Reading:

1. Peter Norton, " Introduction to Computers" Sixth Edition, Tata McGraw Hill – 2006.
2. Stephen L. Nelson, "The Complete Reference Office 2000", Tata McGraw Hill – 1999.
3. Vikas Gupta, "Comdex Computer Course Kit", Dreamtich – 2001.
4. Namrata Agarwal "Comdex Tally 7.2 Kit" Dreamtich – 2004.

Paper III: MICROBIOLOGY & BIOCHEMISTRY

U E Max Marks 80

Instructions: 3 h/w I A Max Marks 20

Unit I: Bacteriology and Immunology (brief study only)

1. Classification and identification of bacteria
2. Common diseases caused by bacteria.
3. Common disease caused by viruses
4. Common diseases caused by fungi
5. Common diseases caused by Protozoa

6. Immunity.
7. Antigen and Antibody -Immunoglobulins
8. The immune response

Unit II: Clinical Microbiology (brief study only)

9. Sterilization and disinfection
10. Collection, transport and preliminary processing of clinical specimens
11. Diagnostic Microbiology-an approach to laboratory diagnosis
12. Serological and skin tests
13. Nosocomial infections
14. Diagnostic virology
15. Emergency Microbiology Index

Unit-III: Biochemistry (Definitions and brief note on importance)

1. Metabolism
2. Carbohydrates, proteins and Fats
3. Vitamins
4. Minerals
5. Trace Elements
6. Enzymes and Isoenzymes
7. Diet and Nutrition
8. Biochemistry of Cancer

Unit-IV: Clinical Biochemistry (List of Tests and their indications and importance only)

9. Renal Function Tests
10. Liver Function Tests
11. Gastric Function Tests
12. Thyroid Function Tests
13. Water and Electrolyte Balance and Imbalance
14. Acid Base Balance and Imbalance
15. Cerebrospinal Fluid (CSF)-Chemistry and Clinical Significance
16. Urine Analysis-Its Clinical Significance

Paper-IV: BASIC ANATOMY, PHYSIOLOGY AND PATHOLOGY

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

Unit-I: Anatomy-I (brief study only)

1. Surface Anatomy
2. Musculo-skeleton
3. Endocrine system
4. Central Nervous System
5. Respiratory system
6. Cardio vascular system
7. Gastro intestinal system
8. Renal system
9. Reproductive system
10. Sensory organs

Unit-II: Physiology (brief study only)

11. Physiology of endocrine system
12. Hematology (blood & components)
13. Central nervous system (Brain & spinal cord)
14. Cardiovascular system (Heart with circulation)
15. Respiratory system (Exchange of gases & applied)
16. Gastro intestinal system (Digestion, Absorption & Applied)
17. Renal system (Formation of urine, Flow & Applied)
18. Reproductive system (Male & Female include menstruation, Menarche and Menopause)
19. Sense organs (Ear, Eyes & Skin)

Unit-III: Pathology (brief study only)

1. Medical Terminology
2. Pathology of Inflammation and Repair
3. Pathology of Nutritional Disturbances: Malnutrition, Kwashiorkor, Marasmus, Osteoporosis, Rickets, Tetany, Iron deficiency and vitamin deficiency.
4. Necrosis, Gangrene and Putrefaction
5. Circulatory Disturbances: Ischemia, Thrombosis, Embolism, Gangrene, Infarction and Hemorrhage.
6. Pathology of Granulomata
7. Pathology of Tumours
8. Pathology of Haematology: RBC disorders, Leucocytoies, Leucopenia, Bleeding disorders and Leukemia
9. Pathology of Cardiovascular System: Hyper tension, Congesctive Heart failure, Congenital Heart Disease, Arteriosclerosis and Anuerysms.

Unit-IV: Pathology contd: (brief study only)

1. Pathology of Urinary System: Acute Renal failure, Chronic renal failure, Nephrotic syndrome, Renal calculi and Tumor.
2. Pathology of Respiratory System: Asthma, pneumonia, Tumor of lung, abscess and pulmonary Hypertension.
3. Pathology of Alimentary System: Peptic ulcer, Liver cirrhosis, Jaundice, cholecystitis and Inflammatory bowel disease.
4. Pathology of Reticulo-endothelial system: Lymphadenopathy and Splenomegaly.
5. Pathology of Endocrine System: Pituitary disorders, Thyroid disorders, Diabetics mellitus, Adrenal disorders and Parathyroid disorders.

6. Pathology of Reproductive System: Benign prostatic hypertrophy, Uterine tumours and carcinoma of penis.
7. Pathology of Musculo-skeletal System: Bone tumour and Muscular Dystrophy
8. Pathology of Nervous System: Meningitis, Encephalopathy and Tumour.

PRACTICAL LABS

Paper-I: ENGLISH LANGUAGE & IT LABORATORY

Instruction: 8 h/w UE Max Marks 100

Section-A

1. Presentations with the use of visual aids such as Power Point.
2. Conversation.
3. Extempore speech.
4. Role Play.
5. Case studies and situational analysis.
6. Survey and Reporting.

Section-B

1. Practical experience and simple projects in:
    - MS office
    - MS word
    - MS excel
    - MS Power Point
    - MS access
2. Tally accounting and inventory.

Paper-II: Microbiology, Biochemistry, Anatomy, Physiology& Pathology.

Instruction: 8 h/w UE Max Marks 100

1. Familiarization with Basic Medical Sciences including Anatomy, Physiology, Pathology Radiology and Imaging procedures.
2. Familiarization of Hospital Procedures of Admission, Different Laboratory Techniques, Nomenclature, Individual Tests, Procedures, Inventory, Consumables, Disposables Etc…
3. General Examination of Patient & History Taking, Ward Management & Equipment Required, Presenting a Case, Doctor patient relation and rights, Infection control and measures, important symptoms & Signs.
4. Collection, processing, storage and transportation of laboratory specimens: Urine, Stool, Sputum, Blood and CSF.
5. Recording of Vital signs.
6. Recording of Blood pressure.
7. Basic Laboratory methods pertaining to Microbiology and Biochemistry.
8. Blood grouping.
9. Laboratory methods pertaining to Pathology.

ADVANCED P G DIPLOMA IN EMERGENCY MEDICAL CARE
[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Scheme of Instructions & Examination w e f 2011-2012

SEMESTER – II

S No	Course	Subject	Scheme of Instruction Hrs/week		Scheme of Examinations		
			L/T	D/P	Duration in hours	Maximum marks	
						Univ Exam	Sessional
THEORY							
1	Paper-I	Medical Emergency Management	3	-	3	80	20
2	Paper-II	Surgical Emergency Management	3	-	3	80	20
3	Paper-III	Obstetrics, Gynaecology and Other Emergency Management	3	-	3	80	20
4	Paper-IV	Ambulance Service, EmergencyCare and Medico-Legal Aspects	3	-	3	80	20
PRACTICALS							
5	Paper-I	Management of Medical, Surgical, OBG, GYN and Other Emergencies		8	3	100	--
6	Paper-II	Ambulance service		8	3	100	--
TOTAL			12	16		520	80

L=Lecture T=Tutorial D=Demonstration P=Practical

SEMESTER-II
ADVANCED P G DIPLOMA IN EMERGENCY MEDICAL CARE

Paper-I: MEDICAL EMERGENCY MANAGEMENT

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

Unit-I: (brief study only)

1. Airway Management
2. Cardiac Emergencies
    a. Approach to chest pain
    b. Congestive cardiac failure
3. Shock
    a. Septic shock
    b. Management of shock
2. Respiratory Emergencies
    a. Acute respiratory failure
    b. Asthma
    c. Bronchial asthma
    d. Haemoptysis-I
    e. Haemoptysis-II
    f. Pleural effusion
    g. Pneumothorax
    h. Pulmonary embolism

Unit-II: (brief study only)

3. Pediatric emergencies
    a. Approach to the III pediatric patient
    b. Pain
    c. Ingested foreign bodies
    d. Congenital heart disease
    e. GIT Disorders
    f. Seizures
    g. Status epileptics
    h. Child abuse
4. Anaphylactic reactions

Unit-III: (brief study only)

5. Toxicology
    i. Approach to the poisoned patient
    j. Antidotes commonly used in overdoses
    k. Treatment of hypotension associated with drug poisoned
    l. Carbon monoxide poisoning
    m. Alcohol withdrawal
    n. Arsenic poisoning
    o. Cyanide poisoning
    p. Iron poisoning
    q. Ethylene Glycol poisoning
    r. Poisoning-Management
6. Ophthalmic emergencies
    s. Red eye

Unit-IV: (brief study only)

7. Endocrine emergencies
    a. Hypoglycemia
    b. Diabetic keto acidosis
8. Envenomation
    c. Envenomation – Snake – Cobra
    d. Envenomation – Scorpion
9. Environmental emergencies
    e. Frost bite
    f. Heat – Exhaustion and Stroke
    g. High altitude
    h. Hypothermia

Paper-II: SURGICAL EMERGENCY MANAGEMENT

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

Unit-I:

1. Abdominal & gastrointestinal Emergencies
    a. Abdominal Trauma
    b. Esophageal Perforation
    c. Haemorrhoids
    d. Hepatitis
    e. Inflammatory Bowel disease
    f. Anal fissures and fistula
    g. GI Foreign bodies
    h. Oropharyngeal foreign bodies
    i. Rectal foreign bodies
    j. Gastro enteritis

Unit-II: (brief study only)

2. Orthopedic Emergencies
    a. Fractures
    b. Basic Management of Orthopedic Emergencies
    c. Hand and Wrist Injuries
    d. Pelvis, Hip and Femur Injuries
    e. Complications of Orthopedic Injuries
3. Neurological Emergencies
    a. Cerebral Protection in Head Injuries
    b. Spinal Injuries
    c. Management of Head Injuries
    d. Stroke Emergencies

Unit-III: (brief study only)

4. Trauma Emergencies
    a. General approach to Trauma patient
    b. Trauma shock
    c. Penetrating and Blunt Neck Trauma
    d. Thoracic Trauma
    e. Stab Wounds
    f. Genitourinary Trauma
    g. Pelvis pain

h. Ectopic Pregnancy
i. Vaginal bleeding during pregnancy
j. Emergency Delivery
k. Sexual Assault

5. Wound Assessment and Management
    a. Methods of wound closures

Unit-IV: (brief study only)

6. Local Anesthetics and Anesthesia
    a. Bupivacaine
    b. Lidocaine
    c. Nerve blocks
7. Otolaryngology Emergencies
    a. Acute airway obstruction
    b. Foreign body obstruction
    c. Epistaxis
8. Burns
    a. Chemical – Burns
    b. Electrical – Burns
    c. Lightning – Burns
    d. Thermal – Burns
    e. Inhalation – Smoke

Paper-III: OBSTETRICS, GYNAECOLOGY AND OTHER EMERGENCY MANAGEMENT

Instruction: 3 h/w

U E Max Marks 80
I A Max Marks 20

Unit-I: (brief study only)

1. Obstetrics and Gynaecology Emergencies
    a. Abortion
    b. Antepartum Haemorrhage
    c. Postpartum Haemorrhage
    d. Conduction of Emergency Labour
    e. Eclampsia
    f. Maternal distress & Foetal distress

Unit-II: (brief study only)

2. Bites and Stings
    a. Sting – Bee
    b. Animal – Bite
    c. Human – Bite
    d. Bite – Insects

Unit-III: (brief study only)

3. Urogenital Emergencies
    a. UTI
    b. Urinary Retention

Unit-IV: (brief study only)

4. Tranfusion Emergencies

a. Blood Transfusion

5. Psychiatric Emergencies
    a. Anorexia Nervosa and Bulimia Nervosa
    b. Depression and suicide

Paper-IV: AMBULANCE SERVICE, EMERGENCY CARE & MEDICO-LEGAL ASPECTS

Instruction: 3 h/w — U E Max Marks 80
I A Max Marks 20

Unit-I: (brief study only)

1. Ambulance Service
    a. Introduction to Ambulance / Hospital on Wheels
    b. Survey response to Ambulance Vehicle design
    c. Fundamentals of Emergencies & Management by the Ambulance Service
    d. An ideal Ambulance and its requirement
    e. Administrative control of an Ambulance
    f. Engineering control & Design of an Ambulance
    g. Equipment control of an Ambulance
    h. Patient Handling & Transfer

Unit-II: (brief study only)

2. Emergency Care Procedures-I
    a. Tracheotomy
    b. Control of bleeding
    c. Cricothyroidotomy
    d. Vein canulation
    e. CVP placements
    f. Arterial line bandages
    g. Catheterization
    h. Cardiac Emergency
    i. Orthopedic Emergencies

Unit-III: (brief study only)

3. Emergency care procedures-II
    a. Acute poisoning & First-aid procedures
    b. Burns & its management
    c. Techniques of antiseptic control of infection
    d. Disinfections & Sterilization
    e. Pre & Post – Operative care of patients

Unit-IV: (brief study only)

4. Legal Aspects of Emergency Medicare
    a. Informed Consent
    b. Basic medical records

PRACTICALS

Paper-I:

UE Max Marks 100

Instruction: 8 h/w

Management of Medical, Surgical, Obstetrics, Gynaecology and Other Emergencies

Paper-II

UE Max Marks 100

Instruction: 8 h/w

Ambulance Service

ADVANCED P G DIPLOMA IN EMERGENCY MEDICAL CARE
[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]
Semester III:
[Only Practical Examinations will be conducted. NO Theory Examinations]

Sl.No	Course	Subject	Scheme of Instruction Hrs/Week		Scheme of Examinations		
			L/T	D/P	Duration in Hours	Maximum Marks Univ. Exam	
1	Case Presentation – I	Ambulance Service and Emergency Care		8	3	100	
2	Case Presentation – II	Medical Emergency Management		8	3	100	
				16	6	200	

1. Case Presentation – Ambulance Service and Emergency Care

11. Introduction to Ambulance / Hospital on Wheels
12. Patient record in casualty and ambulance
13. 10 cases of ambulance and casualty.
14. Cardiac Emergencies
15. Common complications reported.

