

## APPENDIX II

EQUIPMENT (for various departments in the College and Hospitals).  
List of Equipments should be appended along with the Inspection Proforma

### 1. ANATOMY

<i>Sl. No.</i>	<i>NAME OF THE ITEMS</i>	<i>No. Required</i>	<i>Available</i>	<i>Remarks</i>
<b>(A) General</b>				
1	Drill machine	As required		
2	Hand saw, preferably metal	As required		
3	Band saw for sectioning body and limbs	As required		
4	Brain knife	As required		
5	Mortuary cooler for storing cadavers	As required		
6	Storage tank to hold cadavers, static/movable, durable tank with input and output facility with lid	As required		
7	Plastic tanks for storing soft and dissected parts	As required		
8	Dissecting instruments for cadaveric dissection	As required		
9	Meat cutting machine for thin body sections (trans and vertical) for gross anatomy sectional study	As required		
10	Embalming Machine	1		
<b>(B) Histology Laboratory</b>				
11	Microscopes, Monocular/Binocular	60		
12	Dissection microscope	As required		
13	Microtomes, rotary	As required		
14	Microtomes, Sledge, large cutting	As required		
15	Paraffin embedding bath	As required		
16	Hot plates for flattening sections	As required		
<b>(C) Museum</b>				
17	Articulated Skeleton set	As required		
18	Bones (Dis-articulated) sets	As required		

### 2. PHYSIOLOGY

<i>Sl. No.</i>	<i>NAME OF THE ITEMS</i>	<i>No. Required</i>	<i>Available</i>	<i>Remarks</i>
<b>A</b>	<b>Hematology Laboratory</b>			
1.	Microscopes, oil immersion	60		
2.	Demonstration eye piece	3		
3.	Double demonstration eye piece	3		
4.	Stage incubator	1		

5.	Westergren's pipette for E.S.R. on stand(with space pipette)	20		
6.	Wintrobe's pipette for ESR and PCV with stand	20		
7.	Hemoglobin-meter Sahli's or Hellige (with spaces)	60		
8.	Hemocytometer	60		
B.	<b>Clinical Physiology</b>			
9.	Tuning fork time marker 100/sec	2		
10.	Electrodes	2		
11.	Spirit lamps	2		
12.	Marey's tambour	2		
13.	Perimeter Pristely Smith S/LP.984 B & T	10		
14.	Sphygmomanometer (digital) (Mercury based instruments to be replaced with suitable alternatives)	60		
15.	Stethoscopes	60		
16.	Stethoscopes, demonstration with multiple ear pieces	Desirable		
17.	Polygraphs	1		
18.	Venous pressure apparatus	1		
19.	Spirometer, ordinary	15		
20.	Gas analysis apparatus, Halden's student type	1		
21.	Van Slyke's apparatus manometric	1		
22.	Sherrington Starling kymograph (electrically driven)	2		
23.	Gas analyser automatic for CO <sub>2</sub> , O <sub>2</sub> , N <sub>2</sub>	1		
24.	Low voltage unit for tapping 2 and 4 volts for stimulation	2		
25.	Electromagnetic time marker	2		
26.	Douglas bag, complete	1		
27.	Basal metabolism apparatus	1		
28.	Mosso'sErgograph	10		
29.	Clinical thermometer	60		
30.	Compass aesthesiometer	30		
31.	Thermo-aesthesiometer	30		
32.	Algometer	25		
33.	Apparatus for passive movement	1		
34.	Knee hammer	30		
35.	Stethograph	25		
36.	Bicycle Ergometer	1		
37.	Olfactometer	1		
38.	Ophthalmoscope	5		
39.	Schematic eye	1		
40.	Phakoscope	1		
41.	Perimeter with charts (Lister's)	2		
42.	Color perception lantern Edridge green	1		
43.	Maddox rod	1		
44.	Newtons color wheel	1		

