



Gujarat Council of Vocational Training Gandhinagar



1. Name of Course:

MLT (Technician)

N.C.O. No. for Skills Covered:
(Please refer National Classification of
Occupations -2004 available
on www.dget.nic.in)

2. Engineering OR Non-engineering: **Non-Engineering**

3. No. of students per batch: 20

4. Duration in Hours. : 715

5. Duration in Month: **One Year** @ 27.5 hours/Week.

Duration of course: **One Year** (six Month Theory, Practical & Six month Internship).

6. Examination Scheme:

No.	Name of Subject	Teaching Hours during full course.	Maximum Marks. (Excluding Sessional)	Minimum Marks required for Passing (Excluding Sessional).	Sessional Marks if any.
Subject-1	Theory	195	100	40	
Subject-2	Practical	520	300	180	

7. Entry qualification for Trainee:

Minimum entry qualification (Essential):	12 th pass science pass with biology
Desirable:	

8. Minimum qualification for Trainer:

Minimum qualification (Essential):	Bsc with MLT.
Desirable:	





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9. Syllabus Committee Member:

Sr. No.	Name	Organization	Designation	Technical Qualification	Experience in Years	Signature
1	Shree S A Pandav	DET	Regional Deputy Director	BE (Civil)	33	
2	Dr.S.K Sharma	Vankad Lab	Pathologist	M.D. Pathology	40	
3	Dr. Vijal Kaka	Kaka Laboratory	Director	MD Pathologist	22	
4	Shreemati N.K. Shah	Gorwa ITI	Principal	BE (IT)	25	
5	Shree Vijaysinh Umat	Indian Institute	Director	Msc (Micro), MLT	25	
6	Shree Anil Shah	Zaveri Lab	Technical Expert	Msc (Micro), MLT	35	
7	Shree R.P Shah	DET	Technical Officer	BE Electrical	25	
8	Shree V.N. Chaudhari	DET	Senior Surveyor	DCT	24	

10. Terminal Skills of trainee: (Should be well defined and having reference to NCO):

The trainee, after successful completion of training, will have following skills...

1. Understand instructions of supervisors (Doctors) Properly.
2. Prepare specimen collection material than collection of specimen.
3. Preservation & transportation of specimen carefully.
4. Maintain proper record of collection.
5. Analyze the specimen with good skill with working accuracy and speed, work with appropriate safety precaution.
6. Understand all aspects of quality control appropriately.
7. Maintain proper record of reports.
8. Understand requirements of accreditation systems properly.
9. Maintain Bio safety & Waste management.

(please attach separate sheet, if more space is required)





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11. Approximate cost of Tools
/ Equipments / Machinery for
Starting one batch of the course:

Rupees
500000/-

Reference Year
2016-2017

12. Area required for practical / Workshop for one batch.

400 Sq. Ft

13. Minimum Power connection required

5 K.W.

14.1 No of items in Standard list of Machinery:

12

14.1.1. Page NO from 4 to 5.

14.2 No of items in Standard list of Shop outfit:

21

14.2.1. Page NO from 4 to 5.

4.3 No of items in Standard list of Trainee Toll-Kit:

4

14.1.1. Page NO from 4 to 5

***** FOR OFFICIAL USE *****

Approved by GCVT in Governing Body meeting on

26-05-2017

Syllabus implemented w.e.f. admission session

Next session

Revision History

1. Revision No..... Revision Date.

2. Revision No..... Revision Date.

3. Revision No..... Revision Date.





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Standard List of Machinery - Equipment / Shop-outfit / or Trainee Toolkit

For Trade of MLT (Technician)

Sr. No.	Description of Item with detailed specifications	Item type i.e. Machinery / Equipment OR Shop Outfit OR Trainee Toolkit	Quantity Required per one Batch of Students	Quantity Required per one Batch of Students for Instructor	Total Quantity Required (Total of previous two columns)
1.	Centrifuge 6X6 head	Machinery	1	1	1
2	Water Bath	Machinery	1	1	1
3	Incubator	Machinery	1	1	1
4	Hot air Oven	Machinery	1	1	1
5	Freeze	Machinery	1	1	1
6	Weighing Balance	Machinery	1	1	1
7	Autopipette- 10- 100 μ l	Machinery	1	1	1
8	Colorimeter	Machinery	1	1	1
9	Microscope	Machinery	8	1	8
10	Computer	Machinery	1	1	1
11	Camera attach microscope with TV	Machinery	1	1	1
12	Needle Burner	Machinery	1	1	1
13	Staining rack	Shop Outfit	10		10
14	Conical flask	Shop Outfit	10		10
15	ESR stand	Shop Outfit	6		6
16	ESR pipette	Shop Outfit	10		10
17	Beaker	Shop Outfit	12		12
18	Urine flask	Shop Outfit	10		10
19	Funnel	Shop Outfit	10		10
20	Syringe with needles	Shop Outfit	1		1
21	Methanol	Shop Outfit	1		1





