**MEWAR UNIVERSITY, GANGRAR (RAJ.)**

**Diploma Medical Laboratory Technology**

**DMLT-3rd Semester syllabus**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.NO.** | **Current Sub Code** | **Subjects** |   | **Grand Total** |  |
| **Internal Assessment Marks [(P/C/A)+Mid Term]** | **External Assessment Marks** | **Credit** |
| **Main Subjects\*** |  |
| 1 | DMLT-301 |  Clinical Biochemistry III | 15 | 35 | 50 | 100 | 4 |
| 2 | DMLT-302 |  Medical Microbiology III | 15 | 35 | 50 | 100 | 4 |
| 3 | DMLT-303 | Pathology III | 15 | 35 | 50 | 100 | 4 |
| 4 | DMLT-304 | Technical methods in MicrobiologyIII  | 15 | 35 | 50 | 100 | 4 |
| 6 | DMLT-305 | Clinical Biochemistry Practical Practical III |   |   | 50 | 50 | 2 |
| 7 | DMLT306 |  Medical Microbiology Practical III |   |   | 50 | 50 | 2 |
| 8 | DMLT307 | pathology(includin Histopathology) Practical III |   |   | 50 | 50 | 2 |
| **B** | **Subsidiary Subject\*\*** |  |
| 9 | DMLT-308 | English Language and General Awareness-III {ELGA-III} |   |   | 25 | 25 | 1 |
| 10 | DMLT-309 | Environmental Science & Health  | 15 | 35 | 50 | 100 | 4 |
| 11 |  | Hospital Training  |  | 20 | 30 | 50 |  |
|   |   | total |   |   |   | 725 |  |

|  |  |  |  |
| --- | --- | --- | --- |
| L | T | P | Cr |
|  | - | - |  |

**DIPLOMA Medical Laboratory Technology**

**DMLT {3rd Semester}**

**[DMLT-301]: CLINICAL BIOCHEMISTRY-III**

**UNIT-1:**

**Blood, Urine chemistry:**

1. Blood chemistry (Its constituents)
2. Urine chemistry (Its constituents
3. Introduction of organ function test

**Unit II**

1. Vitamins: sources, functions, deficiency, requirements,
2. Enzymes: Introduction, Activation energy, classification, activity, specificity, kinetics v max, Km, Michaelis Menten equation
3. Special Profiles

Clearance Test for Renal Function: Analysis of Calculi

**Unit III**

3.1 **Biomolecules:**

1. Carbohydrate: Structure , Metabolism & disorder of carbohydrate
2. Lipids: Structure , Metabolism & disorders lipids.
3. Protein : Introduction , structure and urea cycle

3.2 Electrometric determination of sodium(Na+)and potassium(K+)

3.3 Quality control of clinical investigation and Automation in clinical biochemistry.

3.4 Cardiac enzymes CPK, CPK, MB, LDH, Troponin

|  |  |  |  |
| --- | --- | --- | --- |
| L | T | P | Cr |
| - | - |  |  |

 **DIPLOMA Medical Laboratory Technology**

**DMLT {3rd Semester}**

**[DMLT-305]:CLINICAL BIOCHEMISTRY PRACTICAL -III**

**PRACTICALS:**

1. Qualitative analysis of carbohydrates, proteins, amino acids.
2. Estimation blood sugar and Blood Urea
3. Quantitative test for urine glucose and GTT.
4. Serum bilirubin
5. Serum SGOT & SGPT
6. Serum protein

|  |  |  |  |
| --- | --- | --- | --- |
| L | T | P | Cr |
|  | - | - |  |

**DIPLOMA Medical Laboratory Technology**

**DMLT {3rd Semester}**

**[DMLT-302]: MEDICAL MICROBIOLOGY III**

**Unit-1:**

 **Mycology**

1. Introduction of Mycology. Terms & Classification
2. Lab Diagnosis of Fungal Infections
3. Mycology
4. Superficial Mycoses Malsezzia furfur, T.nigra, T.pidera
5. Subcutaneous Mycoses: Mycetoma; Rhinosporidium; Sporotrichosis
6. Dermatophytes

**UNIT-II:**

Introduction of immunology:

1. Inniate immunity and Acquired immunity
2. Introduction of Antigen and Antibody : Mechanism antigen & antibody reaction(Agglutiation , Precipitation , ELISA , RIA , Complement fixation test and Immunofluroscient test )

**UNIT-III:**

Introduction of Viral diseases: Introduction , Morphology , Cultivation , Pathogenesis and laboratory diagnosis of Pox virus , adenovirus , Herpes virus , Picorna virus , Hepatitis virus , Orthomexovirus , Paramexovirus , Rabdo and Retro virus .

|  |  |  |  |
| --- | --- | --- | --- |
| L | T | P | Cr |
| - | - |  |  |

**DIPLOMA Medical Laboratory Technology**

**DMLT {3rd Semester}**

**[DMLT-306]:MEDICAL MICROBIOLOGY PRACTICAL III**

**PRACTICALS:**

1. Slide culture technique

2. KOH mount

3. Identification of fungal cultures:

a. Colony characteristics and Microscopic examination of Candida, Cryptococcus,

Trichophyton, Microsporum, Aspergillus niger, Asp fumigatus, Rhizopus, Fusarium,

Penicillium.