2. Case Presentation – II: Medical Emergency Management

11. Protection of the Patient at the time of cardiac emergencies
12. Functions of handling in respiration emergency
13. Transfer of patient
14. Approach to the emergency pediatric patient
15. Common complications reported.

16. ADVANCED P G DIPLOMA IN EMERGENCY MEDICAL CARE
17. [TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]
18. Semester IV:
19. [Only Practical Examinations will be conducted. NO Theory Examinations]
20.

Sl.No	Course	Subject	Scheme of Instruction Hrs/Week		Scheme of Examinations		
			L/T	D/P	Duration in Hours	Maximum Marks Univ. Exam	
1	Project – I	Surgical Emergency Management		8	3	100	

2	**Project – II**	**Ambulance Service, Emergency Care & Medico-Legal Aspects**		8	3	100	
				16	6	200	

OSMANIA UNIVERSITY - INDUSTRY HUB

ADVANCED P G DIPLOMA IN HEALTH INSURANCE AND BILLING [TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Scheme of Instructions & Examination w e f 2011-12

SEMESTER - I

	Course	**Subject**	**Scheme of Instruction Hrs/week**		**Scheme of Examinations**		
			L/T	**D/P**	**Duration in hours**	**Maximum Marks**	
						Univ. Exam	**Sessional**
THEORY							
1	Paper-I	English Language Competence	3	-	3	80	20
2	Paper-II	Fundamentals of IT	3	-	3	80	20
	Paper-III	Health Insurance and its Management	3	-	3	80	20
	Paper-IV	Medical and Surgical Terminology	3	-	3	80	20
PRACTICALS							
5	Paper-I	Spoken English &Fundamentals of IT Lab		8	3	100	--
6	Paper-II	Medical Terminology and Billing		8	3	100	--
TOTAL			12	16		520	80

L=Lecture T=Tutorial D=Demonstration P=Practical

ADVANCED P G DIPLOMA IN HEALTH INSURANCE AND BILLING
Semester-I

Paper-I: ENGLISH LANGUAGE COMPETENCE

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

Unit I:

5. Importance of Language in Communication: Structure of English and Common Errors; Pronunciation; common mispronounciations, Medical vocabulary: active and passive.

Unit II:

6. Verbal Communication: Listening Comprehension, Speech sounds in English, Mother Tongue Influence, Writing for a specific purpose: business letters, summarizing and expansion, technical writing.

Unit III:

7. Non- Verbal Communication: Kinesics: Proxemics, Paralanguage, Communication and Etiquette.

Unit IV:

Interpersonal Communication: Client interaction, interaction with subordinates and Superiors, Formal and Informal Communication

Paper-II : FUNDAMENTALS OF INFORMATION TECHNOLOGY

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

Unit – I:

1. Introduction to Computers: Overview, computers for the individual users, Computers for Organizations, Parts of Computer system, Essential Computer Hardware and Software.
2. Interacting with computers: Keyboard, Mouse, Hand net devices, Optical input devices, Audiovisual input devices, Monitors, Printers.
3. Overview of Data Processing, Modern CPUs, Storage devices and Operating systems.

Unit – II:

4. Software: Overview of Microsoft Office. Microsoft Word: Laying out a Document, working with documents, Desktop publishing, writing reports and papers.
5. Microsoft excel: Excel Basics, Excel Formulas and Functions, Chart Wizard, Working with Pivot tables.

Unit – III:

6. Microsoft Power Point: Creating a Power Point Presentation, customizing the presentation, showing a presentation.
7. Microsoft Access: Creating a Database, Build your own Database tables, sorting, filtering and querying a database, generating reports and mailing labels.

Unit – IV:

11. Accounting: Types of Accounting, Rules of Debit and Credit, Accounting Principles, Accounting systems, Recording transactions in Journal, Ledger, Trial Accounts, Final accounts, Adjustment entries.
12. Introduction to Tally: Accounting information, Groups, Managing groups, Ledgers, Vouchers in Tally, Configuring vouchers, Displaying vouchers, Predefined vouchers.
13. Inventory Information: Stock groups, Stock categories, Stock item, voucher types, Purchase orders, Sales orders, Invoices, Reports, Trial balance, Balance sheet, Profit & Loss Account, Stock summary, Ratio Analysis, Display menu.

Suggested Reading:

5. Peter Norton, " Introduction to Computers" Sixth Edition, Tata McGraw Hill – 2006.
6. Stephen L. Nelson, "The Complete Reference Office 2000", Tata McGraw Hill – 1999.
7. Vikas Gupta, "Comdex Computer Course Kit", Dreamtich – 2001.
8. Namrata Agarwal "Comdex Tally 7.2 Kit" Dreamtich – 2004.

Paper-III: HEALTH INSURANCE AND ITS MANAGEMENT

Instruction: 3 h/w

U E Max Marks 80
I A Max Marks 20

Unit – I:

Purpose and need of Insurance. Insurance as a Social Security. Types of Insurance. Insurance Companies. Management of Health Insurance.

Unit – II:

Health Insurance Proposal, Medical Certificates and Coverages. Accident coverage. Critical Diseases Cover, Specific Diseases Cover And Dental Health Cover.

Unit – III:

Rajiv Aarogyasri. Brief account of different Healthcare Development Systems HMOS & TPAS – Special Systems.

Unit – IV:

Network Development. Methods Operandi of Contracting Hospitals. Mediclaim. Insurance provisions, documentation and negotiations.

Paper-IV: MEDICAL AND SURGICAL TERMINOLOGY

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

Unit – I: (Definitions only)

1. **Medical Emergencies:** Cardiovascular – Collapse & Sudden Death, shock, Acute Pulmonary edema, Status epilepticus, Poisoning management, Drowing, Animal bites & Stings and Burns & Pyrexia.
2. **Infectious Diseases:** Microscope, Immunization, Bacterial infections, Mycoplasma infections, Viral infections, Localized Pyogenic infections, Fungal and related infections.
3. **Cardio Vascular Diseases:** Hypertension, Coronary heart disease, Cardiomyopathies, Congenital heart disease and Vascular diseases.
4. **Respiratory Diseases:** Asthma, Pneumonia, Pulmonary embolism, Diseases of pleura, Upper respiratory diseases, Airway obstruction, Carcinoma.
5. **Renal Diseases:** Acute renal failure, Chronic renal failure, Dialysis, Glomerular diseases, UTI, Stones, Tumours.
6. **Gastro Intestinal System:** Oesophageal diseases, Ulcer, Pancreatitis, Inflammatory bowel disease, Cholelithiasis, Viral Hepatitis Cirrhosis, Portal Hypertension, Ascities, Haemoptysis.
7. **Allergy, Clinical Immunology & Rheumatology:** Immuno deficiency disease, Vasculitis, Ankylosing spondylitis, Gout, Psoriatic Arthritis.

Unit – II: (Definitions only)

8. **Haematology & Oncology:** RBC disorders, Leucocytosis, Leucopenia, Blood transfusion, Bleeding disorders and Leukemias.
9. **Endocrinology & Metabolism:** Pituitary disorders, Thyroid disorders, Diabetes mellitus, Hypoglycemia, Adrenal disorders, Hyper & Hypocalcaemic disorders, Diseases of Testis, Breast & Ovaries.
10. **Neurology:** Epilepsy, Cerebrovascular disorders, Bacterial infections, Viral infections, Parkinsons disease, Spinal cord diseases, Autonomic disorders, Sleep disorders and Encephalopathy.
11. **Psychiatric Disorders.**
12. **Nutrition:** Nutrition deficiency and excess states, Anorexia, Obesity.
13. Eyes Ear Nose Throat examination, Infection and Foreign bodies.
14. ECG, EEG, 2D Echo, TMT, Gastroscopy, ERCP, Dialysis, Bronchorcopy, Arthroscopy.

Unit – III: (Definitions only)

15. Swelling lump, Ulcer, Veins, Joints.
16. Wound healing.
17. Fluid electrolyte & Acid base balance.
18. Haemorrhage, Haemostasis and Blood transfusion.
19. Hernia, Hydrocele, Haemorrhoids, Fissure in Ano, Fistula in Ano.
20. Appendicitis, Peptic Ulcer, Varicose Veins.
21. Breast Cancer, Stomach Cancer, Colon Cancer, Oral Cancer.
22. Circumcision, Phimosis, Undescended tests, Haematemesis.

23. Gangrene, Abscess, Amputation.
24. Catheterization of bladder, Venesection, UROSAC (Bag).
25. Abdominal drain tube, Small bowel obstruction, Large bowel obstruction.

Unit – IV: (Definitions only)

26. Polytrauma, Fracture collar bone, Fracture pelvis, Fracture neck of femur, Fracture sharft of Humerus.
27. CABG, Valve replacement.
28. Thracotomy, Laparotomy.
29. PCNL, Cytoscopy, TURP, Thyroidectomy, Colostomy.
30. Finger replanation, Microsurgery, Craniotomy, Arthroscopy, Laparoscopy, Cholecystectomy.
31. Internal fixation of fracture humerus, Hip replacement, Knee replacement, FESS, Tonsillectomy, cataract, Night Blindness, Conjunctivitis.

PRACTICALS

Paper-I: ENGLISH LANGUAGE & IT LABORATORY

Instruction: 8 h/w UE Max Marks 100

Section-A

7. Presentations with the use of visual aids such as Power Point.
8. Conversation.
9. Extempore speech.
10. Role Play.
11. Case studies and situational analysis.
12. Survey and Reporting.

Section-B

3. Practical experience and simple projects in:
    - MS office
    - MS word
    - MS excel
    - MS Power Point
    - MS access
2. Tally accounting and inventory.

Paper-II: MEDICAL TERMINOLOGY AND BILLING

Instruction: 8 h/w UE Max Marks 100

1. Familiarization with Basic Medical and Surgical terms.
2. Familiarization with Diagnostic terms including Pathology, Microbiology, Biochemistry, Radiology and Imaging procedures.

3. Familiarization of Hospital Procedures of Admission, Different Laboratory Techniques, Nomenclature, Individual Tests, Procedures, Inventory, Consumables, Disposables Etc.
4. Cash and Credit Billing.
5. Health Insurance claim processing.

SEMESTER – II
(Advanced P G Diploma in Health Insurance and Billing)
[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS

Paper	Course	Subject	Scheme of Instruction Hrs per week		Scheme of Examinations		
			L/T	D/P	Duration in hours	Maximum Marks	
						Univ. Exam	Sessional
THEORY							
1	Paper-I	Health Insurance Models	3	-	3	80	20
2	Paper-II	Legal Aspects of Health Insurance	3	-	3	80	20
3	Paper-III	Client Service.	3	-	3	80	20
4	Paper-IV	Hospital Billing and Claim Processing	3	-	3	80	20
PRACTICALS							
5	Paper-I	Project work on Claim Processing		8	3	100	--
6	Paper-II	On the job training as Hospital Billing Assistant		8	3	100	--
TOTAL			12	16		520	80

L=Lecture T=Tutorial D=Demonstration P=Practical

Paper-I: HEALTH INSURANCE MODELS

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

Unit – I:

1. Current Trends in Health Insurance.
2. Need for Health Insurance. Public Health Infrastructure. Principles of Rajiv Aarogyasri in Andhra Pradesh, India. Standard Health Insurance.

Unit – II:

3. Health and Welfare Economics. Profit and Non – Profit Health Insurance.
4. Product Development. Role of Actuaries in Health Insurance.

Unit – III:

5. Use of Information Technology in Health Insurance Industry.
6. Micro Health Insurance.

Unit – IV:

7. Public relations in Health Insurance.
   Public Hospital and Social Hospital Models. Study of Private Hospital Models.
8. Administrative agencies, stark violation, false claims. Quitam actions.

Paper-II: LEGAL ASPECTS OF HEALTH INSURANCE

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

Unit – I:

Insurance Laws in India. Insurance Act, 1938, LIC Act.
GIC Act – Acts related to Health Insurance.

Unit – II:

Evolution and Development of IRA & IRDA Clauses, Conditions and Exclusions.
Anti-kickback statutes, Mail and wire-fraud statutes, access to health information, Reporting law.

Unit – III:

Health Insurance and Consumer Protection.
Legal Aspects In Health Insurance 7 Vis –A-Vis CPA 1986.

Unit – IV:

Legal Aspects of Regulatory Aid.
Patients needs and regulation, availability and affordability, fundamental doctrines, accrediting standards,

Paper-III : CLIENT SERVICE

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

Unit – I:

Introduction to Client service.
Use of IT in designing Forms and Flowcharts. Specialized Software.

Unit – II:

Buying Insurance. Private and Government Insurance (Rajiv Aarogyasri) and settling claims.
Prompt – pay statutes and regulations.

Unit – III:

Managed care organizations.
Health Insurance Frauds. Conflict between patient and Physician.

Unit – IV:

Healthcare Cost Containment, Workers compensation. Employees insurance.

Paper-IV: HOSPITAL BILLING AND CLAIM PROCESSING

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

Unit – I:

Introduction and Objective of Hospital Billing. Outpatient Services, Inpatient Services, Combinations, Subsequent Hospital Care, Hospital Discharge Services.

Unit – II:

Medical Billing Software. Understanding Basic Billing Terms, Billing Functions**,** Types of Billing Forms, Payment Policies and Fees.

Unit – III:

Insurance Claims and their processing. Processing the claims of Government Health Insurance: Rajiv Aarogyasri. Insurance Forms, Claim Management. Managing life and health risks, handling risks, Major provision and special provision, disability coverage.

Unit – IV:

Third Party Administrators.
Factors affecting third party administration, demand for patient Vs capacities

PRACTICALS:

Paper-I : Project work on Claim Processing

Instruction: 8 h/w UE Max Marks 100

Project work on Claim processing, Mediclaim Policies with TPA on different diseases and processing Rajiv Aarogyasri insurance claims. Ten cases Log Book to be maintained and Project Report submitted.

Paper-II: On the job training as Hospital Billing Assistant

Instruction: 8 h/w UE Max Marks 100

On the job training as Billing Assistant (including cash and credit billing) in the Hospital for 8 weeks with Certification of the same in the Project Report.