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Sr. No.	Description of Item with detailed specifications	Item type i.e. Machinery / Equipment OR Shop Outfit OR Trainee Toolkit	Quantity Required per one Batch of Students	Quantity Required per one Batch of Students for Instructor	Total Quantity Required (Total of previous two columns)
22.	Haemoglobinometer	Shop Outfit	6		6
23.	Rohem counting chamber	Shop Outfit	4		4
24.	Test tubes of diff.size as required	Shop Outfit	As required		As required
25.	Pipettes	Shop Outfit	As required		As required
26.	Vials for sample collection	Shop Outfit	300		300
27.	Slide box	Shop Outfit	1		1
28.	Coverslip box	Shop Outfit	1		1
29	Tissue roll	Shop Outfit	1		1
30	Cotton roll	Shop Outfit	1		1
31	5 key counter	Shop Outfit	6		6
32	single tally counter	Shop Outfit	6		6
33	Gloves box	Shop Outfit	1		1
34	Lab coat (stu. Has to purchase)	Trainee Toolkit	1		20
35	Tourniquet	Trainee Toolkit	1		20
36	Journal (stu. Has to purchase)	Trainee Toolkit	1		20
37	Marker	Trainee Toolkit	1		20
36	Cell counter (min three part)	Machinery	1	1	1
37	Analyzer or semi analyzer for biochemistry	Machinery	1	1	1





General Information

Name of the Trade:	MLT (Technician)
Duration Of Training:	12 Months.
Entry Qualification:	12 th pass with Biology
Unit Size:	20+6 Students
Space Required:	400. Sq. Ft.
Approximate cost of Tools/Machinery	500000/-
Power Supply Required:	5 K.W
Faculty Requirement:	1
Faculty Qualification:	Bsc with MLT.
Commencement of Course	1 st February & 1 st August of every year.



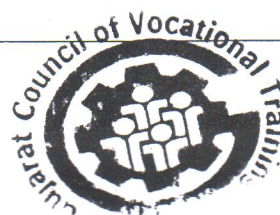


MLT (Technician)-Syllabus

Theory-1^{1/2} hrs

Practical-4 hrs

Week No.	Theory	Practical
1 Day 1 Day 2 Day 3 Day 4 Day 5	Intro. To Medical Tech. Introduction – Pathology Responsibilities of Lab. technician Lab Safety & Practical Precaution Lab. Structure & Reception Collection & Procedure Computer & signing authority room	Intro. To Q.C
2 Day 1 Day 2 Day 3 Day 4 Day 5	Method Of Blood Collection Capillary Puncture Types of syringe, needle Vein Puncture Intro To Artery Puncture Artery puncture	Blood Collection
3 Day 1 Day 2 Day 3 Day 4 Day 5	Study Of Anti-Coagulation Coagulation mechanism EDTA, Double Oxalate Bulb Heparin, Tri sodium citrate Acid Citrate Dextrose Fluoride & Plain Bulb	Blood Collection
4 Day 1 Day 2 Day 3 Day 4 Day 5	Intro. To Hematology & Types of HB Blood Composition Hemoglobin Intro Types of Hemoglobin(Normal Hb) Abnormal Hb/Hb Estimation By Shali's Kit Estimation of Hb By CMG Method Other Methods for Hb Estimation(PCV, Oxyhemoglobin, Specific Gravity)	HB Estimation





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5	Erythropieosis/Leucopoiesis	RBCs Count/WBCs/D.C कौशलम् बलम्
Day 1	Erythropieosis intro/ Sub. Necessary for it	
Day 2	Leucopoiesis	
Day 3	RBCs Total Count	
Day 4	WBCs Total Count	
Day 5	DC	
6	Indices/ESR/G6PD0	PCV/ESR/G6PD
Day 1	PCV(Pack ed Cell Volume)	
Day 2	Indices	
Day 3	ESR	
Day 4	Estimation Of ESR	
Day 5	G6PD	
7	Hematological Diseases/Anemias	SLE/Sickle Cell/RBC/Hb Estimation
Day 1	Anaemia/Types of anaemias	
Day 2	Iron deficiency Anemia	
Day 3	Aplastic Anaemia	
Day 4	Megaloblastic Anaemia	
Day 5	Sickle cell anaemia/Thalassemia	
8	Leukemia's/FAB Classification	WBC/DC
Day 1	Introduction	
Day 2	Superficial Information	
Day 3	Video presentation	
Day 4	Classification explanation only	
Day 5	Revision	
9	Platelet & Coagulation System	BT/CT/PT
Day 1	Introduction & Function of Platelets	
Day 2	Determination of Platelets	
Day 3	Determination of Bleeding time	
Day 4	Determination of Clotting time	
Day 5	Determination of Prothrombin time	
10	Carbohydrate Metabolism/Protein Metabolism	Glucose/Tot. Pro/Albumin Estimation
Day 1	Intro to Carbohydrate	
Day 2	Properties/Metabolism Of Carbohydrate	
Day 3	Determination of Glucose	
Day 4	Protein Importance/Classification	
Day 5	Determination of Protein	





