

**STATE COUNCIL OF MEDICAL  
SCIENCES ODISHA**



**CERTIFIED BLOOD COLLECTION  
ASSISTANT  
(CBCA)**

# Syllabus for Certified Blood Collection Assistant

This program is aimed at training candidates for the job of a “Certified Blood Collection Assistant”, in the Healthcare Sector and aims at building the following key competencies amongst the learner

**After completing this programme, participants will be able to:**

- Organize pre-procedural requirements of sample collection such as necessary equipment and supplies etc.
- Perform sample collection following best practices
- Prepare the patient for special procedures.
- Instruct the patients in collection of other types of samples such as urine, stool, sputum, etc.
- Carry out transfer and storage of samples.
- Prepare for site visits while following visit etiquettes.
- Maintain professional behaviour with co-workers, patients and their families.
- Co-ordinate with colleagues and other people to complete work.
- Apply the health, safety and security protocols at the workplace such as effective infection control protocols to ensure the safety of self, patient and colleagues.

Sr. No	Module	Key Learning Outcomes	Equipment Required
1	<p><b>Introduction to healthcare systems &amp; laboratory Services</b></p> <p><b>Theory Duration</b> (hh:mm) 10:00</p> <p><b>Practical Duration</b> (hh:mm) 10:00</p>	<ul style="list-style-type: none"> <li>• Describe the basic structure and function of healthcare facilities available at various levels, hospice care and clinics.</li> <li>• Discuss various types of laboratories in the hospital.</li> <li>• Describe the diagnostic centres and medical lab facilities at different levels (national, state and district).</li> <li>• Discuss the relevant legal responsibilities of a phlebotomist with respect to their functions in the hospital environment.</li> </ul>	
2	<p><b>Roles and responsibilities of a phlebotomist</b></p> <p><b>Theory Duration</b> (hh:mm) 10:00</p> <p><b>Practical Duration</b> (hh:mm) 10:00</p>	<ul style="list-style-type: none"> <li>• Discuss the role and responsibilities of a phlebotomist.</li> <li>• Discuss a phlebotomist's role in the process of quality improvement.</li> <li>• Discuss the laboratory maintenance needs that need to be taken care of by the phlebotomist.</li> <li>• Discuss the role of a phlebotomist in ensuring comfort and safety while drawing blood.</li> <li>• Recall ethical behaviour at the workplace.</li> <li>• Explain the appropriate use of laboratory related medical terminology in daily activities with colleagues, patients and family.</li> <li>• Describe the general and specific etiquettes to be observed on the duty.</li> <li>• Explain the importance of conservation of resources in the laboratories.</li> </ul>	

3	<p><b>Structure and Function of Human Body</b></p> <p><b>Theory Duration</b> (hh:mm) 20:00</p> <p><b>Practical Duration</b> (hh:mm) 20:00</p>	<ul style="list-style-type: none"> <li>• Explain the organisation of body cells, tissues, organs, organ systems, membranes and glands in the human body.</li> <li>• Describe cell and various types of tissues.</li> <li>• Describe different types of organ systems.</li> <li>• Describe different types of body fluids, secretions and excretions.</li> <li>• Identify different parts of the body using charts and models.</li> <li>• Explain the structure and functioning of human body systems using charts and models.</li> <li>• Design various working models depicting functioning of human body systems.</li> </ul>	<p>3D models of human body and accessory organs, model human skeletal system, organ specimen.</p>
4	<p><b>Basic sensitization to various departments of the medical laboratory</b></p> <p><b>Theory Duration</b> (hh:mm) 20:00</p> <p><b>Practical Duration</b> (hh:mm) 25:00</p>	<ul style="list-style-type: none"> <li>• Explain the basics of inorganic and organic chemistry.</li> <li>• Describe the blood sample collection process in detail.</li> <li>• Explain the basics of haematology.</li> <li>• Explain the basics of coagulation mechanism and testing in brief.</li> <li>• Describe the process of sampling of sputum, semen, CSF and other body fluids like pleural fluid, pericardial fluid, peritoneal fluid, synovial fluid, ascitic fluid.</li> <li>• Explain the basics of histopathology.</li> <li>• Explain the basics of cytology and cytopathology.</li> <li>• Explain the basics of microbiology (bacteria, virus, fungus and parasites).</li> <li>• Explain the basics of immunology and serology.</li> <li>• Identify instruments and standard operating procedures related to haematology laboratory.</li> <li>• Identify instruments and standard operating procedures related to biochemistry laboratory.</li> <li>• Identify instruments and standard operating procedures related to serology laboratory.</li> <li>• Identify instruments and standard operating procedures related to coagulation.</li> <li>• Identify instruments and standard operating procedures related to histopathology and cytology section.</li> </ul>	<p>Slides, microscope, test tube racks</p>
5	<p><b>Pre-procedural activities of sample collection</b></p> <p><b>Theory Duration</b> (hh:mm) 10:00</p> <p><b>Practical Duration</b> (hh:mm) 25:00</p>	<ul style="list-style-type: none"> <li>• Identify the different types of samples to be taken in the medical laboratory.</li> <li>• Explain the correct process of sample handling.</li> <li>• Identify different types of useful equipment for blood sample collection.</li> <li>• Explain the process of interpretation of the test request forms correctly.</li> <li>• Describe the correct method of preparing a site for obtaining blood samples.</li> <li>• Describe the correct method of assisting the patient before, during and after collection of the blood specimen.</li> <li>• Explain the process of sampling of sputum.</li> <li>• Explain the process of guiding the patient for collection of semen sample.</li> </ul>	<p>sample test request forms, test formats, slides, cover slips, tuberculin syringes, urine and stool collection containers</p>