ADVANCED P G DIPLOMA IN HEALTH INSURANCE AND BILLING

[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Semester III:

[Only Practical Examinations will be conducted. NO Theory Examinations]

Sl.No	Course	Subject	Scheme of Instruction Hrs/Week		Scheme of Examinations		
			L/T	D/P	Duration in Hours	Maximum Marks Univ. Exam	
1	Case Presentation – I	Health insurance models		8	3	100	
2	Case Presentation – II	Client service		8	3	100	
				16	6	200	

1. Case Presentation – Health Insurance Models

1. Public Health Infrastructure. Principles of Rajiv Aarogyasri in Andhra Pradesh, India. Standard Health Insurance
2. Use of Information Technology in Health Insurance Industry
3. Public relations in Health Insurance
4. Administrative agencies, stark violation, false claims. Quitam actions
5. Common complications reported.

2.Case Presentation – II: Client Service

21. Use of IT in designing Forms and Flowcharts. Specialized Software
22. Buying Insurance. Private and Government Insurance (Rajiv Aarogyasri) and settling claims.
23. Health Insurance Frauds. Conflict between patient and Physician
24. Healthcare Cost Containment, Workers compensation. Employees insurance
25. Common complications reported.

ADVANCED P G DIPLOMA IN HEALTH INSURANCE AND BILLING

[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Semester IV:

[Only Practical Examinations will be conducted. NO Theory Examinations]

Sl.No	Course	Subject	Scheme of Instruction Hrs/Week		Scheme of Examinations		
			L/T	D/P	Duration in Hours	Maximum Marks Univ. Exam	
1	Project – I	Legal aspects of health insurance		8	3	100	
2	Project – II	Hospital billing and claim processing		8	3	100	
				16	6	200	

OSMANIA UNIVERSITY – INDUSTRY HUB

ADVANCED P G DIPLOMA IN ANAESTHESIA TECHNOLOGY

[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Scheme of Instructions & Examinations w e f 2011 - 2012

SEMESTER I

Sl.No	Course	Subject	Scheme of Instruction Hrs/Week		Scheme of Examinations		
			L/T	D/P	Duration in Hours	Maximum Marks	
						Univ. Exam	Sessional
THEORY							
1	Paper - I	ANATOMY AND PHYSIOLOGY - BASICS	3	-	3	80	20
2	Paper - II	MICROBIOLOGY AND BIOCHEMISTRY	3	-	3	80	20
3	Paper - III	PATHOLOGY	3	-	3	80	20
4	Paper - IV	PHARMACOLOGY	3	-	3	80	20
PRACTICALS							
5	Paper - I	ANATOMY, PHYSIOLOGY AND PATHOLOGY		8	3	100	--
6	Paper - II	MICROBIOLOGY AND BIOCHEMISTRY		8	3	100	--
TOTAL			**12**	**16**		**520**	**80**

L=Lecture T=Tutorial D=Demonstration P=Practical

ADVANCED P G DIPLOMA IN ANAESTHESIA TECHNOLOGY

SEMESTER I

PAPER-I: ANATOMY AND PHYSIOLOGY - BASICS

Instructions: 3 H/w U E Max Marks 80
I A Max Marks 20

UNIT I

1. **Surface Anatomy**

2. **Musculo Skeletal System:** Neuro muscular junction

3. **Cardio Vascular System:** Anatomy of the Heart, Coronary Circulation and peripheral Circulation

4. **Respiratory System:** Anatomy of Larynx, Trachea, Diaphragm Lungs and Bronco Pulmonary Segments

UNIT II

5. **Central Nervous System:** Anatomy of Brain, Spinal Cord, Epidural Space, Cranial Cavity

6. **Excretory System:** Anatomy of Kidneys, Typical Neuron

7. **Gastro Intestinal System:** Anatomy of Oropharynx, tongue, esophagus, liver, pancreas, Stomach and Intestines

UNIT III

8. **Physiology of Cardio Vascular System:** Cardiac cycle, Cardiac output, Blood pressure, E C G

9. **Physiology of Respiratory System:** Mechanics of breathing, control of respiration, assisted ventilation, artificial ventilation, oxygen – hypoxia.

10. **Physiology of Central Nervous System:** Nerve conduction, nuero muscular, transmission, CSF circulation, intra cranial tension.

UNIT IV

11. **Physiology of Excretory System:** Renal function, Drug excretion. Normal composition of urine.

12. **Physiology of Gastro Intestinal System:** Process of Digestion, absorption and

Assimilation. Drug metabolism.

PAPER II: MICROBIOLOGY AND BIOCHEMISTRY

Instructions : 3 H/w U E Max Marks 80
I A Max Marks 20

UNIT I

11. Classification of Bacteria

i. Shapes and arrangement of Bacteria

12. Structure of Bacterial Cell

13. Architecture of the Immune System

12. Innate Immunity
13. Acquired Immunity
14. Acquired Immunity
15. Antibodies
16. Antigen antibody reactions in the laboratory

UNIT II

14. Basics Of Virology

15. Quality Control

- Introduction to Quality Control
- Infection control.
- Cleaning and disinfections of dialysis equipment
- Record keeping
- Equipment maintenance

UNIT III

26. Metabolism
27. Carbohydrates, proteins and Fats
28. Vitamins
29. Enzymes and Isoenzymes
30. Renal function Tests
31. Water and Electrolyte Balance and Imbalance
32. Acid base balance and Imbalance

UNIT IV

33. **Routine Blood Biochemistry Investigations related to nephrology**
34. **Handling Glass Wares.**
35. **Biochemistry Test Values**

PAPER III: PATHOLOGY.

Instructions: 3 H/w

U E Max Marks 80
I A Max Marks 20

UNIT I

1. Medical Terminology
2. Pathology of Inflammation and Repair
3. Pathology of Nutritional

   Disturbances: Malnutrition, Kwashikor, Marasmus, Osteoporosis, Rickets, Tetany, Iron Deficiency, Vitamin Deficiency

UNIT II

4. Necrosis, Gangrene and putrefaction
5. Circulatorydisturbances;-Ischemia,Thrombosis,Embolism,Infarction,Haemmorhage
6. Routine Hematological Investigations;-

   CBP, ESR, BT, CT, Blood Grouping And Cross Matching.

UNIT III

7. Pathology of Cardiovascular System:-

   Hypertension, congestive heart failure, arterisclerosis, aneurysms, ischemia
8. Pathology of Urinary System;-

   Acute Renal Failure, Chronic Renal Failure, Nephrotic Syndrome, Renal Calculi, Tumours, Nephritis.
9. Routine Analysis of Urine.

UNIT IV

10. Pathology of Nervous System.;- Meningitis,Encephalopathy,Spinalcord Diseases
11. Pathology Of Respiratory System:-Asthama,Lungs Tumour,Pulmonary Hypertension,Copd,

12. Pathology Of Reproductive System: - Benign Prostatic Hypertrophy, Uterine Tumours, Carcinoma Of Breast.

PAPER IV: PHARMACOLOGY

Instructions : 3 H/w U E Max Marks 80
I A Max Marks 20

UNIT – I:

23. Principles involved in drug activity.
24. Autonomic nervous system.
    - Anatomy & functional organisation
    - List of drugs acting on ANS including dose, route of administration, indications, contra indications and adverse effects.
25. Cardiovascular drugs- Enumerate therapeutic uses and side effects of:
    - Antihypertensives
      - Beta Adrenergic antagonists
      - Alpha Adrenergic antagonists
      - Peripheral Vasodilators
      - Calcium channel blockers
    - Antiarrhythmic drugs
    - Cardiac glycosides
    - Sympathetic and nonsympathetic inotropic agents.
    - Coronary vasodilators.
    - Antianginal and anti failure agents
    - Lipid lowering & anti atherosclerotic drugs.
    - Drugs used in Haemostais – anticoagulants, thrombolytics and antithrombolytics.
    - Cardioplegic drugs- Principles and types of cardioplagia.
    - Primary solutions –Principles & types.
    - Drugs used in the treatment of shock.

UNIT – II: Anaesthetic agents.

26. General anaesthetics and their classification. Intravenous general anaesthetic agents.
27. Local anaesthetics, their classification and mechanism of action.
28. Analgesics-Definition and classification, side effects and management of non opioid and opioid analgesics
29. Antihistamines and antiemetics- Classification, Mechanism of action.
30. CNS stimulants and depressants-Alcohol, sedatives, hypnotics and narcotics, neuromuscular blocking agents and muscle relaxants.
31. Pharmacological protection of organs during CPB. Inhalational gases and emergency drugs.

UNIT – III: Pharmacotherapy of respiratory disorders

32. Introduction – Modulators of bronchial smooth muscle tone and pulmonary vascular smooth muscle tone
33. Pharmacotherapy of bronchial asthma
34. Pharmacotherapy of cough
35. Mucokinetic and mucolytic agents
36. Use of bland aerosols in respiratory care.

37. Corticosteroids – Classification, mechanism of action.
38. Diuretics
39. Renal physiology and action of diuretics

UNIT – IV: Chemotherapy of infections

40. Classification and mechanism of action of antimicrobial agents
41. Combination of antimicrobial agents
42. Chemoperophylaxis.
43. Classification, spectrum of activity, dose, routes of administration and adverse effects of penicillin, cephalosporins, aminoglycosides, tetracyclines, chloramphenicol, antitubercular drugs.
44. Others:
    - IV fluids- various preparations and their usage.
    - Electrolyte supplements
    - Immunosuppressive agents
    - New drugs included in perfusion technology.
    - Drugs used in metabolic and electrolyte imbalance.

PRACTICALS

PAPER- I ANATOMY, PHYSIOLOGY AND PATHOLOGY

Instructions : 8 H/w U E Max Marks 100

8) Familiarization with Basic Medical Sciences including Anatomy, Physiology, Pathology Radiology and Imaging Procedures.
9) Familiarization of Hospital Procedures of Admission, Different Laboratory Techniques, Nomenclature, Individual Tests, Procedures.
10) General Examination of Patient & History taking. Ward Management & Equipment Required presenting a Case, Doctor patient relation and rights, Infection control and measures, important symptoms & signs.
11) Laboratory methods pertaining to Pathology.

PAPER – II MICROBIOLOGY AND BIOCHEMISTRY

Instructions : 8 H/w U E Max Marks 100

11) Collection, processing, storage and transportations of laboratory specimens: Urine, Stool, Sputum, Blood and CSF.

12) Recording of Vital signs.
13) Recording of Blood Pressure.
14) Basic Laboratory methods pertaining to Microbiology and Biochemistry
15) Blood grouping

OSMANIA UNIVERSITY – INDUSTRY HUB

ADVANCED P G DIPLOMA IN ANAESTHESIA TECHNOLOGY

[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Scheme of Instructions & Examinations w e f 2011-2012

SEMESTER II

Sl.No	Course	Subject	Scheme of Instruction Hrs/Week		Scheme of Examinations		
			L/T	D/P	Duration in Hours	Maximum Marks	
						Univ. Exam	Sessional
THEORY							
1	Paper - I	INTRODUCTION TO ANAESTHESIA AND MEDICINE RELEVANT TO ANAESTHESIA TECHNOLOGY	3	-	3	80	20
2	Paper - II	ANAESTHESIA TECHNOLOGY CLINICAL	3	-	3	80	20
3	Paper - III	ANAESTHESIA TECHNOLOGY – APPLIED	3	-	3	80	20
4	Paper - IV	ANAESTHESIA TECHNOLOGY – ADVANCED	3	-	3	80	20
PRACTICALS							
5	Paper - I	ANAESTHESIA TECHNOLOGY CLINICAL		8	3	100	--
6	Paper - II	ANAESTHESIA TECHNOLOGY – APPLIED		8	3	100	--
TOTAL			**12**	**16**		**520**	**80**

L=Lecture T=Tutorial D=Demonstration P=Practical

ADVANCED P G DIPLOMA IN ANAESTHESIA TECHNOLOGY

SEMESTER II

PAPER I: INTRODUCTION TO ANAESTHESIA AND MEDICINE RELEVANT TO ANAESTHESIA TECHNOLOGY

Instructions: 3 H/w U E Max Marks 80
I A Max Marks 20

Unit – I:

1. **Gas physics, Medical Gas Supply, Gas Administration Devices And Oxygen Therapy**

Brief information about the following:

- States of matter
- Temperature conversion
- Humidity
- Pressure measurement
- Gas flows and diffusion
- Gas laws
- Miscellaneous concepts such as density and specific gravity
- Compressed gas Cylinders
- Colour coding
- Cylinders and Cylinder valves
- Cylinder storage
- Diameter index safety system
- Medical gas pipline system and station outlets
- Air compressors
- Oxygen concentrators
- Alarms and safety devices
- Simple oxygen administration devices
- Methods of controlling gas flow
- Reducing valves
- Flow meters
- Regulators
- Flow restrictors
- Causes and responses to hypoxemia
- Clinical signs of hypoxemia
- Goals of oxygen therapy
- Evaluation of patients receiving oxygen therapy
- Hazards of oxygen therapy

2. **Brief information about Anaesthesia Machine, Breathing System, Gas Analysers Pulse Oximeter CO2 Monitor and Manual Resuscitators:**
    - Hanger and yoke system
    - Cylinder pressure gauge, pin index
    - Pressure regulator
    - Flow meter assembly
    - Vaporizers – Types, hazards, maintenance, filling and draining.
    - General considerations
    - Classification and breathing system
    - Mapleson system
    - Jackson Rees system of Bain circuit
    - Non breathing valves – Ambu valves Others
    - Gas analysis
    - Types and care
    - Transcutaneous oxygen monitors
    - Pulse oximeters
    - Capnographs
    - Types of resuscitator bags
    - Indications
    - Hazards
    - Methods of increasing oxygen delivery capabilities while using oxygen with resuscitator bags.

