

Curriculum
For the
Two Years' Post Matric Competency Based
Diploma in
Central Sterile Services Department
(CSSD)
(New Scheme)



Punjab Medical Faculty
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Preface

After introduction of the new service structure for AHPs in 2012 the qualification requirement for entry in service has been changed to a diploma of two years' duration. This decision has necessitated the development of curricula for the new scheme of studies. The evolving health needs of the community, exponential advances in medical and allied technologies and changes in health services provision, functions and structure also demand continual and responsive changes in education and training programs meant for AHPs. The revised curricula would carry out the following important functions:

- link pre-service education and training with actual tasks AHPs have to perform after being employed, especially in the public sector
- modernize training program by weeding out subjects that have become obsolete and including subjects that are currently considered essential
- provide clarity on subjects and topics to be taught delimiting the breadth and depth of teaching
- give clarity to examiners on what is to be tested and how
- Stimulate critical faculties of both teachers and students to conceptualize topics rather than memorizing them.

Focus of the new curricula would be on integration of tasks and multi-skilling of students. Thus there would be a common knowledge base for all courses in the form of a **Core Course** which would provide insight into essential technical knowledge besides providing base for development of the education for Allied Health Sciences up to post graduate level.

The new curriculum for Central Sterile Services Department replaces and augments the previous curricula for Operation Theater Technology and Dialysis Technician. The goal of this document has been to outline a common body of knowledge that is essential for entry-level CSSD technicians. Combined with the Core Course it will provide a broad knowledge base for the technicians and provide opportunities for practical skill development in the relevant field. This needs based curriculum places practical skills development at high priority. Content and apprenticeship experiences is designed to sequentially develop, apply, critically analyze, integrate, synthesize and evaluate concepts and theories in the performance of reprocessing of surgical instruments.

There will be two papers to assess the knowledge gained and two practical / viva examination to assess the concepts and skills. The papers are:

- 1 Paper I: Introduction to CSSD, Cleaning Process, Decontamination & Disinfection
- 2 Paper II: Preparation and instruments packaging, Sterilization and its different types, Documentation & Record Maintenance

General Outline

Aim of this curriculum is to equip students with the relevant professional knowledge, skills and techniques to enable them to apply their acquired expertise for efficient health service delivery. At the end of training the student should be able exhibit the following general and specific competencies:

A. General learning objectives

1. Act upon his / her job description ethically keeping in mind the requirements of community and people at large.
2. Demonstrate empathy and humane approach towards communities and exhibit interpersonal behavior in accordance with the societal norms and expectations.
3. Demonstrate sufficient understanding of basic sciences related to the technology and be able to integrate such knowledge in his / her work.

B. Specific learning objectives:

The job of CSSD Technician is maintenance of CSSD; Cleaning, Decontamination & sterilization and provision of OR instruments for surgical procedures; maintenance of CSSD equipment; assistance to surgeon, anesthetist and OR nurse during surgical procedures. Upon completion they will be able to:

- i. Know aseptic techniques including tasks and responsibilities of the Central Sterile Department and carry out sterile processing, including:
 - SOPs for asepsis, soiled item transportation, decontamination, sterilization, care of all surgical instruments, packaging processes, "flash sterilization", different types of sterilization methods
- ii. Choose and handle the reprocessing of instrument for the specific procedure to be done
 - Prepare basket/trays for various procedures and ensure that all the instruments likely to be needed for the particular operation are available on the basket as per check list
 - Ensure that equipments / instruments are regularly reprocess or checked for accuracy and any faults are reported
- iii. Render necessary help in operation as required by the surgeon, anesthetist and OR nurse

C. Distribution of Training Time

The two years' program would be divided in three distinct parts (Papers). There will be a 'Core Course' which would be common for all technologies. The examination for this component will be taken at the end of first academic year. The teaching for specific aspect of this technology will be divided in two sections; examination for these will be held at the end of second academic year – however, teaching for specific techniques will start from the first year.

A typical training day for students at training institutions routinely comprises of five hours. Keeping a generous allowance of holidays and weekends, an academic year for students would be 200 days. Therefore, 1000 teaching hours would be available in 12 months. In the new scheme of studies, for the Core Course the proportion of classroom teaching and practical training (applied learning activities) would be 60:40; whereas this proportion for the specific techniques would be 40:60 and the time allocations for dividing teaching time between various topics, units and sub-units will be done accordingly as depicted below:

Core Course	500
Section I (Paper I)	750
Section II (Paper II)	750
Total	2000

The marks distribution for this diploma would be:

Subject	Marks
First Year	
Core Course	100
Viva	100
Second Year	
Section I	100
Section II	100
Practical / Viva Section I	100
Practical / Viva Section II	100
Total:	600

