

1	Name of Course	C. C. IN LABORATORY INCHARGE (Testing & Calibration Lab) (W.E.F. 2017-2018)																																																
2	Couse code	308110																																																
3	Max No of Students Per Batch	25																																																
4	Duration	6 Months																																																
5	Type	Part Time																																																
6	No of Days/Week	6 Days																																																
7	No of Hours Per Day	4 Hours																																																
8	Required Space	Class Room – 200 sq.ft. & for Practical MOU with NABL accredited Laboratory																																																
9	Minimum Entry Qualification for Student	BSc OR Diploma / Degree Engg. / Technology																																																
10	Objective of Course	To prepare incharge to take the job of laboratory as head / incharge and perform the duties in accordance with the requirements of standards/ accreditation bodies/clients.																																																
11	Employment Opportunity	Competent & qualified laboratory technician can be employed in various testing and calibration laboratories in India.																																																
12	Teacher's Qualification	Degree in Engineering / Science with minimum 7 years of experience in industry or laboratories.																																																
13	Training System	Training System Per Week <table border="1"><tr><td>Theory</td><td>Practical</td><td>Total</td></tr><tr><td>06 Hrs</td><td>18 Hrs</td><td>24 Hrs</td></tr></table>							Theory	Practical	Total	06 Hrs	18 Hrs	24 Hrs																																				
Theory	Practical	Total																																																
06 Hrs	18 Hrs	24 Hrs																																																
14	Exam. System	<table border="1"><tr><th>Sr. No.</th><th>Paper Code</th><th>Name of subject</th><th>TH /PR</th><th>Hours</th><th>Max. Marks.</th><th>Mini. Marks</th></tr><tr><td>1</td><td>30811011</td><td>Laboratory Technology (Testing)</td><td>TH-I</td><td>3 hrs.</td><td>100</td><td>35</td></tr><tr><td>2</td><td>30811012</td><td>Advance Laboratory Management</td><td>TH-II</td><td>3 hrs.</td><td>100</td><td>35</td></tr><tr><td>3</td><td>30811021</td><td>Laboratory Practical</td><td>PR-I</td><td>3 hrs.</td><td>200</td><td>100</td></tr><tr><td>4</td><td>30811022</td><td>Project Work Accreditation of Lab</td><td>PR-II</td><td>3 hrs.</td><td>200</td><td>100</td></tr><tr><td></td><td></td><td>Total</td><td></td><td></td><td>600</td><td>270</td></tr></table>	Sr. No.	Paper Code	Name of subject	TH /PR	Hours	Max. Marks.	Mini. Marks	1	30811011	Laboratory Technology (Testing)	TH-I	3 hrs.	100	35	2	30811012	Advance Laboratory Management	TH-II	3 hrs.	100	35	3	30811021	Laboratory Practical	PR-I	3 hrs.	200	100	4	30811022	Project Work Accreditation of Lab	PR-II	3 hrs.	200	100			Total			600	270						
Sr. No.	Paper Code	Name of subject	TH /PR	Hours	Max. Marks.	Mini. Marks																																												
1	30811011	Laboratory Technology (Testing)	TH-I	3 hrs.	100	35																																												
2	30811012	Advance Laboratory Management	TH-II	3 hrs.	100	35																																												
3	30811021	Laboratory Practical	PR-I	3 hrs.	200	100																																												
4	30811022	Project Work Accreditation of Lab	PR-II	3 hrs.	200	100																																												
		Total			600	270																																												

	Unit Title : Laboratory Management and its responsibilities Legal and Moral			
	Learning Outcome	Knowledge Evaluation	Performance Evaluation	Teaching and Training Method
Location:	Describe the responsibilities of testing & calibration lab	Describe the role of rehabilitation facility in patient recovery. Differentiate between services provided at various Rehabilitation/Convalescent Centre	Identify the facilities at lab	Interactive Lecture: Role and responsibilities of Management Activity: Visit a testing lab & office and see the functioning of Management
	Describe the legal responsibility and the of lab	Describe the role of Management & responsibility Enlist the facilities/ which require statutory clearance	Identify the equipment and materials that are under statutory requirement	Interactive Lecture: Testing equipment requiring permissions Activity: Visit to lab check equipment's requiring legal permission
	Demonstrate the knowledge of lab	Describe the facilities requiring statutory permission	Assess the need for facilities Identify the facilities Identify the services	Interactive Lecture: lab facilities Activity: legal & moral responsibilities of Good lab