Unit – II:

3. **Brief information about the Artificial air ways (oral and Nasal endotracheal tubes, tracheostomy tubes) and Methods of cleaning and sterilization of anesthetic equipment.**
   Parts of airway and features
    - Types, sizes and methods of insertion
    - Indications for use
    - Care of long term airways and complications
    - Protocal for tracheostomy decannulation
    - Face masks – Types, sizes and its usage.
4. **Brief information about the History of Anesthesia and Minimum Standards for anesthesia**
    - Prehistoric (Ether) era
    - Inhalational anasthetic era
    - Regional anasthetic era
    - Intravenous anasthetic era
    - Modern anasthetic era
    - Who should give anaesthesia
    - Ten golden rules of anesthesia
    - Patient assessment and preparation
    - Checking the drugs and equipment
    - Keeping the airway clear
    - Be ready to control ventilation
    - Monitor pulse and BP

Unit – III:

5. **Brief information about the following:**
   - Diabetes Mellitus
   - Hypertension
   - Ischaemic heart disease
   - Obesity
   - Elderly patient
   - Pregnancy Shock
   - COPD

Unit – IV:

6. **Brief information about the following:**
   - Chronic renal failure Chronic
   - Liver disease/failure Anaemia
   - Pediatric patient infant / neonate
   - Epilepsy
   - CVA

PAPER II: ANAESTHESIA TECHNOLOGY – CLINICAL

Instructions: 3 H/w U E Max Marks 80
I A Max Marks 20

UNIT – I:

1. **Brief information about Pre operative preparation and Pre Anaesthetic Assessment:**
   - History of present assessment.
   - Past history with emphasis on previous illness and surgery
   - Personal history – Smoking, alcohol
   - Physical examination – General and systemic
   - Informed consent
   - Premedication: Aims Narcotics, Antihistaminics, Antacids, Others - NTG
2. **Brief study of Investigations**
   - Biochemistry
     - Blood
     - glucose
     - Urea
     - Creatinine
   - Haematology
     - Haemogram
     - Prothrombin Time
     - Patrial thromboplastin time
     - BT, CT
   - Complete urine analysis
   - ECG
   - Chest X-ray
   - ABG

UNIT – II:

3. **Brief study of Criteria used for accepting the case for surgery**
    - Equipment
    - Checking the machine, laryngoscopes, tubes, airways etc. suction apparatus, oxygen
    - Cylinder, anaesthetic drugs and emergency drugs.
    - Monitoring system
4. **Brief study of Induction – Anaesthesia**
    - Endotracheal intubation, confirming the tube position and securing the tube
    - Maintenance of anaesthesia
    - Fluid / Blood and electrolyte balance Reversal from anaesthesia–drugs used
5. **Preparations for Anaesthesia**
    - Identification
    - Consent
    - NPO
    - Prosthesis
    - Lab results
    - Consultation
    - Blood
6. **Testing the Machine**
    - Gas supply
    - Flow meters
    - O2 bypass
    - Valves
    - Vaporises
7. **Brief study of Emergency Drugs**
    - Atropine
    - Epinephrine
    - Isoprenaline
    - Ephedrine
    - Aminophylline
    - Hydrocartisone
    - Soda Bicarb
    - Dopamine
    - Norepinephrine
    - Dobutamine
8. **I.V Infusion**
    - Site of cannulations
    - Finding a vein
    - Technique of venepuncture
    - Special difficulty

UNIT – III:

9. **Protection of the Patient**
    - The eyes

- The ears
- The skin
- The lips, tongue, teeth
- Veins, arteries
- Peripheral nerves
- Choice of ETT
- Choice of Laryngoscope

10. **Intubation**
    - Techniques of intubation
    - Complications
    - Difficult intubation

UNIT – IV

11. Brief study of Emergence and Termination
- Reversal
- Oropharyngeal toilet
- E T Suction
- Deflation of the cuff
- Removal of the tube
- Transfer of the patient

12. Brief study of Recovery (in the recovery room)
- Patient identification
- Diagnosis & Surgery
- Type of anesthesia used
- Fluid balance
- B P
- Any complications
- Instructions about ventilation, vital sings

13. Brief study of Problems in RR
- B.P. hypo, hypertension
- HR- Tachy, bradycardia
- Pallor, cyanosis, dyspnea
- Restlessness
- Neurological- Seizures
- Sweating

PAPER III: ANAESTHESIA TECHNOLOGY – APPLIED

Instructions: 3 H/w U E Max Marks 80
I A Max Marks 20

UNIT – I:

1. **Brief study of Pharmacology and types of Anaesthesia**
    - History of anaesthesia in detail
    - Methods of anaesthesia
    - Inhalational Anaesthesia
    - Minimum alveolar anaesthetic concentration
    - Stages of ether anaesthesia
    - Halothane
    - Isoflurane
    - Sevoflurane
    - Nitrous oxide
    - Narcotic drugs
    - Opioids analgesics
    - Morphine
    - Pethidine
    - Fentanyl
    - Buprenorphine
    - Tramadol
    - Difficult intubation
    - Muscle relaxants
    - Neuromuscular blockers
    - Suxamethorium
    - Pancuronium
    - Vecuronium
    - Atracurium
    - Rocuronium
    - Reversal agents
    - Intravenous anaesthetic agents
    - Thiopentone
    - Propofol
    - Ketamine
    - Benzodiazapines
    - Phenothazines
    - Neuromuscular transmission
    - Intraoperative management
    - Confirm the identity of the patient
    - Transferring the patient
    - Recovery room – setup, things needed expected problems
    - Post operative complications

- CPR
- Monitoring during anaesthesia and surgery
- Regional anaesthesia
- Spinal Anaesthesia
- Epidural Anaesthesia
- Nerve blocks

UNIT – II:

2. **Brief study of Basic Applications**
    - Nerve stimulators
    - Reversal of neuromuscular blockage
    - Drugs acting on sympathetic nervous system Adrenaline
    - Noradrenaline Dopamine Dobutamine Milrinone Isoprenaline
    - Local anaesthetic agents Lignocaine
    - Bupivacaine
    - Complications and accidents during anaesthesia

UNIT – III:

3. **Brief study of Complications**
    - Related to equipment
    - Hypoxemia
    - Hyercapnea
    - Increased airway pressure
    - Decreased airway pressure
    - Deep anesthesia
    - Thermal & electrical injuries
    - Monitoring instruments

UNIT – IV:

4. **Brief study of other anesthesia complications**

    - Being prepared with back up ventilation
    - Pre-use checkout
    - Maintenance
    - User education
    - Difficult intubations
    - Airway Trauma
    - Hypotension
    - Hypertension
    - Tachycardia
    - Bradycardia
    - Arrhythmias
    - Ischemia & infarction

PAPER IV: ANAESTHESIA TECHNOLOGY – ADVANCED

Instructions: 3 H/w U E Max Marks 80
I A Max Marks 20

UNIT – I:

1. **Brief study of Anaesthesia & co- existing diseases**
    - Ischaemic heart disease
    - Hypertension
    - Congestive cardiac failure
    - Arrhythmia & heart blocks
    - Chronic bronchitis & COPD
    - Bronchial asthma
    - Peadiatric anaesthesia
    - Liver disease and anaesthesia
    - Renal disease and anaesthesia
    - Obesity and anaesthesia
    - Diabetes mellitus and anaesthesia
    - Thyroid disease and anaesthesia
2. **Brief study of Obstetric Anaesthesia:**
    - Epidural analgesia
    - Anaesthesia for LSCS
    - Special situations: pre -eclampsia

UNIT – II:

3. **Brief study of the following:**
    - Anaesthesia for common surgical disorders
    - Anaesthesia for special situations
    - Shock, low cardiac output & cardiac arrest
    - Pulmonary function tests & their significance
    - Ventilators – types & methods of ventilation
    - Humidification
    - Aerosal therapy

UNIT – III:

4. **Brief study of Resuscitation of the Newborn**
    - Apgar scoring system
    - Use of drugs
    - Temperature control

5. **Brief study of Anaesthesia for Thoracic Surgery**
    - Use of double lumen tubes
    - Anesthesia for bronchoscopy
    - Thymectomy

UNIT – IV:

6. **Brief study of Anaesthesia for cardiac surgery**
    - Preparations & monitoring Heparin & Protamine
    - Care & use of arterial & venous lines
    - Maintenance of body temperature
    - Anaesthesia for open heart surgery
    - Transport to ICU

PRACTICALS

PAPER – I: ANAESTHESIA TECHNOLOGY – CLINICAL

Instructions: 8 H/w U E Max Marks 100

1. Criteria used for accepting the case for surgery & Induction – Anaesthesia
2. Protection of the Patient and Intubation
3. Emergence, Termination and Recovery

PAPER – II: ANAESTHESIA TECHNOLOGY – APPLIED

Instructions: 8 H/w U E Max Marks 100

1. History of anesthesia in detail
2. Complications
3. Presenting anesthesia equipment complications

ADVANCED P G DIPLOMA IN ANAESTHESIA TECHNOLOGY

[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Semester III:

[Only Practical Examinations will be conducted. NO Theory Examinations]

Sl.No	Course	Subject	Scheme of Instruction Hrs/Week		Scheme of Examinations		
			L/T	D/P	Duration in Hours	Maximum Marks Univ. Exam	
1	Case Presentation – I	I.C.U		8	3	100	
2	Case Presentation – II	Preparation for General Anaesthesia		8	3	100	
				16	6	200	

1. Case Presentation – I: I.C.U

16. Ward record in I.C.U.
17. 10 cases of different clinical diagnosis of patient.
18. Cases of I.C.U. with anaesthesia
19. Anaesthesia for cardiac surgery
20. Common complications reported.

3. Case Presentation – II: Preparation for General anaesthesia

26. Protection of the Patient and Intubation
27. Methods of cleaning and sterilization of anesthetic equipments
28. Anaesthesia for open heart surgery
29. Anaesthesia for common surgical disorders
30. Common complications reported.

ADVANCED P G DIPLOMA IN ANAESTHESIA TECHNOLOGY

[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Semester IV:

[Only Practical Examinations will be conducted. NO Theory Examinations]

Sl.No	Course	Subject	Scheme of Instruction Hrs/Week		Scheme of Examinations		
			L/T	D/P	Duration in Hours	Maximum Marks	
						Univ. Exam	
1	Project – I	Anaestheisa Technology – Clinical		8	3	100	
2	Project – II	Anaesthesia Technology – Advanced		8	3	100	
				16	6	200	

FACULTY OF SCIENCE
OSMANIA UNIVERSITY – INDUSTRY HUB
ADVANCED P G DIPLOMA IN MEDICAL IMAGING TECHNOLOGY

[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Scheme of Instruction & Examination w.e.f 2011 – 2012

SEMESTER – I

S.No.	Course	Subject	Scheme of Instruction Hrs/Week		Scheme of Examinations		
			L/T	D/P	Duration in Hours	Maximum Marks	
						Univ. Exam	Sessional
THEORY							
1	Paper – I	**BASICS OF ANATOMY & PHYSIOLOGY**	3	--	3	80	20
2	Paper – II	**RADIOLOGICAL PHYSICS AND FUNDAMENTALS IN IMAGING TECHNOLOGY,**	3	--	3	80	20
3	Paper – III	**RADIOGRAPHIC TECHNIQUES &**	3	--	3	80	20

		ROUTINE PROCEDURES					
4	Paper – IV	**PATIENT CARE IN DIAGNOSTIC RADIOLOGY**	3	--	3	80	20
PRACTICALS							
1	Paper – I	**BASIC OF ANATOMY & PHYSIOLOGY**		8	3	100	--
2	Paper – II	**RADIOGRAPHIC TECHNIQUES & ROUTINE PROCEDURES**		8	3	100	--
TOTAL			12	16		520	80

L = Lecture T = Tutorial D=Demonstration P=Practical

ADVANCED P G DIPLOMA IN MEDICAL IMAGING TECHNOLOGY
SEMESTER – I

PAPER –I: BASICS OF ANATOMY AND PHYSIOLOGY

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

UNIT – I:

1. **SURFACE ANATOMY**

2. **Structure of General Tissues:**
   Epithelium; simple and complex epithelia; glands; skin. Connective tissue; fibrous tissue; cartilage; bone; Haversian systems; blood; numbers and types of cells in blood; clotting of blood. Muscle tissue; involuntary, voluntary and cardiac muscle, Nerve tissue.

3. **Skeletal system:**
   General description of bones, their main processes and attachments, including the skull with emphasis on the skull as a whole. Development of bones, primary and and secondary bone centers; diaphyses and epiphysis. Position and function of main joints. Some common diseases and injuries of bones and joints; Healing of fractures.

UNIT – II:

4. **Thorax and Abdomen:**
   Structure of thoracic cage, abdominal cavity; diaphragm and mediastinum

5. **Cardio Vascular System:**
   Structure and function of the heart, pericardium, peripheral vascular system; names of main arteries and veins, circulation. Common terms used in connection with diseases of this system.

6. **Respiratory system:**
   Nasal passages and accessory nasal sinuses, pharynx and larynx, trachea, bronchi and lungs; pleura, nature and function of respiration. Common terms used in connection with diseases of this system.

7. **Lymph node Groups:**
   Lymph and tissue fluid, main lymphatic gland groups and drainage areas, lymphoid tissue and tonsil.

UNIT - III

8. **Reticulo-Endothelial system:**
   Spleen and liver, bone marrow, extent and nature, physiology of the red and white blood corpuscles.

9. **Alimentary system:**
   Mouth, tongue and teeth, salivary glands, pharynx and esophagus, stomach, small and large bowel, liver and biliary tract, pancreas, motility of the alimentary tract; digestion, absorption and metabolism, nutrition and dietetics, Common terms used in connection with diseases of this system.

10. **Urinary tract:**
    Kidneys, ureter, bladder and urine formation & excretion, common terms used in connection with diseases of the system.

UNIT – IV:

11. **Reproductive System:**
    Male genital tract; testes, epidemics, seminal vesicle and prostate; female genital tract; uterine tubes, ovaries, uterus, vagina and vulva, the mammary glands; menstruation, pregnancy and lactation; common terms used in connection with diseases of this system.

12. **Nervous system :**
    Brain; main subdivisional and lobes; ventricular system, spinal cord, concept of motor, sensory and reflex pathways; meninges and cerebrospinal fluid; its circulation; autonomic nervous system; common terms used in connection with diseases of this system.

13. **Special sensory organs:**
    Structure and function of the eye; structure and function of the ear; structure and function of the skin, Tongue & Nose.