D. Essential Teaching Requirements

I. Training requirements/instructional methodologies (Process)

- a. Teaching staff will be given in-service training as recommended by PMF from time to time.
- b. Teachers will use a combination of interactive programmed instructions (non-IT), class teaching with exercises using audiovisual aids, mini-lectures, group discussions, simulations and case studies as instructional/teaching methodologies.
- c. IT will be employed for teaching where necessary.
- d. A combination of English and Urdu languages will be used as medium of instruction.
- e. Teachers will encourage students to ask questions; they will encourage debate and discussion in class to inspire and hone thinking skills of students. Students will be given the opportunity to engage in activities that promote divergent thinking skills. Students will be encouraged to work independently, as well as in small groups and as a whole class, to form creative associations of ideas across discipline lines.

II. Practical learning component

As prime objective of the training program is to develop practical skills, an extended clinical attachment is its essential part. The student will rotate amongst various sections including decontamination area, preparation and packaging area and sterilization department and his/her attendance will be recorded on a logbook to be signed by supervisors. Teachers will ensure that students are given chance to practice activities under supervision that are relevant to the topic being taught in class in order for them to develop relevant practical skills.

The detail of specifications for the institution imparting education according to the new scheme of studies, including the facilities for practical attachment, is available in 'New Affiliation Criteria' for such institutions.

F Organization of Units of Curriculum

The different units presented in the subsequent sections would comprise of the following components, not essentially in the sequence depicted below:

- a. Learning Focus (contents, hours, weightage for assessment)
- b. Rationale
- c. Scope
- d. Learning Objectives (aims and learning outcomes)
- e. Practical Learning Component (where applicable)

G Revisions and Updating of Curriculum

The curricula are ever evolving organic documents. Regular reviews and revisions are, therefore, essentially required to keep them in pace with modern needs; topics that are required now might outlive their utility in a few years. Updating curricula therefore forms the basis for quality teaching as well as professional competence of technicians. This would be ensured by technology-wise panels of experts notified by the Health Department.

SECTION 1

(Paper I)

Unit 1	Introduction to CSSD
Unit 2	Cleaning Process
Unit 3	Decontamination and Disinfection

Unit I

Introduction to CSSD

1. Rationale

CSSD Technician has a very significant role in reprocessing of surgical instruments. He should have knowledge of various administrative steps for smooth functioning of central service department.

2. Scope

The content will prepare student in the issues related to care of surgical instruments before, during and after a surgical procedure. The focus would also be on development of correct attitudes in CSSD and on economizing reprocessing of resources.

3. Learning Objectives

After completing this section the students will be able to:

- i. Understand the organization and functioning of CS department
- ii. Appropriately administer Central Service Department and manage its resources

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Introduction to CSSD

Learning Focus	
i. What is central sterile service department	10 hours
ii. Organization and design: the central service suite, main areas of department	8 hours
iii. The central service team: required attributes; CSSD etiquette and protocols	8 hours
iv. Duties of CSSD technician	4 hours
v. Receiving & issuing of surgical instruments	4 hours
vi. One way workflow in the department	4 hours
vii. Care of surgical reprocessing – before, during & after surgery	10 hours
viii. water quality from reverse osmosis (RO) plant	6 hours
ix. Humidity ,Temperature & air exchanging requirements	8 hours
x. Electrical and fire safety	10 hours
xi. Prevention of physical, electrical, chemical injuries/hazards to tech.	6 hours
xii. Personal Protective Equipment (PPE)	6 hours
xiii. Economizing reprocessing resources	6 hours
Class Room Teaching	100 hours
Practical Attachments	150 hours
Total Teaching	250 hours
Weightage for assessment	35%

UNIT 2

Cleaning Process

1. Rationale

The CSSD Technician has the responsibility of handling and maintaining various equipments available in the CSSD. He must, therefore, possess knowledge and skills to manage such equipment and devices.

2. Scope

The content will provide a thorough understanding of the machinery employed in CSSD; this will also include maintenance and minor repairs of related machinery.

