

Syllabus for Blood Collection Assistant

Course Name	Blood Collection Assistant
Course Code	STC - HLC /2023/1612
Sector	Healthcare; (Paramedical)
Course Level	3
Occupation	Blood Collection Assistant
Job Description	A Blood Collection Assistant is responsible for collecting blood, urine and swab samples from patients for diagnostic testing. Their responsibilities include verifying patient identities, explaining the blood collection process with ensuring accurate labeling and documentation of collected samples maintain a safe and hygienic environment.
Course Duration	720 hrs(Th. 150Hrs, Prac. 330Hrs, ES 60Hrs, OJT. 180 Hrs at Medium Laboratory / at 30 or more bedded hospital with facility of relevant training. OJT will be for a period of not less than 3 months.
Trainees' Entry Qualification	Class X Pass Out
Trainers Qualification	Trainers already registered with West Bengal Allied & Paramedical Council in relevant training module OR Post Graduate in Medical Lab Technology with relevant experience OR Doctors with MD/MBBS/BHMS/BAMS or persons holding GNM/B.SC Nursing Certificate wherever applicable with relevant experience. <i>Post Graduate of relevant Allied Healthcare Community will be preferred.</i>

Structure of Course:

Module No.	Module name	Outcome	Theory (Hrs)	Practical (Hrs)	Total (Hrs)
1	Anatomy and Physiology	Describe the anatomy of the circulatory system, including the structure of veins, arteries and capillaries and the role of blood components in the human body	20	40	60
2	Infection Control	Comprehend the principles of infection control, including hand hygiene, sterilization techniques, and personal protective equipment (PPE) usage, to ensure safe and aseptic blood collection.	20	40	60
3	Pre-procedural activities of sample collection	Enumerate pre-procedural activities of sample collection in the medical laboratory	20	40	60
4	Procedural	Illustrate procedural activities of	20	70	90

	activities of sample collection	sample collection			
5	Handling of laboratory instruments	Demonstrate the safe and responsible handling of laboratory equipment by following established protocols and guidelines	20	40	60
6	Bio-medical waste management	Prioritize the importance of proper and safe disposal of bio-medical waste management and infection control.	20	40	60
7	Documentation	Assist in the procedure of reporting and documentation in maintaining data and its retrieval	20	40	60
8	Medical Ethics	Apply ethical principles, legal guidelines, and professional values to ensure patient rights, uphold ethical standards, and maintain professionalism.	10	20	30
9	Employability Skill		60		60
10	OJT	At Medium Laboratory / at 30 or more bedded hospital with facility of relevant training. OJT will be for a period of not less than 3 months.		180	180
TOTAL:			210	510	720

SYLLABUS:

Module No. 1: Anatomy and Physiology

Module Outcome: Describe the anatomy of the circulatory system, including the structure of veins, arteries and capillaries and the role of blood components in the human body

Theory Content:

1. Introduction to the Circulatory System:
 - 1.1 Define the circulatory system as a vital organ system responsible for transporting blood, oxygen and nutrients throughout the body.
 - 1.2 Explain the importance of the circulatory system in maintaining homeostasis and supporting various physiological processes.
2. Heart Anatomy:
 - 2.1 Describe the structure of the heart, including the four chambers (atria and ventricles), heart valves (atrioventricular and semilunar valves) and major blood vessels connected to the heart.
3. Arteries:
 - 3.1 Define arteries as thick-walled blood vessels that carry oxygenated blood away from the heart to various body tissues.