Paper-II: RADIOLOGICAL PHYSICS AND FUNDAMENTALS IN IMAGING TECHNOLOGY

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

UNIT-I

1. **Radiological Physics:**
   Atomic and nuclear structure, x-ray , its discovery, production and properties; factors affecting image quality; principles of radiation dosimeter, exposure dose, absorbed dose, radiation dosimeters

2. **Radiation protection:**
   Introduction, Maximum permissible Dose, the code of practice, protective materials for X and gamma radiation, Radiation monitoring, diagnostic x-ray department planning, protection regulation in fluoroscopy, radiography.

3. **Physics of Diagnostic Radiological Imaging**
   Complete basic x-ray circuit, x-ray closed circuit television, the digital imaging; principles of computed tomography, ultrasound, mammography, magnetic resonance imaging, magnetic resonance spectroscopy and the quality assurance.

UNIT-II

4. **Electromagnetic Radiation:**
   Electromagnetic radiation spectrum, common properties of electromagnetic radiation;

5. **Properties of X-Rays:**
   General properties of X-rays, velocity, frequency etc, photographic effect, photochemical effect – discoloration of salts, heating effect, biological effect; ionization of gases e.g. air.

UNIT-III

6. **Radiation Department Planning:**
   Area, special spaces, planning, recording.

7. **Meters:**
   Moving coil galvanometer: construction and working/conversion to millimeter, ammeter and voltmeter, meters commonly used in diagnostic x-ray machines.

8. **Practical Nursing Procedures:**
   Temperatures, pulse, respiration, blood pressure, laying up a sterile trolley, assisting at an intravenous injection. A simple sterile dressing, oxygen therapy and resuscitation.

UNIT-IV

. **Introduction to Radiography**

The Hospital, the patient and the Radiographer Clinical responsibility, ethical and legal responsibility.

10. **Features of General Patient Care:**

General preliminaries to the examination, moving chair and stretcher patients, the anaesthetized patient, Hygiene in the X-ray department, general comfort and reassurance for the patient.

11. **Drugs in the X-ray department:**

Poisons and dangerous drugs, units of measurement, drugs used in preparation of the patient, contrast agents used in X-ray examinations.

12. **Sterilization and Sterile Techniques:**

Methods of sterilization, Central sterile supply, preparation of the hands for aseptic procedures.

PAPER III: RADIOGRAPHIC TECHNIQUES & ROUTINE PROCEDURES.

Instruction: 3 h/w U E Max Marks 80

I A Max Marks 20

UNIT-I:

1. **Preparation of the Patient:**

General abdominal preparation, clothing of the patient

2. **The Gastrointestinal Tract:**

Barium swallows, Barium meal, Barium meal Follow through, Barium enema.

3. **The Renal tract:**

Intravenous Urography, retrograde Pyelography.

4. **The Respiratory tract:**

Chest, sinuses

UNIT-II:

5. **The Central Nervous System:**

Myelography, Encephalography

6. **The Infectious Patient:**

The patient in the X-ray department, the infectious patient in the ward

UNIT-III

7. **First aid in the X-Ray department**

Radiological emergencies, shock, hemorrhage, burns, scalds, loss of consciousness, asphyxia, fractures, electric shock.

8. **Medico legal aspects of the radiographers work**

Breach of professional confidence, negligence, procedure in the event of an accident, the importance of records.

UNIT-IV:

9. **Dental Radiography:**

Technique for intra oral full mouth. Occlusal projections. Extra oral projections including orthopan tomography.

10. **Abdominal Viscera:**

Technique for plain film examination. Projection for acute abdomen patients.

11. **Radiography using Mobile X-ray Equipment:**

Radiography in the ward. Radiography in the specialized unit, e.g. - Intensive care unit. Coronary care, Neonatal unit. Radiography in the operating theatre.

PAPER IV: PATIENT CARE IN DIAGNOSTIC RADIOLOGY

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

UNIT-I

1. **General management of the patient undergoing diagnostic Testing:**

X-ray studies, computed tomography, Magnetic Resonance Imaging, Positron Emission Tomography, Ultrasonography, Radio nuclide scanning, endoscopy, Arthroscopy, Gastrointestinal Endoscopy.

2. **Management in Emergencies:**

Primary approach, ABC's of CPR, Crash cart, Airway, Breathing, Circulation, Defibrillation, Drugs, Standard procedures and precautions.

UNIT – II:

3. **Central Nervous System:**

Skull x-ray, Computed Tomography, Magnetic resonance imaging, Electroencephalogram, including pre procedure care, Preparation of the patient, Indication, Contraindication, Precautions, Equipment, Film series, Technique, Post procedure care.

Respiratory System:

Introduction, objective, PFT, lung scan. Chest x-ray, Ultrasonography, Magnetic resonance imaging, Bronchography,lung biopsy, Computed Tomography, pre procedure

care,Preparation of the patient, Indication, Contraindication, Precautions, Equipment, Film series, Technique, Post procedure care.

Cardiovascular System:

Electrocardiogram, Stress testing, x-ray studies, computed tomography, Magnetic Resonance Imaging, Ultrasonography, Angiography,Preparation of the patient, Indication, Contraindication, Precautions, Equipment, Film series, Technique, Post procedure care.

UNIT – III:

6. **Urinary System:**

Pre procedure care, Preparation of the patient, indication, Contraindication, Precautions, Equipment, film series, Technique, Post procedure care.

7. **Gastro – Intestinal System:**

Barium swallow, Barium meal, Barium follow through, double contrast studies, special techniques for specific disease to be examined; Small bowel enema, Barium enema, Computed tomography, pre procedure care, Preparation of the patient, Indication, Contraindication, Precautions, Equipment, Film series, Technique, Post procedure care.

UNIT – IV:

8. **Musculo-skeletal System:**

Computed tomography, Magnetic Resonance Imaging, of the musculo skeletal system. Arthrography, Electromyography, pre procedure care, Preparation of the patient, Indication, Contraindication, Precautions, Equipment, Film series, Technique, Post procedure care.

9. **Reproductive System:**

Obstetric Ultrasonography, Transvaginal sonography, Computed tomography, Magnetic resonance Imaging of the reproductive system, Mammography, including pre procedure care, Preparation of the patient, Indication, Contraindication, Precautions, Equipment, Film series, Technique, Post procedure care.

PRACTICALS

Paper - I – BASICS OF ANATOMY AND PHYSIOLOGY

Instruction: 8 h/w

UE Max Marks 100

1. Familiarization with Basic Medical Sciences including Anatomy, Physiology and Radiology and Imaging procedures.

Paper – II – RADIOGRAPHIC TECHNIQUES AND ROUTINE PROCEDURES

Instruction: 8 h/w

UE Max Marks 100

I. Practical Demonstration of all Radiographic Techniques which includes description of:

a. Anatomy
b. Clinical Indications
c. Preparation of the room
d. Preparation of the patient
e. Routine views including position of patients, protocol, immobilization, Center Point.

   Systems included are:

   - Gastro intestinal tract
   - Urinary System
   - Mammography
   - Central Nervous System
   - Angiography

FACULTY OF SCIENCE
OSMANIA UNIVERSITY – INDUSTRY HUB
ADVANCED P G DIPLOMA IN MEDICAL IMAGING TECHNOLOGY

[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Scheme of Instruction & Examination w.e.f 2011 – 2012

SEMESTER – II

S.No.	Course	Subject	Scheme of Instruction Hrs/Week		Scheme of Examinations		
			L/T	D/P	Duration in Hours	Maximum Marks	
						Univ. Exam	Sessional
THEORY							
1	Paper – I	MRI IMAGING & PATIENT CARE,	3	--	3	80	20
2	Paper – II	CT IMAGING & CONTRAST TECHNIQUES	3	--	3	80	20
3	Paper – III	IMAGING MODALITIES: ULTRASOUND – I	3	--	3	80	20
4	Paper – IV	IMAGING MODALITIES: ULTRASOUND – II	3	--	3	80	20
PRACTICALS							
1	Paper – I	MRI IMAGING & PATIENT CARE,		8	3	100	--
2	Paper – II	RADIOGRAPHIC TECHNIQUES & PROJECT		8	3	100	--
TOTAL			12	16		520	80

L = Lecture T = Tutorial D=Demonstration P=Practical

ADVANCED P G DIPLOMA IN MEDICAL IMAGING TECHNOLOGY
SEMESTER – II

Paper – I: MRI IMAGING & PATIENT CARE

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

UNIT – I

1. **Magnetization properties:**
   Magnetism, Magnetic characteristics of the nucleus, nuclear magnetic characteristics of the elements, Magnetic properties of medically useful nuclei, Geometric orientation,

2. **Generation and detection of the magnetic resonance signal.**

3. **T1 and T_2 relaxation:**
   Comparison of T_1 T_2, Pulse sequences, spin, Echo, Time of Echo, Time of Repetition and partial saturation, spin Echo contrast weighting T_1 weighting, spin (proton) density weighting T_2 weighting, spin echo parameters.

UNIT – II:

4. **Data Acquisition and Image Reconstruction:**
   Two dimensional data acquisition. Multiplanar acquisition, Acquisition time, 2D FT, Spin Echo Imaging, multislice data acquisition Data synthesis, Fast spin echo Acquisition, Inversion Recovery Acquisition, GRE acquisition Echo Planar, Image acquisition, 3d, Fourier transform image acquisition.

5. **Spatial Resolution and Contrast Sensitivity:**
   Image acquisition and reconstruction

6. **Time of Flight Angiography:**
   Phase contrast angiography, Magnetization transfer contrast.

UNIT – III:

7. **Artifacts:**
   Machine dependent artifacts, Susceptibility artifacts, Gradient field artifacts, RF coil artifacts, Radiofrequency artifacts, K-Space errors, Motion artifacts, Chemical shift artifacts, Ringing artifacts, Wrap around artifacts, Partial volume artifacts.

8. **Quality Control, Safety and Bio Effects:**
   Static magnetic fields, Magnetic fields, RF exposure and noise limits, varying magnetic fields effects.

9. **Computed Radiography:**
   Principles and operation, Clinical application

10. **Detectors:**
    Flat Panel Detectors, Indirect detection flat panel system, direct detectors Digital Vs Analog Process.

UNIT – IV:

11. **Digital Mammography:**

12. **Contrast Vs Spatial Resolution in Digital imaging.**

13. **Patient Dose**

14. **Digital Radiography:**
    Digital fluorography – system, components and operational procedure, advances in digital radiography.

Paper – II: CT IMAGING & CONTRAST TECHNIQUES

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

UNIT – I:

1. **Computerized Tomography:**
   Basic principles, Tomographic acquisition, Tomographic reconstruction.

2. **Geometry and Historical development:**
   First generation – Rotate / Translate pencil beam, Second generation – Rotate / Translate Narrow fan beam, Third generation Rotate / Rotate wide fan beam, Fourth generation, rotate / stationary, Fifth generation stationary / stationary, Sixth generation – helical, Seventh generation – Multiple detector Array.

3. **Detector and Detector Arrays:**
   Slice thickness, Single detector array scanner, and multiple detector array scanners.

UNIT – II:

4. **Tomographic Reconstruction:**
   Rays and views, the sonogram, Preprocessing the data, interpolation (Helical), Simple back projection reconstruction, Filtered back projection, computed fluoroscopic reconstruction

UNIT – III

5. **CT Numbers or Hounsfield units:**

6. **Digital Image display**

7. **Radiation Dose:**

Dose measure measurements, Dose considerations in helical scanning, dost in computed tomographic fluoroscopy. Current modulation in C.T.

UNIT – IV:

8. **Image Quality:**
   Contrast, Factors affecting spatial resolution, Factors affecting contrast resolution, Subject contrast, Detector contrast, Radiographic contrast, (Screen film), Digital image contrast (contrast-to-noise ratio), Displayed contrast (Digital Image)

PAPER III: IMAGING MODALITIES: ULTRASOUND – I

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

UNIT-I

1. **Basics of Ultrasound:**
   Ultrasound, Ultrasound generation, Different modes of Ultrasound, Doppler Ultrasound, Wave Propagation, Focusing, Attenuation, Amplification, Boundaries, Transducers.

2. **Choosing an Ultrasound Scanner:**
   The Monitor, The scanner, servicing the scanner, Controls, Recording the Image, Transducer, Requirements of Ultrasound room, Electrical Outlets.

UNIT-II

3. **Basics rules of Ultrasound Scanning:**
   Orientation of the Image, Back ground of the Image, Acoustic Enhancement and shadowing, Frequency and Resolution, Focus of Ultrasound beam, Sensitivity and gain, Artifacts, and quality control.

4. **Acoustic coupling agents:**
   Introduction, Preparation, Scanning Technique

5. **Abdomen:**
   Indication, Preparation, Scanning Technique

UNIT – III:

6. **Liver:**
   Indication, Preparation, Scanning Technique, Normal Liver, Abnormal liver, Trauma to the Liver.
7. **Kidneys and Ureters:**
   Indication, Preparation Scanning Technique, Normal kidney, Adrenal glands, Absent kidney, Large kidney, Renal cysts, Renal Masses, Small kidney, Renal Calculi, Trauma, Perirenal fluid, Retroperitoneal masses, Suprarenal mass, Ureters, Renal differential diagnosis.

8. **Urinary Bladder:**

Indication, Preparation, Scanning Technique, Normal bladder, Abnormal Bladder.

UNIT – IV:

9. **Pancreas:**
   Indication, Preparation, Scanning Technique, Normal Pancreas, Small Pancreas, Diffuse enlargement of the Pancreas, Focal enlargement (Non Cystic), Pancreatic Cysts, Calcification in the Pancreas, Dilatation of the Pancreatic duct, Common errors.

10. **Spleen:**
    Indication, Preparation, Scanning Technique, Normal anatomy of the spleen, Abnormal spleen, Trauma.