	Unit Title :Sample preparation & Laboratory Records.			
	Learning Outcome	Knowledge Evaluation	Performance Evaluation	Teaching and Training Method
Location: Classroom/ Laboratory	<p>Identify the records in calibration & testing lab</p> <p>Sample preparation methods</p> <p>actual sample preparation</p> <p>Prepare a sample record</p> <p>Prepare demo sample</p>	<p>Describe the essential duties and responsibilities of record keeper</p> <p>How to prepare sample, precaution</p> <p>Follow standard methods for sample preparation</p> <p>Describe various activities of patient's daily care routine including bathing, feeding, excreta disposal, transfer of patients, medication, etc.</p>	<p>Demonstrate the knowledge of maintaining records</p> <p>demo sample preparation</p> <p>Prepare a daily receipts of sample record</p>	<p>Interactive Lecture:</p> <p>Role and functions of record keeping</p> <p>methods of sample preparation</p> <p>Activity:</p> <p>check records at Lab</p> <p>check records at Calibration lab</p> <p>sample preparation accuracy</p> <p>Interactive Lecture:</p> <p>Records & retention period</p> <p>sample prepare methods</p> <p>Activity:</p> <p>Role play</p> <p>record as evidence</p> <p>records for Auditing</p> <p>tell them to Identify and apply the most suitable records for lab</p> <p>Prepare samples of various materials</p>

	<p>Identify the qualities of a good 5s implemented Lab</p> <p>Identify lab wastes and disposal procedure.</p> <p>Instruments for Lab temp control</p>	<p>Describe the good qualities of maintaining 5s</p> <p>Describe the characteristics of various types of wastes in Lab</p>	<p>List the do's and don'ts in Labs setup Demonstrate the knowledge of 5s & temp control</p> <p>Demonstrate the knowledge of wastes Identify the colour code for disposal of waste temp & effect on test result.</p>	<p>Activity: Preparation of check list for 5s in calibration lab their understanding and tell them to compare with standard checklist. temp control check list</p> <p>Interactive Lecture: elimination & disposal of Waste</p> <p>Activity: Visit to lab to study waste generated & 5s implementation</p>
--	---	--	--	--

	Unit Title: laboratory equipment and calibration schedule			
	Learning Outcome	Knowledge Evaluation	Performance Evaluation	Teaching and Training Method
Location : Classroom/ Laboratory	Demonstrate lab equipment calibration	Describe equipment accuracy, calibration	Practice equipment accuracy calibration systems	Interactive Lecture: equipment selection maintenance calibration
	Identify factors affecting test equipment	Describe the importance of calibration Describe the factors that affect test equipment	Enlist the calibration schedule to be followed to ensure correct results Demonstrate in house calibration Demonstrate the knowledge of maintaining test equipment	Activity: Demonstrate calibration methodology Interactive Lecture: test equipment maintenance calibration Activity: Preparation of checklist of equipment maintenance
	Perform calibration of sample instrument	Describe the method of calibration	Prepare a plan for maintaining equipment	Interactive Lecture: equipment record Activity: equipment selection calibration
	Demonstrate personal grooming	Describe the importance of good appearance and grooming in life and work place.	Demonstrate good grooming habits as per norms of healthcare industry.	Interactive Lecture: How to prepare and follow daily equipment maintenance plan? Activity: schedule accuracy temperature condition

	Unit Title: Facility management of laboratory.			
	Learning Outcome	Knowledge Evaluation	Performance Evaluation	Teaching and Training Method
Location : Classroom,	Identify components of LAB Facility management power supply house keeping temp control	Describe the importance of facility management in lab	Identify the need of FMS in a given scenario Enlist the essential components of LAB FMS in a	Interactive Lecture: Facility management in LAB Activity: Visit to Lab study facility management
Laboratory	Demonstrate chain of survival	Describe the various emergency situations in lab	FMS	Interactive Lecture: FMS in lab Activity: LIST FMS facility in lab

	Unit Title: Inspection reports management .			
	Learning Outcome	Knowledge Evaluation	Performance Evaluation	Teaching and Training Method
Location: Classroom Industry Labo - ratories	Differentiate between various test reports Sample test reports Prepare test report	Explain the importance of test report Describe the importance of immunization Describe the side effects of immunization Describe the various aspects of immunization schedule chart	Differentiate between various reports Prepare a sample report Prepare a test report	Interactive Lecture: Test report preparation Activity Prepare test reports Visit lab Interactive Lecture: Test report Activity: Discussion on the process of issuance of test report

	Identify the key components of test report	Describe the key components of test report	Identify the key components of a Universal Immunization Programmed	Interactive Lecture: Universal Immunization Programmed Activity: Enlisting of diseases covered under Universal Immunization Programmed.
	Identify the key components of issue of test report	Describe the key components of test report	Identify the key components of a Pulse Immunization Programmed	Interactive Lecture: Pulse Immunization Programmed Activity: Enlisting of diseases covered under Pulse Immunization Programmed.