- 3.2 Explain the elastic nature of arterial walls, which allows them to withstand high blood pressure and maintain blood flow.
4. Veins:
 - 4.1 Describe veins as blood vessels that transport deoxygenated blood from body tissues back to the heart.
 - 4.2 Discuss the thinner walls and presence of valves in veins to facilitate blood flow against gravity.
5. Capillaries:
 - 5.1 Explain the microscopic nature of capillaries, which are the smallest blood vessels in the circulatory system.
 - 5.2 Discuss the role of capillaries in facilitating the exchange of oxygen, nutrients, and waste products between blood and body tissues.
6. Blood Components and Their Functions:
 - 6.1. Outline the major components of blood, including red blood cells (erythrocytes), white blood cells (leukocytes), platelets (thrombocytes), and plasma.
 - 6.2 Discuss the structure and function of red blood cells, which are responsible for transporting oxygen from the lungs to body tissues.
 - 6.3 Explain the role of haemoglobin in oxygen binding and transport.
 - 6.4 Describe the different types of white blood cells (e.g., neutrophils, lymphocytes, monocytes) and their functions in immune response and infection defense.
 - 6.5 Explain the role of platelets in blood clotting and wound healing.
 - 6.6 Discuss the process of thrombopoiesis and platelet aggregation.
 - 6.7 Define plasma as the liquid component of blood, composed of water, electrolytes, proteins, hormones, and waste products.

Practical Content:

1. Observe the cut model of heart and identify the chambers, valves
2. Explain the function of each heart component in the circulatory system
3. Demonstrate in the model or diagrams of arteries, veins and capillaries to visualize their structure
4. Demonstrate the measurement of blood pressure
5. Practice the measurement of blood pressure to understand systolic and diastolic pressure
6. Prepare microscope slides with stained blood cell samples
7. Observe the difference of various blood cells
8. Demonstrate the process of blood clotting by animation in computer
9. Monitor and record the pulse rate

Module No. 2: Infection Control

Module Outcome : Comprehend the principles of infection control, including hand hygiene, sterilization techniques, and personal protective equipment (PPE) usage, to ensure safe and aseptic blood collection.

Theory Content:

1. Hand Hygiene:

- 1.1 Hand hygiene is one of the fundamental practices in infection control.
 - 1.2 Wash hands with soap and water for at least 20 seconds before and after each patient contact.
 - 1.3 The process should include scrubbing the palms, backs of hands, between fingers, and under nails.
 - 1.4 Hand hygiene is essential to remove potential pathogens from the hands and reduce the risk of contamination during blood collection.
2. Sterilization Techniques:
- 2.1 Sterilization involves the elimination of all microorganisms, including bacteria, viruses and spores, from equipment and surfaces that come into contact with blood samples.
 - 2.2 Know the sterilization techniques, especially for equipment like needles and syringes.
 - 2.3 Single-use, disposable items should be used whenever possible to eliminate the need for sterilization.
 - 2.4 If reusable equipment is used, it must be properly cleaned and sterilized between uses to prevent cross-contamination.
3. Personal Protective Equipment (PPE)
- 3.1 PPE includes items such as gloves, gowns, masks and eye protection, which are worn to protect both the Blood collection assistant and the patient from potential exposure to bloodborne pathogens.
 - 3.2 Wearing of appropriate PPE when performing blood collection procedures. This includes disposable gloves to prevent contact with blood and other body fluids, and masks and eye protection if there is a risk of splashes or aerosolized droplets.
 - 3.3 PPE should be donned and removed following specific protocols to minimize the risk of self-contamination.
4. Safe Disposal of Sharps:
- 4.1 Sharps, such as needles and lancets, should be treated as biohazardous materials and disposed of properly in designated sharps containers.
 - 4.2 Never recap, bend, or break needles and should be trained in safe needle disposal techniques to prevent needlestick injuries.
5. Infection Control Protocols:
- 5.1 Follow established infection control protocols and standard precautions at all times.
 - 5.2 These protocols include assuming that all patients may potentially carry infectious agents, regardless of their known infection status.

Practical Content:

1. Hand hygiene:
 - 1.1 Demonstrate proper handwashing techniques
 - 1.2 Practice handwashing under supervision
 - 1.3 Use hand sanitizers time to time
2. Sterilization Techniques
 - 2.1 Sterilize properly reusable equipment
 - 2.2 Maintain cleaning protocols on cleaning and disinfecting surfaces and workplaces

3. Personal Protective Equipment (PPE) usage;
 - 3.1 Select the appropriate PPE for different scenarios (e.g., gloves, masks, gowns).
 - 3.2 Demonstrate how to properly use PPE to prevent contamination.
4. Infection control protocols:
 - 4.1 Demonstrate the concept of standard precautions which involve treating all patients as if they may carry infectious agents.