PAPER IV: IMAGING MODALITIES: ULTRASOUND – II

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

UNIT – I:

1. **MRI Safety Concerns:**
   General considerations, bioeffects of static magnetic field, mechanism of interaction, cell and nerve function, bioeffects of time-varying (Gradient) Magnetic Fields, Cardiac Muscle and Cardiovascular System, Magnetophosphenes, Neural Stimulation, Bioeffects of Oscillating (RF) Magnetic Fields, Mechanism of Interaction, RF Absorption Specific Absorption Rate (SAR), Recommended Safe Levels of Exposure, Rapid Pulse Sequences, Patient Safety Considerations, Screening or safety Considerations, Contraindications to use of contrast Agents, Adverse Reactions, Cardiovascular Symptoms, Special Patient Population Considerations, Potential Hazards with physiologic Monitors,.

2. **Doppler :**
   Types of Doppler transducers, Doppler shift equation, Scattering of Ultrasound by Blood, The Duplex Scanner, Doppler Color Flow Imaging Power Mode Doppler, Knobs and Controls on the Machines.

UNIT – II:

3. **Gynecology:**
   (Non pregnant female pelvis). Indication, Preparation, Scanning Technique, Endovaginal ultrasound.

4. **Obstetrics:**
   Indication, Preparation, Scanning Technique, Early pregnancy, Intra uterine Contraceptive device, Ectopic pregnancy. The embryo. The Yolk sac, multiple pregnancies, Quality control, scanning a patient for another physician, normal pregnancy. Scanning during Pregnancy.

5. **Ultrasound-guided Needle Puncture:**

Indication, Preparation, Scanning Technique

UNIT – III:

6. Spiral CT Scanners and Multislice CT scanner (MSCT or MDCT)
   History, Pitch, Sensitivity Profile, Scanner Design, Techniques selection, Image Characteristics.
   Multislice Detector Array, Data Acquisition system, Slice Acquisition Rate, Time Volume covered.

7. **CT of Head, Neck and spine** : sectional Anatomy, Neck, Spine, Indications, Patient preparation positioning and scanning, radiographic technique, reconstruction, Use of contrast media, Helical scanning, Abnormalities shown by CT.

8. **CT of the Body** : Clinical indications, chest and Mediastinum, liver and spleen, Bowel, Retroperitoneal, Adrenal Glands, Miscellaneous, Pelvis, Trauma, Abscess and drainage, Biopsy, Musculoskeletal system, Examination preparation, Oral contrast agents, Scanning Protocols.

UNIT – IV:

8 **Principles of intervention:**
Patient preparations, Screening Tests, High- Risk Patients, Consent, Special Circumstances.

9. **Drugs used in interventional Radiology and Technique of Vascular Procedures**

Local Anaesthetics, Analgesics, Vasodilators, Antihypertensive agents, Drugs affecting Co-agualtion, Thromboilytic agents, Drugs reducing peristalisis, Antibiotics, Antiemetics, Drugs to prevent and treat Contrast reactions, catheters and Sheaths, Guide wires, Vascular access, Complications of Angiography and Vascular intervention.

PRACTICALS

Paper - I – MRI IMAGING & PATIENT CARE

Instruction: 8 h/w UE Max Marks 100

I. Practical Procedures of MRI Scan:

a. Protocol for Head and Neck: Brain, Orbits, Pituitary fossa, internal auditory meati, Temporal lobes, Tongue, Larynx, Pharynx, thyroid and parathyroid glands, salivary glands T M joints, PNS.
b. Protocol for Spine: Cervical Spine, Brachial Plexus, Dorsal spine, Lumbo-sacral Spine.

c. Protocol for Chest: Chest and mediastinum, Thymus, Sternum.

d. Protocol for Abdomen: Lever and biliary system, kidneys, adrenal glands, pancreas.

Paper – II – RADIOGRAPHIC TECHNIQUES & PROJECT

Instruction: 8 h/w UE Max Marks 100

I) CT – Scan of the following protocols:

a. Protocol for Brain, Pituitary Fossa, temporal bone, IAM, Orbits, P.N.S,

b. Protocol for Upper Extremities (shoulder, humerus, elbow joint, forearm, wrist joint & hand

c. Protocol for Lower Extremities (femur, knee joint, leg, ankle joint, foot)

d. Protocol for Angiograms (Brain, Carotid, Chest, Abdomen, aortic, Pulmonary and renal)

II) Project and case presentation

SEMESTR –III:

[Only Practical Examinations will be conducted. NO Theory Examinations]

Sl No	Course	Subject	Scheme of Instruction Hrs/Week		Scheme of Practical Examinations		
			L/T	D/P	Duration in Hours	Maximum Marks	
						Univ Exam	
1	Case Presentation–I	X-Ray Special Procedures and C.T. Techniques		8	3	100	
2	Case Presentation–II	MRI and Ultrasound		8	3	100	
				16	6	200	

Case Presentation – I: X-ray Special Procedures And CT Techniques

17. **Ward Record In X-ray.**
18. **10 Cases Of X-ray.**
19. **Contrast Studies Used In Fluoroscopy Techniques.**
20. **CT Procedures.**
21. **Commom Complications Reported.**

Case Presentation – II MRI and Ultrasound

31. **Patient Record In MRI and Ultrasound Department.**
32. **10 Cases Of Different Types Of MRI And Ultrasound Procedures.**
33. **Contrast Studies And Angiography Procedures Of MRI.**
34. **Doppler Study.**
35. **Commom Complications Reported**

[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Semester – IV:

[Only Practical Examinations will be conducted. NO Theory Examinations]

S No	Course	Subject	Scheme of Instruction Hrs/Week		Scheme of Practical Examinations		
			L/T	D/P	Duration in Hours	Maximum Marks	
						Univ Exam	
1	Project –I	Radiation techniques. (X-Ray & CT)		8	3	100	
2	Project –II	Non radiation techniques. (MRI & ULTRASOUND)		8	3	100	
				16	6	200	

OSMANIA UNIVERSITY – UNIVERSITY INDUSTRY HUB

ADVANCED P G DIPLOMA IN MEDICAL INFORMATICS
[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Description: **Medical Informatics is one of the fastest growing occupations. New technology is available that can greatly influence the efficiency and efficacy of the healthcare system. As the information in the medical field increases, so will the need for medical information technology Professionals.**

Role: **Medical Informatics Professionals are involved in the numerous areas of the medical industry, from healthcare providers to insurers. They assemble patient information and use software to record the diagnosis. They work for health information administrators who design and manage the systems.**

ADVANCED P G DIPLOMA IN MEDICAL INFORMATICS
[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Scheme of Instruction & Examination w e f 2011-12

SEMESTER - I

	Course	Subject	Scheme of Instruction Hrs/week		Scheme of Examinations		
			L/T	D/P	Duration in hours	Maximum Marks	
						Univ. Exam	Sessional
THEORY							
1	Paper-I	English Language Competence	3	-	3	80	20
2	Paper-II	Fundamentals of IT	3	-	3	80	20
3	Paper-III	Medical Informatics & Medical Records	3	-	3	80	20
4	Paper-IV	**Electronic Medical Records**	3	-	3	80	20
PRACTICALS							
1	Paper-I	Spoken English & Fundamentals of IT Laboratory	-	8	3	100	---
2	Paper-II	Basic & Diagnostic Medical Sciences and Medical Informatics	-	8	3	100	--
TOTAL			12	16		520	80

L=Lecture T=Tutorial D=Demonstration P=Practical

ADVANCED P G DIPLOMA IN MEDICAL INFORMATICS

Semester-I

Paper-I: ENGLISH LANGUAGE COMPETENCE

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

Unit I:

8. Importance of Language in Communication: Structure of English and Common Errors; Pronunciation; common mispronounciations, Medical vocabulary: active and passive.

Unit II:

9. Verbal Communication: Listening Comprehension, Speech sounds in English, Mother Tongue Influence, Writing for a specific purpose: business letters, summarizing and expansion, technical writing.

Unit III:

10. Non- Verbal Communication: Kinesics: Proxemics, Paralanguage, Communication and Etiquette.

Unit IV:

11. Interpersonal Communication: Client interaction, interaction with subordinates and Superiors, Formal and Informal Communication.

Paper-II: FUNDAMENTALS OF INFORMATION TECHNOLOGY

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

Unit – I:

14. Introduction to Computers: Overview, computers for the individual users, Computers for Organizations, Parts of Computer system, Essential Computer Hardware and Software.
15. Interacting with computers: Keyboard, Mouse, Hand net devices, Optical input devices, Audiovisual input devices, Monitors, Printers.
16. Overview of Data Processing, Modern CPUs, Storage devices and Operating systems.

Unit – II:

17. Software: Overview of Microsoft Office. Microsoft Word: Laying out a Document, working with documents, Desktop publishing, writing reports and papers.
18. Microsoft excel: Excel Basics, Excel Formulas and Functions, Chart Wizard, Working with Pivot tables.

Unit – III:

19. Microsoft Power Point: Creating a Power Point Presentation, customizing the presentation, showing a presentation.
20. Microsoft Access: Creating a Database, Build your own Database tables, sorting, filtering and querying a database, generating reports and mailing labels.

Unit – IV:

21. Accounting: Types of Accounting, Rules of Debit and Credit, Accounting Principles, Accounting systems, Recording transactions in Journal, Ledger, Trial Accounts, Final accounts, Adjustment entries.

22. Introduction to Tally: Accounting information, Groups, Managing groups, Ledgers, Vouchers in Tally, Configuring vouchers, Displaying vouchers, Predefined vouchers.
23. Inventory Information: Stock groups, Stock categories, Stock item, voucher types, Purchase orders, Sales orders, Invoices, Reports, Trial balance, Balance sheet, Profit & Loss Account, Stock summary, Ratio Analysis, Display menu.

Suggested Reading:

9. Peter Norton, " Introduction to Computers" Sixth Edition, Tata McGraw Hill – 2006.
10. Stephen L. Nelson, "The Complete Reference Office 2000", Tata McGraw Hill – 1999.
11. Vikas Gupta, "Comdex Computer Course Kit", Dreamtich – 2001.
12. Namrata Agarwal "Comdex Tally 7.2 Kit" Dreamtich – 2004.

Paper-III: MEDICAL INFORMATICS & MEDICAL RECORDS

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

Unit – I (Definitions only)

1. Introduction to Medical Informatics
2. Healthcare Delivery System and cost
3. Information Technology in health care and quality assurance
4. Information stored in Hospital Records
    a. Clinical Information
    b. Nursing information
    c. Paramedical information
    d. Classification of Diseases
    e. Classification of Operations
    f. Disease and Operation Index
    g. Patient Master Index
5. Introduction to Medical Record Services and legal aspects
6. Contents of Medical Record Folder
    a. Outpatient records
    b. Inpatient records
    c. Correspondence record
    d. Investigations record

Unit – III: (Definitions only)

7. Medical Records System
    a. Registration
    b. Numbering
    c. Patient Master Index
    d. Patient ID and Appointment Card
    e. Investigation Reports
    f. Referral of Patient
    g. Outpatient Clinics and Schedule
    h. Accident and Emergency Service
    i. Direct Admission
    j. Absconded Patients
    k. Declaration by the Patient

8. Maintenance of Medical Records
    a. Coding of Medical Records
    b. Filing System
    c. Missing Records
    d. Patient Having Multiple Records
    e. Supply of Records

Unit – IV (Definitions only)

9. Registration of Medico-Legal Cases (MLC)
10. Consent
    a. General Consent
    b. Special Consent
    c. Emergency Operations.
    d. Temporary Permission to Leave the Hospital
    e. Patient Leaving the Hospital against Medical Advice
11. Release of Information
    a. Authorized Staff
    b. Release of Information without the Patient's Permission
12. Telemedicine and its applications.

Paper-IV: ELECTRONIC MEDICAL RECORDS

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

Unit – I: (Definitions only)

1. Concept of Relational Database Management systems (RDBMS).
2. Computerized Health Records
    a. Electronic Medical Records (EMR)
    b. Administrator's Role in management of Electronic Medical Records
    c. Advantage of Computerized Patients Clinical Records: Better Medical Care, Cost Saving, Physician Acceptance, Office Clinical Efficiency, Computer Easy.

Unit – II: (Definitions only)

3. System Analysis
    a. Collection of Data
    b. Interviewing
    c. Questionnaires
    d. Organizing the Data
    e. Flow Chart
    f. Evaluating the Data
    g. System Analysis Report
4. System Designing
    a. Forms Designing (Input forms and output reports)
    b. Data Designing (Table Definition)
    c. Data Flow Diagram
5. System Implementation and Maintenance
    a. Coding or Program Error and Correction Procedures
    b. Antivirus Program Installation
    c. File Conversion
    d. Security

Unit – III: (Definitions only)

6. HIPO Chart
    a. Selection of software and Hardware
    b. Example
7. Processing of Medical Record Information
    a. Registration Module (illustration)
    b. Appointment Module
    c. Record Tracking Module
    a. Admission and Discharge Module

Unit – IV: (Definitions only)

8. Computerization of Medical Services (Patient Appointment and Schedule)
9. Computerization of Laboratory Service, Radiology Service and Pharmacy Service.
10. Nursing Information System.
11. Bedside Terminals

PRACTICALS

Paper-I: ENGLISH LANGUAGE & IT LABORATORY

Instruction: 8 h/w UE Max Marks 100

Section-A

13. Presentations with the use of visual aids such as Power Point.
14. Conversation.
15. Extempore speech.
16. Role Play.
17. Case studies and situational analysis.
18. Survey and Reporting.

Section-B

4. Practical experience and simple projects in:
    - MS office
    - MS word
    - MS excel
    - MS Power Point
    - MS access
2. Tally accounting and inventory.

Paper-II : BASIC & DIAGNOSTIC MEDICAL SCIENCES AND MEDICAL INFORMATICS

Instruction: 8 h/w UE Max Marks 100

1. Familiarization with Basic Medical Sciences including Anatomy, Physiology, Pharmacology and Community Medicine.
2. Familiarization with Diagnostic medical sciences including Pathology, Microbiology, Biochemistry, Radiology and Imaging procedures.
3. Familiarization of Hospital Procedures Of Admission, Different Laboratory Techniques, Nomenclature, Individual Tests, Procedures, Inventory, Consumables, Disposables Etc…
4. Hands on experience in the Department of Medical Records.

