SYLLABUS

FOR

DIPLOMA IN CARDIAC
PERFUSION TECHNOLOGY
(DCPT)

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SCHOOL OF PARA MEDICAL SCIENCE
OPJS UNIVERSITY, CHURU (RAJASTHAN)
2013-14

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SCHEME OF EXAMINATION
Duration of course – 2 year (4 semester)

SEMESTER-I

<table>
<thead>
<tr>
<th>S. No.</th>
<th>PAPER CODE</th>
<th>NAME OF PAPER</th>
<th>M.M.(T-S-P)</th>
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<tbody>
<tr>
<td>1</td>
<td>DCPT-011</td>
<td>HUMAN ANATOMY</td>
<td>70+30+50 = 150</td>
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<tr>
<td>2</td>
<td>DCPT-012</td>
<td>HUMAN PHYSIOLOGY</td>
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<td>DCPT-021</td>
<td>PHARMACOLOGY</td>
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<td>1</td>
<td>DCPT-31</td>
<td>PRINCIPLES OF PERFUSION TECHNOLOGY</td>
<td>70+30+50 = 150</td>
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<tr>
<td>2</td>
<td>DCPT-32</td>
<td>DISEASE OF HEART &amp; DIAGNOSTIC TECHNIQUE</td>
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<tr>
<td>1</td>
<td>DCPT-41</td>
<td>CARDIO-PULMONARY BYPASS &amp; PERFUSION TECHNOLOGY</td>
<td>70+30+50=150</td>
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<tr>
<td>2</td>
<td>DCPT-42</td>
<td>CARDIAC SURGERY, CSSD &amp; STERILE TECHNIQUES</td>
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Details of Syllabus

SEMESTER-I

DCPT-011-HUMAN ANATOMY

Upper Limb –
Bones of upper limb, Muscle attachment & action, neurovascular supply
Lower Limb –
   Bones of lower limb, Muscle attachment & action, neurovascular supply

Thorax & Lungs –
   Inter costal space, pleura, bony thoracic cage, ribs, sternum & thoracic vertebra, trachea, bronchial area, alveoli

Head, Neck & Brain –
   Skull, cervical vertebrae & part of brain

Visceral organs –
   Liver, spleen, kidney, stomach, pancreas

Heart –
   Surface anatomy of heart, chambers of the heart, valves major blood vessels of heart, pericardium, coronary artery

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DCPT-012-HUMAN PHYSIOLOGY

The Cell –
   Cell structure and function of various organelles.

Circulatory system –
   Composition of blood, function of blood plasma, blood serum.

Cardiovascular system –
   Physiology of the heart, heart sounds, cardiac cycle, cardiac output, auscultatory areas, blood pressure, hypertension, E.C.G.

Respiratory system –
   Lung volume and capacities, respiration.
Excretory system –
  micturition physiology, GFR, function of kidney.

Central nervous system –
  Introduction of neuron, spinal cord, nervous regulation of cardiac & respiratory function.

Endocrine system –
  Endocrine glands & function.

Reproductive system –
  Reproductive organ, function of LH, FHS testosterone, menstrual cycle.

Skin & function of skin –

**SEMESTER-II**

**DCPT-021-PHARMACOLOGY**

General pharmacology –
  Definition, pharmacokinetics & pharmacodynamics, Adverse drug effects.
Respiratory system drug –

  Drugs use for cough & bronchial asthma.
  Drugs used for nebulization.

Drug acting on central nervous system –
  General anaesthesia, sedative- Hypnotics, drugs.

Drug acting on kidney –
  Diuretics & Anti diuretics

Drugs affecting blood formation –
  anticoagulants, antithrombotic & antiplatelet drugs.
Cardiovascular drug –
Cardiac glycosides and drug for CHF, Antiarrhythmic drug, antianginal & antiischemic drugs, antihypertensive drugs.

Essential drug & drug used in emergency –
Cardiac glycosides and drug for CHF, Antiarrhythmic drug, antianginal & antiischemic drug, antihypertensive drugs.

**DCPT-022-PATHOLOGY & MICROBIOLOGY**

Cellular Adaptation, Cell Injury & Cell Death –
Cellular response to stress and noxious stimuli, cellular adaption reversible and irreversible cell injury and necrosis.

Inflammation –
Features of inflammation, acute information, chronic information.

Culture media & culture sterilization–

Infection disease & their causative organism microorganism (bacteria, virus, fungus)–

**SEMESTER-III**

**DCPT-31-PRINCIPLE OF PERFUSION TECHNOLOGY**

Physiology of extra corporeal circulation

Heart lung machine basics

Principle of Extracorporeal circulation

Principle of Extracorporeal gas exchange

Various type of oxygenators (bubble, membrane)

Theory of blood pump (pulsatile and continuous flow)
IABP
Connection of vascular system and extracorporeal circulation
Venous drainage, suction pump, hemodynamic of arterial reentry, cardiotomy
Mechanical ventilator

**DCPT-32-DISEASE OF HEART & DIAGNOSTIC TECHNIQUE**

Congenital heart disease –
  Septal defect (ASD, VSD), great vessels defect, TOF

Acquired heart disease
Myocardial & pericardial disease
Rheumatic heart disease
Coronary artery disease
Respiratory failure
Chest X-Ray Interpretation

ECG
Echocardiography
TMT
Cardiac Enzyme analysis
Angiography
ABG
SEMESTER-IV

DCPT-41-CARDIO PULMONARY BYPASS & PERFUSION TECHNOLOGY

Hemodynamic Aspect Of Total Heart – Lung Technology—

Metabolic aspect of total heart – lung bypass—
Electrolyte balance, acid base balance, perfusion flow & O₂ Uptake.

Systemic effect of perfusion of organs –
Oxygen flow & O₂ toxicity

Perfusion control

Hematological aspect of Perfusion
Assisted circulation
Circulatory support & metabolic support by partial heart lung bypass.

IABP

Cardiopulmonary by pass & complication

Air Embolism and complication

Technique of termination of bypass

DCPT-42-CARDIAC SURGERY, CSSD & STERILE TECHNIQUE

Pre anesthetic check up (PAC)

Pre operative & post operative assessment & Management
Operative procedure of assembling of circuits on heart lung machine

Assembling filter

Monitoring and management during surgeries

In introduction of CSSD department

Chemical & Physical Methods of Sterilization

Cardiopulmonary rehabilitation.