

OJT from Anaesthesia -

OPERATION THEATRE (OT) TECHNICIAN CERTIFICATE COURSE: CURRICULUM

1. COURSE TITLE: Operation Theatre Technician

2. Category: Certificate

3. Duration -:

Total - ~~09~~ 12 Months

- 3 terms
 - a. 1st term - 1 month
 - b. 2nd term - 4 months
 - c. 3rd term - 4 months
- Plus Internship ~~3~~ month

4. Overall course objectives

The role of the OT Technician is to assist the surgeon and nurse in surgical procedures, and maintain a safe and high quality environment in the OT Complex.

5. Training Methodology

This course will be a vocational course, which will involve students getting trained "On the Job Training (OJT)". Therefore, the student is expected to shadow experienced nurses and surgeons for majority of the day. During the OJT, time, they will:

- Observe topics and activities
- They will assist the staff as part of the learning process
- They will carry out processes under supervision of the mentor
- They will be rated and evaluated by their mentor
- A log book will be maintained
- They will be briefed & debriefed daily

The training program will be structured in 3 parts:

1. **Theory:** Classroom based: didactic
2. **Practical:** Demo based, either in a classroom or in the clinical area
3. **Clinical OJT:** as an apprentice, under supervision and mentorship of a senior

- 1st term - 4 weeks (144 hours): Fully Didactic and Demo Based
- 2nd term - 13 weeks (468 hrs)
- 3rd term - 13 weeks (468 hrs)

The 2nd and the 3rd term will consist of Didactic & Demo along with OJT component included. In the above two mentioned terms, students will be attending a 1 hour class daily and the rest 5 hours of the day will be dedicated to OJT. (780 hrs)

To encourage the students to join, a basic stipend will be paid to the students, and by supporting the staff in the Surgical and OT areas, the hospital /centre will save at least 30 % FTE cost.

6. Eligibility requirements

- a. Education - Class 12 with English, desirable: science subjects with Biology
- b. Marks - Minimum 50%
- c. Age - 16 - 22
- d. Language - English

e. Preference given to those who are already in health services

7. Teaching medium - English

8. Faculty requirements

- a. Qualifications -
 - i. Anesthetist (Course Director)
 - ii. OT Technician with 10 years experience
 - iii. Surgeon and nurses for specific lectures
 - iv. Bio medical engineer
 - v. Other: as per course requirements (basic sciences, quality etc)
- b. Student faculty ratio 10 Students :1 Faculty (part time)

9. Recommended batch size

- a. Theory - 12
- b. Practical - 4
- c. Clinical areas - 2

10. Infrastructure requirements:

- a. Classrooms with capacity - Capacity for minimum 12 students.
- b. Teaching arrangements: AV, COMPUTER - White board, AV – optional,
- c. Library : books and journals – tbd
- d. Equipment for demo/lab – No separate demo lab required
- e. Teaching manual – tbd

11. Affiliation or availability of practical training facilities in hospital/diagnostic centre etc.

- i. Minimum 4 OTs in a 100 bedded hospital, with at least 50% OT utilization, with multidisciplinary case mix at secondary care and tertiary care levels.

12. Assessment methodology

- a. Internal: Internal Assessment: 10%
- b. External: Exams: 90%
- c. Exam type – Written & Viva (practical)
- d. Marks:
 - i. Theory: 150
 - ii. OJT: 230
 - iii. Internal Assessment: 20
 - iv. Total: 400
- e. Marks for passing – Minimum aggregated marks of 50% (all combined)

Marks - Term wise - Break up		
Term 1	Term 2	Term 3
Theory – 10	Theory – 25	Theory – 25
Demo/ Practical – 20	Demo/ Practical – 35	Demo/ Practical – 35
	OJT – 110	OJT – 120
Internal assessment - 5	Internal assessment - 7	Internal assessment - 8

13. Teaching framework:

- a. Total Months : 9 months (1st August to 30th April)
- b. Total weeks : 39
 - i. 30 weeks: Academic (3 terms)
 1. Hours per week – 36 (6 days per week)
 2. Hours per day: 06
 3. Total Hours - $36 \times 30 = 1080$ hours
 - ii. 04: leave and holidays
 - iii. 03: exam preparation
 - iv. 02: Exams
 - v. 05 - Internship - 13 weeks

Distribution of hours:

1. Theory: 96 hours
2. Demo/ Practical: 156 hours
3. OJT: 540 hours

Hours - Term wise - Break up		
Term 1 (4 weeks = 144 hours)	Term 2 (13 weeks = 468 hours)	Term 3 (13 weeks = 468 hours)
Theory – 60 hours	Theory – 26 hours	Theory – 26 hours
Demo/ Practical – 84 hours	Demo/ Practical – 52 hours	Demo/ Practical – 52 hours
	OJT – 390 hours	OJT – 390 hours

TERM DETAILS

TERM 1 (4 weeks: 144 hours)					
S. No.	SUBJECT	Hours (theory)	Marks (theory)	Hours (Demo/ practical)	Marks (Demo/ practical)
1.	Orientation To Healthcare and Role of OT Technician	8	1	10	2
2.	Professionalism, Ethics, Patient Rights	8	1	10	2
3.	Customer Etiquette	8	1	10	2
4.	Quality Systems and Safety	8	1	10	2
5.	Communication skills	8	2	10	4
6.	Medical Terminology	8	2	18	4

7.	Documentation, language and use of computers	10	2	10	4
	Total	58	10	82	20
	Internal Assessment	2	3	2	2

TERM 2 (13 weeks: 468 hours)							
S. No.	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours (Clinical OJT)	Marks (Clinical OJT)
8.	Introduction To Anatomy & Physiology	4	4	8	6	-	-
9.	Introduction To Pathology & Microbiology	4	4	9	6	-	-
10.	Introduction to Surgical Principles	4	4	9	5	100	30
11.	Introduction to Anesthesia	4	4	8	6	100	30
12.	Emergency Preparedness and Safety in OT	4	5	8	6	96	25
13.	The OT environment	4	4	8	6	90	25
	Total	24	25	50	35	386	110
	Internal Assessment	2	1	2	2	4	4

TERM 3 (13 weeks: 468 hours)							
	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours (Clinical OJT)	Marks (Clinical OJT)
14.	Equipment used in OTs	4	4	8	6	90	25
15.	Instruments used in OTs	4	4	9	6	90	20
16.	Infection Control in OT	4	4	9	5	50	20
17.	Universal Precautions	4	4	8	6	60	15
18.	Biomedical Waste	4	5	8	6	48	20
19.	Patient and staff safety	4	4	8	6	48	20
	Total	24	25	50	35	386	120
	Internal Assessment	2	2	2	2	4	4

SUBJECT WISE DETAILS

TERM 1 (4 weeks: 144 hours)					
S. No.	SUBJECT	Hours (theory)	Marks (theory)	Hours (Demo/practical)	Marks (Demo/practical)
1.	Orientation To Healthcare and Role of OT Technician	8	1	10	2
2.	Professionalism, Ethics, Patient Rights	8	1	10	2
3.	Customer Etiquette	8	1	10	2
4.	Quality Systems and Safety	8	1	10	2
5.	Communication skills	8	2	10	4
6.	Medical Terminology	8	2	18	4
7.	Documentation, language and use of computers	10	2	10	4
	Total	58	10	82	20
	Internal Assessment	2	3	2	2

SUBJECT 1: Orientation to Healthcare Systems and Role of OT Technician

Background:

The student needs to understand at a macro, meso and micro level, how healthcare is organized and delivered. They will be made familiar with the levels, categories and departments. Patient flows, and staff categories will also be covered. The students will visit various areas and keep a record of their visits.

Learning Objectives:

1. Understand the healthcare environment and delivery systems
2. Familiarize with the various departments in the hospital
3. Familiarize with different kinds of staff in a hospital
4. Understand the role of the OT Technician in the system
5. Understand healthcare needs of patients and their families

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)
1.	Overview of Healthcare Industry	1		2	
2.	Types of Hospitals and Healthcare services	1		1	
3.	Departments of a hospital	2		2	1
4.	Types of Staff and their role	1		1	
5.	Role of the OT Technician	2	1	2	1
6.	Healthcare needs of Patients and their families	1		2	
	Total	8	1	10	2

SUBJECT 2: Professionalism, Ethics, Patient Rights

Background:

Healthcare deals with a unique relationship between the patients, their families and the staff. It is important to understand the code of expected behavior and the rights of the patients and their families in the sensitive environment.

Learning Objectives:

1. Understand the meaning of professionalism.
2. Thoroughly understand ethical principles and their context in the working environment.
3. Thoroughly understand patient and family rights.