3. Learning Objectives

After completing this section the students will be able to:

- i. Conduct a comprehensive and appropriate instruments check.
- ii. Identify and take appropriate action when confronted with equipment-related malfunctions
- iii. Manual and automated system for cleaning

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Cleaning Process

Learning Focus	
i. Preparing items for decontamination, precautions, receiving and issuing	10 hours
ii. selecting & using appropriate detergent	8 hours
iii. manual and automated cleaning of instruments	8 hours
iv. washer disinfector and drying process and machine	6 hours
v. cleaning by Ultrasonic machine for fine instruments	15 hours
vi. Cleaning by Automated Endoscope Preprocessor(AER)	8 hours
vii. Operating Automated machines: principle, parts, use and care	4 hours
viii. Efficacy testing process for WD, Ultrasonic and AER	3 hours
ix. Identification & separation of reusable and disposable items	3 hours
x. Spaulding Classification of instruments	10 hours
Class Room Teaching	75 hours
Practical Attachments	125 hours
Total Teaching	200 hours
Weightage for assessment	25%

Unit 3

Decontamination and Disinfection

1. Rationale

Maintaining utmost asepsis is the foundation of modern surgery. The CSSD Technician should be well versed with different techniques for maintaining an infection free surgical instruments and ensuring reprocessing of instruments used during the surgical processes.

2. Scope

The content will cover the concepts of infection, cross-infection and asepsis. The student will build upon the knowledge gained during the core course and will be enabled to employ different types of disinfection and asepsis techniques in appropriate manners.

3. Learning Objectives

After completing this subsection, the students will be able to:

- i. Taking precautions to prevent the spread of infection
- ii. Ensuring the cleaning of the surgical instruments prior to operations
- iii. Cleaning, Disinfection and its different types and other equipment used in CSSD
- iv. Manage consumable inventory

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Decontamination and Disinfection

Learning Focus	
i. Definition of cross infection; modes and types	8 hours
ii. Principles of microbial control: prevention of cross infection to the patient and surgical team	7 hours
iii. selecting & using appropriate disinfectants	7 hours
iv. Definition of disinfection, antiseptic, aseptic, carrier state	10 hours
v. General method of disinfection; types of disinfection a. High level Disinfection b. Intermediate level disinfection c. Low level disinfection d. Manual and automated disinfection e. Material Safety Data Sheet	20 hours
vi. Measuring method of chemical for making solution	10 hours
vii. Decontamination & disinfection according to the IFU	8 hours
viii. Environmental disinfection: cleaning and disinfection of CSSD	8 hours
ix. Relation of water quality and disinfection	4 hours
x. Documentation of chemical testing e.g. MEC	4 hours
xi. care ,handling & storage e.g. drying expiration date	5 hours
xii. Handling of infectious hospital waste	5 hours
xiii. Transport guidelines e.g. closed container clean labeling	4 hours
Class Room Teaching	100 hours
Practical Attachments	200 hours
Total Teaching	300 hours
Weightage for assessment	40%

SECTION 2

(Paper II)

Unit 1 Preparation & instruments packaging

Unit 2 Sterilization and its different types

Unit 3 Documentation and Record Maintenance

Unit 1

Preparation & instruments packaging

1. Rationale

Providing assistance during surgical procedures is the prime duty of CSSD Technician. Therefore, the technician must understand the role and use of reprocessing of in all operations.

2. Scope

The student will be apprised about different types of surgical instruments, packaging materials and tools. Emphasis would be on development of skills for organizing instruments in baskets/trays also recognition of different types of materials.

3. Learning Objectives

After completing this sub-section, the students will be able to:

- i. Identification of Simple and complex surgical instruments
- ii. Know the different types of packaging materials
- iii. Preparing equipment and instrument sets for specific operations
- iv. Providing supplies for the surgical team

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Preparation and instruments packaging

Learning Focus	
i. Identification of simple and complex surgical instruments	6 hours
ii. Classification of instruments and apparatus: disposable/non disposable	6 hours
iii. Packaging and labeling methods, materials, correct contents for assembly	6 hours
iv. Needles, ligature and suture materials: introduction, cat guts (preparation, sizes, handling), absorbable and non absorbable ligatures and sutures, natural materials (silk warm gut, silk threads, linen cotton their sizes and classes) Nylon, polyester, polyethylene, polypropylene, metallic wire, metal clips as sutures and as ligatures; storage and handling of suture materials	12 hours
v. Definitions of operations, general instruments used during elective and emergency operations related to surgical gastroenterology, gynecology & obstetrics, urology, neurosurgery, oncology, cardiovascular surgeries, ophthalmology, ENT, orthopaedics, paediatric surgery, plastic surgery, and organ transplantation etc.	66 hours
vi. Utilization count sheet, tray list, external and internal process indicators, essential parameter mentioned on packed set	4 hours
Class Room Teaching	100 hours
Practical Attachments	200 hours
Total Teaching	300 hours
Weightage for assessment	40%

Unit 2

Sterilization and its different types

1. Rationale

Being a member of surgical team, the CSSD Technician must understand the basic principles of reprocessing. This would develop an understanding of rationale of different procedures s/he is assisting.