SEMESTER – II

(Advanced P G Diploma in Medical Informatics)

[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Paper	Course	Subject	Scheme of Instruction Hrs per week		Scheme of Examinations		
			L/T	D/P	Duration in hours	Maximum Marks	
						Univ. Exam	Sessional
THEORY							
1	Paper-I	**Biostatistics and Healthcare**	3	-	3	80	20
2	Paper-II	Healthcare Provision and Payment	3	-	3	80	20
3.	Paper-III	Principles of Healthcare Management	3	-	3	80	20
4.	Paper-IV	Medical Ethics, Legal aspects and Case study	3	-	3	80	20
PRACTICALS							
1	Paper-I	Biostatistics in Healthcare		8	3	100	NO EXAM
2	Paper-II	Healthcare Management, Medical ethics and Case study in Medical Informatics		8	3	100	NO EXAM
TOTAL			12	16		520	80

L=Lecture T=Tutorial D=Demonstration P=Practical

Paper-I: BIOSTATISTICS AND HEALTHCARE

U E Max Marks 80
I A Max Marks 20

Instruction: 3 h/w

Unit – I: (Definitions only)

1. Statistical Methods in Medicine
    a. Tests of Hypothesis
    b. Experimental Setting
    c. Data Recording in routine Clinical Practice
2. Probability
    a. Laws of Probability for Independent Events
    b. Bayes Theorem
    c. Application of Bayes Theorem in Determining Diagnosis Efficacy

Unit – II: (Definitions only)

3. Sampling
    a. Types of Population
    b. Random Sampling Techniques
4. Experimental Studies
    a. Clinical Trials
    b. Therapeutic Trials
    c. Prophylactic Trials
    d. Community Trials

Unit – III (Definitions only)

5. Vital Statistics
    a. Definition
    b. Uses of Vital Statistics
    c. Mortality Rates
    d. Fertility Rates
6. Health Statistics
    a. Definition
    b. Sources of Health Statistics
    c. Measurement of Sickness
    d. International Classification of Diseases

Unit – IV (Definitions only)

- 7. Statistics of Patients:
- Bed Complement
- Maximum Bed Capacity
- Bed Turn Over
- Bed Occupancy Rate
- Consultation Rate
- Infection Rate
- Cesarean Section Rate
- Daily Average Outpatient Attendance
- Average Daily Census
- Average Length of Stay
- Percentage of Discharge in a Speciality
- 8. Other Statistics
    - Hospital Death Rate (Gross Death Rate)
    - Hospital Net Death Rate (Institutional Death Rate)
    - Neonatal Death Rate (Infant Mortality Rate)
    - Fetal Death Rate (Stillbirth Rate)

- Anesthesia Death Rate
- Maternal Death Rate (Maternal Mortality Rate)
- Direct Maternal Death Rate
- Postoperative Death Rate
- Perinatal Mortality Rate
- Gross Autopsy Rate
- Net Autopsy Rate

Paper-II: HEALTHCARE PROVISION AND MAINTENANCE OF ACCOUNTS

Instruction: 3 h/w **U E Max Marks 80**

I A Max Marks 20

Unit – I (Definitions only)

1. Hospital System And Health care:
2. Health Committees Appointed by the Government
3. Hospitals in India
4. Emergency Medical Care in India: **108** Ambulance service

Unit – II (Definitions only)

2. Clinical Supportive Services
    a. Laboratory Services
    b. Blood Bank
    c. Radiology Services
        - Diagnosis Radiology
        - Location
        - Radio Protection
    d. Pharmacy
3. Hospital Supportive Services
    a. Central Sterilization and Supply Department
    b. Hospital Linen and Laundry
    c. Housekeeping: Functions
    d. Dietary Services: Food Distribution to Patients

Unit – III (Definitions only)

4. Data Processing and maintenance of accounts.
    a. Manual Methods
    b. Computer Techniques
5. Presentation of Data
    a. Presentation by Tables
    b. Presentation by Graphs and Diagrams

Unit – IV (Definitions only)

6. Basic Accountancy
    - Definition
    - Branches of Accountancy
    - Basic Terms
    - Kinds of Accounts
    - Rules of Double Entry
    - Revenue and Capital Expenditure
7. Recording and Posting of Transactions in the Books

- Recording in the Primary Books
- Posting in the Secondary Books

Paper-III: HEALTHCARE MANAGEMENT

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

Unit – I: (Definitions only)

1. Introduction to Hospital Administration and the Hospital Administrator's Role
2. Personnel Administration
3. Material Management
4. Financial Management

Unit – II: (Definitions only)

5. Life Insurance
6. Health Insurance
7. Choosing and Using a Health Insurance Plan
8. Rajiv Aarogyasri in Andhra Pradesh, India
9. Medicare and Mediacid in USA
10. Registration and Certificates
    a. Registration of Births and Deaths
    b. Registration of Cancer Patients
    c. Reporting of Infectious Diseases
    d. Issuing Medical Reports and Certificates

Unit – III: (Definitions only)

5. Types of Forms:

- Basic Medical Record Forms
- Consultation form
- History and Physical Examination Form
- Physician Order
- Physician Progress Notes Form
- Referral Form
- Investigation request form
- Hematology Form
- Body Fluid Analysis Form
- X-ray request & Report
- Ultrasound Examination Form
- ECG Form
- EEG request and report form
- Out Patient Form
- OP Follow-Up Form
- Accident and Emergency Form

Unit – IV: (Definitions only)

6. Types of Forms (continued):

- Admission Request Form
- Nurses Observation Chart
- TPR Chart
- Fluid Balance Chart
- Intake, Output & Vital Sign Sheet
- Laboratory Mount Sheet
- X-ray Mount Sheet
- Eye Examination Form
- Labour Record
- Dental Treatment Form
- Consent for Operation Form
- Preoperative Check List
- Operation Report Form
- Anesthesia record
- Recovery Record
- Cause of Death
- ICU Record
- Discharge Sheet
- Discharge Summary

Paper-IV: MEDICAL ETHICS, LEGAL ASPECTS AND MEDICAL INFORMATICS CASE STUDY

Instruction: 3 h/w U E Max Marks 80

I A Max Marks 20

Unit – I: (Definitions only)

1. Medical Ethics
    a. History of Medical Ethics in India
    b. Definitions of Medical Ethics.
2. . Confidentiality and Patient Rights
    a. Confidentiality
    b. Rights of Patients
    c. Informed Consent

Unit – II: (Definitions only)

3. Malpractice and Negligence
    a. Examples of Medical Malpractice
    b. Medical Negligence
4. Consumer Protection Act and Medical Negligence

Unit – III: (Definitions only)

5. Right to Life
    a. Right to Life – Indian Context
    b. Abortion: Medical Termination of Pregnancy (MTP) Act
    c. Foeticide / Infanticide
    d. Euthanasia – Indian Context
6. Emerging Ethical Issues in Medicine
    a. Ethical issues of HIV testing
    b. Prevention and control of HIV infection
        - Indian Scenario
        - High-risk population
        - Ethical issues in use of Genetic Technology

Unit – IV: (Definitions only)

7. Human Organ and Tissue Transplantation
    a. Organ Transplantation – Indian Scenario
    b. Guidelines on live donor Transplants
    c. Guidelines on Cadaver donor Transplants
    d. ICMR guidelines in Fetal tissue Transplantation
    e. Stem cell therapy in treatment of diseases.
8. Medical Informatics Case Study Seminar:

    This course is an in-depth study of real world Medical Informatics system. It is run in seminar format and requires considerable preparation for each class discussion. Case studies based on student research projects will be used to discuss how and

why a system is designed and implemented. The Medical, Business / Financial, and Legal implications of automating a Healthcare function are discussed.

PRACTICALS:

Paper-I: Biostatistics in Healthcare

Instruction: 8 h/w UE Max Marks 100

1. Problems in Biostatistics
2. Use of Biostatistics and Informatics Software and group Project.

Paper-II: Healthcare Management, Medical ethics and Case study in Medical Informatics

Instruction: 8 h/w UE Max Marks 100

3. Seminar Presentation-Case study.
4. Assignment.

ADVANCED P G DIPLOMA IN MEDICAL INFORMATICS

[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Semester III:

[Only Practical Examinations will be conducted. NO Theory Examinations]

Sl.No	Course	Subject	Scheme of Instruction Hrs/Week		Scheme of Examinations		
			L/T	D/P	Duration in Hours	Maximum Marks Univ. Exam	
1	**Case Presentation – I**	Hospital Administration and the Hospital Administrator's responsibility		8	3	100	
2	**Case Presentation – II**	Medical Informatics case		8	3	100	

		16	6	200	

1. Case Presentation – Hospital Administration and Hospital Administrator's role

21. Introduction of Hospital Administration and Hospital Administrator's responsibility
22. Biostatistics and Informatics Software and group Project
23. 10 Types of hospital departmental forms
24. Choosing and Using a Health Insurance Plan
25. Common complications reported.

4. Case Presentation – II: Medical Informatics case

36. History of Medical Ethics in India
37. Medical Informatics System
38. Data Processing and maintenance of accounts.
39. Recording and Posting of Transactions in the Books
40. Common complications reported.

ADVANCED P G DIPLOMA IN MEDICAL INFORMATICS

[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Semester IV:

[Only Practical Examinations will be conducted. NO Theory Examinations]

Sl.No	Course	Subject	Scheme of Instruction Hrs/Week		Scheme of Examinations		
			L/T	D/P	Duration in Hours	Maximum Marks Univ. Exam	
1	Project – I	Health Insurance system		8	3	100	
2	Project – II	Hospital Billing and Record Keeping		8	3	100	
				16	6	200	

OSMANIA UNIVERSITY – INDUSTRY HUB

ADVANCED P G DIPLOMA IN PHYSICIAN ASSISTANT

[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Scheme of Instruction & Examinations w e f 2011-12

SEMESTER - I

	Course	Subject	Scheme of Instruction Hrs/week		Scheme of Examinations		
			L/T	D/P	Duration in hours	Maximum Marks	
						Univ. Exam	Sessional
THEORY							
1	Paper-I	English Language Competence	3	-	3	80	20
2	Paper-II	Fundamentals of IT	3	-	3	80	20
3	Paper-III	Anatomy & Physiology	3	-	3	80	20
4	Paper-IV	**Pathology**	3	-	3	80	20
PRACTICALS							
5	Paper-I	Spoken English &Fundamentals of IT Lab		8	3	100	--
6	Paper-II	Basic & Diagnostic Medical Sciences Practicals		8	3	100	--
TOTAL			12	16		520	80

L=Lecture T=Tutorial D=Demonstration P=Practical

Paper-I : ENGLISH LANGUAGE COMPETENCE

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

Unit I:

12. Importance of Language in Communication: Structure of English and Common Errors; Pronunciation; common mispronounciations, Medical vocabulary: active and passive.

Unit II:

13. Verbal Communication: Listening Comprehension, Speech sounds in English, Mother Tongue Influence, Writing for a specific purpose: business letters, summarizing and expansion, technical writing.

Unit III:

14. Non- Verbal Communication: Kinesics: Proxemics, Paralanguage, Communication and Etiquette.

Unit IV:

15. Interpersonal Communication: Client interaction, interaction with subordinates and Superiors, Formal and Informal Communication.

Paper-II : FUNDAMENTALS OF INFORMATION TECHNOLOGY

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

Unit – I:

24. Introduction to Computers: Overview, computers for the individual users, Computers for Organizations, Parts of Computer system, Essential Computer Hardware and Software.
25. Interacting with computers: Keyboard, Mouse, Hand net devices, Optical input devices, Audiovisual input devices, Monitors, Printers.
26. Overview of Data Processing, Modern CPUs, Storage devices and Operating systems.

Unit – II:

27. Software: Overview of Microsoft Office. Microsoft Word: Laying out a Document, working with documents, Desktop publishing, writing reports and papers.
28. Microsoft excel: Excel Basics, Excel Formulas and Functions, Chart Wizard, Working with Pivot tables.

Unit – III:

29. Microsoft Power Point: Creating a Power Point Presentation, customizing the presentation, showing a presentation.
30. Microsoft Access: Creating a Database, Build your own Database tables, sorting, filtering and querying a database, generating reports and mailing labels.

Unit – IV:

31. Accounting: Types of Accounting, Rules of Debit and Credit, Accounting Principles, Accounting systems, Recording transactions in Journal, Ledger, Trial Accounts, Final

accounts, Adjustment entries.

32. Introduction to Tally: Accounting information, Groups, Managing groups, Ledgers, Vouchers in Tally, Configuring vouchers, Displaying vouchers, Predefined vouchers.
33. Inventory Information: Stock groups, Stock categories, Stock item, voucher types, Purchase orders, Sales orders, Invoices, Reports, Trial balance, Balance sheet, Profit & Loss Account, Stock summary, Ratio Analysis, Display menu.

Suggested Reading:

13. Peter Norton, " Introduction to Computers" Sixth Edition, Tata McGraw Hill – 2006.
14. Stephen L. Nelson, "The Complete Reference Office 2000", Tata McGraw Hill – 1999.
15. Vikas Gupta, "Comdex Computer Course Kit", Dreamtich – 2001.
16. Namrata Agarwal "Comdex Tally 7.2 Kit" Dreamtich – 2004.

Paper-III: ANATOMY& PHYSIOLOGY

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

Unit I (Brief study only including Terminology and Definitions)

1. Introduction to anatomical terms and meanings only.
2. Organization of the Human body.
3. Cell, tissues and systems.

Unit II: (Brief study only including Terminology and Definitions)

4. Skeletal system.
5. Muscular system.

Unit III: (Brief study only including Terminology and Definitions)

6. Digestive system.
7. Respiratory system.
8. Circulatory system.

Unit IV: (Brief study only including Terminology and Definitions)

9. Nervous system.
10. Endocrinal system.
11. Reproductive system.

PAPER IV: PATHOLOGY.