Module No. 3: Pre-procedural activities of sample

Module Outcome: Enumerate pre-procedural activities of sample collection in the medical laboratory

Theory Content:

1. Describe the steps of pre-procedural activities
2. Elaborate the sample collection process
3. Ensure accurate patient identification
4. Verify patient demographics and test requisitions
5. Prepare patients for specific sample collection procedures
6. Follow step-by-step guidelines for sample collection (venipuncture, swab collection, etc.)
7. Take care for pediatric and geriatric patients
8. Identify essential equipment and supplies for sample collection
9. Handle properly of the collection devices (needles, tubes, containers, etc.)
10. Select appropriate collection tubes and anticoagulants.
11. Respect for patient autonomy and privacy
12. Maintain legal and ethical responsibilities of laboratory professionals

Practical Content:

1. Demonstrate of proper use of personal protective equipment (PPE)
2. Demonstrate the procedure for handling and disposal of sharps and hazardous materials
3. Role-play scenarios for patient communication and consent
4. Practice in explaining sample collection procedures to patients
5. Demonstrate the procedure for venipuncture for blood sample collection
6. Practice in capillary blood collection techniques
7. Demonstrate and practice of swab collection for various specimens
8. Identify and prepare collection equipment and supplies
9. Demonstrate different types of collection tubes and additives
10. Ensure correct use and disposal of needles and other collection devices
11. Check the quality control for equipment functionality
12. Demonstrate Techniques for preparing patients before sample collection
13. Practice in positioning patients for various collection procedures
14. Consider priority for pediatric and geriatric patients
15. Apply proper hand hygiene techniques
16. Practice in using disinfectants and antiseptics
17. Handle sensitive situations with empathy and professionalism

Module No. 4: Procedural activities of sample collection

Module Outcome: Illustrate procedural activities of sample collection

Theory Content :

1. Describe the role of Blood collection Assistant in blood collection
2. Recognize the importance of accuracy and precision in specimen collection
3. State the venipuncture procedures for different age groups and capillary blood collection techniques and applications
4. Explain the procedure for mid-stream clean-catch urine collection
5. Explain saliva and oral fluid collection methods
6. Swab and specimen collection from body sites (throat, nasopharynx, etc.)
7. Importance of accurate documentation in sample collection
8. Properly recording patient information and sample details
9. Ensuring data integrity and traceability
10. Ensure sample integrity and proper labeling
11. Recognize and resolve common challenges in sample collection.

Practical Content:

1. Practice in venipuncture procedures on simulated arms
2. Demonstrate capillary blood collection techniques on finger sticks
3. Recognize and address potential complications during blood collection
4. Demonstrate of mid-stream clean-catch urine collection
5. Practice in collecting saliva and oral fluid samples
6. Collect swab from different body sites (throat, nasopharynx, etc.)
7. Apply standard precautions during sample collection
8. Follow the procedure of infection control during sample collection
9. Conduct role-playing scenarios for patient interaction during sample collection
10. Demonstrate techniques for minimizing patient discomfort and anxiety
11. Demonstrate of proper specimen labeling and documentation
12. Ensure data integrity and traceability throughout the collection process

Module No 5: Handling of laboratory instruments

Module Outcome: Demonstrate the safe and responsible handling of laboratory equipment by following established protocols and guidelines

Theory Content:

1. Familiarization of equipment's used in laboratory
2. Identify various equipment and components with their functions
3. Laboratory Cleaning- Washing & Cleaning of Glass wares, Syringe.
4. Drying of Glass wares. Handling of Laboratory Instruments.
5. Handling of Laboratory Chemicals. Sterilization of Equipment.
6. Sterilization at the Picking Points.
7. Drying of Glass wares. Handling of Laboratory Instruments.
8. Handling of Laboratory Chemicals.
9. Preparation of list for the precautionary measures against electrical, thermal and chemical burns.