45.	Tuning fork to test hearing 32-10000 cps(sets-100, 256, 512 Hz)	30		
46.	Dynamometer	1		
47.	Otoscope	1		
48.	Stop watch	15		
49.	Multi-channel Physiograph, 3 channels, complete with accessories	2		
50.	Student physiograph, (single channel) with accessories	6		
51.	Centrifuge, high speed with technometer	1		
52.	Colorimeter, photoelectric	1		
53.	Myograph stand	2		
54.	pH meter electric	1		
55.	Electronic stimulator	1		
56.	Thermometers, balances, microslides and glassware	As required		
57.	Digital Physiograph	1		
58.	ECG Machine	2		

### 3. BIOCHEMISTRY

<i>Sl. No.</i>	<i>NAME OF THE ITEMS</i>	<i>No. Required</i>	<i>Available</i>	<i>Remarks</i>
1.	Analytical Balance :upto 200g/1 gm increment	2		
2.	Urinometers calibrated (Mercury based instruments to be replaced with other alternatives)	25		
3.	Hot air oven (More than 200 litres)	2		
4.	Digital Colorimeters	5		
5.	Student Microscopes	10		
6.	Glucometer with strips ( For POCT )	10		
7.	Thermometer 0 – 250 degree Celsius	5		
8.	Semi autoanalyser	2		
9.	Boiling Water baths	2		
10.	Constant temperature water bath Tank Capacity: (Temperature range 5 to 80 degree Celsius)	1		
11.	Centrifuge clinical for $\geq 8$ tubes	2		
12.	pH meters of wide range digital	5		
13.	Fixed volume pipettes -- 1ml,0.5ml,0.2ml,0.1ml and 0.02ml	10 (of each volume)		
14.	Bottle dispensers	As required		
15.	Variable and fixed volume micro auto pipettes	As required		
16.	ELISA (Demonstration)	Demonstration		
17.	Vacutainer Tube	Demonstration		

18.	PCR Machine	Demonstration		
19.	ABG Machine	Demonstration		
20.	Autoanalyzer (either in the institution or elsewhere on a visit)	Demonstration		
21.	Complete Chromatographic Unit for paper & TLC	2 each		
22.	Complete Electrophoresis apparatus with power supply (Paper, PAGE, agarose)	1 each		
23.	Densitometer with computer	1		
24.	Vortex mixers	2		
25.	Incubator 37°C	2		
26.	Fume cupboard	1		
27.	Digital Analytical Balance	1		
28.	Balance Micro	1		
29.	Spectrophotometer	1		

#### 4. PATHOLOGY

<i>Sl. No.</i>	<i>NAME OF THE ITEMS</i>	<i>No. Required</i>	<i>Available</i>	<i>Remarks</i>
<b>(A)</b>	<b>General</b>			
<b>I</b>	<b>Histopathology / Cytopathology for Students</b>			
1.	<b>For Students</b> – LED Binocular with Scanner, 10X, 40X, & Oil immersion lenses and inbuilt Battery backup power source	60		
<b>II</b>	<b>Hematology for Students</b>			
2.	Stop watch reading at 1/5 second.	5		
3.	Haemo-cytometers with red and white pipettes	90		
4.	Staining jars for slides.	As		
<b>III</b>	<b>Clinical Pathology for Students</b>			
1.	Urinometers(Mercury based instruments to be replaced with other alternatives)	As required		
2.	Centrifuge tubes graduated.	As		
3.	Graduated cylinders for various capacities ranging from 100 cc to 1000 cc. (For Students)	As required		
4.	Pipettes of various sizes with disposal tips. (For Students)	As required		
5.	Reagent bottles (For Students)	As		
6.	Dropping bottles (For Students)	As		
7.	Reagents (For Students)	As		
<b>(B)</b>	<b>Morbid Histology and Morbid Anatomy</b>			
1.	Manual Rotary Microtome	2		
2.	Automated Rotary Microtome	1		
3.	Cryostat	1		
4.	Hot plate	2		