Instructions: 3 H/w U E Max Marks 80
I A Max Marks 20

Unit I

13. Medical Terminology
14. Pathology of Inflammation and Repair
15. Pathology of Nutritional Disturbances

Unit II

16. Necrosis, Gangrene and putrefaction

17. Circulatory Disturbances
18. Routine Hematological Investigations

Unit III

19. Pathology of Cardiovascular System.
20. Pathology of Urinary System.
21. Routine Analysis of Urine.

Unit IV

22. Pathology of Nervous System.
23. Pathology of Endocrine System
24. Tumors

PRACTICALS

Paper-I : ENGLISH LANGUAGE & IT LABORATORY

Instruction: 8 h/w UE Max Marks 100

Section-A

19. Presentations with the use of visual aids such as Power Point.
20. Conversation.
21. Extempore speech.
22. Role Play.
23. Case studies and situational analysis.
24. Survey and Reporting.

Section-B

5. Practical experience and simple projects in:
    - MS office
    - MS word
    - MS excel
    - MS Power Point
    - MS access
2. Tally accounting and inventory.

Paper-II : BASIC & DIAGNOSTIC MEDICAL SCIENCES

Instruction: 8 h/w UE Max Marks 100

1. Familiarization with Basic Medical Sciences including Anatomy, Physiology, Pharmacology and Community Medicine.
2. Familiarization with Diagnostic medical sciences including Pathology, Microbiology,

Biochemistry, Radiology and Imaging procedures.

3. Familiarization of Hospital Procedures Of Admission, Different Laboratory Techniques, Nomenclature, Individual Tests, Procedures, Inventory, Consumables, Disposables Etc…
4. **General Examination** of Patient & History Taking, Ward Management & Equipment Required, Presenting a Case, Doctor patient relation and rights, Infection control and measure, Important symptoms & Signs.

SEMESTER – II
(Advanced P G Diploma in Physician Assistant)
[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Paper	Course	Subject	Scheme of Instruction Hrs per week		Scheme of Examinations		
			L/T	D/P	Duration in hours	Maximum Marks	
						Univ. Exam	Sessional
THEORY							
1	Paper-I	Medicine and Surgery	3	-	3	80	20
2	Paper-II	Obstetrics Gynecology	3	-	3	80	20
3	Paper-III	Operation Theatre	3	-	3	80	20
4	Paper-IV	Intensive Care	3	-	3	80	20
PRACTICALS							
5	Paper-I	Ward work: General Medicine & Surgery, Allied Specialties		8	3	100	--
6	Paper-II	Ward work: Gynecology & Obstetrics, Operation Theatre & ICU		8	3	100	--

TOTAL	12	16		520	80

L=Lecture T=Tutorial D=Demonstration P=Practical

Paper-I : MEDICINE AND SURGERY

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

Unit - I: (Brief study only)

Introduction to medicine (Clinical symptoms, etiology, treatment)

1. Diseases of Respiratory system. Tuberculosis, pneumonia, Allergic diseases, Tumors of lung.
2. Diseases of Cardiovascular system, Medical emergencies.
3. Diseases of alimentary system. Peptic ulcer, Cancer stomach, Malabsorption syndrome and inflammatory bowel disorder , Tumors of large and small intestine
4. Disease of liver and gall bladder jaundice, Hepatitis, Hepatic coma, Cirrhosis of liver
5. Diseases of excretory system, Acute and chronic nephritis, Nephrotic syndrome, Acute and chronic renal failure, Renal calculi, Hemodialysis, peritoneal dialysis, renal transplants
6. Disease of muscular skeletal system. Arthritis and allied Rheumatic disorders. Bone diseases.
7. Diseases of endocrinal system. Thyroid disorders: Hyperthyroidism, Hypothyroidism,
8. Metabolic disorders. Diabetes mellitus.
9. Diseases of Central nervous system, epilepsy, convulsions.
10. Infectious diseases caused by:
    a) Bacteria: Gram positive, Gram negative, syphilis, Typhoid
    b) Viruses: Measles, Rubella, Rabies, Chicken pox, AIDS
    c) Fungi
    d) Protozoa: Amoebiasis , Malaria, Helminthes , Filaria , Round worm, Hook worm

Unit – II: (Brief study only)

Introduction to Surgery.

11. History of Surgery
12. Role of the Surgeon, Importance of team work and anticipating the needs of surgeons, stresses that may arise during operative procedure,
13. Surgical terminology,
14. Types of incision and indications for their use.
15. Hemorrhage-signs and symptoms of internal and external, Classification and management,
16. Identification of types of tourniquets-reasons for use and duration of application, dangers of use, Wounds,Types,Process of healing ,Treatment and complications,
17. Scheme of case taking.
18. Examination of Swelling Lump, Ulcer, Veins, Joints.
19. Inflammation, Wound infections –causes and treatment, Incision and drainage of abscesses,
20. Hernia, Hydrocele, Hemorrhoids, Fissure in ano, Fistulae in ano.
21. Appendicitis, Peptic ulcer, varicose veins.

22. Importance of personal cleanliness and aseptic techniques.
23. Pre-operative and post-operative care of the surgical patient,
24. Emergency procedures: Endotracheal incubation, Tracheotomy.

Unit – III: (Brief study only)

Introduction to Anesthesia.

25. Different methods of Anesthesia: Local, regional, spinal and General Anesthesia.
26. Pharmacology of drugs used in Anesthesia and intensive care.
27. Principles of artificial ventilation CPR, Basic life support, Active life support systems,
28. Oxygen delivery systems and its applications,
29. Principles of arterial blood gas Anesthesia.
30. Pediatric ventilator management.
31. Electrolyte and fluid balance principles.

Unit – IV: (Brief study only)

Diagnostic medicine.

32. Introduction of diagnostic medical sciences including pathology, Microbiology, Biochemistry.
33. Collection, storage transportation and processing of specimens :Urine ,Stool, Sputum, CSF, pus, Skin scrapings Etc
34. Familiarization with diagnostic medical sciences Radiology and Imaging processing
35. Invasive, Non-invasive diagnostic techniques

Paper-II : GYNAECOLOGY AND OBSTETRICS

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

Unit – I:

1. Gynecology: Examination, History taking, Patient counseling.
2. Consanguineous marriages, HIV screening during pregnancy, Screening of Cancer.
3. Gynecology: Preparing Patient for Gynecological Surgeries, Abdominal Hysterectomy, Vaginal Hysterectomy, Transvaginal ultrasonography,
4. Gynecology: Cancer cervix, Menopause, Menarche, Dysmenorrhoea, D & C.

Unit – II

5. Gynecology: Hirsutism, stress incontinence, postponement of periods, hysteroscopy, Laparoscopic Hysterectomy, Uterine Prolapsed.
6. Obstetrics: Physiology of Ovulation, Signs of Adolescences
7. Obstetrics: Pregnancy, Pregnancy test, Foetal heart sounds

Unit – III:

8. Obstetrics:Preparing Patient for Lbour, Stages of Labour.
9. Obstetrics: Mechanism of Labour.
10. Obstetrics: Care of Puerperium.

11. Twins, M.T.P., Abortion, Antepartum Haemorrhage, Postpartum Haemorrhage, Pudental Block Anesthesia.

Unit – IV

12. Obstructed labour, rupture uterus, caesarian section, foetal distress, maternal distress, Eclampsia.
13. Anemia during pregnancy, Jaundice during pregnancy, vaccinations during pregnancy.
14. Care of new born, retained placenta, cord round the neck
15. Infertility, I.V.F. Child Immunization Schedule, Breast Feeding.

Paper-III: OPERATION THEATRE

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

Unit – I

1. Operation Theatre: Patient preparation for surgery, Pre-surgical examination, Post surgical care in Recovery and Post-Operative Ward.

Unit – II

2. Operation Theatre: Pulse Oximetry, Defibrillator, Tourniquet, Boyles Apparatus, Nitrous Oxide, Use of CO_2 in OT.Oxygen Therapy, Gas cylinders, Suture Material, Electrocautery.

Unit – III

3. Operation Theatre: Suction Apparatus, Betadine Solution, Staplers, Implant, Microscope .Sterilizations of O.T.

Unit – IV:

4. Operation Theatre: O.T Scheduling, O.T Stock Record Maintenance,.Sterlization of instruments, Infection control, O.T Administration, Theater common Accidents.

Paper-IV: INTENSIVE CARE

Instruction: 3 h/w U E Max Marks 80
I A Max Marks 20

Unit – I

1. Intensive care**:** Alpha Bed, Care of unconscious patient, Crash Cart. Intensive care monitoring system, Respiratory care.

Unit – II

2. Intensive care: Cardiac arrest, Cardiopulmonary resuscitation, cardiorespiratory failure, Mechanical Ventilator, C PAP, D.C. shock, Anuria, Oligourea, care for Tracheotomy, Difficult Endo Tracheal Intubation, Ryles Tube introduction.

Unit – III

3. Intensive Care: C.V.P, Radial artery cannulations, venepuncture, Life saving Medicines, Critical Care Patient record Maintenance.

Unit – IV:

4. Intensive care: Epistaxis, Haemoptesis, Status Asthmaticius, status epilepticus, febrile convulsions.

PRACTICALS

Paper-I : Ward work: General Medicine & Surgery, Allied Specialties

Instruction: 8 h/w UE Max Marks 100

1. Ward work including:
    - General Examination Of Patient
    - History Taking
    - Eyes, Ears, Nose And Throat Examination
    - Examination For Infection And Foreign Bodies
    - Examination of Swelling, Lump, Ulcer, Veins and Joints.

2. Ward Management & Equipment, Instruments, Presenting a Case, Doctor patient relation and rights, Infection control and measures, Important symptoms & Signs. Care for bedsores.

Paper-II : Ward work: Gynecology & Obstetrics, Operation Theatre & ICU

Instruction: 8 h/w UE Max Marks 100

1. Ward work including:
    - General Examination Of Patient
    - History Taking
    - Eyes, Ears, Nose And Throat Examination
    - Examination For Infection And Foreign Bodies
    - Examination of Swelling, Lump, Ulcer, Veins and Joints.

2. Ward Management & Equipment, Instruments, Presenting a Case, Doctor patient relation and rights, Infection control and measures, Important symptoms & Signs. Care for bedsores.

ADVANCED P G DIPLOMA IN PHYSICIAN ASSISTANT

[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Semester III:

[Only Practical Examinations will be conducted. NO Theory Examinations]

Sl.No	*Course*	*Subject*	**Scheme of Instruction Hrs/Week**		*Scheme of Examinations*		
			L/T	*D/P*	**Duration in Hours**	**Maximum Marks**	
						Univ. Exam	
1	**Case Presentation – I**	**Out patient Management**		8	3	100	
2	**Case Presentation – II**	**Critical care Management**		8	3	100	
				16	6	200	

1. Case Presentation – Out Patient Management

26. Introduction to Out patient department
27. Admission and discharge Administration
28. Appointment and 10 cases of Surgical cases collection
29. Hospital Data Collection and Billing procedure
30. Common complications reported.

5. Case Presentation – II: Critical Care Management

41. Protection of the Patient at the time of cardiac emergencies
42. Functions of handling of patient supportive equipments in critical care area
43. 10 Cases of Cardio Respiratory Patients.
44. Approach to the emergency pediatric patient
45. Common complications reported.

ADVANCED P G DIPLOMA IN PHYSICIAN ASSISTANT

[TWO-YEAR COURSE COMPRISING FOUR SEMESTERS]

Semester IV:

[Only Practical Examinations will be conducted. NO Theory Examinations]

Sl.No	*Course*	*Subject*	**Scheme of Instruction Hrs/Week**		*Scheme of Examinations*		
			L/T	*D/P*	**Duration in Hours**	**Maximum Marks**	
						Univ. Exam	
1	**Project – I**	**Hospital Administrator responsibility**		8	3	100	
2	**Project – II**	**Hospital payments and Billing procedures**		8	3	100	
				16	6	200	

FOR ALL THE ADVANCED PG DIPLOMA COURSES
COMPRISING 4 SEMESTERS (with only practical classes and practical examinations in III and IV semesters):

SCHEME FOR INSTRUCTION AND EXAMINATION W.E.F 2011-2012
SEMESTER – I / II

S.No	Paper	Subject	Scheme of instruction hrs/ week		Scheme of examination		
			L/T	D/P	Duration in hours	Maximum Marks	
						Univ Exam	Sessional
THEORY							
1	I	AAAAAAAAAAA	3	-	3	80	20
2	II	BBBBBBBBBBB	3	-	3	80	20
3	III	CCCCCCCCCCCCC	3	-	3	80	20
4	IV	DDDDDDDDDDD	3	-	3	80	20
PRACTICALS							
5	I	ABABABABABAB		8	3	100	-
6	II	CDCDCDCDCDCD		8	3	100	-
TOTAL			12	16		520	80

L = Lecture T = Tutorial D = Demonstration P = Practical

Semester III:

[Only Practical Examinations will be conducted. NO Theory Examinations]

Sl.No	Course	Subject	Scheme of Instruction Hrs/Week		Scheme of Examinations		
			L/T	D/P	Duration in Hours	Maximum Marks	
						Univ. Exam	
1	**Case Presentation – I**	aaaaaaaaaaaaaaa		8	3	100	
2	**Case Presentation – II**	bbbbbbbbbbbbbbb		8	3	100	
				16	6	200	

Semester IV:

[Only Practical Examinations will be conducted. NO Theory Examinations]

Sl.No	Course	Subject	Scheme of Instruction Hrs/Week		Scheme of Examinations		
			L/T	D/P	Duration in Hours	Maximum Marks	
						Univ. Exam	
1	**Project – I**	ccccccccccccccccccccc		8	3	100	
2	**Project – II**	ddddddddddddddddddd		8	3	100	
				16	6	200	

TWO-YEAR COURSES COMPRISING 4 SEMESTERS (with only practical classes and practical examinations in III and IV semesters):

1. Advanced P G Diploma in Medical Informatics
2. Advanced P G Diploma in Physician Assistant
3. Advanced P G Diploma in Health Insurance & Billing
4. Advanced P G Diploma in Emergency Medical Care
5. Advanced P G Diploma in Medical Imaging Technology
6. Advanced P G Diploma in Cardiac Technology
7. Advanced P G Diploma in Dialysis Technology
8. Advanced P G Diploma in Anaesthesia Technology