

1	Name of Course	C. C. IN LABORATORY MANAGER (Testing & Calibration Lab) (W.E.F. 2017-2018)																																																
2	Couse code	308108																																																
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 having min.Three Parameter																																																
9	Minimum Entry Qualification for Student	BSc OR Diploma / Degree in Engg. (Tech.)																																																
10	Objective of Course	To prepare Lab Manager to take the job of laboratory as head / in charge and perform the duties in accordance with the requirements of accreditation bodies.																																																
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 in India.																																																
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																																				
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	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	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	Enlist the facilities/ which require statutory clearance 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>· 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>Demonstrate the knowledge of maintaining records</p> <p>demo sample preparation</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>Prepare a sample record</p> <p>Prepare demo sample</p>	<p>Describe various activities of patient's daily care routine including bathing, feeding, excreta disposal, transfer of patients, medication, etc.</p>	<p>Prepare a daily receipts of sample record</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>

	Unit Title : Implementation of 5's in Laboratory & Environmental controls in Laboratory .			
	Learning Outcome	Knowledge Evaluation	Performance Evaluation	Teaching and Training Method
Location:	Identify basic necessity required for laboratories	Describe basic components of 5s & Lab controls	Identify and list various aspects that can help in implementing 5s environment controls for Lab records	Interactive Lecture: 5s Schedule in Lab Lab temp controls Activity: Role Play Provide different situations to the students and then tell them to the students and then tell them to Identify and apply 5s & temp control in Lab
Classroom/				
Laboratory	Understand importance of 5s in Lab	Describe the various elements of 5s Describe the importance of environment condition in Lab.	Identify labs environment and its effects	Interactive Lecture: Facility for 5s advantages of 5s Control of temp & RH Activity: Visit to a lab to study 5s ,temp control
	Provide for the lab daily 5s schedule		Prepare 5s checklist	Interactive Lecture: 5s in calibration lab temp control in calibration lab Activity: Preparation of check list for 5s in calibration lab their understanding and tell them to compare with standard checklist. temp control check list

	Identify the qualities of a good 5s implemented Lab	Describe the good qualities of maintaining 5s	List the do's and don'ts in Labs setup	
	Identify lab wastes and disposal procedure.	Describe the characteristics of various types of wastes in Lab	Demonstrate the knowledge of 5s & temp control	
	Instruments for Lab temp control		Demonstrate the knowledge of wastes Identify the colour code for disposal of waste temp & effect on test result.	<p>Interactive Lecture: elimination & disposal of Waste</p> <p>Activity:</p> <p>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
	Perform calibration of sample instrument	Describe the method of calibration	Prepare a plan for maintaining equipment	Activity: Preparation of checklist of equipment maintenance Interactive Lecture: equipment record
	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.	Activity: 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, Laboratory	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
	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, laboratories	Differentiate between various test reports	Explain the importance of test report	Differentiate between various reports	Interactive Lecture: Test report preparation
	Sample test reports		Prepare a sample report	Activity Prepare test reports
	Prepare test report	Describe the importance of immunization	Prepare a test report	Visit lab Interactive Lecture: Test report
		Describe the side effects of immunization		Activity: Discussion on the process of issuance of test report
		Describe the various aspects of immunization schedule chart		
	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
	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	Activity: Enlisting of diseases covered under Universal 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	Describe different elements of traceability & its importance	Identify elements of traceability Describe the knowledge of effective sample routing	Interactive Lecture: Traceability & its importance receipt storage Activity: sample receipt to report
	Demonstrate effective traceability sample collection & storage	Describe the factors affecting effective traceability & storage of sample	identify traceability issues	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	<p>Demonstrate the knowledge of roles and functions of various departments, professionals and supportive staff of the laboratory</p> <p>Demonstrate the knowledge of roles and functions of supporting departments in laboratory</p>	<p>1 Describe the roles and functions of various departments and professionals in the laboratory</p> <p>1. Describe the role and functions of various supporting departments of laboratory State the services provided by the Medical Record Department and</p>	<p>1 Identify the various types of laboratorys</p> <p>Distinguish between General laboratory and Specialized laboratory Draw a chart depicting the roles of departments, professionals and supporting staff of the laboratory</p> <p>Draw a chain of command in the various department and laboratories of laboratory</p>	<p>Interactive Lecture: Roles and Functions of laboratorys</p> <p>Activity:</p> <ul style="list-style-type: none"> · 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 <p>Interactive Lecture: The roles and functions of various supporting departments in the laboratory</p> <p>Activity:</p> <ul style="list-style-type: none"> · Visit nearby laboratory and study the roles and functions of the

		<p>Outpatient Department</p> <p>Explain the activities performed by the laboratory housekeeping department</p>		<p>various supporting departments in laboratory</p> <p>· Prepare a chart showing the chain of commands in various departments</p>
	<p>Classify the laboratorys on the basis of different criteria</p>	<p>State the criteria used for of classifying the laboratorys</p> <p>Describe the different levels of Testing</p>	<p>Classify the laboratorys on the basis of approvals</p>	<p>Interactive Lecture: Classifying laboratory</p> <p>Activity: and classify them on the basis of testing lab, calibration lab, reference lab, national lab</p>
	<p>Demonstrate the knowledge of the qualities of a Good lab technician</p>	<p>Describe the qualities of a Good technician</p>	<p>Identify the activities performed by technician in performance of lab</p>	<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
Classroom / laboratory	Identify the role of lab technician various types of testing undertaken by laborator & role of lab technician	<p>1. Describe the objectives of lab technician</p> <p>2. Describe the role of lab technician preparation of samples & testing</p>	<p>Enlist the various steps involved in testing</p> <p>Identify role of lab technician in sample preparation & testing</p>	<p>Interactive Lecture: Role of lab technician in preparation and implementation of SOP for sample testing</p> <p>Activity:</p> <ul style="list-style-type: none"> · Visit a nearby laboratory and study the technician methodology <p>Prepare a testing plan for one sample</p>

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

	NABL REQUIRMENTS			
	Learning Outcome	Knowledge Evaluation	Performance Evaluation	Teaching and Training Method
Location: Classroom / 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
