



Shri Vaishnav Vidyapeeth Vishwavidyalaya Indore
Shri Vaishnav Institute of Paramedical Sciences
DMLT (Diploma in Medical Laboratory Technology)
Syllabus DMLT I SEMESTER
Session 2024-2025

Subject Code	Category	Subject Name	Teaching and Evaluation Scheme								
			Theory			Practical		L	T	P	CREDITS
			End Sem University Exam (60%)	Two Term Exam (20%)	Teacher Assessment (20%)	End Sem University Exam (60%)	Teacher Assessment (40%)				
DMLT101	CC	Anatomy & Physiology I	60	20	20	0	0	3	0	0	3

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based on the following components: Quiz/Assignment/ Project/Participation in class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs): The students will

CEO1: rationalize the fundamental knowledge of the human body system.

CEO2: understanding detailed functioning about human system histology.

CEO3: gain knowledge about clinical conditions of different body systems.

Course Outcomes (COs): Student should be able to

CO1: understand the human system with emphasis on normal and pathophysiological conditions.

CO2: acquainted with the different body systems and their prime functions.

CO3: Identification of the different clinical conditions with their signs and symptoms.

CO4: Learn some important clinical identification processes of diseases.

Unit-I

Cell:

- Structure of Human Cell: Protoplasm and Nucleus.
- Functions of Human Cells.
- Cellular Transportation.

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Unit-II

Circulatory System I:

- Structure and Functions of Heart.
- Circulations: Systemic, Pulmonary and Different Regional Circulations.
- Heart Sounds.

Unit-III

Respiratory System I:

- Structure and Functions of Lungs.
- Mechanism of Breathing.
- Buffer system for maintenance of pH of the body.

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Unit-IV

Digestive system I:

- Introduction to Digestion
- Structure and Function of Digestive system.
- Different digestive juices and their composition.

Unit-V

Renal system I:

- Structure and Functions of Kidney.
- Structure and Functions of Nephron.
- Juxtaglomerular apparatus.

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DMLT101(P)	CC	Anatomy & Physiology I (Practical)	00	00	00	30	20	0	0	2	1

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based on the following components: Quiz/Assignment/ Project/Participation in class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs): The students will

CEO1: identify various bones present in the human body.

CEO2: develop understanding about vitals of human cardiovascular system and factors affecting them.
systems.

CEO3: understand, analyze and interpret various histological tests for blood.

Course Outcomes (COs): Student should be able to

CO1: understand and identify the human bones with emphasis on general anatomy and general histology.

CO2: distinguish various human bones based on their
respective

CO3: memorize and perform various clinical tests.

CO4: analyze and interpret the results of various blood tests.

List of Practical's

- Muscles identification according to their anatomy.
- Identification of Different bones.
- Demonstration and Identification of Different Parts of Circulatory system.
- Demonstration and Identification of Different Parts of Urinary system.

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			End Sem University Exam (60%)	Two Term Exam (20%)	Teacher Assessment (20%)	End Sem University Exam (60%)	Teacher Assessment (40%)				
DMLTT102	CC	Biochemistry-I	60	20	20	0	0	3	0	0	3

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs): The students will -

CEO1: Conferring basic knowledge about body elements.

CEO2: Understanding their Structure, basic metabolism and utilisation in human body.

CO1: 1. An understanding of basic biochemistry of body elements

CO2: Understanding of their utilization processes in the living system.

CO3: Understanding the mechanism and the importance of different body elements.

Unit I:

Carbohydrates I:

- Structure, Dietary Sources, Digestion, Absorption, Basic Metabolism

Unit II:

Proteins I:

- Structure, Dietary Sources, Digestion, Absorption, Basic Metabolism

Unit III:

Lipids I:

- Structure, Dietary Sources, Digestion, Absorption, Basic Metabolism

Unit IV:

Nucleic Acid I:

- Structure, Dietary Sources, Digestion, Absorption, Basic Metabolism

Unit V:

Vitamins and co-enzymes:

- Functions of water-soluble vitamins; Fat soluble Vitamins A, D, E and K.

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DMLT102(P)	CC	Biochemistry-I (Practical)	00	00	00	30	20	0	0	2	1

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***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs): The students will-

CEO1: understand, analyze and interpret test for macronutrients, blood and Urine.