Practical Content:

1. Identify the equipment's and its components used in laboratory
2. Follow the Procedural activities.
3. Conduct visual inspection to ensure equipment is in good condition.
4. Clean the laboratory - Cleaning of Glass Wares, Syringe.
5. Drying of Glass wares.
6. Sterilized of the Equipment.
7. Sterilized of Picking Point.
8. Handling of Laboratory Instruments.
9. Handling of Laboratory Chemicals.
10. Prepare the list for the precautionary measures against electrical, thermal and chemical burns.

Module No 6: Bio-medical waste management

Module Outcome: Prioritize the importance of proper and safe disposal of bio-medical waste management and infection control.

Theory Content:

1. Describe biomedical waste and its types (e.g., infectious, hazardous, radioactive).
2. Explain the importance of proper biomedical waste management for public health and the environment. Global and national regulations and guidelines related to biomedical waste disposal.
3. Categorize of biomedical waste based on color-coded bins or bags.
4. Setup of designated collection points for biomedical waste
5. Explain the guidelines for safe transportation of biomedical waste within healthcare facilities. Introduction to various treatment methods (e.g., incineration, autoclaving, chemical treatment).
6. Identify the modes of transmission of infections and common pathogens encountered in healthcare.
7. Explain different types of PPE and their appropriate use.
8. Use appropriate disinfectants and disinfection protocols.
9. Explain the procedure to prevent and management of needlestick injuries and other sharps-related accidents.
10. Describe the strategies for identifying and managing outbreaks in healthcare facilities.
11. Explain the importance of continuous education and training for healthcare personnel.
12. Describe the ethical considerations in infection control practices and patient care.

Practical Content:

1. Demonstrate proper biomedical waste segregation using color-coded bins or bags.
2. Practice in safely collecting and transferring different types of biomedical waste to designated storage areas.
3. Setting up and organizing biomedical waste storage areas within healthcare facilities.
4. Demonstrate safely transporting biomedical waste to temporary storage or treatment areas
5. Visit to authorized biomedical waste treatment facilities (e.g., incineration plants, autoclaves) and observe waste treatment processes and safety protocols during treatment.
6. Demonstrate of the healthcare scenarios where PPE is required, such as handling infectious materials or performing medical procedures.
7. Demonstrate proper handwashing techniques, including hand rubbing with alcohol-based sanitizers.
8. Practice in cleaning and disinfecting surfaces and equipment commonly found in healthcare settings

9. Demonstrate needlestick injury scenarios and immediate actions to be taken after exposure.
10. Practical exercises in documenting waste management procedures and infection control activities.

Module No 7: Documentation

Module Outcome: Assist in the procedure of reporting and documentation in maintaining data and its retrieval

Theory Content:

1. Describe the basic components of a computer, input and output devices, memory and central processing unit (CPU).
2. Overview of different operating system. Describe the importance of accurate and timely reporting in a medical laboratory.
3. Brief the overview of the documentation process and its role in patient care with the legal and ethical aspects of laboratory reporting and documentation.
4. Explain the standard components of a test report (e.g., patient information, test details, results, reference ranges) with inclusion of additional information, such as interpretive comments and critical values.
5. Explain the LIMS and its role in managing laboratory data and test results.
6. Explain the significance of critical values in laboratory testing and the protocols for immediately alerting healthcare providers about critical results
7. Explain specific guidelines for reporting results of different laboratory tests (e.g., chemistry, hematology, microbiology).
8. Describe the importance of quality control in ensuring reliable test results.

Practical Content:

1. Demonstrate the application of computers.
2. Practice on word processing software for creating and formatting reports, worksheets and documentation.
3. Practice on data saving and retrieve procedure with backup for documentation safely.
4. Practical orientation to the LIMS used in the laboratory.
5. Demonstrate in navigating the LIMS interface and entering patient information and test results.
6. Practice in retrieving and reviewing test data from the LIMS.
7. Role-playing exercises on generating test reports for various laboratory tests.
8. Apply standardized formatting and including all essential components in the reports.
9. Review the result validation processes, including cross-checking with control samples and reference ranges.
10. Role-play scenarios for identifying critical values and initiating the alerting process..
11. Conduct quality control tests and recording the results.
12. Analyze quality control data to identify trends and potential issues.
13. Implement corrective actions and documenting the process.