2. Scope

The content provides basic knowledge of common surgical conditions. It also gives understanding of care of patient before, during and after the surgical procedure. Special emphasis to prevent infection from surgical instruments.

3. Learning Objectives

After completing this unit, the students will be able to:

- i. Understand the common methods of sterilization
- ii. Manage loading and un-loading sterilizers
- iii. Cycle parameter verification

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Sterilization and its different types

Learning Focus	
i. Definition of sterilization and pasteurization	4 hours
ii. loading and un-loading of instruments carts	10 hours
iii. Sterilizer test Leak test, Bowie Dick test, preheating test, Vacuum test etc	10 hours
iv. Process Challenge Device (PCD),Batch monitoring Simulation	6 hours
v. Cycle parameter verification, chemical and biological indicators Time ,temperature, pressure etc	10 hours
vi. temperature, pressure ,humidity, air exchanges in sterile storage area	8 hours
vii. Operation and monitoring Sterilization Equipment Machine component checks, machine IFU, machine maintenance schedule ,PPM plan	6 hours
viii. Load Control (Lot) Number, documentation of sterilization, recall of sterilized set	8 hours
ix. Types of sterilizers/Autoclaves	6 hours
x. Different types of sterilization a. High temperature sterilization (steam) b. Low temperature sterilization <ul style="list-style-type: none"> • Hydrogen peroxide (plasma) • Ethylene oxide (Eto) • Formaldehyde (FO) 	10 hours
Class Room Teaching	90 hours
Practical Attachments	165 hours
Total Teaching	250 hours
Weightage for assessment	35%

Unit 3

Documentation and Record Maintenance

1. Rationale

Being a member of multi-disciplinary surgical team, the CSSD Technician is supposed to provide assistance to the OR staff. This role is more significant in the environment of relative shortage of qualified healthcare worker.

2. Scope

Content will cover the basics of documentation and record keeping techniques. Students will be acclimatized with OR staff related gadgetry and their skills will be developed for assisting the anesthetist. However, the actual administration of surgeons will be out of bond for the technicians.

3. Learning Objectives

After completing this unit, the students will be able to:

- i. Identify and understand the use of record keeping
- ii. Environmental condition monitoring and corrective action
- iii. Employee education, promotion, certifications, trainings

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Documentation and Record Maintenance

Learning Focus	
i. What is documentation and record maintenance	10 hours
ii. Purpose of record keeping e.g. standards, legal documents	4 hours
iii. Corrective action plan for environmental conditions out of compliance	12 hours
iv. Ordering and inventory replenishment	6 hours
v. Stocking and rotating inventory	6 hours
vi. Employee education, safety & risk management	8 hours
vii. Orientation (main areas of all CSSD)	8 hours
viii. Employee training ,education, training, certifications	5 hours
ix. Teamwork and work groups	5 hours
x. SOPs and Policies for documentation and record keeping	6 hours
Class Room Teaching	70 hours
Practical Attachments	130 hours
Total Teaching	200 hours
Weightage for assessment	25%

Practical Attachment

The extensive internship will reinforce the classroom learning and enable the student to understand how to handle the workload in different disciplines of surgical technology. It is this aspect of the course that will determine the level of professionalism students will display after employment. This period will be interspersed with learning of theory.

During the two year of this program the students will be placed in different operation theaters and related sections on a roster basis to gain practical experience in relevant areas under supervision of tutor technicians and the surgical instructors. If a particular specialty is not available in the hospital, collaboration with other hospitals will be sought to provide adequate experience to students.

On the availability of the following sections, the student will get a rotation amongst them.

Decontamination/dirty area
Sorting and packaging area
Sterile storage area

Students will maintain a record of their attachment in the 'Practical Note Books' (one for each section), the last portion of which would be designed as a 'Log Book' which shall be a work diary and record. Special mention shall be made of the procedures, if any, conducted by the candidate. This diary shall be scrutinized and certified by the Head of the Department and Head of the Institution, and presented in the practical /viva examination.

RECOMMENDED BOOKS

- 1) 8th Edition Central Service Technical Manual by International Association of Healthcare Central Service Materiel Management. (IAHCSMM).USA
- 2) Decontamination and reprocessing of medical devices for health-care facilities; World Health Organization and Pan American Health Organization, 2016
- 3) World Federation for Hospital Sterilization Sciences; Training Program with level 1 & level 2
- 4) "Sterile Processing Technician DGSV/SGSV" under Qualification Directions and Examination Regulations of the German Society for Sterile Supply (DGSV^R) &the Swiss Society for Sterile Supply (SGSV)
- 5) All training manuals by CBSPD/IAHCSMM,USA