<p>6.</p>	<p><b>Procedural activities of sample collection</b></p> <p><b>Theory Duration</b> (hh:mm) 10:00</p> <p><b>Practical Duration</b> (hh:mm) 25:00</p>	<ul style="list-style-type: none"> <li>• Enumerate common pre-analytical errors and complication of sample collection.</li> <li>• Enumerate various types of blood collection devices and other equipment required such as syringe, evacuated tubes, different gauged needles etc.</li> <li>• Classify different types of blood collection tubes with their additives.</li> <li>• Describe the usage of tourniquet and its duration of application.</li> <li>• Distinguish different types of tubes, types and co-relate with the type of sample to be collected such as serum, plasma, etc.</li> <li>• Enumerate different types of needle gauges with their colour codes.</li> <li>• Explain the cause of haemolysis and the process of preventing the same.</li> <li>• Explain the order of draw (for the tube types).</li> <li>• Explain the correct method of preparing an appropriate site for obtaining blood samples.</li> <li>• Explain the correct method of drawing blood specimens from patients.</li> <li>• Explain the correct method of preparing and labelling the blood sample for test, procedures and identification purposes.</li> <li>• Explain the correct method of assisting the patient before, during and after collection of the blood specimen.</li> <li>• Explain the correct method of collecting samples other than blood samples.</li> </ul>	<p>Phlebotomy Arm-Adult/ infant , syringe, needles of various gauges, isopropyl alcohol, tourniquet, cotto swab, gauze pieces, sample test request forms, stop watch, filter paper, tuberculin vials, swabsticks, blottingpaper for BT, capillary tube for CT test formats, slides, Lancet and Micro collection devices</p>
<p>7.</p>	<p><b>Post-procedural activities of sample collection</b></p> <p><b>Theory Duration</b> (hh:mm) 10:00</p> <p><b>Practical Duration</b> (hh:mm) 25:00</p>	<ul style="list-style-type: none"> <li>• Explain various standard operating procedures for sample storage and transportation with reference to temperature, humidity, leak proofing etc.</li> <li>• Describe the significance of critical alert values in laboratory reports.</li> <li>• Explain the process of managing inventory through checklists and inventory registers.</li> <li>• Explain the correct method of labelling and preparing the collected sample for testing and identification purposes.</li> <li>• Explain the correct method of assisting the patient after collection of the blood specimen.</li> <li>• Explain the correct method of storage of various collected samples other than blood.</li> <li>• Explain the correct procedure of sample transportation.</li> <li>• Discuss the process of organizing stocks related to phlebotomy as per organizational practices.</li> </ul>	<p>Sample forms and formats, sample transport bags</p>