|  |  |  |  |
| --- | --- | --- | --- |
| L | T | P | Cr |
|  | - | - |  |

 **DIPLOMA Medical Laboratory Technology**

 **DMLT {3rd Semester}**

**[DMLT-303]: Pathology(Include Histopathology)-III**.

**Unit-1:**

 **Hematology**

1. Haematopoiesis: Stem cells, formed elements and their functions; Anticoagulants used in various hematological studies.
2. Anaemia: Introduction , Classification & Laboratory diagnosis.
3. Routine hematological tests and normal values:
4. Determination of Hemoglobin and Hematocrit
5. Enumeration of RBC, WBC & Platelets
6. Absolute Eosinophil count
7. Reticulocyte count
8. Cogulation mechanism & their factor
9. Cancer immunology , HLA typing , Leukaemia , Pancytopenia &

**Unit-II:**

**Histopathology:**

1. Introduction to Histopathology, Receiving of Specimen in the laboratory Techniques
2. Introduction of Microtome and their types.
3. Microtome, Knives, Knife sharpeners
4. Freezing microtome and Cryostat
5. Grossing technique, Preparation of paraffin sections & Various types of fixatives

Decalcification,

**Manual and Automatic Tissue process**:

 1. Basic steps for tissue processing & Preparation of tissue section

1. Routine paraffin section cutting
2. Frozen section and Cryostat section studies
3. **Routine staining procedure techniques**: Special stains for Carbohydrates, Connective tissue, Nervous tissue, Bone tissue, Collage fibers, Elastic, Fibers, Lipid

**Unit-III:**

1. **Cytology** – Introduction & demonstration
2. Papanicoloau’s stain- Principle, preparation and staining techniques
3. FNAC
4. H&E stain

|  |  |  |  |
| --- | --- | --- | --- |
| L | T | P | Cr |
| - | - |  |  |

 **DIPLOMA Medical Laboratory Technology**

 **DMLT {3rd Semester}**

**[DMLT-307]: Pathology(Include Histopathology)Practical -III**.

**PRACTICAL - III**

**PRACTICALS:**

1. Determination of Hemaglobin and Hematocrit
2. Red blood cell count
3. Total white blood cell count
4. Platelet count
5. Differential count of white blood cells
6. Absolute Eosinophil count
7. Reticulocyte count
8. Calculation of red cell indices
9. Determination of ESR
10. Determmination of BT, CT, Whole blood clotting time
11. Determination of PT and PTT
12. Blood smear preparation and staining
13. ABO blood group
14. Rh Blood group

|  |  |  |  |
| --- | --- | --- | --- |
| L | T | P | Cr |
| - | - |  |  |

 **DIPLOMA Medical Laboratory Technology**

**DMLT {III rd SEMESTER}**

**[DMLT-304]: Technical methods in Microbiology- III**

**Unit I**

* Collection of Microbial sample: Respiratory specimen , nasal washing, sputum . nasal swab , pleural fluid . Urine sample. Specimen from genital area & gastrointestinal system
* Transport & storage of microbial sample , Transport Medi

* Aerobic & anaerobic culture method :Maclntosh Filde’ , pure culture technique

**Unit II**

* Storage of Microbial Culture: Subcultering , Lypholozation , Liquid Nitrogen and other techniques.
* Bacterial Identification Method : Bile Solubility test , CAMP Test, Carbohydrate Fermentation test, IMViC Test , Coagulase & Catalase test.
* Bacteriological Examination of Water, Milk, Food, and Air

**Unit III**

* Serological test: Agglutination., precipitation , CFT, TORCH Pofile , RPR,VDRL,ASO,
* Care & use of Experimental Animal : Animal House , animal selection, Health hazards in animal house

|  |  |  |  |
| --- | --- | --- | --- |
| L | T | P | Cr |
|  | - | - |  |

 **DIPLOMA Medical Laboratory Technology**

**DMLT {3rd semester}**

**[DMLT-308]: English Language and General Awareness-III**

**{ELGA-III}\*\***

**A Communicative Approach to Learning English:**

Unit 1: Using English in Different Context

Unit 2: Set Expression and Idiomatic Response

Unit 3: Phrasal Verbs in Different Context

Unit 4: Use of Prefixes and Suffixes

Unit 5: Emphasis through Phrasing

**Indian History:**

Unit 1: Pre- Maurya and Maurya Period

Unit 2: Gupta Empire to Mughal Empire

Unit 3: Europeans and Cultural Movement

Unit 4: Pre-Gandhian Era to the rise of Revolutionaries

Unit 5: Quit India Movement and India’s Independence

**\*\*As per B.Tech sem-2nd syllabus of ELGA-II**

|  |  |  |  |
| --- | --- | --- | --- |
| L | T | P | Cr |
|  | - | - |  |

**DIPLOMA Medical Laboratory Technology**

**DMLT {3rd semester}**

**[DMLT-309]: ENVIRONMENTAL SCIENCE &HEALTH-III**

**Unit-1: Introduction to Environment & water:**

* 1. Introduction to Environment and Health

2. Sources, health hazards and control of environmental pollution

**UNIT-II:**

**Water:**

1. The concept of safe and wholesome water.
2. The requirements of sanitary sources of water.
3. Understanding the methods of purification of water on small scale and large scale.

**Unit-III:**

 **Quality of water & Domestic refuse:**

* 1. Various biological standards, including WHO guidelines for third world countries.
	2. Concept and methods for assessing quality of water.
	3. Domestic refuse, sullage, human excreta and sewage their effects on environment and health, methods and issues related to their disposal.