<table>
<tr><td>1</td><td>Name of Course</td><td>C. C. IN LABORATORY INCHARGE (Testing & Calibration Lab) (W.E.F. 2017-2018)</td></tr>
<tr><td>2</td><td>Couse code</td><td>308110</td></tr>
<tr><td>3</td><td>Max No of Students Per Batch</td><td>25</td></tr>
<tr><td>4</td><td>Duration</td><td>6 Months</td></tr>
<tr><td>5</td><td>Type</td><td>Part Time</td></tr>
<tr><td>6</td><td>No of Days/Week</td><td>6 Days</td></tr>
<tr><td>7</td><td>No of Hours Per Day</td><td>4 Hours</td></tr>
<tr><td>8</td><td>Required Space</td><td>Class Room – 200 sq.ft. & for Practical MOU with
NABL accredited Laboratory</td></tr>
<tr><td>9</td><td>Minimum Entry Qualification for Student</td><td>BSc OR Diploma / Degree Engg. / Technology</td></tr>
<tr><td>10</td><td>Objective of Course</td><td>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.</td></tr>
<tr><td>11</td><td>Employment Opportunity</td><td>Competent & qualified laboratory technician can be employed in various testing and calibration laboratories in India.</td></tr>
<tr><td>12</td><td>Teacher’s Qualification</td><td>Degree in Engineering / Science with minimum 7 years of experience in industry or laboratories.</td></tr>
<tr><td>13</td><td>Training System</td><td>Training System Per Week
<table>
<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></td></tr>
<tr><td>14</td><td>Exam. System</td><td>
<table>
<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></td></tr>
</table>

	Unit Title : What is Laboratory, Various types of Laboratory , Common IS for Lab?			
	Learning Outcome	**Knowledge Evaluation**	**Performance Evaluation**	**Teaching and Training Method**
Location: Classroom	Types of laborotries Laboratory function Knowledge of variuos types of standards follwed in Lab Identify the components and activities of Laboratries Understand role and functions of lab	Describe the different types of laborotries laborotries function Describe the role of laborotries in testing of products Calibration laborotries standards use in Lab State the functions of a Laboratries in testing lab Enlist the services provided by the Laboratries for different testings Describe the role and functions of a lab Describe the precaution in labs	Identify different types of labotrotries systems followed in laborotries testing lab calibration lab describe usefullness of IS in Lab Identify the various components of a Laboratries System Identify the various equipment used in Laboratries Enlist the requirements for testing & safety at testing & calibration lab	**Interactive Lecture:** About laborotries About Indian standards in Labs **Activity:** Visit a laborotry testing & calibration enlist all the services and the equipment used in the lab **Interactive Lecture:** Role and function of Laboratries **Activity:** Visit a Laboratries to study the role and functions. Prepare report for the Student Portfolio. **Interactive Lecture:** laboratries & standards **Activity:** Visit to lab or and observe the available testing methods used in lab and prepare a report highlighting the services provided in the lab

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

	Unit Title : Implementation of 5's in Laboratory & Enviourmental controls in Laboratory .			
	Learning Outcome	**Knowledge Evaluation**	**Performance Evaluation**	**Teaching and Training Method**
Location: Classroom/ Laboratory	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
	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 Demonstrate the knowledge of 5s & temp control	
	Identify lab wastes and disposal procedure. Instruments for Lab tepm control	Describe the characteristics of various types of wastes in Lab	Demonstrate the knowledge of wastes Identify the colour code for disposal of waste temp & effect on test result.	**Interactive Lecture:** elimination & disposal of Waste **Activity:** Visit to lab to study waste generated & 5s implementation

	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
		Describe the importance of calibration	Enlist the calibration schedule to be followed to ensure correct results	**Activity:** Demonstrate calibration methodology
			Demonstrate in house calibration	
	Identify factors affecting test equipment	Describe the factors that affect test equipment	Demonstrate the knowledge of maintaining test equipment	**Interactive Lecture:** test equipment maintenance calibration
			Prepare a plan for maintaining equipment	**Activity:** Preparation of checklist of equipment mainintance
	Perform calibartion of sample instrument	Describe the method of calibartion		**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 maint 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	Explain the importance of test report	Differentiate between various reports Prepare a sample report	**Interactive Lecture:** Test report preparation **Activity** Prepare test reports Visit lab
	Prepare test report	Describe the importance of immunization Describe the side effects of immunization Describe the various aspects of immunization schedule chart	Prepare a test report	**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 Enlist the diseases covered under UIP	**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	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	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 laboratorys 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 andFunctions of laboratorys **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	

		of laboratory State the services provided by the Medical Record Department and Outpatient Department Explain the activities performed by the laboratory housekeeping department	laboratory	**Activity:** · 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	State the criteria used for of classifying the laboratorys Describe the different levels of Testing	Classify the laboratorys on the basis of appruvals	**Interactive Lecture:** Classifying laboratory **Activity:** and classify them on the basis of testing lab, calibration lab, reference lab, national lab
	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	**Interactive Lecture**: Qualities of a competent lab technician **Activity:** Visit a laboratory and enlist the qualities of a component lab technician

	UNIT TITLE: INTRODUCTION TO TESTING METHODOLOGY			
Location	**Learning Outcome**	**Knowledge Evaluation**	**Performance Evaluation**	**Teaching and Training Method**
Class room / labo ratory	Identify the role of lab techncian 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

****