

# CBSE | DEPARTMENT OF SKILL EDUCATION CURRICULUM FOR SESSION 2020-2021

**MEDICAL DIAGNOSTICS (SUBJECT CODE 828)**

**JOB ROLE: Medical Lab Technician**

## RATIONALIZED CURRICULUM FOR CLASS–XII FOR SESSION 2020-21

Total Marks: 100 (Theory-60 + Practical-40)

	UNITS	NO. OF HOURS for Theory and Practical	MAX. MARKS for Theory and Practical
<b>Part A</b>	<b>Employability Skills</b>		
	Unit 1 : Communication Skills-IV	13	10
	Unit 2 : Self-Management Skills- IV	07	
	Unit 3 : ICT Skills- IV	13	
	Unit 4 : Entrepreneurial Skills- IV	10	
	Unit 5 : Green Skills- IV	07	
	<b>Total</b>	<b>50</b>	<b>10</b>
<b>Part B</b>	<b>Subject Specific Skills</b>		
	Unit 1: Hematology	40	20
	Unit 2: Blood bank	40	20
	Unit 3: Cytology	40	10
	<b>Total</b>	<b>120</b>	<b>50</b>
<b>Part C</b>	<b>Practical</b>		
	Project	50	10
	Viva based on Project		10
	Practical File/ Report / Portfolio / Power Point presentation		10
	Demonstration of skill competency via Lab Activities		10
	<b>Total</b>		<b>50</b>
	<b>GRAND TOTAL</b>	<b>220</b>	<b>100</b>

## **DETAILED CURRICULUM/TOPICS:**

### **Part-A: EMPLOYABILITY SKILLS**

<b>S. No.</b>	<b>Units</b>	<b>Duration in Hours</b>
1.	Unit 1: Communication Skills-IV	13
2.	Unit 2: Self-management Skills-IV	07
3.	Unit 3: Information and Communication Technology Skills-IV	13
4.	Unit 4: Entrepreneurial Skills-IV	10
5.	Unit 5: Green Skills-IV	07
	<b>TOTAL DURATION</b>	<b>50</b>

**NOTE:** For Detailed Curriculum/ Topics to be covered under Part A: Employability Skills can be downloaded from CBSE website.

### **Part-B – SUBJECT SPECIFIC SKILLS**

<b>S. No.</b>	<b>Units</b>	<b>Duration in Hours</b>
1.	Unit 1: Haematology	40
2.	Unit 2: Blood bank	40
3.	Unit 3: Cytology	40
	<b>TOTAL DURATION</b>	<b>120</b>

UNIT	SUB-UNIT	SESSION/ ACTIVITY/ PRACTICAL
1. HEMATOLOGY LAB	1.1 Introduction	<b>Session:</b> Idea about Haematology laboratory
	1.2 Haematology lab instruments	<b>Session:</b> Understanding about <ul style="list-style-type: none"> <li>• Centrifuge</li> <li>• Microscope</li> <li>• Automated Cell Counter</li> <li>• Coagulation Analyser</li> </ul>
	1.3 Collection of blood sample	<b>Session:</b> Understanding about <ul style="list-style-type: none"> <li>• Anticoagulants</li> <li>• Specimen collection</li> </ul>
		<b>Activity:</b> Collection of blood by venepuncture method
	1.4 Preparation of blood smear*	<b>Practical:</b> <ul style="list-style-type: none"> <li>• <b>Preparations of Blood smear*.</b></li> </ul>
	1.5 Reagents- preparation and their uses	<b>Session:</b> Understanding about <ul style="list-style-type: none"> <li>• Different kinds of stains and reagents that are used in laboratory.</li> <li>• Diluting fluids for cell counting process.</li> </ul>
	1.6 Staining methods*	<b>Practical:</b> <ul style="list-style-type: none"> <li>• <b>Staining of Blood Smear by using Leishman's stain*.</b></li> </ul>
1.7 Measurements and Quantitative analysis	<b>Session:</b> Understanding about <ul style="list-style-type: none"> <li>• PCV and Erythrocyte Indices</li> <li>• ESR</li> <li>• LE cell</li> <li>• Osmotic fragility</li> </ul>	
	Activity – <ul style="list-style-type: none"> <li>• <b>Blood cell counting(R.B.C, W.B.C, Platelets*</b> Reticulocytes and Absolute Eosinophil)</li> <li>• <b>Haemoglobin estimation*</b></li> </ul>	
	Performing the following experiments in laboratory <ul style="list-style-type: none"> <li>• Overview of Haemocytometer</li> <li>• Osmotic Fragility test</li> <li>• Blood counting by Neuberg's Chamber(Demonstration)</li> <li>• Identification of different blood cells under microscope.</li> <li>• Estimation of the haemoglobin concentration</li> </ul>	

