

ENGINEERS TRAINING

OTHER INSTITUTIONS	COMPANY TRAINING	POSTGRADU- ATE STUDIES	BASIC QUALIFICATIONS	No.
-	yes	-	Diploma in Radiological instrumentation technology.	1
WHO, UNEDO. others	yes	yes	BSc. Radiological instrumentation technology.	2
WHO, UNEDO. others	yes	yes	BSc. Radiological instrumentation technology.	3
-	-	-	BSc. Radiological instrumentation technology.	4
-	-	-	BSc. Radiological instrumentation technology.	5
-	yes	-	BSc. Biomedical engineering.	6
-	yes	-	BSc. Biomedical engineering.	7
-	-	-	BSc. Biomedical engineering.	8
-	-	-	BSc. Biomedical engineering.	9

Table No. (4-1-1) ENGINEERS TRAINING

CARE AND MAINTENANCE

QUALITY CONTROL	QUALITY ASSURANCE	REPAIR	PERIODIC MAINTENANCE	DAILY CLEANING	TYPE/EQUIPMENT
YES	YES	YES	YES	YES	MRI
YES	YES	YES	YES	YES	C.T
-	-	YES	-	YES	ULTRASOUND
-	-	Proper when no spare parts are needed	YES	YES	X-ray (old units)
-	-	Proper when no spare parts are needed	-	YES	X-ray (new units)

Table No. (4-1-2) CARE AND MAINTENANCE.

EQUIPMENTS DOWN TIME

REMARKS	LONG	MEDIUM	SHORT	TIME/ EQUIPMENT
Less than one day			YES	MRI
Less than one day			REPAIR	C.T
About 15 days	Tube replacement			C.T
Medium about 3 days	When spare parts are needed	Complicated faults	Simple faults	ULTRASOUND
Medium about 3 days	When spare parts are needed from abroad	Complicated faults	Simple faults	OLD -XRAY
Medium about 3 days	When spare parts are needed from abroad		Simple faults	NEW -XRAY

Table No. (4-1-3) EQUIPMENTS DOWN TIME

SPARE PARTS

REMARKS	FROM ABROAD	IN STOCK	TIME/ EQUIPMENT
	YES	NO	MRI
	YES	NO	C.T
	YES	NO	C.T
	YES	NO	ULTRASOUND
	Some are needed from abroad	A lot of spare parts	OLD -XRAY
	From abroad	NO	NEW -XRAY

Table No. (4-1-4) SPARE PARTS

MEASURING INSTRUMENTS & TOOLS

Item	Present	Missed
Measuring instruments	yes	-
Tools kits	yes	-
Storage oscilloscopes.	-	yes
Specialized tools.	-	yes
Quality controls phantoms for CT and MRI	yes	-
Quality controls phantoms for X-rays and ultrasound.	-	yes

Table No. (4-1-5) MEASURING INSTRUMENTS & TOOLS

MAINTENANCE UNIT BUILDING

<i>Not adequate</i>	<i>Area and accommodation</i>
One door, not adequate.	Out let & doors
High humidity. Not safe	Electrical safety
Not adequate.	Location.
Not adequate.	Ventilation
Adequate.	Air conditioning
Adequate.	Lighting

Table No. (4-1-6) MAINTENANCE UNIT BUILDING

FAULTS FREQUENCY

REMARKS	FREQUENCY	TIME/ EQUIPMENT
	3 times per year	MRI
	3 times per year	C.T
	Once per year	ULTRASOUND
	12 times per year	OLD -XRAY
	Once per year	NEW -XRAY

Table No. (4-1-7) FAULTS FREQUENCY

WORK LOAD

REMARKS	INVESTIGATIONS PER- MONTH	TIME/ EQUIPMENT
	200 patients	MRI
	200 patients	CT
	720 patients	Ultrasound
	800 patients	Old–x-ray(tow units)
	800 patients	New –x-ray(tow units)

	980 patients	New x-ray (emergency)
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Table No.(4-1-8) WORK LOAD