Course Outcomes (COs): Student should be able to -

CO1: memorize and perform various tests.

CO2: analyze and interpret the results of various tests.

List of Practical's:

1. General tests of Carbohydrate
2. General tests of Proteins.
3. Quantitative analysis of Carbohydrate
4. Quantitative analysis of Carbohydrate
5. Study of pH meter

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DMLT104	CC	Microbiology & Serology-I	60	20	20	00	00	3	0	0	3

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in class, given that no component shall exceed more than 10 marks.

Course Objectives

1. To understand basic characteristics of micro-organisms
2. To provide basic understanding of various types of micro-organisms.

Course Outcomes

1. Students will be able to understand the growth process of micro-organisms.
2. Students will be able to understand various types of pathogens and their mode of actions.

Unit-I

Introduction to Microbiology:

- Introduction and brief history of Microbiology.
- The scope and relevance of Microbiology.
- The role of microbial organisms in diseases

Unit-II

Bacterial Morphology

- Bacterial Taxonomy.
- Morphology and Physiology of Bacteria
- General property of bacterial cell.

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DMLT104	CC	Microbiology & Serology-I	60	20	20	0	0	3	0	0	3

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in class, given that no component shall exceed more than 10 marks.

Unit III

Growth of Bacteria

- Type of of bacterial growth.
- Growth forms in laboratory.
- Bacterial Growth Curve.
- Factors affecting Bacterial Growth.

Unit-IV

Stains Use in Microbiology

- Introduction and the importance of stains in microbiology.
- Types of stains.
- Different methods of staining and their interpretations.

Unit-V

Culture Media and Culture Techniques

- Principles of culture media.
- Basic requirements and uses.
- Types of culture media.
- Aerobic and anaerobic culture methods.

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DMLT104(P)	CC	Microbiology & Serology-I (Practical)	00	00	00	30	20	0	0	2	1

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in class, given that no component shall exceed more than 10 marks.

List of Practical's

1. Demonstration and handling of microscope.
2. Method and procedure of Grams staining
3. Method and procedure of ZN staining.
4. Preparation of different culture media.
5. Procedures of different methods of bacterial cultures.

➤ **Practical's will be modified as per the feasibility.**

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			End Sem University Exam (60%)	Two Term Exam (20%)	Teacher Assessment (20%)	End Sem University Exam (60%)	Teacher Assessment (40%)				
DMLT103	CC	Haematology & Blood Banking-I	60	20	20	0	0	3	0	0	3

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs): The students will-

CEO1: To understand basic ideas and techniques of Pathology.

CEO2: To understand the basic principles of pathological tests.

Course Outcomes (COs): Student should be able to -

CO1: develop competency in techniques of Haematology.

CO2: acquire knowledge and understand the basic pathologies of biological fluids.

Unit-I

Introduction to Pathology:

- Introduction and scope of Pathology.
- Subdivisions of Pathology.
- Ethical aspects of Pathology.
- Laboratory organization, safety and instrumentations.

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DMLT103	CC	Haematology & Blood Banking-I	60	20	20	0	0	4	0	0	4

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

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Unit II

Basic of Haematology:

- Introduction to haematology.
- Collection and preservation of blood samples.
- Normal and absolute values of haematology.
- Laboratory investigation haematology.

Unit-III

Techniques in Haematology

- Haemocytometry.
- Morphology of different blood cells.
- Determination of haematocrit value.

Unit-IV

Investigation of other biological fluids:

- Compositions of Urine, BAL, CSF Synovial fluid, etc.
- Abnormal constituents of Urine.
- Composition of semen and semen analysis.

Unit-V

Blood diseases:

- Anemia and its type and clinical features.
- Polycythemia and its clinical features.
- Leukemia, Leukocytopenia.

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- Thrombocytopenia and Purpura.

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DMLT103(P)	CC	Haematology & Blood Banking-I (Practical)	00	00	00	30	20	0	0	2	1

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***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs): The students will-

CEO1: understand, analyze and interpret Haemodialysis.

Course Outcomes (COs): Student should be able to -

CO1: memorize and perform Haemodialysis.

CO2: analyze and interpret the results of haemodialysis.

List of Practical's:

- Haemoglobin estimation.
- Preparation of Blood films and staining.
- Determination of ESR and PCV.
- Calculation of Blood indices.

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