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)
1.	Professionalism	2		2	1
2.	Respecting and Maintaining dignity of patients	2		2	
3.	Maintaining privacy and confidentiality	1		2	
4.	Medical Ethics	1	1	2	1
5.	Patient and Family Rights	2		2	
	Tota	8	1	10	2

SUBJECT 3: Customer Etiquette

Background:

The staff dealing with patients and families needs to behave in a very customer friendly manner-humane and caring, as well as showing courtesy and a helpful attitude. The perception of the 'customer' about quality and their satisfaction with the services is very much based on the impression that the staff gives them. It is critical that staff is 'service oriented' both to the internal and external customer.

Learning Objectives:

1. Understand the meaning of internal and external 'customer' and their mindset and expectations.
2. Telephone etiquette, grooming, hygiene, manners.
3. Problem solving, complaint handling.

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)
1.	Internal and external customer	1	1	1	
2.	Telephone etiquette	1		1	1
3.	Grooming	1		2	1
4.	Personal hygiene	1		2	
5.	Empathy	2		2	
6.	Problem solving, complaint handling	2	1	2	
	Tota	8	1	10	2

SUBJECT 4: Quality Systems and Safety

Background:

In today's environment, quality of services has become relevant to each and every staff member. The OT technician will need to understand the concept of quality, management systems and have clarity on patient and occupational safety.

Learning Objectives:

1. Quality in healthcare
2. Accreditation and systems
3. Patient and occupational safety

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)
1.	Quality in healthcare	1		2	
2.	Accreditations: ISO & NABH	2		2	1
3.	Licenses & Certifications	2	1	2	1
4.	Introduction to Surgical Management	2		2	
5.	Patient and Occupational Safety	1		2	
	Total	8	1	10	2

SUBJECT 5: Communication skills

Background:

Because of the people interface and multiple handovers, good interpersonal communication, team work, and managing conflict are important.

Learning Objectives:

1. Understand the skills of a good communicator
2. Establishing rapport and team work
3. Expressing concern and managing conflict

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)
1.	Communication skills : verbal and non verbal	2		2	1
2.	Establishing rapport	1		2	1
3.	Team work	1	1	2	1
4.	Expressing concern	2	1	2	1
5.	Managing conflict	2		2	
	Total	8	2	10	4

SUBJECT 6: Medical Terminology

Background:

In healthcare, several terms are used that are from the original "Greek" language. The technician has to be familiar with the commonly used terms and abbreviations.

Learning Objectives:

1. Understand the medical terminology used in healthcare

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)
1.	Medical terminology meanings of words	2	1	5	1
2.	Medical Vocabulary	2		4	1
3.	Pronunciations	2		4	1
4.	Typing and editing of Medical record	2	1	5	1
	Total	8	2	18	4

SUBJECT 7: Documentation, language and use of computers

Background:

Because of the people interface and multiple handovers, good interpersonal communication, team work, and transfer of information through documentation and computers, is very important.

Learning Objectives:

1. The medical record
2. English speaking
3. English writing
4. Electronic health record and IT

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)
1.	The medical record	2		2	1
2.	English speaking	2		2	1
3.	English writing	2		2	
4.	Use of Computer in hospital	2	1	2	1
5.	Electronic health record and IT	2	1	2	1
	Total	10	2	10	4

Term 2

TERM 2 (13 weeks: 468 hours)							
S. No.	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours (Clinical OJT)	Marks (Clinical OJT)
8.	Introduction To Anatomy & Physiology	4	4	8	6	-	-
9.	Introduction To Pathology & Microbiology	4	4	9	6	-	-
10.	Introduction to Surgical Principles	4	4	9	5	100	30
11.	Introduction to Anesthesia	4	4	8	6	100	30
12.	Emergency Preparedness and Safety in OT	4	5	8	6	96	25

SUBJECT 8:
Introduction to Anatomy & Physiology

13.	The OT environment	4	4	8	6	90	25
	Total	24	25	50	35	386	110
	Internal Assessment	2	1	2	2	4	4

Background:

The technician will now be introduced to the systems of the human body. In this topic, basic information about the Anatomy and Physiology will be taught.

Learning Objectives:

1. Understand the basics of various systems of the human body.
2. Understand some basics of Physiological mechanism of the body.
3. Learn to record vitals.

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)
1.	Introduction to Circulation System	1	1	1	1
2.	Skeletal System			1	1
3.	Muscular System	1	1	2	1
4.	Introduction to Digestive Systems			1	1
5.	Introduction to Urinary System	1	1	1	1
6.	Introduction to Reproductive System	1	1	1	1
7.	Introduction to Nervous System			1	
	Total	4	4	8	6

SUBJECT 9: Introduction to Pathology & Microbiology

Background:

The Operation Theatre Technician will be introduced to various types of injuries and inflammations. Microbes and their importance in healthcare will be taught.