5.	Paraffin embedding bath	2		
6.	Heated Paraffin Embedding Module	2		
7.	Cold Plate for Modular Tissue Embedding System	1		
8.	Automated Tissue Processor –Histokinette	2		
9.	Autoclave	2		
10.	Ultrapure water solutions - Distilled water plant	1		
11.	Water bath	1		
12.	Centrifuge machine	5		
13.	Digital SLR at least 20 megapixel with micro, macro, wide angle zoom lenses, Flash and other accessories	1		
14.	Digital Automatic camera > 5 megapixel	1		
15.	Fully Automated high throughput Multi-Stainer Workstation	1		
16.	Fully Automated Embedding System (Heated embedding module & cold plate)	1		
17.	Fully Automated Flexible Coverslipping Workstation	1		
18.	Standalone paraffin dispensing module cold plate holding more than 100 cassettes	1		
19.	Stand-alone cold plate	1		
20.	Coplin jars	As		
21.	Water bath (Tissue Floatation)	As		
22.	Single Pan Digital Balance, Chemical	2		
23.	Balance, chemical with weights	2		
24.	<b>Microscopes</b>			
25.	<b>For Diagnostic &amp; Research Work</b> - Trinocular head Microscope with Bright field, Dark field, Fluorescent & Polarizing Facility, high end Apochromatic lenses with Camera with HDMI Multi output camera Minimum 5MP with Projector & Ultra HD TV > 52 inches & Screen including Software Capable of Bright field& Immuno fluorescence Photography with connectivity to projector & LED TV (At least 55 inches Ultra HD)	1		
26.	<b>Penta Head Microscope with High end Optics</b> with HDMI Multi output Photographic Camera (> 5 MP) including Software	1		
27.	Deca Head Microscope with High end Optics with HDMI Multi output Photographic camera (> 5 MP) including Software	1		

28.	<b>Grossing Station</b> - Stainless steel, with Control panel, air filtration system, Track mounted adjustable computer arm with articulation, LED lights that are color and intensity, Dedicated USB ports for camera control and data transfer adjustable, Integrated pathology camera system, Instrument Set (High quality) Height Adjustable Stainless Steel Chairs With Split AC of appropriate capacity.	1		
29.	Fully Automated Immuno-histo-chemistry Setup with Continuous supply of Important Antibodies, Lymphoma Panel etc.	1		
<b>(C) Hematology Lab:</b>				
30.	Five part Fully Automated Cell Counter	1		
31.	Three Part Fully Automated Cell Counter	1		
32.	Coagulometer (Fully automated)	1		

## 5. PHARMACOLOGY

<i>Sl.No.</i>	<i>NAME OF THE ITEMS</i>	<i>No. Required</i>	<i>Available</i>	<i>Remarks</i>
(A)	<b>Clinical Pharmacy</b>			
1	Special Drug Delivery systems like Metered Dose Inhalers, Spacers, Rotahalers, Nasal sprays, Transdermal patches, Insulin infusion pumps (optional), Insulin pen etc.	10 sets		
2	Samples of dosage formulations of various types including rational and irrational FDC, Essential medicines	10 sets		
3	Manikins for demonstration of intravenous injection, enema, local, intramuscular injections, intra cardiac injection and other routes of drug administration	10 sets		
(B)	<b>Computer Assisted Learning Laboratory</b>			
4	Must have computers with standard configuration and connected to the internet, (Preferably broadband) along with an AV aids (Multimedia Projector and Screen). The PC should be installed with CAL programmes and other software for teaching experimental pharmacology. The students must have access to the National Essential Drug Lists, Standard Treatment Guidelines, Banned Drugs List of the CDSCO, PVPI, WHO, Price Controlled Drugs List, Antibiotic Guidelines, Hospital formulary, adverse drug reactions, and other resource material which the student can use for learning the principles of rational prescribing.	25 computers		