**\*Note: - To be assessed in practical only. No question shall be asked from this portion in Theory Exams.**

UNIT	SUB-UNIT	SESSION/ ACTIVITY/ PRACTICAL
	1.8 Anaemia	<b>Session:</b> Understanding the concepts of: <ul style="list-style-type: none"> <li>• Hemopoiesis</li> <li>• Classification of Anaemia</li> </ul>
	1.9 Hemopoiesis	<b>Session:</b> Mechanisms of Process Different tests involved in this process
	1.10 Bone marrow aspiration/Biopsy	<b>Session:</b> Understanding about the concepts of <ul style="list-style-type: none"> <li>• Site for aspiration Procedure</li> <li>• Procedure</li> </ul>
	1.11 Lab Safety*	<b>Activity:</b> <ul style="list-style-type: none"> <li>• Preparation of project by students in following topic:*</li> <li>• Biomedical waste management*</li> <li>• Personnel Protection*</li> <li>• Hand Hygien*</li> <li>• Management of spills*</li> </ul>
2. BLOOD BANK AND TRANSFUSION	2.1 Material and Equipment	<b>Session:</b> Understanding about the concepts of materials and equipment needed for Blood bank <b>Activity:</b> Preparation of charts based on the materials and equipment needed for blood bank
	2.2 Records in Blood Bank	<b>Session:</b> Understanding about different kinds of records that are kept in blood bank. <b>Session:</b> Understanding the concepts of ABO blood grouping.
	2.3 ABO blood group system	
	2.4 Practical importance of other blood groups	<b>Practical:</b> Determination of Blood group in given sample. <b>Session:</b> Understanding the concepts of different blood group system other than ABO grouping system.

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UNIT	SUB-UNIT	SESSION/ ACTIVITY/ PRACTICAL
3. CYTOPATH - OLOGY	3.1 Introduction	<b>Session:</b> <ul style="list-style-type: none"> <li>• Definition of cytopathology</li> <li>• Materials and equipment</li> </ul>
	3.2 Exfoliated cytology	<b>Session:</b> Understanding the concept of common sites for exfoliate cytology.
	3.3 FNAC	<b>Session:</b> Understanding the following concepts of FNAC <ul style="list-style-type: none"> <li>• Equipment</li> <li>• Technique</li> <li>• Preparation of smear</li> </ul> Preparation of cell blocks <b>Activity:</b> The students will prepare chart or flash card of technique of FNAC.
	3.4 Cytological Fixatives	<b>Session:</b> Understanding the following concepts of <ul style="list-style-type: none"> <li>• Properties</li> <li>• Classification</li> </ul>
	3.5 Cytospin	<b>Session:</b> Understanding the concepts of using cytopsin for CSF.
	3.6 Staining procedures in cytology*	<b>Activity: *</b> <ul style="list-style-type: none"> <li>• Description about PAP staining and* Haematoxylin and Eosin stain in their file*.</li> </ul>
	3.7 Maintenance of stains and solutions and general precautions	<b>Session:</b> Understanding the concepts of maintenance of stains and solutions and general precautions
	3.8 Storage and archiving of specimens	<b>Session:</b> Understanding the general guidelines for storage and archival in a pathology laboratory.
	3.9 Safety in laboratory	<b>Session:</b> Understanding the concepts of safety in laboratory and self-assessment.

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