Learning Objectives:

1. Understand the basics of various types of injuries and inflammation.
2. Microbes

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)
1.	Cell injury and adaptation	1	1	1	1
2.	Types of inflammation & system manifestations of inflammation			2	1
3.	Introduction to Biochemistry	1	1	1	1
4.	Introduction to Microbiology : Discovery of micro organisms, Classification and general characteristics of microorganisms	1	1	2	1
5.	Introductory knowledge of Virology	1	1	1	1
6.	Basic concepts of transfusion Medicine – storage and administration, Blood Groups, Antigen, Antibody, Transfusion reactions.			2	1
Total		4	4	9	6

SUBJECT 10: Introduction to Surgical Principles**Background:**

This topic will provide basic concepts of surgery. It gives a basic knowledge of tumors, benign, ulcers etc. It also gives an idea of types of fractures, head injuries and their management; this will help the technician to understand the role and use of instruments & tools used for minor and major operations.

Learning Objectives:

1. Understand the principles of surgery.
2. Understand common surgical procedures.

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours OJT	Marks OJT
1.	Introduction to basic principles of surgery	1	1	1	1	20	5
2.	Introduction to the "surgical patient": patient centered care of patients undergoing surgery			2		20	5
3.	Different types of tumours, cysts, ulcers fistulas	1	1	2	1	15	4
4.	Fractures and dislocations	1	1	1	1	5	3
5.	Head and spinal cord Injury			1		5	3
6.	Pregnancy, caesareans	1	1	1	1	15	5
7.	Laparotomy and minimally invasive surgeries			1	1	20	5
	Total	4	4	9	5	100	30

SUBJECT 11: Introduction to Anesthesia

Background:

The technician must be aware of anesthetic equipment as well as the drugs prescribed by the concerned Physician and/or Surgeon for the patient immediately or after operation.

Learning Objectives:

1. Identify as well as to understand the use of the anesthetic equipment used for/during Surgery.
2. To understand the various types & use of sedative, hypnotic, pre-anesthetic and other drugs.

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours OJT	Marks OJT
1.	Basics of Anesthesia and Sedation	1	1	2	1	25	6
2.	Equipment used in Anesthesia	1	1	2	2	25	10
3.	Gases used in OT	1	1	2	1	25	8
4.	Drugs used in Anesthesia	1	1	2	2	25	6
	Total	4	4	8	6	100	30

SUBJECT 12: Emergency Preparedness and Safety in OT

Background:

The OT environment is a hazardous area. It is essential that the OT technician familiarizes with all the hazards, preventive aspects and responses in case of any incident.

Learning Objectives:

1. Identify and familiarize with hazards in OT
2. Be competent in handling any emergency situation

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours OJT	Marks OJT
1.	Hazards in OT and their prevention and management	1	1	2	2	20	5
2.	Fire Safety		1	1	1	16	5
3.	BCLS	1	1	2	1	20	5
4.	Surgical Safety procedures	1	1	2	1	20	5
5.	Codes	1	1	1	1	20	5
	Total	4	5	8	6	96	25

SUBJECT 13: The OT Environment**Background:**

In this topic, the technician will be made familiar with the layout, zoning, flow processes, departments, and inventories and staffing of the OT environment.

Learning Objectives:

1. Understand the entire layout of the OT
2. Be familiar with the SOPs that are in use in OT
3. Be familiar with the interdependencies with other departments of the hospital

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours OJT	Marks OJT
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1.	Layout of OT with zoning	1	1	2	2	10	5
2.	SOPs of OT	1	1	1	1	20	5
3.	Staff and their Responsibilities			1	1	20	5
4.	List of units within OT and inventories	1	1	2	1	20	5
5.	Interdependencies with other departments	1	1	2	1	20	5
Total		4	4	8	6	90	25

Term 3

TERM 3 (13 weeks: 468 hours)							
	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours (Clinical OJT)	Marks (Clinical OJT)
14.	Equipment used in OTs	4	4	8	6	90	25
15.	Instruments used in OTs	4	4	9	6	90	20
16.	Infection Control in OT	4	4	9	5	50	20
17.	Universal Precautions	4	4	8	6	60	15
18.	Biomedical Waste	4	5	8	6	48	20
19.	Patient and staff safety	4	4	8	6	48	20
	Total	24	25	50	35	386	120
	Internal Assessment	2	2	2	2	4	4

SUBJECT 14: Equipment used in OTs

Background:

Maintaining and assisting with OT equipment is a key requirement of the OT Technician. In this chapter, they will be taught end to end aspects of Equipment management system.