## 6. MICROBIOLOGY

<i>Sl.No</i>	<i>NAME OF THE ITEMS</i>	<i>No. Required</i>	<i>Available</i>	<i>Remarks</i>
<b>(A)</b>	<b>For Students</b>			
1.	Microscopes (Specified as in Pathology)	As required		
2.	Culture Plates/ Petri Dishes	As required		
3.	Glass wares including Pasteur Pipettes	As required		
4.	Facility for heating slides	As required		
<b>(B)</b>	<b>General</b>			
1	Anaerobic apparatus	2		
2	Autoclave	2		
3	Balance Electronic Digital	1		
4	Biosafety Cabinet Type - 2A	3		
5	BOD Incubator	1		
6	Centrifuge	3		
7	CO2 Incubator/Candle Jar	2		
8	Computer Unit	2		
9	Deep Freeze -20° C & Deep Freezer	1 each		
10	Distilled water Plant	1		
11	Elisa Reader	1		
12	Elisa Washer	1		
13	Hot Air Oven	2		
14	Incubator	2		
15	Lab Refrigerator (minimum 400 litres)	3		
16	Laminar flow	1		
17	Micrometer eye pieces	1		
18	Micrometer stage	1		
20	Microscope Binocular	Every		
21	Microscope with universal condenser containing oil immersion, Bright field, Phase contrast and dark ground	1		
23	pH determination apparatus	2		
24	Serum inspissators	1		
25	VDRL shaker	1		
26	Vortex Mixer	2		
27	Water bath with variable temperature	2		
28	Oil-immersion lens for student microscope	25		
29	Automated Blood Culture System	1		
30	Colony Counter	1		
<b>(C)</b>	<b>Consumables for Culture and Serological Diagnosis</b>			
31	Antibiotic Discs for Antibiotic susceptibility testing	As required		
32	Antibiotic zone scale	As required		
33	Antisera-Salmonella	As required		
34	Antisera- <i>Shigelladysenteriae</i>	As required		
35	Antisera- <i>Shigella flexnari</i>	As required		
36	Antisera- <i>Shigella sonnie</i>	As required		

37	Antisera- <i>Vibrio cholerae</i>	As required		
38	ATCC strain - <i>Enterococcus faecalis</i> 29213	As required		
39	ATCC strain - <i>E.coli</i> 25922	As required		
40	ATCC strain - <i>E.coli</i> 35218	As required		
41	ATCC strain - <i>Pseudomonas aeruginosa</i> 27853	As required		
42	ATCC strain - <i>Staphylococcus aureus</i> 25923	As required		
43	ATCC strain - <i>Staphylococcus aureus</i> 29213	As required		
44	Bottles for blood culture	As required		
45	Micropipettes – Multi channel & Single channel	As required		
46	Digital Thermometers of different temperatures	As required		
<b>(D)</b>	<b>BSL 2 Lab</b>			
47	-80°C deep freezer with UPS	1		
48	Real-time PCR machine calibrated for the fluorophore dyes with UPS (2 nos., 2KVA each, with 2 hours back-up)	1		
49	Microcentrifuge / Refrigerated Centrifuge	1		
50	(a) Personal protective equipment (PPE) (b) Viral Transport Medium (VTM) (c) All other consumables and kits as required for Virology studies.	As required		

## 7. FORENSIC MEDICINE & TOXICOLOGY

Sl. No.	NAME OF THE ITEMS	No. Required	Available	Remarks
1	Anthropometric Set including	1		
	A) Folding Metal Rod Upto 7 Ft			
	B) Osteometric Board			
	C) Craniometer			
	D) Mandibulometer			
	E) Goniometer			
	F) Vernier Calipers			
	G) Equipment for Reporting Height			
	H) Weighing Machine Dial Type Human			
2	Digital pH Meter	1		
3	Digital Spectrophotometer	1		
4	Chemical Balance	1		
5	Distillation Plant	1		
6	Refrigerator	1		



