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

**B.Sc. Medical Laboratory Technology (BMLT)**

**BMLT – 5th Semester syllabus**

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| Mewar University BMLT 5TH Semester |
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| **S.NO.** |  **Sub Code** | **Subjects** | **Contect Hrs Per week** | **Credit Hrs** | **Internal Assessment /Evaluation** | **External examination/vVa-voce** | **Grand Total** |
| **L** | **T** | **P** | **Assig/lab record** | **Teachers evaluation** |
| 1 | BMLT-501 |  Clinical Biochemistry V | 4 |   |   | 4 | 35 | 15 | 50 | 100 |
| 2 | BMLT-502 |  Medical Microbiology V  | 4 |   |   | 4 | 35 | 15 | 50 | 100 |
| 3 | BMLT-503 | Immunopathology & Transplantation  | 4 |   |   | 4 | 35 | 15 | 50 | 100 |
| 4 | BMLT-504 | Biostetics and Health  | 4 |   |   | 4 | 35 | 15 | 50 | 100 |
| 5 | BMLT -505 | Computer Application & Data Base Management II  | 4 |   |   | 4 | 35 | 15 | 50 | 100 |
| 6 | BMLT-506 | ELGA V | 1 |   |   | 1 |   |   | 25 | 25 |
| 7 | BMLT-507 |  Clinical Biochemistry Lab V |   |   | 3 | 2 | 15 | 10 | 25 | 50 |
| 8 | BMLT-508 |  Medical Microbiology Lab V |   |   | 3 | 2 | 15 | 10 | 25 | 50 |
| 9 | BMLT-509 | Immunopathology & Transplantation lab  |   |   | 3 | 2 | 15 | 10 | 25 | 50 |
|  | BMLT 510  | Industrial training (21-45 days)  |  |  | 12 | 6.0 |  |  | 150 | 150 |
|   | Total |   | 21 |   | 9 | 33 |   |   |   | 825 |

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**B. Sc Medical Laboratory Technology**

**BMLT {5th Semester}**

**BMLT-501: CLINICAL BIOCHEMISTRY-V**

**UNIT-I:**

1. Liver Function Test

i)Introduction

ii)Type of Jaundice

iii)Detection of bilirubin

1. Thyroid function test and other endocrine hormone estimation
2. Water and minerals metabolism:

i)Dehydration

ii)Calcium

iii)Phosphorus

iv)Sodium

v)Potassium

vi)Cloride

vii)Iron

viii)Iodine

ix)And their physiological function and disease state.

**UNIT-II:**

1. Gastric Juice analysis

Impotance

Constitutuents

Collectrion

1. Spectial Profiles

Glucose Tolerance Test

Insulin Tolerance Test

Xylose absorption Test

Clearance Test for Renal Function

1. Analysis of Calculi

**UNIT-III**

1. Electrometrci determination of sodium(Na+)and potassium(K+)
2. Quality control of clinical investigation and Automation in clinical biochemistry.
3. Cardiac enzmes CPK,CPK,MB,LDH,Troponin

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**B. Sc Medical Laboratory Technology**

**BMLT {5th Semester}**

**BMLT-507: CLINICAL BIOCHEMISTRY PRACTICAL -V**

PRACTICAL :

Method of estimation of Bilirubin

Method of estimation of SGOT,GPT,Alk Po4 Acid Po4

Revision of Biochemical Tests

Demonstration of Chromatography and Electrophoresis

ELISA and RIA

Urea , Creatinin , Plasma Glucose , Serum protein , Serum uric acid

**Assessment**

Theory – Average of two exams conducted (Internal)

Practical – Record & Lab work

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**B. Sc Medical Laboratory Technology**

**BMLT {5th Semester}**

**BMLT-502: MEDICAL MICROBIOLOGY-V**

Unit 1:

 Study of systematic Bacteriology : Morphology , classification ,culture , virulence factor

 Pathogenesis and lab diagnosis of following bacteria.

 Streptocoocci ,Staphylogocci ,Pneeumococci Clostridia , Bacillus, Mycobacterium

Unit II:

 Morphology , classification ,culture , virulence factor , resistance, pathogenesis and lab lab diagnosis of : Corynebacteria ,Esherichia ,Klebsiella ,Enterobacter ,Proteus ,Salmonella Shigella ,Pseudomonas ,Vibro ,Haemophilus ,Mycobacterium ,Brucella ,Bordettelsa ,Niesseria

 Leptospira

Unit: III

1. Interdiction of AEROBIC AND ANAROBIC culture media
2. Identification methods for fungal infection
3. Laboratorial Management and Stock Mainenance of Microbiology Laboratory

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**B. Sc Medical Laboratory Technology**

**BMLT {5th Semester}**

**BMLT-508: MEDICAL MICROBIOLOGY PRACTICAL-V**

PRACTICAL :

Staining characters of different type of Bacteria Identification of type colony growth Biochemical character of Organism

Biochemical Test used for identification of bacteria

Lab diagnosis of Fungi

Smear prepatation

KOH Solution

Media

B.Colony Characters of arious fungi

**Assessment**

Theory – Average of two exams conducted (Internal)

Practical – Record & Lab work

There shall be one theory paper for three hour duration carrying 80 marks

Reference book:

1. Anathanarayana & Panikar Medical Microbioloty

2. Roberty Cruckshank – Medical Microbiology – The Practice of Medical Mircrobiology

3. Chatterjee – Parasitology – Interpretation to Clinical medicine.

4. Rippon – Medical Mycology

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**BMLT {5th Semester}**

**BMLT-503: Immunopathology & Transplantation -V**

**UNIT-I:**

1. **Leukemia Disorders** –
2. Definition , classification , etiology & pathogenesis.
3. Lab Diagnosis
4. Leucocytosis , Thrmbocytosis, Neutrophilia Pancytopenia .
5. Cytogenetic in haematology
6. Immunopathology of Allergy
7. Cancer immunology
8. Rheumatological disease , Inflammation ,

**UNIT-II:**

 **Laboratory management & Quality control**

i)Laboratory Goals

ii)Market Potentials

iii)Care of Laboratory equipments

 Sterilisation and Autoclave Technique

 Maintenance of equipments log books

iv)Internal and external Quality Check

v)Disinfection Techniques and Waste disposal

1. **Automation in pathology:**

i)Semi – Automatic and Fully automatic Analyzer – working and methodology

ii)Maintenance of Instruments

iii)Handling and Quality chek.

**UNIT-III:**

 **1) Immunohematology and Transplantation**

 i) Tumor markers ,

 ii) Subgroups of A and B, other blood groups and Bombay group , Apheresis

1. HLA antigena and their significance
2. Introduction of transplantation , Graft rejection reaction
3. Application of bone marrow transplantation

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**B. Sc Medical Laboratory Technology**

**BMLT {5th Semester}**

**BMLT-509: Immunopathology & Transplantation Practical -V**

**PRACTICAL**

1. Bleeding Time, Clotting time, PT, APTT, TT, Platelet Count & Platelet function Test
2. Sickle Cell preparation
3. Reticulocyte count
4. Osmotic Fragility Count
5. Bile marrow smear Preparation
6. ELISA Demonstration
7. LE Cell Preparation
8. FNAC Techniques
9. Preparation of various cytology smears and fixation
10. Hormonal cytology study
11. Blood grouping and Rh typing
12. Cross matching techniques
13. Screening of donor’s blood for infective agents
14. Transfusion reactions and work up
15. Preparation of blood components

**Assessment**

Theory – Average of two exams conducted (Internal)

Practical – Record & Lab work

There shall be one theory paper for three hour duration carrying 80 marks

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**BMLT {5th Semester}**

 **BMLT-506 ENGLISH LANGUAGE AND GENERAL AWARENESS-V**

**Teaching Hours:40**

**Unit I:** Use of phrasal verb In Business English

**Unit II:** Improving Word Skill for the Internal Communication

**Unit III**:Writing Notice, Agenda and Minutes of Meeting

**Unit IV: Writing Effective Business Letters**

**Unit V :**Writing effective report

**World and Indian Geography**

**Unit I:** Indian Defense and Scientific Advancement

Unit II : Indian Missile and Space Programme

Unit III: Major Scientific Discoveries and theories

Unit IV: Sports Diary and Cinemas

Unit V: General Mental Ability

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**B. Sc Medical Laboratory Technology**

**BMLT {5th Semester}**

 **BMLT-504 RESEARCH & BIO STATISTICS**

**Time Allotted: 20 Hours**

**Unit - I**

Probability and Standard Distributions. Meaning of probability of standard distribution. The Binominal distribution. The poission Distribution. The normal distribution.Divergence from normality - skewness, kurtosis.

**Unit-II**

Need for sampling - Criteria for good samples. **Hypothesis:** definition, types (One tailed, two tailed);, Sampling distribution and errors, Types of errors (Type I, II); Testing of hypothesis (two tailed only); Z-test; t-test; Chi square-test; F-test; Analysis of variance; Correlation and Regression.

**Unit- III**

Procedures of sampling and sampling designs errors. Sampling variation and tests of significance. Health Indicator Importance of health Indicator.Indicators of population, morbidity, mortality, health services. Calculation of rates and rations of health.

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**B. Sc Medical Laboratory Technology**

**BMLT {5th Semester}**

 **BMLT-505 Computer Application & Data Base Management V**

**COMPUTER SKILL IN MEDICAL LABORATORY SCIENCES**

**UNIT1**

Introduction to MS-Word: introduction, components of a word window, creating, opening and inserting files, editing a document file, page setting and formatting the text, saving the document, spell checking, printing the document file, creating and editing of table, mail merge.

**UNIT2**

Introduction to Excel: introduction, about worksheet, entering information, saving workbooks and formatting, printing the worksheet, creating graphs. Import and export in Excel.

**UNIT3**

Introduction to power-point: introduction, creating and manipulating presentation, views, formatting and enhancing text, slide with graphs.

Introduction to Access: introduction, creating database, schema and table. Inserting record, Sorting record, Creating report.

Application of Computers in various fields: Medical, Education, Railway, Defense, Industry, Management, Sports, Commerce, Internet.

**UNIT4**

Internet and its Applications: definition, brief history, basic services (E-Mail, File Transfer Protocol, telnet, the World Wide Web (WWW)), www browsers, use of the internet. Computer virus: Definition, type’s precaution against virus, dealing with virus.

Data processing, computers in physical therapy- principles in EMG, exercise testing equipment, laser.

Introduction to installation of different software and introduction about different software related to MLT.

Reference books:

1. Microsoft Word by Rajeev Chawla

2. Computer and Introduction by V.K. Jain