Learning Objectives:

1. Identify and familiarize with all major and minor equipment in OT
2. Be competent in Equipment inventory management

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours OJT	Marks OJT
1.	Major Equipment in Anesthesia	1	1	2	2	10	5
2.	Major Surgical Equipment	1	1	1	1	20	5
3.	Inventory management principles			1	1	20	5
4.	Procurement and life cycle systems	1	1	2	1	20	5
5.	Indicators for utilization, downtime etc	1	1	2	1	20	5
	Total	4	4	8	6	90	25

SUBJECT 15: Instruments used in OTs**Background:**

Maintaining and assisting with instruments is also a key requirement of the OT Technician. In this chapter, they will be taught end to end aspects of instrument management system.

Learning Objectives:

1. Identify and familiarize with all major and minor equipment in OT
2. Be competent in Equipment inventory management

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours OJT	Marks OJT
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1.	Major instruments in Anesthesia	1	1	2	2	20	4
2.	Major Surgical Instruments	1	1	2	1	20	4
3.	Inventory management principles			1	1	10	4
4.	Procurement and life cycle systems	1	1	2	1	20	4
5.	Indicators for utilization, downtime etc	1	1	2	1	20	4
	Total	4	4	9	6	90	20

SUBJECT 16: Infection Control in OTs

Background:

This topic is the most important topic in the subject. Maintaining a safe and clean environment is absolutely essential part of day to day work of the OT Technician.

Learning Objectives:

1. Identify and familiarize with all infection control protocols
2. Be competent in Equipment and instrument cleaning, disinfection and sterilization procedures
3. Be competent in environmental cleaning and disinfection

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours OJT	Marks OJT
1.	Personal protective wear : gowning, gloving, masks	1	1	1	1	8	2
2.	Hand hygiene in the OT			1		6	
3.	Cleaning, disinfection and sterilization definitions, principles and techniques	1	1	1	1	7	2
4.	Cleaning, disinfection and sterilization of equipment			2		7	
5.	Cleaning, disinfection and sterilization of instruments	1	1	1	1	6	3
6.	Cleaning, disinfection and sterilization of environment: Surveillance, chemicals used,			1		6	

	and procedures : surfaces, fomites, furniture						
7.	Sharps injuries and prevention	1	1	1	1	6	3
8.	CSSD in OT			1		4	2
	Total	4	4	9	5	50	20

SUBJECT 17: Universal Precautions

Background:

This topic will reinforce in detail the universal precautions that are to be practiced by the OT technician.

Learning Objectives:

Practical implementation of universal precautions.

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours OJT	Marks OJT
1.	Universal precautions	1	1	1	1	8	2
2.	Personal protective equipment			2	1	7	3
3.	Proper gloving	1	1	1	1	7	2
4.	Isolation			1	1	8	2
5.	Aseptic technique	1	1	1	1	10	2
6.	Spillage of body fluids			1		10	2
7.	Risk Management/ assessment	1	1	1	1	10	2
	Total	4	4	8	6	60	15

SUBJECT 19: Bio Medical Waste

Background:

The technician will learn about the regulations and procedures of Bio Medical waste.

Learning Objectives:

1. Familiarize with BMW rules and regulations and practically implement in day to day use.

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours OJT	Marks OJT
1	Introcuction	1	1	1	1	8	2
2	Management issues			1	1	4	2
3	Rules & Regulations	1	1	2	1	8	4
4	Color Coding			1	1	10	4
5	Sharp Disposal	1	1	1	1	10	4
6	Spill cleaning	1	1	2	1	8	4
	Total	4	5	8	6	48	20

SUBJECT 16: Patient and Staff Safety and Quality Control

Background:

The technician will learn about the patient and staff safety and quality control.

Learning Objectives:

1. Practice patient safety in the OT technician role
2. Occupational hazards and their prevention
3. Errors in sampling and their implications

	SUBJECT	Hours (theory)	Marks (theory)	Hours (practical)	Marks (practical)	Hours OJT	Marks OJT
1	Patient Safety issues	1	1	1	1	10	4
2	Staff hazards especially needle stick injuries	1	1	2	1	10	4
3	Errors in sampling	1	1	2	1	8	4

4	Reporting adverse events			1	2	10	4
5	Practicing occupational safety	1	1	2	1	10	4
	Total	4	4	8	6	48	20