Module No. 8: MEDICAL ETHICS

Module Outcome :

Apply ethical principles, legal guidelines, and professional values to ensure patient rights, uphold ethical standards, and maintain professionalism

Theory:**1: Introduction to Medical Ethics**

Differentiating between medical ethics and medical law, defining their goals and scope.

Understanding the healthcare Code of Conduct.

Exploring basic medical ethics principles, with an emphasis on confidentiality.

Providing an overview of malpractice and negligence, including rational and irrational drug therapy.

2: Ethics and Practice

Upholding patients' rights by understanding and implementing autonomy and informed consent.

Ethical considerations in caring for terminally ill patients.

Distinguishing medical diagnosis from physiotherapy diagnosis.

Exploring the medico-legal aspects of medical records, including types of medico-legal cases, record-keeping, ownership, confidentiality, release of information, unauthorized disclosure, and retention.

3: Protocol & Principles

Understanding professional indemnity through insurance policies.

Developing standardized protocols to prevent near misses or sentinel events.

The process of obtaining informed consent.

Exploring biomedical ethical principles.

Discussing the code of ethics for para-medical staff.

4: Professionalism & Values

Understanding and actively applying professional values such as integrity, objectivity, competence, due care, and confidentiality.

Embracing core values in healthcare, including accountability, altruism, compassion, excellence, integrity, professional duties, and social responsibility.

Recognizing the ethical significance of personal values.

Demonstrating appropriate attitudes and behaviors in healthcare, including professionalism and treating all individuals equally.

Examining the code of conduct, professional accountability, responsibility, and addressing misconduct.

Recognizing the differences between professions and emphasizing the importance of teamwork in healthcare.

Considering cultural factors in the healthcare environment.

Understanding the role of entry-level healthcare practitioners, their autonomy, and their commitment to evidence-based practice.

Practical Syllabus:

1. Practical activities related to each topic, including case studies, role-playing, and discussions to apply ethical principles and legal guidelines in real-world healthcare scenarios.
2. Hands-on exercises in developing protocols, obtaining informed consent, and addressing ethical

dilemmas.

3. Interactive sessions to explore biomedical ethical principles and their application in healthcare practice.
4. Ethical decision-making simulations and discussions on code of conduct.
5. Collaborative exercises emphasizing teamwork and cultural sensitivity in healthcare settings.
6. Practical demonstrations of handling medical records, ensuring confidentiality, and addressing medico-legal aspects.
7. Visits to healthcare facilities to observe and discuss real-world applications of medical ethics and professionalism.
8. Role-playing and case studies focused on patient interactions, informed consent, and ethical dilemmas.
9. Group discussions and activities to foster a deeper understanding of personal and professional values and their impact on healthcare practice.

Module no. 9: Employability Skills

Introduction to Employability Skills

After completing this programme, participants will be able to:

1. Discuss the Employability Skills required for jobs in various industries
2. List different learning and employability related GOI and private portals and their usage

Constitutional values - Citizenship

3. Explain the constitutional values, including civic rights and duties, citizenship, responsibility towards society and personal values and ethics such as honesty, integrity, caring and respecting others that are required to become a responsible citizen
4. Show how to practice different environmentally sustainable practices.

Becoming a Professional in the 21st Century

5. Discuss importance of relevant 21st century skills.
6. Exhibit 21st century skills like Self-Awareness, Behavior Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn etc. in personal or professional life.
7. Describe the benefits of continuous learning.

Basic English Skills

8. Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone
9. Read and interpret text written in basic English
10. Write a short note/paragraph / letter/e -mail using basic English

Career Development & Goal Setting

11. Create a career development plan with well-defined short- and long-term goals

Communication Skills

12. Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette.
13. Explain the importance of active listening for effective communication
14. Discuss the significance of working collaboratively with others in a team

Diversity & Inclusion

15. Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD
16. Discuss the significance of escalating sexual harassment issues as per POSH act.