8.	<p><b>Basic sensitization on preanalytical laboratory errors</b></p> <p><b>Theory Duration</b> (hh:mm) 10:00</p> <p><b>Practical Duration</b> (hh:mm) 15:00</p> <p>Bridge Module</p>	<ul style="list-style-type: none"> <li>• Classify preanalytical variables.</li> <li>• Enumerate different physiological preanalytical variables.</li> <li>• Enumerate different technical preanalytical variables.</li> <li>• Define Turn Around Time (TAT) with reference to respective laboratories.</li> <li>• Describe the causes of preanalytical errors.</li> <li>• List the steps to reduce preanalytical errors.</li> <li>• Enumerate various documents necessary for recording preanalytical errors.</li> </ul>	<p>Fishbone charts on causes of haemolysis</p>
9.	<p><b>Basic sensitization on analytical laboratory testing process</b></p> <p><b>Theory Duration</b> (hh:mm) 10:00</p> <p><b>Practical Duration</b> (hh:mm) 25:00</p> <p>Bridge Module</p>	<ul style="list-style-type: none"> <li>• Explain the process of sample transportation.</li> <li>• Explain the process of sample storage after centrifugation.</li> <li>• Describe the correct process of specimen handling.</li> <li>• Discuss the importance of timely maintenance of inventory of medical supplies or diagnostic kits.</li> <li>• Describe various types of blood samples collected such as venous blood, arterial blood etc.</li> <li>• Define different types of blood matrix.</li> <li>• Describe the process of preparation of blood serum and plasma.</li> <li>• Explain the types of tests being conducted from blood sample types.</li> </ul>	<p>Centrifuge, refrigerator</p>
10.	<p><b>Basic sensitization on post-analytical laboratory testing process</b></p> <p><b>Theory Duration</b> (hh:mm) 10:00</p> <p><b>Practical Duration</b> (hh:mm) 20:00</p> <p>Bridge Module</p>	<ul style="list-style-type: none"> <li>• Describe archiving protocol emphasizing on storage of samples/ specimens.</li> <li>• Describe archiving protocol emphasizing on storage data and records.</li> <li>• Describe the retrieval of samples/ specimens</li> <li>• Describe the retrieval of data and records.</li> <li>• Describe source of error/ interference/ quality of work and initiate corrective action as applicable.</li> <li>• Explain various quality assurance activities which ensure the accuracy of working in a laboratory.</li> <li>• Define the process of sample recollection in case of repeat sample requests.</li> <li>• Explain the process of sample recollection.</li> </ul>	<p>sample test request forms</p>

<p>11.</p>	<p><b>Sensitization on current best practices in laboratory</b></p> <p><b>Theory Duration</b> (hh:mm) 10:00</p> <p><b>Practical Duration</b> (hh:mm) 25:00</p> <p>Bridge module</p>	<ul style="list-style-type: none"> <li>• Describe the good clinical laboratory practices (GCLP) recommended by World Health Organisation (WHO).</li> <li>• Describe the key points of Clinical Lab Standards Institute (CLSI) standard on sample collection.</li> <li>• Describe the good clinical laboratory practices (GCLP) of Indian Council of Medical Research (ICMR).</li> <li>• Describe the laboratory safety guidelines of OSHA (Occupational Safety and Health Administration), U.S. Department of Labor.</li> <li>• Describe the laboratory safety policies and protocols.</li> <li>• Explain the key points of standard ISO 15189</li> <li>• Explain internal and external quality control documentation.</li> </ul> <p>Discuss the best practices to be followed while carrying out job specific procedures.</p>	<p>Reference guideline charts and WHO, OSHA, (WHO), CLSI, ICMR</p>
<p>12.</p>	<p><b>Prepare for Hospital/ site visit</b></p> <p><b>Theory Duration</b> (hh:mm) 10:00</p> <p><b>Practical Duration</b> (hh:mm) 10:00</p>	<ul style="list-style-type: none"> <li>• State the importance of being on time.</li> <li>• Explain phone etiquettes to be followed with the patient while organizing a site visit.</li> <li>• Explain the process of confirming the availability of patient and the respective tests for sampling.</li> <li>• State the importance of making the necessary preparations using checklist before a site- visit.</li> <li>• Describe the process to be followed in case of delay in reaching patient site.</li> <li>• State the importance of establishing the patient's needs and expectation to ensure good quality service at the site.</li> <li>• Discuss the importance of maintaining privacy of the patient.</li> <li>• Describe the importance of carrying identification documents and introducing oneself to the patient on arrival.</li> <li>• Describe common expectations while visiting patient's residential facilities.</li> <li>• Plan the route for site visit and determine travel time for reaching the site on time.</li> <li>• Explain the salient points of personal grooming standards.</li> </ul>	<p>Checklist of equipment for site visit, syringe, needles, disposable container, tourniquet, isopropyl alcohol, cotton swab, gauze pieces, permanent marker pen, adhesive tape, evacuated/ non- evacuated tubes</p>