7	Centrifuge	1		
8	Slide Warming Table	1		
9	Hot Plate	1		
10	Spectroscopic Lens With Adjustable Slit	2		
11	Dissection Set Complete	2		
12	Digital BP Instrument	2		
13	Stethoscope	2		
	<b>Medico legal work</b>			
14	Cold Storage For Dead Bodies	As required		
15	Weighing Machine For Dead Bodies	1		
16	Autopsy Tables	As required		
17	Stryker Type Autopsy Saw With Accessories	2		
18	Weighing Machine For Organs	2		
19	Weighing Machine For Fetus	2		
20	Dissection Set Complete	4		
21	Brain Knife	2		
22	Hack Saw	2		
23	Rib Shear Left & Right	1 Each		
24	Measuring Tape( Steel Tape Roll)	2		
25	Magnifying Lens	2		
26	X- Ray View Box (4 In 1)	1		
27	Tooth Extractor Left & Right	1		
28	Hand Set Heat Sealer	1		
29	Instrument Trolley	As required		
30	Rectal Thermometer	1		
31	Portable X-ray Machine (can be shared with Radiology Department)	1		
	<b>Additional Equipment For Medico Legal Work For Each 500 Medico legal Post Mortems Beyond 500 Post Mortems Annually</b>			
32	Cold Storage For Dead Bodies	As required		
33	Autopsy Tables	As required		
34	Stryker Type Autopsy Saw With Accessories	1		
35	Weighing Machine For Organs	1		
36	Weighing Machine For Fetus	1		
37	Dissection Set Complete	1		
38	Brain Knife	2		
39	Hack Saw	2		
40	Rib Shear Left & Right	1 Each		
41	Measuring Tape( Steel Roll)	2		
42	Magnifying Lens	2		

## 8. COMMUNITY MEDICINE

<i>Sl.No</i>	<i>NAME OF THE ITEMS</i>	<i>No. Required</i>	<i>Available</i>	<i>Remarks</i>
1	Hydrometer, milk	2		
2	Incubator, electric (can be procured from	1		
3	Balance for weighing food stuff(Capacity 2	1		
4	Centrifuge clinical	1		
5	Weighing machine adult	6		
6	Baby weighing machine	2		
7	Salters Baby weighing machine	2		
8	Harpenden Calipers (for skinfold thickness)	2		
9	Height measuring stand	3		
10	Refrigerator 9 cu.ft.	3 + Additional one each at RHTC and UHTC		
11	Ice Lined Refrigerator (I.L.R.) (at Health Centre)	1		
12	Smart TV	1		
13	Vehicles for transport of students/ interns/ faculty/ paramedical staff to the RHTC and UHTC	1 Bus(32 capacity)& 1SUV		
14	Multimedia Projector with Screen	2		
15	Public Address system (2 portable for field based activities and one each for RHTC & UHTC)	4 Sets		
16	Chloroscope	10		
17	Horrock's Apparatus	3		
18	MUAC tapes	10		
19	Haemoglobinometer	5		
20	BP Apparatus (Digital)	10		
21	Stethoscope	10		
22	Sound level meter	3		
23	Water sampling bottle from any depth	1		
24	Needle Shredder	3		
25	Vaccine carrier	5		
26	Craft water testing kit	1		
27	Treatment kits as per national health programs	3 each		
28	Iodine testing kit	10		
29	Glucometer	10		

30	Mosquito catching kit	1		
31	Clinical Thermometer	10		
32	First Aid Kit	1		
33	Otoscope	1		
34	Ophthalmoscope	1		

## 9. SKILLS LABS

<i>Sl.No.</i>	<i>NAME OF THE ITEMS</i>	<i>Available</i>	<i>Remarks</i>
I	Trainer simulators / models / mannequins for		
a	First aid, Bandaging, splinting		
b	Basic Life Support (BLS), CPR (Cardio Pulmonary Resuscitation) mannequin		
c	Various types of injections- Subcutaneous, Intra-muscular, Intra-venous		
d	Urine Catheter insertion		
e	Skin & Fascia suturing		
f	Breast examination model /mannequin		
g	Gynecological examination model/ mannequin including IUCD (Intra Uterine Contraceptive Device) Training model		
h	Obstetrics mannequins including Obstetric examination, conduct and management of vaginal delivery.		
i	Neonatal & Pediatric resuscitation mannequins		
j	Whole body mannequins		
k	Trauma mannequin		
II	Each model (Low or High Fidelity) should have a module for training including objectives, methods and assessment. Modules can also have hybrid models where real patients or standardized/simulated patients/ computer simulations can be used		
III	There shall also be space for CAL lab with adequate computers		

### CLINICAL DEPARTMENTS

- i. All clinical departments must have all equipment as expected for provision of standard clinical care and treatment.
- ii. Each clinical Department must have available a separate set of instruments needed for demonstration for undergraduate students.