	Unit Title: Identification and traceability from receipt of sample to final report			
	Learning Outcome	Knowledge Evaluation	Performance Evaluation	Teaching and Training Method
Classroom	Identify elements of traceability Demonstrate effective traceability sample collection & storage	Describe different elements of traceability & its importance Describe the factors affecting effective traceability & storage of sample	Identify elements of traceability Describe the knowledge of effective sample routing identify traceability issues	Interactive Lecture: Traceability & its importance receipt storage Activity: sample receipt to report Interactive Lecture: Factors affecting Effective traceability Activity: Follow up of sample from receipt to report confidentiality

	UNIT TITLE: Laboratory STRUCTURE AND FUNCTIONS			
Location :	Learning Outcome	Knowledge Evaluation	Performance Evaluation	Teaching and Training Method
Classroom / laboratory	Demonstrate the knowledge of roles and functions of various departments, professionals and supportive staff of the laboratory	1 Describe the roles and functions of various departments and professionals in the laboratory	1 Identify the various types of laboratories Distinguish between General laboratory and Specialized laboratory Draw a chart depicting the roles of departments, professionals and supporting staff of the laboratory	Interactive Lecture: Roles and Functions of laboratories Activity: · Visit nearby laboratory and study the roles and functions of the various departments, lab technician & staff of lab staff of the laboratory · Prepare a chart depicting the roles and functions of departments/professionals/supporting staff Interactive Lecture: The roles and functions of various supporting departments in the laboratory
	Demonstrate the knowledge of roles and functions of supporting departments in laboratory	1. Describe the role and functions of various supporting departments	Draw a chain of command in the various department and laboratories of	

		<p>of laboratory State the services provided by the Medical Record Department and Outpatient Department</p> <p>Explain the activities performed by the laboratory housekeeping department</p>	laboratory	<p>Activity:</p> <ul style="list-style-type: none"> · Visit nearby laboratory and study the roles and functions of the various supporting departments in laboratory · Prepare a chart showing the chain of commands in various departments
	Classify the laboratorys on the basis of different criteria	<p>State the criteria used for of classifying the laboratorys</p> <p>Describe the different levels of Testing</p>	Classify the laboratorys on the basis of approvals	<p>Interactive Lecture: Classifying laboratory</p> <p>Activity: and classify them on the basis of testing lab, calibration lab, reference lab, national lab</p>
	Demonstrate the knowledge of the qualities of a Good lab technician	Describe the qualities of a Good technician	Identify the activities performed by technician in performance of lab	<p>Interactive Lecture: Qualities of a competent lab technician</p> <p>Activity: Visit a laboratory and enlist the qualities of a component lab technician</p>

UNIT TITLE: INTRODUCTION TO TESTING METHODOLOGY				
Location	Learning Outcome	Knowledge Evaluation	Performance Evaluation	Teaching and Training Method
Class room / laboratory	Identify the role of lab technician various types of testing undertaken by laborator & role of lab technician	1. Describe the objectives of lab technician 2. Describe the role of lab technician preparation of samples & testing	Enlist the various steps involved in testing Identify role of lab technician in sample preparation & testing	Interactive Lecture: Role of lab technician in preparation and implementation of SOP for sample testing Activity: Visit a nearby laboratory and study the technician methodology Prepare a testing plan for one sample

Unit Title: Laboratory Management System			
	Knowledge Evaluation	Performance Evaluation	Teaching and Training Method
Locations : Class room / Laboratory	Describe the responsibilities of lab Incharge sample receipt in laboratory Describe various methods of testing	1. Sampling procedure testing lab management 2. Demonstrate the knowledge of Incharge	Interactive Lecture: Role of lab Incharge in lab

Unit Title: NABL REQUIRMENTS				
	Learning Outcome	Knowledge Evaluation	Performance Evaluation	Teaching and Training Method
Location Class room Laboratory	NABL Documents NABL auditing NABL PROCEDURES NABL Record Intra lab testing	1. Describe the types of NABL DOCUMENTS 2. State the advantages of NABL LAB	Demonstrate the knowledge of various NABL Requirement	Interactive Lecture: Introduction to NABL System Activity: Prepare a comparative MANUAL for lab