13.	<p><b>Follow etiquette for Hospital/ site visits</b></p> <p><b>Theory Duration</b> (hh:mm) 20:00</p> <p><b>Practical Duration</b> (hh:mm) 25:00</p>	<ul style="list-style-type: none"> <li>• Describe the steps to be followed before accessing and using patient facilities, resources and areas.</li> <li>• State the importance of setting correct expectations of follow-up action with the patient.</li> <li>• List the steps to ensure that patient facilities are not soiled or littered, and its importance.</li> <li>• Describe the procedure to follow in case there is an accident or mishap at the patient premises.</li> <li>• Explain the importance of time and site information with the collection centre.</li> <li>• Describe the correct waste disposal procedures.</li> <li>• Define various best practices of site visit such as taking prior permission.</li> <li>• Define the necessary adjustments required to be made to the space for carrying out required activities as per the standard.</li> <li>• Describe the process and sequence of activities to be carried out to the patient.</li> <li>• Discuss the process of handling queries.</li> <li>• Perform billing after the procedures are carried out.</li> <li>• Explain the process of waste disposal as per waste disposal guidelines.</li> <li>• Discuss the process of addressing delays, accidents or errors to ensure patient satisfaction.</li> </ul>	Educational videos of case studies
17.	<p><b>Infection control policies and procedures</b></p> <p><b>Theory Duration</b> (hh:mm) 10:00</p> <p><b>Practical Duration</b> (hh:mm) 25:00</p>	<ul style="list-style-type: none"> <li>• Describe the importance of infection control and prevention.</li> <li>• Identify the factors which influence the outcome of an exposure to infection.</li> <li>• List strategies for preventing transmission of pathogenic organisms.</li> <li>• List the steps of spill management.</li> <li>• List the process of hand washing.</li> <li>• Enumerate various nosocomial infections</li> <li>• Explain the importance of incident reporting.</li> <li>• Develop techniques of self-grooming and maintenance.</li> <li>• Explain the concept of immunisation to reduce the health risks for self and patients.</li> <li>• Explain the concept of healthy living.</li> <li>• Describe the techniques of proper usage of PPE.</li> <li>• Explain the importance of PPE.</li> <li>• Explain various vaccinations against common infectious diseases.</li> </ul>	Current guidelines on hand washing and hand rub techniques, spill kit, PPE such as gown, gloves, head cap
18.	<p><b>Bio Medical Waste Management</b></p> <p><b>Theory Duration</b> (hh:mm) 15:00</p>	<ul style="list-style-type: none"> <li>• Explain the importance of proper and safe disposal of bio-medical waste and treatment.</li> <li>• Explain the categories of bio-medical waste</li> <li>• Discuss about disposal of bio-medical waste – colour coding, types of containers, transportation of waste, etc.</li> <li>• Explain standards for bio-medical waste disposal.</li> <li>• Discuss means of bio-medical waste</li> </ul>	Different colour bins, hospital protocols for colour coding bins

	<b>Practical Duration</b> (hh:mm) 15:00	treatment.	
19.	<b>Basic Computer Knowledge</b>  <b>Theory Duration</b> (hh:mm) 20:00 <b>Practical Duration</b> (hh:mm) 25:00  Bridge Module	<ul style="list-style-type: none"> <li>• Discuss the application of computers.</li> <li>• Differentiate between the hardware and software.</li> <li>• Differentiate between the input and output devices.</li> <li>• Discuss the foundation concept of operating systems and their functions.</li> <li>• Discuss the latest non- pirated version of software such as Windows 2010, its utilities and basic operations of Microsoft office 2000 – MS Word, MS Excel, PowerPoint Presentation.</li> </ul>	Computer with internet facility and latest MS office
20.	<b>Reporting and Documentation</b>  <b>Theory Duration</b> (hh:mm) 15:00  <b>Practical Duration</b> (hh:mm) 20:00	<ul style="list-style-type: none"> <li>• Define the scope of practice for phlebotomist in reporting and documentation.</li> <li>• Define reporting matrix and discuss the methods.</li> <li>• Explain the importance of maintaining various records.</li> <li>• Explain various types of records to be maintained by the department.</li> <li>• Discuss essential components of various types of records.</li> <li>• Explain the method of documentation and retrieval of documents.</li> <li>• Discuss the importance of reporting and recording patient information.</li> <li>• Discuss the importance of confidentiality in patient report information.</li> </ul>	Sample formats of reports and hospital documents
21.	<b>Personal Hygiene</b>  <b>Theory Duration</b> (hh:mm) 10:00  <b>Practical Duration</b> (hh:mm) 20:00	<ul style="list-style-type: none"> <li>• Explain the significance of maintaining personal hygiene.</li> <li>• Describe the principles of prevention of cross infection.</li> <li>• Explain the importance of personal protective equipment (PPE).</li> <li>• Discuss the techniques of proper usage of personal protective equipment (PPE).</li> </ul>	Hand sanitizer, liquid soap, wash basin, water supply, paper towel, PPE

Theory – 250 Hrs.

Practical / Clinical – 350 Hrs.

Total – 600 Hrs. of classes

At the end of 6<sup>th</sup> month final exam will be held. A candidate has to secure 50% to get the certificate of (CEMGT)

Distribution of Marks

Theory – 40

Clinical / Practical – 50

Internal Assessment – 10

Total – 100



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