### 10. DEPARTMENT OF RADIO-DIAGNOSIS

<i>Sl.No</i>	<i>NAME OF THE ITEMS</i>	<i>No. Required</i>	<i>Available</i>	<i>Remarks</i>
1	Static X-ray units (Direct digital/CR)	As per annexures I-IV		
2	Fluroscopy facilities	Available		
3	Mobile X-ray units $\geq$ 60mA	As per annexures I-IV		
4	Ultrasonography equipment with color doppler	As per annexures I-IV		
5	CT scan machine (> 16 slice)	1		
6	MRI (desirable for annual intake of 150 or less; mandatory for annual intakes of 200 and above)	1		

### 11 DEPARTMENT OF EMERGENCY MEDICINE

<i>Sl. No.</i>	<i>Name of Items</i>	<i>No. Required</i>	<i>Available</i>	<i>Remarks</i>
1.	ICU beds (should have facilities for propping up the patient along with railings and wheels)	06		
2.	Emergency trolley-cum-beds (Should have facilities for propping up the patient along with railings and wheels)	24		
3.	Central oxygen and suction points	All beds/bed-cum- trolleys		
4.	Cardiac monitors (with EtCO <sub>2</sub> facility) with appropriate accessories for all age groups- including neonates, infants, children, adolescents and adults	For all ICU and "Red"beds		
5.	Cardiac monitors (for NIBP, Oxygen saturation and heart rate): (atleast 2 should have additional pulse oximeter probes and Blood pressure cuffs for neonates, infants, children and adolescents)	For all "Yellow" beds		
6.	Pulse oximeter with probes for all age groups including neonates, infants, children and adolescents	02		

7.	Defibrillator with external pace (with additional attachments/ paddles for pediatric age group)	One for ICU and one for "Red" area		
8.	ECG machine (12 lead)	02		
9.	ICU ventilators (should be universal ventilators with facility to ventilate neonates and children also)	For each ICU and "Red" area beds		
10.	Transport ventilators (with facility of deliver tidal volume as low as 50 mL and have pressure control mode)	02		
11.	HHHFNC (heated humidified high-flow nasal cannula) with circuits and interfaces for all age groups (neonates, infants, children, adolescents and adults)	02		
12.	Trolleys/Fowler beds	As per total number of beds/trolleys plus additional trolleys for receiving patients (10% of total patient attendance in Emergency Medicine)		
13.	Infusion pumps	2 per ICU bed and "Red" beds; one per "Yellow" bed		
14.	Portable ultrasound with multiple probes including ECHO probe (including probes for pediatric/ infant evaluation)	02		
15.	Portable X-ray unit	01		
16.	Resuscitation cart	One for ICU and one for the "Red"		
17.	Artificial self-inflating breathing bag	Four sets (adult, pediatric, infant and neonatal) with Face masks – Of all sizes		

18.	Laryngoscope with all sized blades(straight and curved) including sizes for neonates, infants and children	Four sets		
19.	Point-of-care laboratory for quantitative estimation of cardiac enzymes, ABG and electrolytes	Atleast one		
20.	Oxygen cylinders	04		
21.	Portable suction machines	04		
22.	Ultrasonic nebulizers	04		
23.	Spine boards with slings and scotch tape of all sizes	02		
24.	Splints for all types of fractures	As required		
25.	Basic equipment for suturing and wound care	As required		
26.	Glucometer	02		
27.	ACLS, BLS and Airways mannequins (child and adult)	01 each		
28.	Suturing mannequin	01		
29.	Infant radiant warmer with bassinet	02		
30.	Blood and Fluid warmer	01		
31.	Electric Warming blanket	01		
32.	Rapid autoclave machine	01		
33.	Labor cot	01		

Name of the Inspectors: 1

2

3