Financial and Legal Literacy

17. Outline the importance of selecting the right financial institution, product, and service
18. Demonstrate how to carry out offline and online financial transactions, safely and securely
19. List the common components of salary and compute income, expenditure, taxes, investments etc.
20. Discuss the legal rights, laws, and aids

Essential Digital Skills

21. Describe the role of digital technology in today's life
22. Demonstrate how to operate digital devices and use the associated applications and features, safely and securely
23. Discuss the significance of displaying responsible online behavior while browsing, using various social media platforms, e-mails, etc., safely and securely
24. Create sample word documents, excel sheets and presentations using basic features
25. utilize virtual collaboration tools to work effectively

Entrepreneurship

26. Explain the types of entrepreneurship and enterprises
27. Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan
28. Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement
29. Create a sample business plan, for the selected business opportunity

Customer Service

30. Describe the significance of analyzing different types and needs of customers
31. Explain the significance of identifying customer needs and responding to them in a professional manner.
32. Discuss the significance of maintaining hygiene and dressing appropriately

Getting Ready for apprenticeship & Jobs

33. Create a professional Curriculum Vitae (CV)
34. Use various offline and online job search sources such as employment exchanges, recruitment agencies, and job portals respectively
35. Discuss the significance of maintaining hygiene and confidence during an interview

36. Perform a mock interview
37. List the steps for searching and registering for apprenticeship opportunities

List of Tools, Equipment & materials needed for 30 Trainees (Practical)

SI No	Items Name	Specification	Qty
1	3D models of human body and accessory organs, model human skeletal system, organ specimen.		1 set each
2	Slides, microscope, test tube racks		As required
3	Sample test request forms, test formats, slides, cover slips, tuberculin syringes, urine and stool collection containers		As required
4	Phlebotomy Arm- Adult/ infant, syringe, needles of various gauges, isopropyl alcohol, tourniquet, cotton swab, gauze pieces, swab sticks, blotting paper for BT, capillary tube for CT test formats, slides, Lancet and Micro collection devices		As required
5	Refrigerator		1 no
6	Reference guideline charts and WHO, OSHA, (WHO), CLSI, ICMR		As required
7	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		As required
8	Educational videos of case studies		As required
9	First aid kit, hospital codes, infection control protocols, Personal Protective Equipment, videos on safety		As required
10	Current guidelines on hand washing and hand rub techniques, spill kit, PPE such as gown, gloves, head cap		As required
12	Computer with internet facility and latest MS office		1 no
13	Hand sanitizer, liquid soap, wash basin, water supply, paper towel, PPE		As required
14	Projector with screen		1 no

OJT to be performed at at Medium Laboratory / at 30 or more bedded hospital with facility of relevant training for a period of not less than 3 months

Marks Distribution

Outcome	Outcome Code	Total Th marks	Total Pr. marks
Describe the anatomy of the circulatory system, including the structure of veins, arteries and capillaries and the role of blood components in the human body	HLC/1612/OC1	20	70
Comprehend the principles of infection control, including hand hygiene, sterilization techniques, and personal protective equipment (PPE) usage, to ensure safe and aseptic blood collection.	HLC/1612/OC2	20	60
Enumerate pre-procedural activities of sample collection in the medical laboratory	HLC/1612/OC3	20	60
Illustrate procedural activities of sample collection	HLC/1612/OC4	20	90
Demonstrate the safe and responsible handling of laboratory equipment by following established protocols and guidelines	HLC/1612/OC5	20	60
Prioritize the importance of proper and safe disposal of bio-medical waste management and infection control.	HLC/1612/OC6	20	60
Assist in the procedure of reporting and documentation in maintaining data and its retrieval	HLC/1612/OC7	20	60
Apply ethical principles, legal guidelines, and professional values to ensure patient rights, uphold ethical standards, and maintain professionalism.	HLC/1612/OC8	10	40
OJT	HLC/1612/OC9	0	300
Employability Skill-60 Hrs	DGT/VSQ/N0102	50	0