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11	Chemistry of Cholesterol/Fat/Trigly./HDL/Lipoprotein Day 1 Introduction/importance of Lipid Day 2 Classification Day 3 Cholesterol/Trigly. Day 4 Determination of Tg Day 5 Determination of Cholesterol	Chol./HDL/Trigly./Estimation
12	Chemistry of Urea/Uric acid/Creatinine Kidney Structure Day 1 Nephron Structure & Urine formation Day 2 Urea intro & Determination Day 3 Uric Acid Intro & Determination Day 4 Creatinine Intro & Determination Day 5	Urea/Uric acid/Creatinine Estimation
13	Chemistry Of Liver Function test Day 1 Liver Structure & Function Day 2 Bilirubin metabolism Day 3 Determination of S.Bilirubin Day 4 types Of Jundice/SGPT Day 5 SGOT/ALP/Thymol Turbidity	Billirubin/SGPT/Alk.Phosphate Estimation
14	Heart Enzymes/Electrolytes Day 1 Heart Structure Day 2 Disease of Heart Day 3 CPK,SGOT/LDH Enzyme Day 4 Determination Of Enzyme Day 5 Electrolytes Na,K,Ca,Cl,P	SGOT/LDH/CPK/Isoenzymes
15	Automation Day 1 Introduction Day 2 Superficial Information Day 3 Video presentation Day 4 Different types explanation only Day 5 Revision	Amylase/Acid Phosphate Estimation
16	Study Of hormones Day 1 Introduction Day 2 Superficial Information Day 3 Video presentation Day 4 Different types of hormones explanation only Day 5 Revision	Calcium/Phosphorus





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17	Physiology/Formation of urine/cellular Element Day 1 Intro/Structure of Kidney Nephron Day 2 Structure of Nephron Day 3 Urine Formation Day 4 Chemical Examination Day 5 Microscopic examination	Urine analysis/Urine microscopic
18	Parasitology /Blood Parasitology Blood Parasite Day 1 Life Cycle Of Parasite (Malarial) Day 2 Other Parasite / determination of Parasite Day 3 introduction of stool analysis Day 4 microscopic (ova, cyst) Day 5	Stool/Blood Analysis
19	Blood Banking/Cross Matching Day 1 Type of Donor Day 2 Criteria Selection Day 3 Blood collection Procedure Day 4 Labeling Safety Day 5 Blood Group/Cross match	Diff ABO Blood Group
20	Hemolytic Disease Of New Born Day 1 Introduction Day 2 Superficial Information Day 3 Video presentation Day 4 Rh. Factor of Blood Grouping Day 5 Coombs' Test	Coomb's Test/Rho GAM
21	Importance Of Each blood Component Day 1 Introduction Day 2 Superficial Information Day 3 Video presentation Day 4 Different types explanation only Day 5 Revision	Aphaeresis
22	Serology Day 1 Intro, Defense Mechanism Day 2 Widal Day 3 VDRL Day 4 RA,ASO,CRP Day 5 Pregnancy	VDRL/Widal/RA Latex/Pregnancy Test





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23	Immunology Day 1 Immunity Day 2 Vaccination Day 3 HbsAg/Antistreptolysin Day 4 Mono Day 5 HCBG	HbsAg/Anti Streptolysin/Mono/HCBG कौशलम् बलम्
24	Introduction to ELISA/TORCH/HIV Day 1 Intro. ELISA Day 2 direct ELISA Day 3 indirect ELISA Day 4 TORCH test Day 5 HIV Intro	HIV/Estimation of IgG, IgA etc
25	Histopathology/Cytology Day 1 Introduction Day 2 Superficial Information Day 3 Video presentation Day 4 Different types of samples explanation only Day 5 Revision	
26	Body Fluids Day 1 CSF/Semen Day 2 Sputum Day 3 Urine/stool Day 4 Cavity Fluid Intro/Peural/Pericardial Day 5 Peritoneal/Synovial	Examination of Body Fluids
27 to 51	On Job Trainig	
52	Examination	

